

Does the Bible Teach a Spherical Earth?

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A number of young-earth creationists purport to find in Isa. 40:22 and Job 26:7 evidence that the Bible teaches that the earth is spherical. A detailed analysis of key Hebrew words and their translations in ancient and modern versions shows that there is no substantive evidence and thus no warrant for this claim. This analysis is framed in the context of teaching a course in religion and science, and addresses the fundamental question, also explored in the course, of how one should interpret the Bible in the light of scientific knowledge.

Four years ago, I began to teach a seminar for college seniors entitled "Science and Faith,"¹ one of several core courses offered at Berea College under the rubric Seminar in Christianity and Contemporary Culture. This course looks at major elements of the contemporary scientific world picture and its engagement by various Christian thinkers and writers in the fields of theology and spirituality. Through student presentations on Scientific Creationism, I learned that a number of young-earth creationists purport to find in the Bible evidence of facts about the earth and the universe that modern science has either confirmed in the past or only discovered in recent times. One of their claims, that the Bible teaches that the earth is spherical, has been spread abroad in lectures, publications, and web site articles. Two years ago, Gary Parker of the Answers in Genesis organization made this claim in a Creationism Seminar held in Berea, Kentucky, and jointly sponsored by a Berea College student Christian organization and four local churches. Mark Eastman also made this claim in his article, "Science and the Bible," posted on the Mars Hill web site, which a student gave me a copy of not long afterwards.² As I inquired further, I came to conclude that this notion had become fixed in the writings of many Christians committed to this particular view of the relationship between the Bible and modern scientific knowledge.

I should like to examine this claim and two passages from Scripture on which it is based, using a

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sample of creationist literature. First, Eastman's article states:

Despite contrary assertions, the fact of a spherical earth was clearly proclaimed in the Bible by the prophet Isaiah nearly twenty-eight centuries ago ... "It is He who sits above the circle of the earth, and its inhabitants are like grasshoppers [etc.]" Isaiah 40:22 (NKJ). When Isaiah wrote this verse he used the Hebrew word "khug" to describe the shape of the earth. Although this word is commonly translated into the English word "circle," the literal meaning of this word is "a sphere."³

The Bible, Eastman writes, offers

an astonishing piece of scientific foreknowledge ... While speaking of the incredible power of God, Job states of the earth [26:7]: "He stretches out the north over empty space; He hangs the earth on nothing" (NKJ). When we consider that twenty-eight centuries ago the prevailing view of the earth was that it was flat and resting on the back of an animal or Greek god, the biblical view of a spherical earth suspended on nothing is astonishing.

Eastman goes on to assert that the Bible exhibits knowledge about the earth and the universe "that appears to have come from a being with an extraterrestrial perspective."⁴

A year later, one of my students who gave the presentation with another student on Scientific Creationism afterward offered all twenty-one of us

in the class copies of *Refuting Evolution* by Jonathan Sarfati.⁵ (He told me later that Answers in Genesis had provided him with the copies.) Sarfati likewise addresses the “flat earth charge”:

Isaiah 40:22 refers to “the circle of the earth,” or in the Italian translation, *globo*. The Hebrew is *Khug*= sphericity or roundness. Even if the translation “circle” is adhered to, think about Neil Armstrong in space—to him the spherical earth would have appeared circular regardless of which direction he viewed it from.

Sarfati goes on to claim that Luke 17:34–36 implies that Jesus knew the earth was spherical, and cites research establishing that “nearly all Christian scholars [since the fifth century AD] who have ever discussed the earth’s shape have assented to its roundness.”⁶

This claim is also made by one of the most authoritative voices in the young earth creationist movement, Henry M. Morris, whose works my students often cite when writing on Creationism. In *Biblical Creationism: What Each Book of the Bible Teaches about Creation and the Flood*, Morris asserts that *khug* in Isa. 40:22 means “sphericity, ... thus both earth and the deep are components of the great terrestrial sphere ...,”⁷ and in *The Remarkable Record of Job*, he claims that Job 26:7 teaches that the earth is a sphere held by the force of gravity in space, and adds, with reference to Job 26:10, “The word *compassed* (Hebrew *khug*) means to be made spherical, referring to the shape of the earth, especially to its sea level, the basic datum for earth’s geometry.”⁸

These arguments share certain common themes. While the writers assert that the Hebrew *khug*—I shall use *chûgh*—of Isa. 40:22a means “sphericity,” they provide no lexicological support. They also assume that Job 26:7 refers to “empty space,” that is, the modern concept of physical, astronomical space. Some proponents are primarily concerned with refuting the “canard” (Sarfati) that the Bible teaches a flat earth. They inform their readers that the

notion of a spherical earth was common among early and medieval Christian thinkers.⁹ Yet they do not make the case that these thinkers took the notion of a spherical earth from the Bible. In supporting their interpretations, they also appeal to the extra-terrestrial perspectives of an astronaut (Sarfati) or God (Eastman).

While I find these arguments either unsubstantiated or irrelevant (e.g., it is what Isaiah saw, not Armstrong, that counts), as a teacher, I take them seriously. My conservative and fundamentalist students bring to the seminar and to our examination of Scripture’s many creation hymns and theological proclamations a deep faith in the Bible and (for many) its veracity in all areas of knowledge. Some students consult the web sites of the Institute for Creation Research, Answers in Genesis, the Creation Research Society, and others, where they find a plethora of notes and articles presenting creationist positions and arguments. And they use this material in their class presentations and term papers. Some of these sites offer on-line bookstores where the publications cited here and many others may be purchased. Answers in Genesis, located one hundred miles north of Berea in Florence, Kentucky, has cultivated a relationship with a local campus Christian group. Thus, I have been acquainting myself with creationist materials so that I might be able to engage my students in thoughtful discussions on such topics as the present one when they bring them into the learning experience.

The claim we are considering here raises a fundamental question which my students and I also consider in the course: Just how should one interpret the Bible in light of modern scientific knowledge? This question is addressed directly by Paul Nelson and John Mark Reynolds in their chapter on “Young Earth Creationism” in *Three Views on Creation and Evolution*.¹⁰ The authors critique the position that Galileo Galilei asserted in his 1615 tract on the use of biblical quotations in matters of science.¹¹ Galileo



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set out as a principle that where a biblical text appears to be contradicted by “truth [about nature] obtained by reason and experiment” it must hold another meaning than its bare words offer, and thus must be reinterpreted to preserve the principle that “all truth agrees with truth.” The authors give as an example how Isa. 40:22 and Job 26:7 might be interpreted to express the notion of a spherical earth according to Galileo’s approach. Yet they criticize this methodology on the grounds that “it makes Scripture potentially nonfalsifiable” and “frequently fails to take into account a distinction between *observations* and the *conclusions based on observations*.”¹²

I will offer a perspective on this critical question later, but first I want to address the claims made for the Isaiah and Job passages by examining the original Hebrew and their translations in both ancient and modern versions. Let us see if this interpretation exemplifies Nelson’s and Reynold’s concern that in such circumstances as these, “the Bible could theoretically be made to say the opposite of its ‘plain sense’ and still be defended as ‘scientifically accurate,’” for them a “disconcerting” prospect.¹³

Isaiah 40:22a—When is a Circle a Sphere?

Here is how Isa. 40:22 is rendered in the NRSV:

It is he who sits above the circle of the earth,
and its inhabitants are like grasshoppers:
who stretches out the heavens like a curtain,
and spreads them like a tent to live in ...

The critical line in Hebrew reads (transliterated and omitting vowels): *hyshb 'l hwg h'rtz*, which my colleague Dr. Robert Suder translates: “the one dwelling on the circle/horizon of the land.”¹⁴ A survey of Hebrew lexica and theological wordbooks¹⁵ yields much information about the key word *hwg* (*chûgh*).¹⁶ According to K. Seybold, its root appears six times in biblical Hebrew, and it is clear from its usage in context that it has a specifically geometrical meaning, that is, “a circle, as drawn with compasses.” In Job 26:10 and Prov. 8:27, *chûgh* is used with *chôq*, meaning “to inscribe a circle.”¹⁷ This nominal infinitive form also appears in Job 22:14, where it denotes “the circle of the heavens” (*shāmayim*), and in Isa. 40:22a, where it denotes “the circle of the earth” (*hā'ārets*). Sir. 43:12¹⁸ uses *chûgh* in describing the rainbow. Finally, in Isa. 44:13, *m^cchûghāh*, a hapax legomena (a form used only once), means “a compass,” i.e., that simple instrument people my age used to draw circles in high school geometry class.¹⁹

All but one of these contexts are cosmological, and in fact four of the five uses of *chûgh* occur in creation hymns. Isa. 40:22a describes God as sitting/dwelling above “the circle of the earth” which God laid out—with a compass, as Job 26:10 and Prov. 8:27 suggest, for the latter verses describe the act of inscribing the circle that fixes the boundary between the earth and the deep, the circle that also marks the boundary between light and darkness.²⁰ The context also suggests that in Isa. 40:22a, the earth (*'erets*) which is encircled refers not to the earth as that part of the creation distinct from the heavens (Gen. 1:1)—as the creationists cited above seem to interpret it—but to other meanings of earth: as “the dry land” (Gen. 1:9–10), and at the same time, it appears, as “the ground on which people and things stand,” for “its inhabitants are like grasshoppers.”²¹

A circle is no more a sphere in Scripture than it is in geometry.

Looking at these usages together, I am hard put to see how anyone could justify rendering *chûgh* in Isa. 40:22a as “sphericity.”²² The earliest translations of these Scriptures bear this out. In the Septuagint (LXX), the translators render the nominal and verbal forms of *chûgh* in every case with the Greek *gýros* (noun), “circle” or “ring,” which they use in Isa. 40:22a, or *gyróo* (verb), “to make or inscribe a circle.”²³ *Gýros* does not mean “sphere,”²⁴ and in fact nowhere in any Greek recension of the Hebrew Scriptures will one find the proper word *sphaîra* used in this context at all.²⁵ The history of the formation of the LXX is largely lost, and we do not know if the Prophets were translated in Alexandria as the Torah was in the third century BC.²⁶ But if they were and if the translators were familiar with the concept of a spherical earth taught at the Museon of Alexandria, then the center of Greek science, they give no hint of it in their translation of *chûgh*.

Greek *gýros* turns up in its transliterated form *gyrus*—present in Roman literature as early as Lucretius (mid-first century BC)—in the Latin versions of the Bible as well.²⁷ St. Jerome (c. 340–420), the early Latin Church’s master linguist and Bible translator, began his work on the Old Testament by creating a standard version from the several unreliable Old Latin recensions then in existence, using as a valuable aid Origen’s fair copy of the *Hexapla* which he consulted in the library at Caesarea around 386 AD.²⁸ The Old Latin recensions were based on the LXX and commonly rendered this

same portion of Isa. 40:22a as “*qui tenet gyrum terrae*.”²⁹ Later, when he prepared a new version from the Hebrew that would become part of the Vulgate, he kept the Old Latin reading, changing only the verb *tenet*, “dwells,” to *sedet*, “sits.”³⁰ And in his *Commentary on Isaiah*, Jerome, who is regarded by critics today as a competent and careful scholar,³¹ specifically rejected the notion that in this verse the prophet is referring to a spherical earth.³²

When we come to English versions, both early and recent, we find *chûgh* interpreted in two different ways. The translators of the Authorized Version of 1611 were guided by the Geneva Bible, the version produced by English exiles in 1560, and adopted the latter’s reading verbatim: “... sitteth upon the circle of the earth ...”³³ Many late twentieth-century versions follow them (NKJV, NJB, NIV, NRSV), but some others render *chûgh* as “vault” (JPSV, NAB), “vaulted roof” (REB) or “dome” (J. McKenzie³⁴), interpreting the word to refer to the “vaulted dome of the heaven” (suggesting the *rāqī’a* of Gen. 1:6–7), upon which God “sits” or “dwells” or “sits enthroned.”³⁵ Seybold, however, rejects this interpretation and points to Isa. 40:22b in support of “circle.” The image of God sitting above the vaulted dome rather than the horizon circle would not change the divine perspective in any significant way, but I agree with Seybold that these renderings depart from the contextual meaning of *chûgh*.³⁶

The prophet who uttered the words of 40:22 is the same prophet who proclaimed that Yahweh is the Creator who “spread out the earth” (42:5; 44:24). The Hebrew verb in both passages is *rāqa’*, which means “to stretch out, spread out or abroad, cover over” and, according to Theodore Gaster, “to flatten out.”³⁷ Among his people in the exile community in Babylon,³⁸ looking out over the enormous desert expanse that reached from horizon to horizon, it is not surprising that this prophet would describe God as “flattening out” the land. These other expressions also militate against the notion that the prophet was implying a spherical earth in 40:22a, and they act as a check against focusing upon one verse and reading it outside the larger context of this prophet’s other inspired oracles of creation and salvation.

If creationists had sought any support among biblical philologists, they might have found a nod given to them in the article on *chûgh* by Edwin Yamauchi in the *Theological Wordbook of the Old Testament*. “Some have held,” he states, “that Isa 40:22 implies the sphericity of the earth. It may, but it may refer only to the Lord enthroned above the earth with its obviously circular horizon.”³⁹ Yamauchi offers no supporting evidence for this concession to

opinion, and in fact there is none that he or anyone else could give: a circle is no more a sphere in Scripture than it is in geometry. The preponderance of philological evidence and the translations of ancient scholars and modern experts alike provide overwhelming testimony that Isa 40:22a does not refer to a spherical earth. There is simply no warrant for Eastman, Sarfati, and Morris to declare, contrary to its plain sense and in violation of its semantic domain, that *chûgh* literally means sphericity. They have read the earth’s sphericity into the text, not out of it. And this is the conclusion to which I would lead my students.

Job 26:7—Empty Space or Whatnot?

Yamauchi concludes his article with: “Note the remarkable concept given in Job 26:7.” Let us turn

Abbreviations

- HELOT: W. Genesius and E. Robinson, *A Hebrew and English Lexicon of the Old Testament*, ed. F. Brown, et al. (Reprint, Oxford: Clarendon Press, 1968).
- IDB: C. A. Buttrick, et al., eds., *The Interpreters Dictionary of the Bible*, 4 vols. (Nashville: Abingdon Press, 1962).
- JPSV: The Tanakh: Jewish Publication Society Version (1988).
- KJV: Authorized or King James Version (1611).
- NAB: New American Bible (1990).
- NIDOTTE: W. A. Van Gemeren, gen. ed., *New International Dictionary of Old Testament Theology and Exegesis*, 5 vols. (Grand Rapids: Zondervan, 1997).
- NIV: New International Version (1978).
- NJB: New Jerusalem Bible (1985).
- NKJV: New King James Version (1982).
- NRSV: New Revised Standard Version (1989).
- REB: Revised English Bible (1989).
- TDOT: G. J. Botterweck and H. Binggren, *Theological Dictionary of the Old Testament*, trans. D. E. Green. 10 vols. (Grand Rapids: Eerdmans, 1999).
- TLOT: Ernst Jenni and Claus Westermann, eds., *Theological Lexicon of the Old Testament*, trans. M. E. Biddle. 3 vols. (Peabody, MA: Hendrickson, 1997).
- TWOT: R. L. Harris, G. L. Archer, and B. K. Waltke, eds. *Theological Wordbook of the Old Testament*, 2 vols. (Chicago: Moody Press, 1980).

now to this other passage. Here is how the NRSV renders this verse:

He stretches out Zaphon over the void,
and hangs the earth upon nothing.

Like the poetic oracles of the prophet who proclaimed the words of Isa 40:22, the Book of Job contains some of the most powerful and affecting verse in the Old Testament. And Job 26:7, a couplet with a subject-verb-object-preposition-object arrangement, exemplifies an important feature of Hebrew poetry, its parallel structure. Here is the verse in a consonantal transliteration, followed by Suder's literal translation:

*nth tzphn 'l - thw
tlh 'rtz 'l - bly-mh*

[He] stretches Zaphon upon chaos,
suspends the land upon what (not)?

Perhaps picking up on Yamauchi's reference, Walter Kaiser writes in his article on *b'liimâ*: (from *b'lii* and *mâ*: "not-aught"): "Found only in Job 26:7. The Lord 'hangs the earth upon nothing' (RSV), a remarkable vision of the earth being supported in space by the power of God."⁴⁰ It is this notion of the earth hanging in space that perhaps has encouraged creationists like Eastman and Morris to claim that this verse also refers to a spherical earth, although there is nothing that indicates plainly what shape of the earth the poet had in mind. I shall contend that interpreting Job 26:7 is a far from simple matter, and that its meaning is shrouded in mystery. The question is, can the mystery be penetrated?

The ambiguity that characterizes this poetic hymn verse begins in the first line with "Zaphon," which some translators retain in English (NRSV, JPSV, Marvin Pope⁴¹) while most render it as "the north" (Geneva Bible followed by KJV and NKJV; NAB, NJB); the REB reads "the canopy of the skies" and the NIV reads "the northern skies."⁴² The Hebrew *sāpôn* is of uncertain etymology, but in the Canaanite tablets unearthed at Ugarit in 1927, Zaphon is described as the mountain of the *ba'alim*. It has been identified with Mt. Casius in northern Syria. Zaphon as mountain is found in other passages of the Old Testament: in the derision song of Isa. 14:4–20, Zaphon is identified with the mount of assembly of the gods in the north (v. 13); and in the praise psalm 48, Zion the mount of Yahweh is called (v. 2) "peak of Zaphon."⁴³ *Sāpôn* also came to mean "the north" as a compass point or geographical location.⁴⁴ It was probably with this interpretation in mind that the LXX used the Greek word for "north," *boréan*; and both the Old Latin and the Vulgate used *aquilonem*,

the Latin equivalent. Likewise, many English versions have used "the north." Since heaven and earth are often coupled in creation hymns, some translators have interpreted *sāpôn* here to mean "the heaven."⁴⁵ W. H. Schmidt opines that it is difficult to imagine a mountain being "stretched out,"⁴⁶ and there are those passages in Isaiah in which God is said to "stretch out" the heavens (40:22b; 42:5; 44:24). Still, there is little consensus among translators as to its meaning.

In the next line, there is a remarkable image: God "hangs (or, suspends) the earth upon nothing." What does "hang" mean in this context, and what meaning of "the earth" is to be understood? The Hebrew word *tālāh* here means "hang" in the sense of "hang something on something," e.g., upon a peg (cf. Isa. 44:23–24; Ezek. 15:3).⁴⁷ The meaning of "earth" (*'eret*) here seems somewhat ambiguous; it may refer to the earth as the other part of a bipartite creation,⁴⁸ but it may refer also to the earth as "the land." The combined words may remind one of Job 38:12–13, where God commands the dawn to "take hold of the skirts of the earth" (NRSV) and shake the wicked out of it.⁴⁹ Does the poet by this metaphor suggest that the earth is to be imaged as a garment, not hanging down, perhaps, but spread out? No certain answer can be given, I think.

The crux of this remarkable couplet, however, lies in the words that end each line. In the first, God "stretches Zaphon over *tōhū*," and in the second he "hangs the earth upon *b'liimâ*." In the parallelism that characterizes Hebrew poetry, the same thing or concept is often repeated using a different word or phrase, so it may be that *b'liimâ* in some way repeats or develops the notion intended by *tōhū*. I shall review the various meanings of these terms, then examine how they have been rendered.

The first, *tōhū*, harks back to the *tōhūwabōhū* of Gen. 1:1, where the earth, i.e., the other part of the creation besides the heavens, is described as "formless and empty." HELOT refers specifically to Job 26:7 in giving "nothingness, empty space" as meanings. A. H. Konkel, citing the same verse, reads *tōhū* as "nothingness, void, emptiness."⁵⁰ The word that concludes the second line is a hapax legomena composed of *b'lii* and *mâ*.⁵¹ *Mâ* functions both as an interrogative and as an indefinite pronoun, meaning "What?" "How?" or "aught."⁵² *B'lii*, meaning "not," is a negative used primarily in poetry; rather than negating something it conveys the sense of "without something."⁵³ Kaiser renders *b'liima* as "not aught."⁵⁴ But might *mâ* have an interrogative rather than an indefinite force here, as in Suder's translation? Is the poet asking "what?"

If we put these two together, do we have a notion resembling *tōhūwabōhū*, something that is akin to “formless and empty”? Does *bēlīmā* reinforce and make stronger the meaning of *tōhū*, the author expressing more intensely the sense of nothingness and emptiness over and upon which God “stretches” and “hangs”? Such an interpretation, and the parallelism evident in this couplet, might, in turn, lead the reader to take “Zaphon” literally, referring not to the northern skies but to the mountain that rests upon the earth to the geographical north and which might be understood as an earthly dwelling place of God, so that the whole couplet refers to the earthly part of the creation hung and stretched out over the mysterious “not-anything.”

In 1560 and 1611, the heavens were understood to consist of a series of concentric spheres filled with the element aether; there was no such concept as “empty space,” at least not one acceptable to the great majority of the educated.

Kaiser remarks that while it would be improper to impose twentieth-century cosmological knowledge on this creation hymn, “it is nonetheless striking that 26:7 pictures the then-known world as suspended in space. In so doing, it anticipates (at the very least!) future scientific discovery.”⁵⁵ Comments like this as well as renderings of *tōhū* as “empty space” might give encouragement to creationist interpreters of this verse. Before assessing this translation, let us see what tradition offers.

The LXX translators appear to have understood these two words to be equivalent, for they rendered both by the Greek neuter form *oūden*, “nothing,” using in the first line the accusative singular *oūden*, in the second the genitive singular *oūdenós*, both with the same preposition, *ὑπὲρ*, “upon” or “over,” which may express the concept of place with either grammatical case, and in particular with the accusative can convey the meaning of “extension over a place.”⁵⁶ In the Old Latin versions, we find *tōhū* rendered as *nihilum*, *bēlīmā* as *nihilum in aerem*.⁵⁷ In the Vulgate, Jerome, relying on the Hebrew, renders the first with the neuter accusative *vacuum*, the second with the neuter accusative *nihilum*.⁵⁸ Both words are introduced by the same preposition, *super*, “above,

over, upon.” The basic meaning of *vacuum* is “not containing or holding anything, empty.” Jerome evidently thought that it conveyed the meaning of *tōhū* better than the *nihilum* of the Old Latin. The latter word has the basic meaning of “not anything, nothing,” thus to Jerome conveying the sense of *bēlīmā*.⁵⁹

The ancient translators seem to have attempted to render the Hebrew as literally as they could. Twentieth-century translators offer a variety of readings. *Bēlīmā* is rendered as “nothing” (NIV, NKJV, NRSV, Pope), “nothingness” (NJB), “nothing at all” (NAB), “the void” (REB), or “emptiness” (JPSV), all introduced by the prepositions “over” or “upon.” *Tōhū* is variously translated as “the void” (NJB, NRSV, Pope), “chaos” (JPSV, REB), or “empty space” (NIV, NKJV, NAB).

I think the translation “empty space” is rather problematical. It is instructive to examine the difference between the readings of the KJV translators and their modern revisers. Instead of “empty space” (NKJV) the former, following verbatim the Geneva Bible, translated *tōhū* as “the empty place.” Here is the entire couplet:

He stretcheth out the North (KJV, north) over the empty place,
and hangeth the earth upon nothing.

The difference is telling to anyone familiar with the world-picture that prevailed in the sixteenth and early seventeenth centuries. The Reformation translators still lived in an Aristotelian and Ptolemaic cosmos, whether or not any of them had become Copernicans. Aristotelian science dominated the universities. In 1560 and 1611, the heavens were understood to consist of a series of concentric spheres filled with the element *aether*; there was no such concept as “empty space,” at least not one acceptable to the great majority of the educated. While it had come under serious criticism by some Renaissance philosophers, Aristotle’s concept of Place (*tópos*) still held sway. For Aristotle, everything in the Cosmos exists in a Place, which he defined as the “containing vessel” of a thing. The inner sphere of the revolving heavens constitutes the containing vessel of the earth, and likewise, within the domain of the earth each thing’s place “must need be . . . the limiting surface of the body continent—the content being a material substance susceptible of movement by transference.” In his exposition of this difficult concept in the *Physics*, Aristotle goes on to argue specifically against the existence of the Void, a central component of Epicurean atomism.⁶⁰

While the word “space” is attested in English as early as the fourteenth century, it is not used to convey the notion of physical or astronomical space, certainly not the absolute space of Newton or the relative space of Leibniz, before the middle of the seventeenth century.⁶¹ Because of its association with atheism, the concept of the Void also was not popular; atomism needed a “baptism” by theoretical physicist Pierre Gassendi in the 1650s to render it respectable enough to be incorporated into a world view acceptable to Christian thought.⁶² The Protestant translators in Switzerland and England would not have understood the concept implied in the “empty space” of their latter-day revisers.

The translation “empty space” invites a popular interpretation based on a modern cosmology, not on the cosmology of the ancient Hebrews, and it lends encouragement to readers, whether creationists or not, to see in this passage in Job an “anticipation” of a modern concept.

Yet, if these translators breathed an atmosphere that was Aristotelian and had the notion of Place as a part of their world view, they have turned it on its head. No place in Aristotle’s world is “empty,” but these translators have written “the empty place.” What did they mean by “place” here? Specifically, what did they mean by “the empty place”? Were they expressing what to them would seem a paradox? Or were they simply trying to make sense of *tōhū* given its basic meaning and this context, perhaps guided by the $\text{׀}p' \text{׀}ūden$ of the LXX, with the prepositional sense of “extension over a place”? What they could not have meant by it is the “empty space” of a modern scientific world-picture, and that is what makes this particular translation so problematical. I think it is a good example of how a sincere attempt to render an ancient and puzzling expression into a term comprehensible to a contemporary readership can lead to misunderstanding.⁶³ The translation “empty space” invites a popular interpretation based on a modern cosmology, not on the cosmology of the ancient Hebrews, and it lends encouragement to readers, whether creationists or not, to see in this passage in Job an “anticipation” of a modern concept. But, to go from an indefinite “emptiness” and “what-not” to “empty space” or

“infinite space” (NJB comment) is too big a stretch, too expansive an interpretation. Better, I think, to leave its meaning a mystery, as it seems to have been to the translators who gave us “the empty place” of the 1560 and 1611 versions.

What, then, can we make of Job 26:7? While its sense is hardly plain, one notion it certainly does not convey, I would tell my students, is that of a spherical earth held by the force of gravity in space (Morris). The earth that hangs on nothing is also the earth that rests on “pillars,” which tremble when God shakes the earth (Job 9:6), or upon a “foundation” with bases and a cornerstone (Job 38:6). It is also the dry land that God separated from the waters of the encircling deep (Gen. 1:9–10; Job 26:10; Prov. 8:27), that the psalmists describe as “founded ... upon the ocean, set ... upon the nether-streams” (24:1–2, JPSV; cf. Exod. 20:4), the earth which God “stretched out ... above the waters” (136:6 KJV). I see no value in trying to reconcile these many and varied metaphorical images with our own image of a spherical, rotating planet—aside from the fact that these ancients did not think of the earth as a planet. What Job 26:7, indeed the entire creation hymn of which it is a part, does convey, in all of its majesty and mystery, is the presence and power of the One who creates and sustains, and who holds all of the creation under his gaze. The response it calls for is awe, not scientific analysis.

Respecting paradigms

I want to return now to the fundamental question posed above: How should one read the Bible in light of modern scientific knowledge? This is an issue with many perspectives, and a comprehensive review belongs to another article. But I would like to share some thoughts that I offer to my students for their consideration. I agree with Nelson and Reynolds that one should not read meanings into biblical texts that are not there in order to make them conform to modern scientific knowledge.⁶⁴ Regrettably, some of their colleagues in the young earth creationist movement are prone to do just that.

Besides the earth’s sphericity, Eastman purports to find references to such modern scientific knowledge as ocean currents (Isa. 43:16; Ps. 8:8), elementary particles (Heb. 11:3), and nuclear explosions (2 Peter 3:10).⁶⁵ Such fanciful eisegesis as this is matched by Morris’ readings into the text of Job, whom he credits with knowledge of the hydrological cycle (28:24–27), the rotation of the earth (38:12–14), and an expanding, unbounded universe (22:12; 9:8), among other things.⁶⁶ Their writings reveal a sincere

devotion to the Bible and a desire to convince others that the Bible is "scientifically accurate," but I have to say, with respect, that I think such extreme readings into the texts really do a disservice to the Bible. In claiming that Holy Scripture contains accurate scientific knowledge that only our age has caught up with, they empty these passages of their historical, cultural, or cosmological meanings and impose upon them meanings which the texts themselves simply cannot bear. As Augustine put it, so well, they find not what is in Scripture but in themselves as interpreters.⁶⁷ Consequently, what the biblical writers themselves sought to convey is lost, and the Christian who reads these and other texts through these creationist lenses is deprived of the pleasure of wrestling with their intended meanings.⁶⁸

The biblical writers offer believers a valuable lesson for interpreting the doctrine of creation: one can take whatever is the current cosmological model and use it to understand more deeply and clearly God's relationship to the creation.

My Christian students are wrestling intellectually and emotionally with another perspective. They read popularizers of science who tell them that the Bible offers a "pre-scientific" view of the world, and question its veracity; they see some of these same persons dismiss the Bible as of no value in the light of the sure and certain knowledge that science provides. Also, in their high school and even some college science courses, they are often given the impression, whether intended or not, that former scientific theories and notions have been replaced simply because they were wrong, and they are not taught to give outmoded theories the respect they deserve. One of my tasks is to help them recognize the fallacies of these perspectives, understand what the scientific enterprise really consists of, and realize that they may value and honor the world view of the ancient Hebrews without thinking either that they must prove that modern scientific concepts are already in the Bible or that they must reject certain paradigms of mainstream science today in order to be true to God and to God's Word.

Before my students examine creation texts in the Bible, we explore the characteristics of scientific theories, models and paradigms, and note their similarities and differences with theological models and paradigms. I hope that they will grasp the notion that all interpretations of scientific data are theory-laden and historically contextual. Then, when we look at Scripture, I try to help them recognize that the same is true of the ancient bipartite and tripartite cosmological models implicit in the texts of Genesis, Isaiah, Job, the Psalms, and other books of the Old Testament and the Apocrypha.⁶⁹ Yet, while these cosmologies may be quite different from and superseded by today's, they are no less worthy of understanding and respect. More importantly, I hope that my students will come to see that "creation" in the Bible really belongs to the realm of theology, not science, that how the biblical writers interpreted what we call scientific data is no more timelessly true (nor do I believe that God would expect anyone to think it so) than the interpretations of today's scientific community, that what Scripture reveals first and finally is God's *relationship* to the creation, that it is the *revelation* of creation (both as divine action and as the universe brought into being) that remains timelessly true, however our theological understanding of that revelation may change over time.

The theological truths about creation which Scripture proclaims are not dependent upon the cosmological models in which they are set. In fact, the biblical writers offer believers a valuable lesson for interpreting the doctrine of creation: one can take whatever is the current cosmological model and use it to understand more deeply and clearly God's relationship to the creation. That is what Second Isaiah, the author of Job, and the writer(s) of Genesis 1 did: they conveyed revelations about creation using the "standard model" of the cosmos they shared with their Semitic neighbors, while at the same time challenging and rejecting their theogonies and theologies. And we can do the same.

Creationist Paul Humber, less certain that Isa. 40:22a and Job 26:7 refer to a spherical earth, suggests that his colleagues are perhaps "forcing too much on Scripture." Rather, he wrote: "... our Lord's sovereignty over all was and is the primary focus."⁷⁰ This is precisely what I hope my students will come to realize. They do not have to choose between modern science and the Bible. They do not have to find modern scientific knowledge in the Bible in order to keep on believing in it. They can have it both ways.

Concluding Scientific Postscript

As we shared our views on reading the Bible in the light of modern scientific knowledge, Bob Suder asked:

“What can the ancient Israelites teach us about their world view that we might not see otherwise? What can they tell us that we never would have dreamed of? How can their cosmogony inform our cosmology?”

I looked down at the text of Isa. 40:22b at that moment and said:

“I’ve often wondered what the prophet meant by the ‘curtain’ of the heavens.”

“You’ve been to the Middle East, haven’t you?”

“Yes, in June of 1982, I went to Israel and Egypt on the Berea College Alumni Tour.”

“Did you see the curtain when you were there?”

“No, did you?”

Bob, who had been a surveyor and excavator at archeological sites in Israel and Jordan for several seasons, answered:

“Yes, many times, especially on the Madaba Plains and the region of ancient Moab. It was visible at other places but not so pronounced. The last time I flew out of Amman, I saw it again as our plane taxied on the tarmac. I looked out the window and saw that a huge cloud of desert dust had filled the skies and stretched across the horizon. In its ‘folds’ it looked like a curtain or a tent from the inside. It is one of the memories of the Near East that seems to summarize the whole experience.”

Bob reminds us all of an important fact about the cosmology of our spiritual ancestors. We shall appreciate their world view best when we are able to put ourselves in their place. The prophet and the poet, and all this company that the Holy Spirit inspired—we shall do them justice when we learn to see the universe through their eyes instead of our own. And, we shall do them justice whenever we remind ourselves that theirs are eyes not only of sight but also of faith.⁷¹ *

Notes

¹Described in my article, “Science and Faith,” *Religion and Education*, 26.2 (1999): 31–42.

²<www.marshall.org/Apologetics%20Pages/science_and_the_Bible.htm>.

³Ibid.

⁴Ibid.

⁵Jonathan Sarfati, *Refuting Evolution* (Green Forest, AR: Master Books, 1999).

⁶Ibid., 97–8. We shall see below why Sarfati had to go to an unnamed Italian translation for a word meaning “globe.”

⁷Henry M. Morris, *Biblical Creationism: What Each Book of the Bible Teaches about Creation and the Flood* (Green Forest, AR: Master Books, 2000), 113.

⁸_____, *The Remarkable Record of Job* (Green Forest, AR: Master Books, 2000), 40, 42. I do not understand what Morris means when he says that the sea level is “the basic datum for earth’s geometry.”

⁹Similar arguments are presented by Danny L. Faulkner, “Creation and the Flat Earth,” posted on the Creation Research Society web site: <www.creationresearch.org/creation_matters/> and by Donald B. DeYoung, *Astronomy and the Bible*, 16–7, excerpted and posted on the Answers in Genesis web site: <www.answersingenesis.org/docs/400.asp>. DeYoung also claims that Job 26:7 implies a spherical earth.

¹⁰J. P. Moreland and John Mark Reynolds, eds. *Three Views on Creation and Evolution* (Grand Rapids, MI: Zondervan, 1999).

¹¹Galileo Galilei, “Letter to the Grand Duchess Christina Concerning the Use of Biblical Quotations in Matters of Science,” in *Discoveries and Opinions of Galileo*, trans. Stillman Drake (New York: Doubleday Anchor, 1957), 175–216. My students read this treatise and examine Galileo’s argument and its implications after they have completed several classes in which they have compared theories, models, paradigms, and research programs in science and theology, and then have read and discussed the meanings of biblical passages pertaining to creation.

¹²Ibid., 67–8. I assume Nelson and Reynolds mean “non-falsifiable” relative to human knowledge preserved in the Bible about nature. Certainly all revelation, doctrinally speaking, about creation and salvation is nonfalsifiable.

¹³Ibid., 70.

¹⁴Suder is professor of Hebrew and Old Testament at Berea College. I am grateful for his most helpful assistance and instruction.

¹⁵For Hebrew words, I have consulted HELOT, NIDOTTE, TDOT, TLOT, TWOT, and James Strong, *The Exhaustive Concordance of the Bible* (1894; reprint: Peabody, MA: Hendrickson, 1990).

¹⁶HELOT, 295, s.v. I shall adopt transliterations of Hebrew, including vowels, used in the lexica cited above.

¹⁷“He has inscribed a circle on the face of the waters, at the boundary between light and darkness” Job 26:10; “When he established the heavens, I was there, when he drew a circle on the face of the deep” Prov. 8:27 (NRSV).

¹⁸While Sirach is not part of the Hebrew canon, it is one of the deuterocanonical books which survives in Hebrew.

¹⁹K. Seybold, TDOT, 4:244–7.

²⁰Ibid., 247.

²¹H. H. Schmid, TLOT, 1:172–7, provides a detailed analysis with references of the various uses of *’erets*; see esp. 174–5 (3b–c). Likewise, M. Ottosson in extenso, TDOT, 1:388–401.

- ²²Neither HELOT, NIDOTTE nor TDOT give “sphericity” as a translation of *chûgh*.
- ²³Alfred Rahlfs, ed., *Septuaginta, id est Vetus Testamentum graece iuxta LXX interpretes*, 2 vols. in 1 (1959; reprint, Stuttgart: Deutsche Bibelgesellschaft, 1979), s.v. Greek words have been transliterated.
- ²⁴H. G. Liddell and R. Scott, ed., *A Greek-English Lexicon*, (hereafter GEL), new ed. by H. S. Jones and R. McKenzie (1940; reprint, Oxford: Clarendon Press, 1966): s.v. *gyros*, “circle, ring,” where the LXX readings of Job 22:14 and Isa. 40:22 are cited; also *gyróo*, “to make round,” where Sir. 43:12 is cited.
- ²⁵The word never appears in the modern critical edition of the LXX and only once in the two early second century AD versions of Aquila and Theodotion: in Isa. 29:3, a passage on a quite unrelated topic (E. Hatch and H. A. Redpath, comp., *A Concordance to the Septuagint and the other Greek Versions of the Old Testament*, 3 vols. in 2 [1954; reprint, Peabody, MA: Hendrickson, 1990], vol. 2, s.v.).
- ²⁶J. W. Wevers, “Septuagint,” IDB, 4:273–4.
- ²⁷A. Souter et al., *Oxford Latin Dictionary* (hereafter OLD) (Oxford: Clarendon Press, 1974–1982), s.v. “gyrus” (3). Lucretius, coincidentally, uses *gyrus* to mean the arc of the incomplete circle of a rainbow (*De rerum natura*, 4.79), just as Sirach uses *chûgh* (43:12).
- ²⁸E. F. Sutcliff, “Jerome,” in *The Cambridge History of the Bible*, vol. II, *The West from the Fathers to the Reformation*, ed. G. W. H. Lampe (Cambridge: University Press, 1969), 86, 88–9. In the *Hexapla*, Origen arranged in six parallel columns the Hebrew text of the Old Testament, the Hebrew transliterated into Greek letters, and the recensions of Aquila, Symmachus, the revised LXX, and Theodotion respectively: Wevers, 275. See the detailed study of Jerome’s relationship to the *Hexapla* by A. Kamesar, *Jerome, Greek Scholarship, and the Hebrew Bible* (Oxford: Clarendon Press, 1993).
- ²⁹Isa. 40:22a: D. Peter Sabatier, ed., *Bibliorum sacrorum latinae versiones antiquae, seu Vetus italica* (Rheims: Reginaldus Florentain, 1743), 581a. I am grateful to Dr. Louis Jordan, Director of Special Collections, Hesburgh Library, University of Notre Dame, for providing materials on the Old Latin and Jerome.
- ³⁰Isa. 40:22a: Bonifatius Fischer, et al., eds., *Biblia Sacra iuxta vulgatam versionem* (Stuttgart: Deutsche Bibelgesellschaft, 1969).
- ³¹H. F. D. Sparks said: “Jerome was, next to Origen, the greatest biblical scholar of the early Church,” in “Jerome as a Biblical Scholar,” in *Cambridge History of the Bible*, vol. I, *From the Beginnings to Jerome*, ed. P. R. Ackroyd and C. F. Evans (Cambridge: University Press, 1970), 510; see also the assessment by Bruce M. Metzger, *The Early Versions of the New Testament. Their Origin, Transmission and Limitations* (Oxford: Clarendon Press, 1977), 330–3.
- ³²S. *Hieronymi Presbyteri Commentariorum In Esaiam Libri*, XI, ed. M. Adriaen. *Corpus Christianorum*, 73 (Turnholt, Belgium: Brepols, 1963), 2:463. Jerome’s comment shows that interpreting the Bible in light of current scientific theory or knowledge has a long history in Christianity. Having in mind the popular Aristotelian theory of the four elements, which makes earth the heaviest and water the lighter element, he states that God “[had] established the great mass of the land and had gathered it together above the seas and rivers, so that the heaviest element [earth] hangs over the lighter weight waters by the will of God, who like a king sits above the circle of the earth.” (*Deus, qui tantam molem terrae fundas[set] et super maria et super flumina collocasset eam, ut elementum grauissimum super tenues aquas Dei penderet arbitrio, qui instar regis sedet super gyrum terrae.*) Although, he adds: “there are some who assert that this mass is like a point and globe” [scil., in the center of the universe, according to Greek theory] ... (*Ex quo nonnulli quasi punctum et globum eam [molem terrae] esse contendunt ...*), Jerome rejects this assertion: “What, then, will the land be over ...?” (*Quid igitur superbit terra ...?*) (ibid., xl, 21/26). Those “some” Jerome had in mind may have been Christian contemporaries, but he also may have been reminded of the views expressed in the works of one of his favorite pagan authors, Cicero, who uses *punctum* and *globum* to characterize the earth in *Republic*, 6.16, and *Tusculan Disputations*, 1.68, respectively, though it is not clear that in the latter Cicero is referring to a spherical earth, as some have contended: see the note loc. cit. by J. E. King, ed. and trans., Cicero, *Tusculan Disputations*. Loeb Classical Library (London: Heinemann, 1966), 80.
- ³³*The Geneva Bible. A Facsimile of the 1560 Edition*, introd. L. E. Berry (Madison: University of Wisconsin Press, 1969). The Geneva Bible, so popular in England that it continued to be printed down to 1644, exerted a great influence upon the team that produced the KJV, particularly in the prophetic books: ibid., 17.
- ³⁴*Second Isaiah*, introd., trans., and notes by John L. McKenzie. The Anchor Bible, 20 (Garden City, New York: Doubleday, 1968), 21–2.
- ³⁵L. C. Allen, NIDOTTE, #2553, 2:40–41, supports this interpretation: *chûgh* “refers to the dome that dammed the upper ocean to prevent it breaking through to the earth.”
- ³⁶Ibid., 246. Suder noted that *rāqī’a* is derived from the verb *rāq’*, defined below. The most common image this verb conveys is of hammering a piece of metal to transform it from a lump to a sheet. *Rāqī’a*, then, would have the connotation of “expanse” rather than “dome” or “vault.”
- ³⁷J. Barton Payne, TWOT, #2217, 2:861–2; Gaster, “Earth,” IDB, 2:2–3.
- ³⁸I agree with those biblical scholars who have concluded that chapters 40–55 of the Book of Isaiah are the work of a different prophet from Isaiah of Jerusalem.
- ³⁹TWOT, #615, 1:266–7.
- ⁴⁰TWOT, #246, 1:248.
- ⁴¹*Job*, introd., trans. and notes by Marvin H. Pope. The Anchor Bible, 15 (Garden City, NY: Doubleday, 1965), 163.
- ⁴²The NJB comments that “the North” here means “the northern quarter of the firmament, on which the firmament was thought to revolve.” Compare the marginal note in the Geneva Bible: “He causeth the whole heaven to turn about the North pole.”
- ⁴³This is but one of many images from Canaanite myth and cult which were taken over and transformed by the Israelites in their struggle with Ba’alim; it is Yahweh who rides the storm clouds, not Ba’al (cf. Ps. 18:10–14).
- ⁴⁴Pope, ibid., 165. I have relied particularly on the essay on *sāpôn* by W. H. Schmidt, TLOT, 3:1093–8. NRSV textual note: “Zaphon, or the North.”
- ⁴⁵JPSV textual note on Zaphon: “used for heaven”; NAB comment: “The North: used here as a synonym for the firmament, the heavens ...”; see also note 42, above.

- ⁴⁶TLOT, 3:1096. Schmidt may have had Alpine peaks in mind, but anyone who has sighted the length of Pine Mountain in Kentucky or Clinch Mountain in Tennessee would have no difficulty describing those mountains as being “stretched out.” The same could be said of the massif of the Moab range when viewed from the western side of the Dead Sea.
- ⁴⁷HELOT, 1068 s.v., citing also this verse; R. S. Hess, NIDOTTE, #9434 (5), 4:296.
- ⁴⁸Ottosson, TDOT, 1:394 cites Job 26:7 as an example of this meaning.
- ⁴⁹Stoltz, TLOT, 1:174. Stoltz refers to an Akkadian “Hymn to Shamash” in which the sun god is said to be “holding the ends of the earth suspended from the midst of heaven.”
- ⁵⁰HELOT, 1062, s.v.; Konkel, NIDOTTE, 1:607, #983. Ronald Youngblood states that since *tôhû* “has no certain cognates in other languages, its meaning must be determined solely from its Old Testament contexts” (TWOT, #2494, 2:964).
- ⁵¹Kaiser, *ibid.*, 248.
- ⁵²HELOT, 552, s.v.
- ⁵³Suder, in conversation, September 11, 2000.
- ⁵⁴*Ibid.*
- ⁵⁵*Ibid.*, 965. An NJB comment is more explicit: “The only verse in the Bible that hints at infinite space.”
- ⁵⁶LXX, ed. cit., loc. cit.: *ἡ πῶδ’ ἑνός*; *ἡ πῶδ’ ἑνός*; cf. GEL., s.v. *ἡ πῶ*.
- ⁵⁷Sabatier, ed. cit., loc. cit., 1:876a. In using *nihilum* twice, the translators may have been influenced by the LXX, but the addition of *in aerem* (“into the air”) to the second *nihilum* introduces an unusual and puzzling interpretation.
- ⁵⁸*Biblia sacra iuxta vulgatam*, loc. cit.
- ⁵⁹On the meanings see OLD, s.vv. “vacuus” (1); “nihilum” (1). Regretfully, Jerome did not write a commentary on Job, so we do not have the benefit of any ruminations he might have had on these words, which would likely have been based on discussions with the rabbi in Lydda who tutored him on Job.
- ⁶⁰Aristotle, *Physica*, IV, i–v, 208a–213a. *The Physics*, trans. Philip H. Wicksteed and Francis M. Cornford, Loeb Classical Library (1929; reprint, London: Heinemann, 1962), 1:274–327, esp. 213a, p. 313. Aristotle refutes the concept of the Void in IV, vi–ix, 213a–217b, 328–71.
- ⁶¹*Oxford English Dictionary*, 2d ed., comp. J. A. Simpson and E. S. C. Weiner (Oxford: Clarendon Press, 1989), 16:88, esp. (8). Interestingly, the earliest attested usage of “space” meaning astronomical space recorded in the OED is by John Milton (*Paradise Lost* [1667], I, line 650).
- ⁶²Max Jammer, *Concepts of Space. The History of Theories of Space in Physics*, 2d ed. (Cambridge: Harvard Univ. Press, 1969), provides a detailed and informative survey. See esp. chaps. 3 and 4. Gassendi’s theory of a homogeneous and infinite space, shaped in part by the ideas of Renaissance thinker Tommaso Campanella, was incorporated by Newton into his grand synthesis (*ibid.*, 92–4). See also A. Koyré, *From the Closed World to the Infinite Universe* (1957; reprint, Baltimore: Johns Hopkins, 1968).
- ⁶³In *Genesis* (New York: Norton & Co., 1996), xi–xii, Hebraicist and Bible translator Robert Alter gives a trenchant critique of what he calls “the heresy underlying most modern English versions of the Bible,” namely, “the use of translation as a vehicle for *explaining* the Bible instead of representing it in another language, and in the most egregious instances this amounts to explaining away the Bible.” I have shared Alter’s exasperation at times when

comparing modern translations of the New Testament to the original Greek. Now I know first hand how difficult an art translation is at best; it always involves, unavoidably, interpreting the meaning of the original; and I admire and applaud the efforts of those who have produced the many versions of the last twenty-five years. But there is a fine line between interpreting and explaining, and I think that line has been often crossed in contemporary versions, sometimes with dubious results. Such dubiety also extends to annotations, as noted above.

- ⁶⁴Nelson and Reynolds recommend other criteria for determining the relationship between biblical passages and scientific knowledge (*ibid.*, 68–73). Their argument raises interesting questions, but this is not the place to address them.
- ⁶⁵*Ibid.*
- ⁶⁶*The Remarkable Record of Job*, chap. 3 *passim*. I say “whom” because Morris, apparently relying on some ancient rabbinical speculation, believes that Job is the original author of the book, and that we have a version edited by Moses (*ibid.*, 16–9). For a more judicious evaluation of date and authorship, see Pope, xxx–xxxviii.
- ⁶⁷“Letter to Marcellinus,” 143:7 (*A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church*, ed. P. Schaff [Reprint. Grand Rapids, MI: Eerdmans, 1979], 1:492).
- ⁶⁸I accept the notion that a text may mean more than the author intended, but I also agree with Augustine that what the sacred writer did intend is “more worth knowing”: *De genesi ad litteram*, I.19.38 (*The Literal Meaning of Genesis*, trans. John H. Taylor, S.J., *Ancient Christian Writers* 41 [Matwah, NJ: Paulist Press, 1982], 42). The issue here is whether the interpretations Eastman, Morris, and Sarfati have put forth are justifiable on philological and other grounds. I have argued that the evidence is clear that they are not.
- ⁶⁹Luis Stadelmann, S.J., *The Hebrew Conception of the World*. *Analecta Biblica* 39 (Rome: Biblical Institute Press, 1970) provides a comprehensive survey and analysis of all of the references to the creation in the Hebrew Bible. For a succinct outline, with key references to Scripture, see Lloyd Bailey, *Genesis, Creation, and Creationism* (Matwah, NJ: Paulist Press, 1986), Appendix XI. I use a modified version of Bailey’s outline in my course. There is also much useful information on the heavens, the earth, and the deep in some of the theological lexica cited above: on *shamayim*, see the articles by David T. Tsumura, NIDOTTE, #9028, 4:160–6 and J. A. Soggin, TLOT, 3:1369–72; on *’erets*, see M. Ottosson, TDOT, 1:388–401 and H. H. Schmid, TLOT, 1:172–7; on *t’hôm*, see Claus Westermann, TLOT, 3:1410–4.
- ⁷⁰“The Bible and the Earth’s Sphericity” posted on the Creation Research Society web site: <www.creationresearch.org/creation_matters/>.
- ⁷¹I am grateful to Bob Suder and my anonymous readers for their comments and suggestions.

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