

Iron Age Interpretations of Fossils and Bronze Age Artifacts: A Hypothesis-testing Approach to the Geography of Biblical Giants

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Numerous passages in the Hebrew Bible mention extinct races that are described as giants. Some geographic regions (e.g. Moab, Ammon, Bashan, the Negev, and the hill country of Manasseh) are said to have been inhabited by such giants, whereas others (e.g. Egypt, Edom, Lebanon, and the coastal plain of Canaan) are not. Previous authors have generated hypotheses as to what phenomena inspired the giant legends that the Hebrew Bible records, but to date no previous author has sought to test those hypotheses by correlating such phenomena with geography. Here, I present such a study.

The books of the Hebrew Bible, written in the Iron Age,¹ set many of their stories in the preceding Bronze Age. Of course, the division of time into Bronze and Iron Ages is a modern concept that was foreign to the writers of the Hebrew scriptures. However, the narratives that they wrote of the Genesis Patriarchs, the exodus from Egypt, and the conquest of Canaan are set in the period that is now called the Bronze Age. Likewise, the narratives set the extermination of the giant races in the period that is now called the Bronze Age. Therefore, for this article, it is expedient to use the terms Iron Age and Bronze Age respectively for the period in which the biblical writers wrote and the period about which they wrote, which was to them a distant past without a name.

¹ Ian Young, Robert Rezetko, and Martin Ehrensward, *Linguistic Dating of Biblical Texts* (London: Equinox, 2008), 11, 130–136; Lester I. Grabbe, “Exodus and History,” in *The Book of Exodus: Composition, Reception, Interpretation*, ed. Craig A. Evans and Peter W. Flint (Leiden: Brill, 2014), 61–87; Israel Finkelstein, “The Wilderness Narrative and Itineraries and the Evolution of the Exodus Tradition,” in *Israel’s Exodus in Transdisciplinary Perspective*, ed. Brad C. Sparks (New York: Springer, 2015), 39–53; John J. Collins, *Introduction to the Hebrew Bible: The Torah/Pentateuch* (Minneapolis: Fortress, 2018) 63–64, 166–168, 174–175, 477.

Background

The Pentateuch (Genesis through Deuteronomy), the Deuteronomistic History (Deuteronomy and the books of Joshua, Judges, Samuel, and Kings), and the books of Chronicles describe some of the extinct Bronze Age peoples as humans of extraordinary size. Those peoples are the Anakim of southern Canaan and the Rephaim (called Emim in Moab in Zamzummim in Ammon) of Canaan and Transjordan (Num 13:28–33; Deut 2:10–11; Deut 2:20–21; Deut 3:11; Deut 9:1–2; 2 Sam 21:15–22; 1 Chr 20:4–8). Other Bronze Age peoples who were said to have been exterminated or displaced by new arrivals are not described as being particularly large. Such peoples include the Horites (said to have been exterminated and replaced by the Edomites) (Deut 2:12; Deut 2:22) and the Avim (said to have been exterminated and replaced by the Philistines) (Deut 2:23).

The biblical text also describes a group called the Nephilim as extraordinarily large (Num 13:32–33). Indeed, one recent author has made a plausible case that the name Nephilim may be derived from the Aramaic for “giant.”² In the biblical text, the Nephilim are said to be antediluvian (Gen 6:4), and it is implied that the Anakim are their descendants (Num 13:33).

The name Rephaim is derived from the older Canaanite term for deified kings and heroes of the past. Texts from the ancient city of Ugarit in southwestern Syria, at the northern end of the Canaanite cultural sphere, indicate that the Rephaim were venerated in the Late Bronze Age with liturgies and sacrifices.³ Their demotion in status to large but mortal people in

² Michael S. Heiser, *The Unseen Realm: Recovering the Supernatural Worldview of the Bible* (Bellingham: Lexham, 2015), 105–107.

³ Baruch A. Levine and Jean-Michel de Tarragon, “Dead Kings and Rephaim: The Patrons of the Ugaritic Dynasty,” *JAOS* 104 (1984): 649–659; Gregorio del Olmo Lete, *Canaanite Religion According to the Liturgical Texts of Ugarit* (Bethesda, MD: CDL, 1999); Brian R. Doak, *The Last of the Rephaim: Conquest and Cataclysm in the Heroic Ages of Ancient Israel* (Cambridge: Harvard University Press, 2012), 164–171.

the Hebrew Bible may be part of a general trend in ancient Hebrew literature to lower and mock the deities of the surrounding peoples.⁴

The Anakim are named after Anak, the group's ancestor, the derivation of whose name is unknown.⁵ The name Emim is the plural of אִימָה ("terror"). The name Zamzummim is derived from the root ז-מ-ז, used to describe planning with harmful intent, the approximate equivalent of "to plot" or "to scheme." In Gen 14:5, a people called the Zuzim are listed along with the Rephaim, Emim, and Horites, which suggests that "Zuzim" is an alternate name for the Zamzummim. The name Zuzim may be related to the Hebrew word *zîz*,⁶ which refers to wild beasts or to abundance/fullness or conspicuousness.⁷ The use of the name Zuzim may therefore have been a double or triple entendre that called to mind the wildness and the conspicuously large/full size of the Zamzummim.

In European folklore, giants are often described as having sizes that would dwarf an elephant.⁸ The same is not necessarily the case for the ancient Hebrew conceptions of the Rephaim, Anakim, and Nephilim. As some scholars have pointed out, it is possible to interpret their descriptions in the Hebrew text as those of people between two and three meters tall,⁹ considerably smaller than elephants. Even so, the Hebrew text unambiguously characterizes them as having significantly larger height than the average Israelite (see the biblical passages referenced above). Here, while recognizing

⁴ For example, the Hebrew Bible demotes Ltn (Leviathan), a serpentiform character who is both a deity and the sea in Canaanite myth, to a non-divine serpent whom the sea contains: Philip J. Senter, "Leviathan, Behemoth, and Other Biblical *Tannînim*: Serpents, Not Dinosaurs," *Perspectives on Science and Christian Faith* 71 (2019): 218–232.

⁵ Doak, *The Last of the Rephaim*, 76–77.

⁶ Strong, *Concordance*, Hebrew 74.

⁷ Benner, *Ancient Hebrew Lexicon of the Bible*, 111; Strong, *Concordance*, Hebrew 75–76.

⁸ Jennifer Westwood, *Albion: A Guide to Legendary Britain* (London: Paladin, 1985), 55–57, 99, 243–244, 327; Marco Romano and Marco Avanzini, "The Skeletons of Cyclops and Lestrigons: Misinterpretation of Quaternary Vertebrates as Remains of the Mythological Giants," *Historical Biology* 31 (2019): 116–139.

⁹ J. Daniel Hays, "Reconsidering the Height of Goliath," *JETS* 48 (2006): 701–714; Clyde E. Billington, "Goliath and the Exodus Giants: How Tall Were They?" *JETS* 50 (2007): 489–508.

the uncertainty about their size as the Hebrew writers meant it to be understood, I call them “biblical giants” for the sake of concision.

The biblical giants have attracted much scholarly attention. Some scholars accept that such beings physically existed, while others view them as fictions derived from folklore. In recent decades, scholarship from the former camp has generated studies on the giants’ height,¹⁰ their history and culture,¹¹ their taxonomic status,¹² their alleged connection with giant footprints in limestone from Texas,¹³ the question of whether the antediluvian Nephilim were genetically related to the Canaanite Anakim,¹⁴ and the nature of the object that was alleged to be the bed of the giant king Og.¹⁵ Scholarship from the latter camp has generated studies on the literary evolution of the biblical

¹⁰ Hays, “Reconsidering the Height of Goliath;” Billington, “Goliath and the Exodus Giants.”

¹¹ Joel David Klenck, “A Genesis Model for the Origin, Variation, and Continuation of Human Populations,” *Creation Research Society Quarterly* 47 (2010): 111–137.

¹² Klenck, “A Genesis Model;” Gregg Davidson, “Genetics, the Nephilim, and the Historicity of Adam,” *Perspectives on Science and Christian Faith* 67 (2010): 34–34

¹³ Carl E. Baugh, *Why Do Men Believe Evolution Against All Odds?* (Oklahoma City: Bible Belt Publishing, 1999), 94–95; Robert F. Helfinstine and Jerry D. Roth, *Texas Tracks and Artifacts: Do Texas Fossils Indicate Coexistence of Men and Dinosaurs?*, 2nd ed. (Anoka: R & J, 2007), 40–41, 72–79, 114; Clifford Wilson, Barbara Wilson, and John Heffner, *The Paluxy River Dinosaur Controversy: Did Dinosaurs and Men Walk Together? Final Nails in the Coffin of Evolution* (Lilydale: Pacific Christian Ministries, 2007), 64, 116.

¹⁴ Klenck, “A Genesis Model for the Origin, Variation, and Continuation of Human Populations;” Davidson, “Genetics, the Nephilim, and the Historicity of Adam.”

¹⁵ Alan R. Millard, “King Og’s Iron Bed,” *BAR* 6.2 (2015): 16–21.

giants,¹⁶ their theological and folkloric meaning and significance,¹⁷ their parallels in extrabiblical literature,¹⁸ and the nature of the alleged bed of Og.¹⁹

The weight of the physical evidence supports the position of the second of the two camps, i.e., that the biblical giants were imaginary. There is an Egyptian text from the Late Bronze that mentions giant Shasu nomads in the southern Levant, but it is a satire, not a historical record.²⁰ An alleged archaeological report of two seven-foot-tall skeletons from the Late Bronze Age of Tell es-Sa'idiyeh in Jordan²¹ is fictional.²² The giant footprints from Texas are carved hoaxes, as has been shown by physical examination²³ and the

¹⁶ Loren T. Stuckenbruck, *The Book of Giants from Qumran. Texts, Translations, and Commentary* (Tübingen: Mohr Siebeck, 1997), 31–40; Doak, *The Last of the Rephaim*, 53–118; Henryk Drawnel, “The Mesopotamian Background of the Enochic Giants and Evil Spirits,” *DSD* 21 (2014): 14–38; Robin Routledge, “The Nephilim: A Tall Story? Who Were the Nephilim and How Did They Survive the Flood?” *TynBul* 66.1 (2015): 19–40; Asa Simon Mittman, “In Those Days’: Giants and the Giant Moses in the Old English Illustrated Hexateuch,” in *Imagining the Jew in Anglo-Saxon Literature and Culture*, ed. S. Zacher (Toronto: University of Toronto Press, 2016), 237–308.

¹⁷ Ronald Hendel, “The Nephilim Were on the Earth’: Genesis 6:1–4 and Its Ancient Near Eastern Context,” in *The Fall of the Angels*, ed. Christoph Auffarth and Loren T. Stuckenbruck (Leiden: Brill, 2004), 11–34; Azzan Yadin, “Goliath’s Armor and Israelite Collective Memory,” *VT* 54 (2004): 373–395; Victor A. Faessel, “The Tyranny of the Horizon; Giant Myths and the Tenacity of the Apocalyptic Imagination,” *JISMOR* 2 (2006): 17–36; Doak, *The Last of the Rephaim*, 6–10, 139–152, 176–202; Brian R. Doak, “Ezekiel’s Topography of the (Un-)Heroic Dead in Ezekiel 32:17–32,” *JBL* 132 (2013): 607–624; Brian R. Doak, “The Embarrassing and Alluring Biblical Giant,” *The Bible and Interpretation* (2015) <https://bibleinterp.arizona.edu/articles/2015/12/doi398002>; Heiser, *The Unseen Realm*, 185–191, 202–214; Routledge, “The Nephilim: A Tall Story?”; Jonathan Grossman, “Who Are the Sons of God—A New Suggestion,” *Bib* 99 (2018): 1–18.

¹⁸ Scott B. Noegel, “The Aegean Ogygos of Boeotia and the Biblical Og of Bashan: Reflections of the Same Myth,” *ZAW* 110 (1998): 411–426; Hendel, “The Nephilim Were On the Earth;” Christophe Lemardelé, “Une Gigantomachie dans la Genèse? Géants et Héros dans les Textes Bibliques Compilés,” *RHR* 227 (2010): 155–174; Zvi Ron, “The Bed of Og,” *JBQ* 40 (2012): 29–34; Doak, *The Last of the Rephaim*, 10–15, 123–139, 153–171, 202–221; Doak, “Ezekiel’s Topography of the (Un-)Heroic Dead;” Guy Darshan, “The Origins of the Foundation Stories Genre in the Hebrew Bible and Ancient Eastern Mediterranean,” *JBL* 133 (2014): 689–709; Drawnel, “Mesopotamian Background;” Laura Quick, “Laying Og to Rest: Deuteronomy 3 and the Making of a Myth,” *Bib* 98 (2017): 161–172.

¹⁹ Ron, “The Bed of Og”; Quick, “Laying Og to Rest.”

²⁰ Raphael Giveon, *Les Bédouins Shosou des Documents Égyptiens* (Leiden: Brill, 1971), 125–131.

²¹ Jeffrey H. Tigay, *The JPS Torah Commentary: Deuteronomy* (Philadelphia: Jewish Publication Society, 1996) 17, 347 n. 102.

²² Heiser, *The Unseen Realm*, 212 n. 21.

²³ G Glen J. Kuban and Gregg Wilkerson, “The ‘Burdick Print’” (2010), <http://paleo.cc/paluxy/wilker6.htm>.

public testimony of the nephew of one of the hoaxers.²⁴ Most importantly, the skeletal remains of the ancient people of Canaan and Transjordan show that they were of ordinary human size and did not include populations averaging two meters or more in height.²⁵ The legends of giants in the southern Levant were therefore inspired by something other than the actual presence of giant human populations there.

The idea that giants of the distant past were exterminated and replaced by ordinary-sized people was not limited to the peoples of the southern Levant. It appears to have been a prevalent part of Iron Age folklore from all over the eastern Mediterranean world.²⁶ Its presence in the lore of the southern Levantine peoples can therefore be viewed as a local manifestation of a more widespread folkloric tradition. However, its status as part of a wider tradition does not explain why giants in southern Levantine folklore are associated with some geographical areas and not others. Why does the biblical text locate giants in Bashan and Ammon and Moab, but not Edom? Why does it locate giants in the highlands of Canaan but not the coastal lowlands or the Jordan valley? And why does it locate giants in parts of Canaan and Transjordan but not in other areas that are important to the biblical story, e.g. Egypt, Sinai, Lebanon, and Syria?

Folklore is often influenced by features of the local landscape: ruins, landforms, fossils, etc.²⁷ Accordingly, some authors have hypothesized that the

²⁴ John D. Morris, *Tracking Those Incredible Dinosaurs and the People Who Knew Them* (Minneapolis: Bethany House, 1980), 110–112.

²⁵ G. Ernest Wright, "Troglydites and Giants in Palestine," *JBL* 57 (1938): 305–309; Eva Rosenstock, Julia Ebert, Robert Martin, Andreas Hicketier, Paul Walter, and Marcus Groß, "Human Stature in the Near East and Europe ca. 10,000–1000 BC: Its Spatiotemporal Development in a Bayesian Errors-in-Variables Model," *Archaeological and Anthropological Sciences* 11 (2019): 5657–5690.

²⁶ Adrienne Mayor, *The First Fossil Hunters: Paleontology in Greek and Roman Times* (Princeton: Princeton University Press, 2000); Doak, *Last of the Rephaim*.

²⁷ Westwood, *Albion*; Mayor, *The First Fossil Hunters*; Adrienne Mayor, *Fossil Legends of the First Americans* (Princeton: Princeton University Press, 2005); V. Agnesi, C. Di Patti, and B. Truden, "Giants and Elephants of Sicily," in *Myth and Geology*, ed. Luigi Piccardi and W. Bruce Masse (London: The Geological Society, 2007), 263–270; Adrienne Mayor, "Place Names Describing Fossils in Oral Traditions," in *Myth and Geology*, ed. Luigi Piccardi and W. Bruce Masse (London: The Geological Society, 2007), 245–261; Julian Heath, *Exploring Megalithic*

legends of giants to which the biblical passages refer were influenced by large fossil bones,²⁸ megalithic monuments,²⁹ or towering ancient fortifications built with giant-sized stone blocks.³⁰ However, until now, scholars have not attempted to test these hypotheses against each other. Nor has anyone investigated whether potential giant-related features of the local landscape exist in all of the geographical areas that the biblical texts associate with giants. Here, I present a study that tests such hypotheses and investigates the question of geographical associations.

Hypotheses to Consider

Elsewhere, legends of giants tend to accumulate around sites with any of six features: long barrows,³¹ abandoned castles,³² enormous pyramids,³³ large fossil bones,³⁴ megalithic monuments,³⁵ and city walls built with cyclopean stones.³⁶ A long barrow is an elliptical mound of earth and stones, tens of meters long, that is built over a grave. The large sizes of barrows often inspire legends of giants that are allegedly buried therein.³⁷ Long barrows are common in Europe, but they do not occur in the Near East. There, smaller

Europe: Amazing Sights to See for Yourself (Lanham: Rowman and Littlefield, 2019); Romano and Avanzini, "The Skeletons of Cyclops and Lestrigons."

²⁸ Mayor, *The First Fossil Hunters*, 139; Steven Fine and Elisha Fine, "Encounters with Fossil Giants," *BAR* 47.3 (2021): 18–20.

²⁹ Wright, "Troglodytes and Giants in Palestine;" Edwin C. Broome, "The Dolmens of Palestine and Transjordania," *JBL* 59 (1940): 479–497; Gajus Scheltema, *Megalithic Jordan: An Introduction and Field Guide* (Amman: American Center of Oriental Research, 2008) 27; Quick, "Laying Og to Rest."

³⁰ Wright, "Troglodytes and Giants in Palestine;" Hendel, "The Nephilim Were on the Earth;" Doak, "The Embarrassing and Alluring Biblical Giant;" Aren M. Maeir, *Memories, Myths, and Megalithics: Reconsidering the Giants of Gath*, *JBL* 139 (2020): 675–690.

³¹ Westwood, *Albion*, 37, 98–99, 279–281; Heath, *Exploring Megalithic Europe*, 189.

³² Westwood, *Albion*, 338–339, 349–351, 378.

³³ Mayor, *The First Fossil Hunters*, 88.

³⁴ Mayor, *The First Fossil Hunters*; Mayor, *Fossil Legends of the First Americans*; Mayor, "Place Names Describing Fossils in Oral Traditions"; Agnesi et al., "Giants and Elephants of Sicily"; Romano and Avanzini, "The Skeletons of Cyclops and Lestrigons."

³⁵ Westwood, *Albion*, 37, 77–82, 349, 421–422, 492–493; Heath, *Exploring Megalithic Europe*, 68, 184, 189.

³⁶ William H. S. Jones, trans., *Pausanias. Description of Greece* (London: William Heinemann, 1918), 331, 383.

³⁷ Westwood, *Albion*, 37, 98–99, 279–281; Heath, *Exploring Megalithic Europe*, 189.

mounds called tumuli often occur over ancient graves, but they are not large enough to inspire stories of giants except in cases in which they are built over megalithic dolmens. Such cases fall within the scope of the fourth item in the list above: megalithic monuments. Long barrows can therefore be discounted as having influenced the geography of giant legends in the ancient Near East. Castles can be similarly discounted. Castles, the characteristic fortified residences of medieval European nobility, were a product of the Middle Ages and therefore occur too late to have influenced ancient Near Eastern folklore. Nor are pyramids realistic candidates, for they are absent from the southern Levant. Pyramids are present in Egypt, a land with which Bronze and Iron Age Levantine peoples had contact, but Egypt is not associated with giants in the Hebrew Bible.

This leaves large fossil bones, megalithic monuments, and city walls of cyclopean stones as candidates for the phenomena influenced the geography of giant legends in the biblical texts. All three are found in the southern Levant. The fossil bones that inspire stories of ancient giants elsewhere are usually those of large mammals,³⁸ and there are several fossil mammal sites in the southern Levant. The remains of dinosaurs are often large enough to inspire legends of giants, but dinosaur fossils are unlikely to have done so in the southern Levant. Only three sites with dinosaur remains are known from there, and two of them were not visible to the ancients. Those two are an underground mine in Jordan³⁹ and a dinosaur track site near Jerusalem that was concealed by a limestone bank until its exposure in the twentieth century.⁴⁰ Known dinosaurian remains from the third site, 'Ein Yabrud in

³⁸ Mayor, *The First Fossil Hunters*, 73, 113–129, 143, 197–202, 223; Mayor, *Fossil Legends of the First Americans*, 32–41, 74–86, 95, 151, 173–175, 183–184, 192, 194, 281–285, 342–343; Mayor, “Place Names Describing Fossils in Oral Traditions;” Agnesi et al., “Giants and Elephants of Sicily;” Romano and Avanzini, “The Skeletons of Cyclops and Lestrigons.”

³⁹ David M. Martill, Eberhard Frey, and Rushdi M. Sadaqah, “The First Dinosaur from the Hashemite Kingdom of Jordan,” *Neues Jahrbuch für Geologie und Paläontologie Monatshefte* 3 (1996): 147–154.

⁴⁰ M. Avnimelech, “Dinosaur Tracks in the Lower Cenomanian of Jerusalem,” *Nature* 196 (1962): 264.

Palestine, consist of only two teeth.⁴¹ Large mammal fossils are therefore the likeliest category of fossil remains to have influenced the geography of giant legends in the southern Levant.

Megalithic monuments include dolmens and single standing stones. In its simplest form, a dolmen is a group of three stones in which two are vertical and one is placed horizontally atop them, forming the shape of the Greek letter Π. The ring of dolmens at Stonehenge is a familiar example. Dolmens can take more complicated forms, e.g. with greater numbers of vertical stones forming an enclosure, but there is always a horizontal stone or stones that cap the structure on top.⁴² Legends of giants often arise from the notion that the stones are too large to have been placed there by anyone other than giants.⁴³ Megalithic dolmens are abundant in the southern Levant.⁴⁴ Furthermore, they are from the Early Bronze Age,⁴⁵ c. 3,600 – c. 1,900 BCE,⁴⁶ and are therefore sufficiently old to have inspired stories about ancient people by the time the biblical narratives on giants were written. Those narratives are in the Pentateuch, the Deuteronomistic History, and the books of Chronicles, all of which were written no earlier than Iron Age II.⁴⁷ Iron Age II in the southern

⁴¹ Michael J. Polcyn, Eitan Tchernov, and Louis L. Jacobs, "The Cretaceous Biogeography of the Eastern Mediterranean with a Description of a New Basal Mosasuroid from 'Ein Yabrud, Israel," in *Proceedings of the Second Gondwanan Dinosaur Symposium*, ed. Yukimitsu Tomida, Thomas H. Rich, and Patricia Vickers-Rich (Tokyo: National Science Museum, 1999), 259–290.

⁴² Scheltema, *Megalithic Jordan*; James A. Fraser, *Dolmens in the Levant* (New York: Routledge, 2018).

⁴³ Westwood, *Albion*, 37, 77–82, 349, 421–422, 492–493; Heath, *Exploring Megalithic Europe*, 68, 184, 189.

⁴⁴ Scheltema, *Megalithic Jordan*; Fraser, *Dolmens in the Levant*.

⁴⁵ Fraser, *Dolmens in the Levant*.

⁴⁶ Kavita Gangal, Graeme R. Sarson, and Anvar Shukurov, "The Near-Eastern Roots of the Neolithic in South Asia," *PLoS ONE* 9.5 (2014), doi: doi.org/10.1371/journal.pone.0095714; Felix Höflmayer, "A Radiocarbon Chronology for the Middle Bronze Age Southern Levant," *Journal of Ancient Egyptian Interconnections* 13 (2017): 20–33.

⁴⁷ Young et al., *Linguistic Dating of Biblical Texts*, 11, 130–136; Grabbe, "Exodus and History;" Finkelstein, "The Wilderness Narrative;" Collins, *Introduction to the Hebrew Bible*, 63–64, 166–168, 174–175, 477.

Levant began about 900 BCE,⁴⁸ about two centuries after the end of the Late Bronze Age.⁴⁹

Single standing stones are also abundant in the southern Levant,⁵⁰ but they are unlikely to have inspired legends of giants. The biblical text mentions the erection of several such monuments. Often, the text names the person or group who is thought to have erected the monument, and in each such case the erectors are ordinary people (Gen 28:18–22; Gen 31:13; Gen 31:45–52; Gen 35:14; Gen 35:20; Exod 20:4; 2 Sam 18:18; 2 Kgs 3:2). This indicates that to the biblical writers, single standing stones were not associated with giants.

City walls built of cyclopean stones are also abundant in Bronze Age architecture of the southern Levant (Table 1). Cyclopean stones are enormous blocks, usually of limestone, that are left unhewn in the wall and are so large that they inspire the viewer to wonder how ordinary-sized humans were able to move them. Archaeologists often use the term “cyclopean” for walls made of such stones. The term is derived from the writings of Pausanias, who noted that in his day (the second century CE), it was thought that giant Cyclopes had built the walls of Mycenaean cities, which had incorporated such stones.⁵¹ In strict usage, the term “cyclopean,” as applied to walls instead of stones, refers to a sort of wall construction that is unique to Mycenaean Greece, in which a wall is built with two distinct faces that are separated by an inner fill of earth and small stones, and the inner fill is unbroken by cross-walls. The outer face is built with the largest available stone blocks, which are usually limestone, are left unhewn, and are gigantic. The gaps between them are filled with smaller

⁴⁸ Elisabetta A. J. Boaretto, Timothy Jull, Ayelet Gilboa, and Ilan Sharon, “Dating the Iron Age I/II Transition in Israel: First Intercomparison Results,” *Radiocarbon* 47 (2005): 39–55; Israel Finkelstein and Eli Piasezky, “Radiocarbon Dating the Iron Age in the Levant: A Bayesian Model for Six Ceramic Phases and Six Transitions,” *Antiquity* 84 (2010): 374–385.

⁴⁹ Finkelstein and Piasezky, “Radiocarbon Dating the Iron Age in the Levant;” Michael B. Toffolo, Eran Arie, Mario A. S. Martin, Elisabetta Boaretto, and Israel Finkelstein, “Absolute Chronology of Megiddo, Israel, in the Late Bronze and Iron Ages: High-Resolution Radiocarbon Dating,” *Radiocarbon* 56 (2014): 221–244.

⁵⁰ Scheltema, *Megalithic Jordan*.

⁵¹ Jones, *Pausanias*, 331, 383.

stones. No mortar is used.⁵² The so-called “cyclopean” walls of the Bronze Age southern Levant do not fit this description, due to the presence of mortar in some walls, cross-walls in others, etc.⁵³ They resemble true, Mycenaean cyclopean walls mainly in that they are composed largely of enormous, unhewn limestone blocks of sizes similar to those of true cyclopean walls. It is therefore more accurate to call the stones in such walls cyclopean than to call the walls themselves cyclopean.

Locations of the Biblical Giants

The legends preserved in the biblical text locate ancient giants in specific geographical areas (Fig. 1). The hypothesis that large fossil bones influenced the geography of biblical giant legends therefore predicts that large fossil bones are found in the relevant locations. Likewise, the corresponding hypotheses regarding megalithic dolmens and walls of unusually large stones make the same prediction for those items. To test the predictions of the three hypotheses, I plotted the locations of the three candidate phenomena onto maps of the southern Levant (Fig. 2). For the locations of walls of unusually large stones, I used the references in Table 1. For the locations of megalithic dolmens, I used the results of a previous study.⁵⁴ For the locations of large fossil bones, I consulted the Paleobiology Database (paleobiodb.org). Therein, I ran geographic searches for the taxa most likely to have inspired legends of giants⁵⁵: Proboscidea (elephants and kin), Rhinocerotidae (the rhinoceros family), Giraffidae (the giraffe family), Camelidae (the camel family), *Bos primigenius* (the aurochs), *Megaloceros* (a genus of unusually large deer), Hippopotamidae (the hippopotamus family), Cetacea (whales), and *Ursus*

⁵² N. Claire Loader, *Building in Cyclopean Masonry, with Special Reference to the Mycenaean Fortifications on Mainland Greece* (Jonsered: Paul Åströms, 1998), 5.

⁵³ Loader, *Building in Cyclopean Masonry*, 137–144.

⁵⁴ Fraser, *Dolmens in the Levant*, summarized in fig. 1.2 of that reference.

⁵⁵ Mayor, *The First Fossil Hunters*.

(bears). I also consulted relevant primary literature that the Paleobiology Database does not incorporate.⁵⁶

Moab

The land of Moab in Transjordan, as the biblical writers described it, included Mt. Nebo (Deut 32:49) and the cities of Dibon and Medeba (Isa 15:1–2). The Mesha Stele indicates that it also included the cities of Aroer and Jahaz.⁵⁷ This list of locations places most of Moab east of the Dead Sea and north of the Arnon River (Wadi Mujib), extending a little northward of the northeast corner of the Dead Sea to include Mt. Nebo (Fig. 1). Some biblical passages describe the Arnon as Moab's northern border (Num 21:13; Num 21:26; Num 22:36; Judg 11:18), but that refers to a brief period in which the Amorite king Sihon had taken Moab's land as far as the Arnon (Num 21:26). The land of Moab therefore extended south of the Arnon as well, as far as Kir-Heresh (Kerak) (2 Kgs 3:25; Isa 16:7; Isa 16:11; Jer 48:31; Jer 48:36).

According to the biblical text, Moab was home to a population of giant Rephaim whom the Moabites called Emim, before the descendants of Lot settled there (Deut 2:9–11). The area has several Early Bronze megalithic dolmens (Fig. 2). It has no large fossil mammal sites or Bronze Age city walls of cyclopean stones. Therefore, of the three competing hypotheses, available data best support the hypothesis that the association of giants with the land of Moab was inspired by megalithic dolmens.

⁵⁶ Eitan Tchernov and Jeheskel Shoshani, "Proboscidean Remains in Southern Levant," in *The Proboscidea. Evolution and Palaeoecology of Elephants and Their Relatives*, ed. Jeheskel Shoshani and Pascal Tassy (Oxford: Oxford University Press, 1996), 225–233; Rivka Rabinovich and Adrian M. Lister, "The Earliest Elephants Out of Africa: Taxonomy and Taphonomy of Proboscidean Remains from Bethlehem," *Quaternary International* 445 (2017): 23–42; Ari Grossman, Ran Calvo, Raquel López-Antoñanzas, Fabien Knoll, Gideon Hartman, and Rivka Rabinovich, "First Record of *Sivameryx* (Cetartiodactyla, Anthracotheriidae) from the Lower Miocene of Israel Highlights the Importance of the Levantine Corridor as a Dispersal Route between Eurasia and Africa," *Journal of Vertebrate Paleontology* 39 (2019), doi: 10.1080/02724634.2019.1599901.

⁵⁷ André Lemaire, "'House of David' Restored in Moabite Inscription," *BAR* 20.3 (1994): 30–37.

Ammon

The land of Ammon in Transjordan, as the biblical writers described it, included the city of Rabbath-Ammon (Deut 3:11; 2 Sam 12:26) and was bordered by the Jabbok (Zarqa) River in the north and the Arnon in the south (Deut 3:16; Josh 12:2; Judg 11:13). In one passage, it is described as east of the kingdom of Sihon (Num 21:24), who is said to have ruled from the Jabbok to the Arnon and whose kingdom included Heshbon and Aroer (Num 21:21–26; Josh 12:2; Judg 11:19–22). However, the land that Sihon is said to have ruled was land that he had taken from Moab (Num 21:26) and Ammon, for the land of Ammon stretched as far west as the Jordan (Judg 11:13) (Fig. 1).

According to the biblical text, Ammon was home to a population of giant Rephaim whom the Ammonites called Zamzummim, before the descendants of Lot settled there (Deut 2:19–21). The area has several Early Bronze megalithic dolmens (Fig. 2). It has an ancient city at the site of Tel el-‘Umeiri with Middle Bronze walls with cyclopean stones (Fig. 2). Rabbath-Ammon also has a city wall with cyclopean stones, but the wall is from the early Iron Age (Table 1), probably too late to have inspired Iron II legends of giants. Ammon has no large fossil mammal sites. Therefore, of the three competing hypotheses, available data best support the hypothesis that association of giants with the land of Ammon was inspired by megalithic dolmens and possibly also by the city wall at Tel el-‘Umeiri.

Bashan

The land of Bashan, as the biblical writers described it, stretched as far north as Mt. Hermon (Deut 3:4–8; Josh 12:5) and as far south as the kingdom of Sihon of Heshbon (Deut 3:4–8), which was bordered by the Jabbok (Num 21:23–24). It extended as far eastward as the cities of Astaroth, Edrei, and Salecah (Deut 1:4, Deut 3:10; Josh 12:4–5) and as far westward as the Jordan River (Deut 3:4–8) and the eastern border of Geshur (the land between the Sea of Galilee and the Yarmuk River) (Josh 12:4–5; Josh 13:11–12) (Fig. 1).

According to the biblical text, King Og of Bashan was a giant, a remnant of the Rephaim (Deut 3:11; Josh 12:4; Josh 13:12), and Bashan itself was called the land of Rephaim (Deut 3:13). The land of Bashan has a plethora of Early Bronze megalithic dolmens (Fig. 2). It has no large fossil mammal sites or Bronze Age city walls of cyclopean stones. Therefore, of the three competing hypotheses, available data best support the hypothesis that the association of giants with the land of Bashan was inspired by megalithic dolmens.

Valley of Rephaim

The Valley of Rephaim, immediately southwest of Jerusalem, is mentioned in several biblical passages (2 Sam 5:18, 2 Sam 5:22; 2 Sam 23:13; 1 Chr 11:15; 1 Chr 14:9; Isa 17:5). It and the surrounding area have no megalithic dolmens. Large fossil mammals are known from Bethlehem,⁵⁸ which is near the Valley of Rephaim, but Bethlehem is neither in nor adjacent to the valley. The Valley of Rephaim is adjacent to Jerusalem, which has a Middle Bronze city wall of cyclopean stones (Fig. 2). Therefore, of the competing hypotheses, available data best support the hypothesis that the name of the valley was inspired by a Bronze Age city wall of cyclopean stones: the wall of Jerusalem.

The Negev and the hill country of Judah

In biblical usage, the Negev is somewhat further north than most of the desert that is now known by that name. The biblical Negev includes Hebron (Num 13:22; Josh 15:13–19), Arad (Num 21:1; Judg 1:16), Beersheba (2 Sam 24:7), Gerar (Gen 20:1), and Ziklag (1 Sam 30:1; 1 Sam 30:14) (Fig. 1). The area was occupied by the tribe of Judah. In Josh 15:20–32, the Hebrew text lists twenty-nine towns in the Negev of Judah. All those with identifiable locations are west of the Dead Sea, none at a latitude lower than that of the southern end of the Dead Sea.

⁵⁸ Tchernov and Shoshani, “Proboscidean Remains in Southern Levant”; Rabinovich and Lister, “The Earliest Elephants Out of Africa.”

According to the biblical text, the Negev was inhabited by a giant population called the sons of Anak (Num 13:22–33) or the Anakim (Deut 1:28; Deut 2:10–11; Deut 2:21; Deut 9:2; Josh 11:21), who are said to be of the Nephilim (Num 13:33). The biblical text also identifies Hebron as a town in the Negev that the sons of Anak inhabited (Num 13:22; Josh 14:15; Josh 15:13–14; Josh 21:11; Judg 1:20). Most of the biblical Negev is located within the ancient territory of the tribe of Judah.

According to the biblical narrative, the Anakim inhabited the hill country of Judah until Joshua's invasion exterminated them there (Josh 11:21) or until Caleb drove them out afterward (Josh 14:12–15; Josh 15:13–14; Judg 1:20). There is much overlap between the biblical Negev and the hill country of Judah (Fig. 1). The hill country of Judah in the biblical Negev has two cities with Bronze Age walls of cyclopean stones: Hebron and Beth Zur (Fig. 2). There are no megalithic dolmens there. Bethlehem, Yeroham, Rotem, and Kamus Junction have large mammal fossils⁵⁹ and lie within the chain of hills that includes the hill country of Judah, but all three sites are outside the area west of the Dead Sea that contains the towns of the Negev of Judah as listed in Josh 15:20–32. Therefore, of the three competing hypotheses, available data best support the hypothesis that the association of giants with Hebron and the biblical Negev was inspired by Bronze Age city walls of cyclopean stones, in this case the walls of Hebron and Beth Zur.

In support of the physical presence of giant humans in Hebron, Josephus mentioned that the bones of giants were shown in his day.⁶⁰ Elsewhere around the Mediterranean, from the Hellenic period through the Roman period, fossil bones of large mammals were displayed and touted as bones of giant humans.⁶¹ Josephus' statement is consistent with allusion to

⁵⁹ Tchernov and Shoshani, "Proboscidean Remains in Southern Levant"; Rabinovich and Lister, "The Earliest Elephants Out of Africa."; Grossman et al., "First Record of *Sivameryx*."

⁶⁰ William Whiston, trans., *Jewish Antiquities. Flavius Josephus* (London: Bibliophile, 2006), 188.

⁶¹ Mayor, *The First Fossil Hunters*, 106–156; Romano and Avanzini, "The Skeletons of Cyclops and Lestrigons."

such specimens in general and gives no indication that it was in reference to bones that were from or displayed at Hebron. It therefore does not provide support for the hypothesis that fossil bones inspired the legends of giants at Hebron.

Although the association of giants with Hebron and the biblical Negev is not likely to have been inspired by large mammal fossils, large fossils may have inspired stories about giants associated with the hill country of Judah, in general. The hill country of Judah included not only the biblical Negev but also the areas immediately north and south of it that bear large mammal fossils: Bethlehem, Yeroham, Rotem, and Kamus Junction. Available data therefore support the hypothesis that the association of giants with the hill country of Judah was inspired by large mammal fossils, in addition to the hypothesis that it was inspired by Bronze Age city walls of cyclopean stones. In the case of the hill country of Judah, the association may therefore have had dual inspiration.

Hill country of Manasseh and of Israel

According to the biblical text, the descendants of Joseph were the tribes of Ephraim and Manasseh. The tribe of Manasseh was given the land of Bashan (Josh 13:19–31), and the tribe of Ephraim was given an expanse of land west of the Jordan River (Josh 16). The tribe of Manasseh was then additionally given an expanse of land north of Ephraim, between Ephraim and the Jezreel Valley (Josh 17). After describing the geography of that allotment (Josh 17:1–13), the biblical text explains why Manasseh received its second expanse of land: the descendants of Joseph had complained to Joshua that they were too numerous for the land allotted to Ephraim to contain them. Joshua's response to that complaint was to extend the land allotted to Joseph's descendants northward up to the Jezreel Valley (Josh 17:14–18), and Manasseh occupied that extension in addition to Bashan. During the conversation, Joshua called the hilly, forested area between Ephraim's land and the Jezreel Valley, newly added to the allotment of Manasseh, "the land of the Perizzites and the Rephaim."

In the hills of western Manasseh is Shechem (Fig. 1), a city with walls of cyclopean stones from the Middle Bronze Age (Fig. 2). The area has no large fossil mammal sites or megalithic dolmens. Therefore, of the three competing hypotheses, available data best support the hypothesis that the association of giants with the hill country of Manasseh was inspired by a Bronze Age city wall of cyclopean stones: the wall of Shechem.

According to the biblical narrative, the giant Anakim inhabited the hill country of Israel until Joshua's invasion exterminated them there (Josh 11:21). In the hill country of Israel outside the territory of Manasseh, Bronze Age city walls of cyclopean stones occur at Bethel, Ai, Jericho, Beth Shemesh, Jarmuth, and Jerusalem (Fig. 2). There are no megalithic dolmens in the hill country of Israel. There are no large mammal sites in the hill country of Israel south of Manasseh. There are four large mammal sites north of Manasseh, but two are in the Jordan Valley, not the highlands. The other two, Evron Quarry and Tabun Cave, are in the northwest hill country (Fig. 2). Therefore, of the three competing hypotheses, available data best support the hypothesis that the association of giants with the hill country of Israel was inspired by Bronze Age city walls of cyclopean stones. It is possible that it was also influenced by fossils of large mammals in the northwest. However, such sites are at ancient Israel's periphery, whereas there is a concentration of cities with Bronze Age walls of cyclopean stones in ancient Israel's heartland. Such walls are therefore more likely to have inspired the association of giants with the hill country of Israel than are fossils of large mammals.

Philistia

According to the biblical text, the Anakim remained in three cities of Philistia (Gaza, Gath, and Ashdod) after they were exterminated elsewhere during the Israelite invasion (Josh 11:22). There is no further biblical mention of the Anakim in Philistia. The Philistines themselves are not characterized as giants except in a few individual cases. Five Philistine warriors from Gath, contemporaries of King David, are said to be of the Rephaim: Ishbibenob, Saph,

Goliath, Goliath's brother Lahmi, and an unnamed Philistine warrior with six digits on each extremity (2 Sam 21:15–22; 1 Chr 20:4–8). Elsewhere, Goliath is described as unusually large, without connecting him to a specific giant race (1 Sam 17:4–7).

In Philistia, there are no large mammal fossil sites. Nor are there megalithic dolmens, nor Bronze Age city walls of cyclopean stones. Three of the cities of Judah near the border of Philistia (Beth Shemesh, Jarmuth, and Lachish) have Bronze Age city walls of cyclopean stones, as does Gezer, a city near the border of Philistia in the territory of Ephraim (Fig. 2). It is possible that the association of giants with Philistia was inspired by the walls of those cities, which travelers from Israel and Judah may have passed on the way to Philistia. However, that potential explanation is suspect, because it does not explain why giants are associated with Gaza, Gath, and Ashdod. City walls of unusually large stones are present at Gath, in the lower city, but that city hails from the eleventh century B.C. (Iron Age I).⁶² The association of giants with Philistia is therefore not plausibly explained by large fossils, dolmens, or Bronze Age city walls of cyclopean stones. For Philistia, none of the three hypotheses is supported by available data.

Conclusions

All three of the hypotheses of the origins of the geography of biblical giant legends considered here are supported by physical evidence, but each is supported in a different set of geographic locations. The hypothesis that the association with ancient giants was inspired by Bronze Age megalithic dolmens is supported by physical evidence in Transjordanian locations: Bashan, Ammon, and Moab. The hypothesis that the association with ancient giants was inspired by Bronze Age city walls of cyclopean stones is supported by physical evidence in locations within Canaan: Hebron, the biblical Negev and hill country of Judah, the Valley of Rephaim, the hill country of Manasseh,

⁶² Maeir, "Memories, Myths, and Megalithics."

and the broader hill country of Israel. The hypothesis that the association with ancient giants was inspired by fossils of large mammals is supported in the hill country of Judah. It is therefore most plausible that dolmens influenced the geography of giant legends in Transjordanian locations, that city walls influenced the geography of giant legends in most locations within Canaan, and that large mammal fossils further influenced the geography of giant legends in Judah.

Further Thoughts

The idea of a past age of giants was part of the folklore of Iron Age peoples all over the eastern Mediterranean world.⁶³ Its southern Levantine variants may therefore have arisen as organic parts of a widespread folkloric tradition, rather than having arisen independently. As we have seen, the giant legends of the southern Levant were tied to places with physical features that suggested the presence of giants: megalithic dolmens, ancient city walls of cyclopean stones, and fossils of large mammals. Likewise, elsewhere around the Mediterranean, local giant legends were tied to places with ancient cyclopean walls or fossils of large mammals.⁶⁴ It is therefore plausible that the prevalence of such items all around the eastern Mediterranean was what inspired the idea of a past age of giants in the first place. The idea was certainly not inspired by an actual past age of human giants. As shown by skeletal remains, the ancient human populations of the Levant and Europe were of ordinary human size.⁶⁵

Details of the biblical passages on giants shed tantalizing light on the origin and evolution of the specific giant legends to which the Hebrew scriptures allude. For example, the biblical writers did not strictly distinguish

⁶³ Mayor, *The First Fossil Hunters*; Doak, *The Last of the Rephaim*.

⁶⁴ Jones, *Pausanias*, 331, 383; Mayor, *The First Fossil Hunters*; Mayor, *Fossil Legends of the First Americans*; Mayor, "Place Names Describing Fossils in Oral Traditions;" Agnesi et al., "Giants and Elephants of Sicily;" Romano and Avanzini, "The Skeletons of Cyclops and Lestrigons."

⁶⁵ Wright, "Troglydites and Giants in Palestine;" Rosenstock et al., "Human Stature."

the giant races from each other. In the Hebrew text, the Anakim are conflated with the Nephilim (Num 13:33), and the giants who were displaced from southern Canaan into Philistia are called Anakim in one passage (Josh 11:22) and Rephaim in others (2 Sam 21:16–22; 1 Chron 20:4–8).⁶⁶ The biblical writers seem to have been less concerned with precise nomenclature of the giants than with recounting their extermination. The Hebrew text describes the extermination of giants during three major events: the Genesis Flood, the Israelite invasion of Transjordan and Canaan under Joshua, and the establishment of the Davidic dynasty. As previous scholars have noted,⁶⁷ each of those events represents a transition from a previous state to a new order, and the giants represent monstrous forces that must be vanquished to establish the new order. Contrary to the common scholarly opinion that such vanquishing represents a transition from chaos to order, a so-called *Chaoskampf* (struggle against chaos), the previous state is not necessarily chaotic,⁶⁸ and the transition may be from an old order to a new order. Such seems to be the case with the vanquishing of the giants of Canaan, for the Hebrew text portrays them as having built cities (Num 13:22, 13:28; Deut 1:28, 9:1–2; Josh 11:21; Judg 1:20), which are pockets of order in a wild landscape.

Thus, as has previously been noted,⁶⁹ the vanquishing of giants from Philistia by King David appears to represent a variation on the typical southern Levantine folkloric motif of vanquishing giants to establish a new order. The survival of giants in Philistia in the Hebrew text of Josh 11:22 may simply have been a necessary segue from Joshua's giant-vanquishing episode to David's. While legends of giants in Transjordan and Canaan were most likely inspired by Bronze Age artifacts (dolmens and city walls), legends of giants from Philistia may simply have been a literary necessity that arose from a confluence of three things: early Iron Age conflict with Philistia, the rise of the

⁶⁶ cf. Doak, *The Last of the Rephaim*, 88–89.

⁶⁷ Doak, *The Last of the Rephaim*; Doak, "The Embarrassing and Alluring Biblical Giant;" Heiser, *The Unseen Realm*.

⁶⁸ Alan Millard, "Chaos at Creation?" *Faith and Thought* 73 (2022): 27–30.

⁶⁹ cf. Doak, *The Last of the Rephaim*, 52, 117–123, 227.

Davidic dynasty from that conflict, and the expectation that a new order must involve some giant-killing. If that scenario is correct, it explains why the biblical text associates giants with Philistia, a land that lacks dolmens and Bronze Age city walls of cyclopean stones.

It is noteworthy that the Hebrew scriptures preserve multiple and mutually contradictory traditions of giant folklore. According to one tradition, Og was the last of the Rephaim (Deut 3:11), while according to another, the Rephaim continued to live centuries later among the Philistines (2 Sam 21:15–22; 1 Chr 20:4–8). According to one tradition, the Anakim were a single family that lived in Hebron and were driven out by Caleb (Num 13:22; Josh 15:13–14), while according to another, the Anakim were a widespread people who dwelled across the southern highlands of Canaan and were exterminated by Joshua's forces (Deut 9:1–2; Josh 11:21–22). According to one tradition, Arba was the father of Anak (Josh 15:13; Josh 21:11), while according to another he was one of the Anakim (Josh 14:15), which implies that he was a descendant of Anak. According to one tradition, David killed Goliath (1 Sam 17:23–54), while according to another, Elhanan did (2 Sam 21:19). The tendency to preserve mutually contradictory traditions instead of choosing one over the other is widespread in the Pentateuch and the Deuteronomistic History. In addition to mutually contradictory traditions of giants, the redactors of these parts of the Hebrew scriptures preserved mutually contradictory stories of creation (Gen 1:1 – 2:3 vs. Gen 2:4–25), the Flood (spliced together in Gen 6–8), the naming of Beersheba (Gen 21:25–31 vs. Gen 26:25–32), the naming of Bethel (Gen 28:10–22 vs. Gen 35:9–15), the changing of Jacob's name to Israel (Gen 32:25–33 vs. Gen 35:9–15), the making of the Ark of the Covenant (Exod 37:1–9 vs. Deut 10:1–5), and the war with Jabin of Hazor (Josh 11:1–12 vs. Judg 4), among others.⁷⁰

⁷⁰ Richard E. Friedman, *Who Wrote the Bible?* (New York: HarperCollins, 1997); Richard E. Friedman, *The Bible with Sources Revealed* (New York: HarperCollins, 2003); Steve Wells, *The Skeptic's Annotated Bible* (n.c.: SAB, 2013); Collins, *Introduction to the Hebrew Bible*, 49–63.

The multitude of mutually contradictory narratives within the Pentateuch and the Deuteronomistic History show that the choosing of one narrative over another as the “correct” version was not a major concern of the redactors who wove the stories together to produce the Hebrew scriptures. It also suggests that they were not concerned with historicity in the modern sense, because if two narratives contradict each other, at least one of the two is not historically accurate. Thus, according to the weight of the evidence, the compilers and redactors of the narratives that comprise the Old Testament were less concerned with historical accuracy in the modern sense than with creating texts that served a theological purpose.⁷¹ Consequently, the writers of the stories of giants within the Hebrew scriptures would most likely not have been troubled by the modern finding that ancient skeletal remains reveal no giant human populations in the ancient Levant.⁷² As this study shows, it is plausible that the geography of the giant legends that were incorporated into the Hebrew scriptures originated in folklore inspired by large mammal fossils and Bronze Age artifacts: dolmens and city walls of cyclopean stones.

⁷¹ Philip J. Senter, “Apparent Conflict between the Pentateuch and Modern Science: The Early Church’s Solution, the Solution’s Biblical Origin, and Ancient Christian Approval of Evidence-Based Thinking,” *Science and Christian Belief* 34 (2022): 7–28.

⁷² Wright, “Troglodytes and Giants in Palestine;” Rosenstock et al., “Human Stature in the Near East and Europe ca. 10,000–1000 BC.”

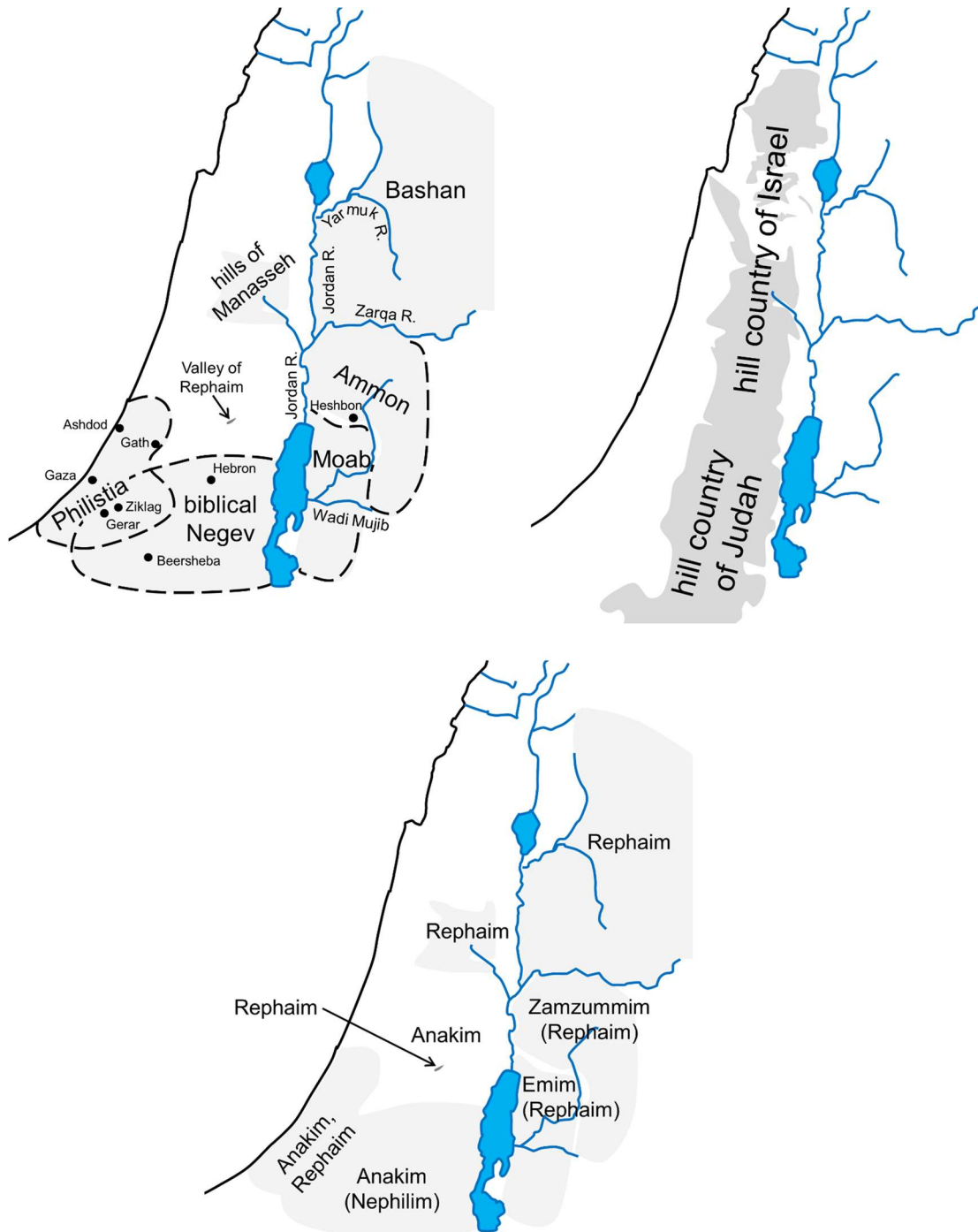


Figure 1. Geography of the biblical giants, showing the geographic regions that they are said to have inhabited (top left, shaded), the hill country that they are said to have inhabited (top right, shaded), and the names of the giant populations in each location (bottom).

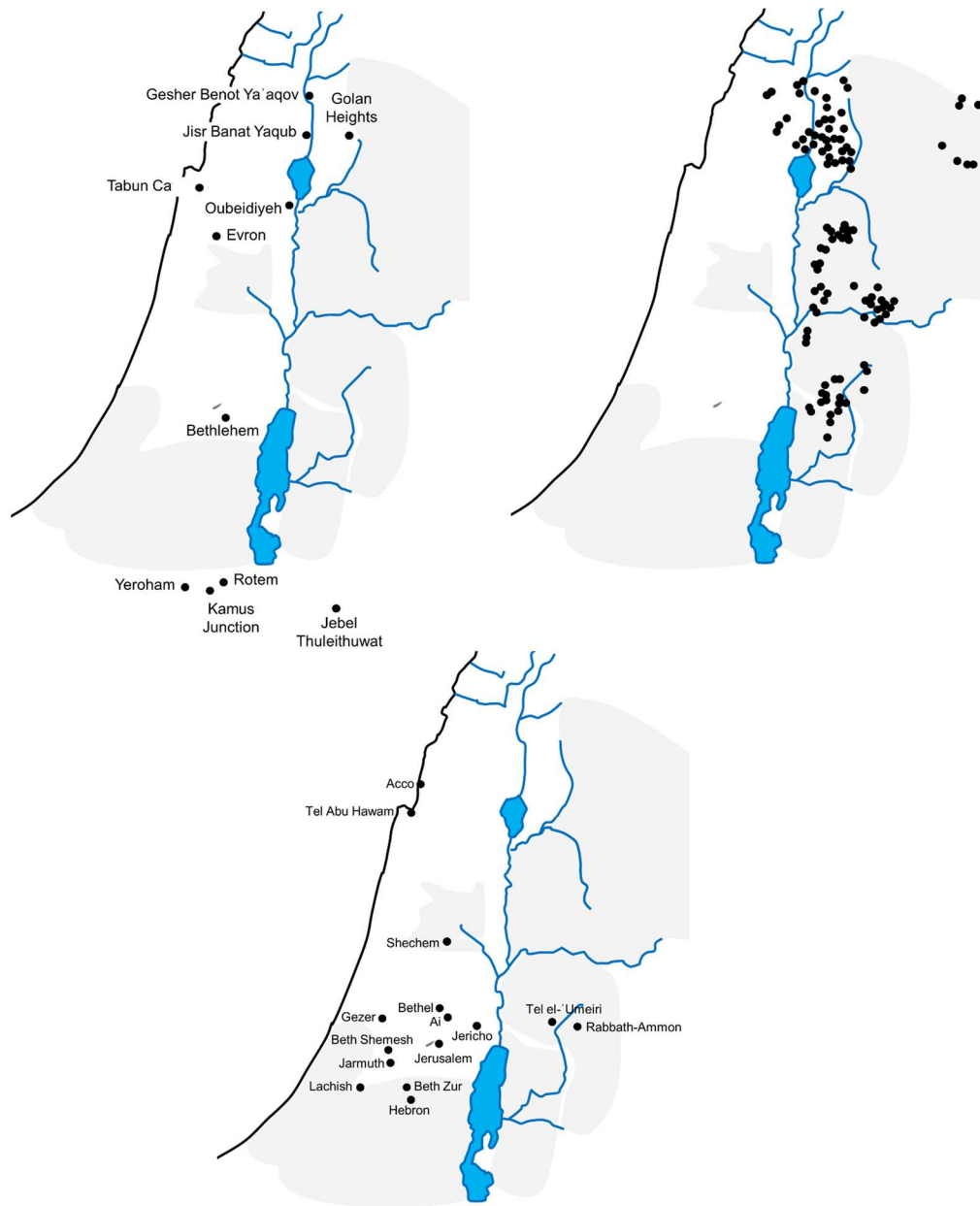


Figure 2. Geographic distribution within the southern Levant, of phenomena that inspire legends of giants: large mammal fossil sites (top left), megalithic dolmens (top right⁷³), and city walls with cyclopean stones (bottom). Shading is as per the top left map in Fig. 1.

⁷³ After fig. 1.2 of Fraser, *Dolmens in the Levant*.

Table 1. Ancient cities in the southern Levant with walls of cyclopean stones. EB = Early Bronze, MB = Middle Bronze, LB = Late Bronze.

City/site	Period (construction of wall and occupation of the city with the wall)
Abu Hawam, Tel ⁷⁴	LBI/II
Acco ⁷⁵	MBII–LBII
Ai ⁷⁶	EBII–EBIII
Beit Mirsim, Tel ⁷⁷	MBII
Bethel ⁷⁸	MBII–MBIII
Beth Shemesh ⁷⁹	MBII into Iron Age
Beth-Zur ⁸⁰	MBII
Gezer ⁸¹	MBIII
Hebron ⁸²	MBII into Iron Age
Jarmuth ⁸³	EBII–EBIII

⁷⁴ Michal Artzy, “Abu Hawam, Tell,” *NEAEHL* 5:1553–1554.

⁷⁵ Aharon Kempinski, “The Middle Bronze Age,” in *The Archaeology of Ancient Israel*, ed. Amnon Ben-Tor (Ra’anana: The Open University of Israel, 1992), 159–210; Moshe Dothan, “Acco. Tel Acco,” *NEAEHL* 1:17–24.

⁷⁶ Donald B. Redford, *Egypt, Canaan, and Israel in Ancient Times* (Princeton: Princeton University Press, 1992), 42; Joseph A. Callaway, “Ai,” *NEAEHL* 1: 39–45.

⁷⁷ William F. Albright, *The Excavation of Tell Beit Mirsim in Palestine, Volume 1. The Pottery of the First Three Campaigns* (Cambridge: American Schools of Oriental Research, 1932), 19.

⁷⁸ Benjamin Mazar, “The Middle Bronze Age in Palestine,” *IEJ* 18.2 (1968): 65–97; Nahman Kelso, “Bethel,” *NEAEHL* 1:192–194.

⁷⁹ Samuel R. Wolff, “Archaeology in Israel,” *AJA* 95 (1991): 489–538; Shlomo Bunimowitz and Zvi Lederman, “Beth-Shemesh,” *NEAEHL* 1:249–253.

⁸⁰ Mazar, “The Middle Bronze Age in Palestine”; Robert W. Funk, “Beth-Zur,” *NEAEHL* 1:259–261.

⁸¹ William F. Dever, “Gezer,” *NEAEHL* 2:496–506; H. Shanks, “Memorandum Re: Restoring Gezer,” *BAR* 20.3 (1994):66–69.

⁸² Jeffrey R. Chadwick, “Discovering Hebron,” *BAR* 31.5 (2005): 24–33, 70.

⁸³ Pierre de Miroschedji, “Jarmuth, Tel,” *NEAEHL* 2:661–665.

Jericho ⁸⁴	EBIII–EBIV
Jerusalem ⁸⁵	MBII into Iron Age
Lachish ⁸⁶	MBII
Rabbath-Ammon ⁸⁷	Iron I into later periods
Shechem ⁸⁸	MBIIC
‘Umeiri, Tel el- ⁸⁹	MBII into Iron Age

⁸⁴ William F. Albright, *The Archaeology of Palestine*, 4th ed. (Middlesex: Penguin, 1960), 88; Lorenzo Nigro and Maura Sala, *Tell es-Sultan/Jericho in the Early Bronze II (3000–2700 BC): The Rise of an Early Palestinian city. A Synthesis of the Results of Four Archaeological Expeditions* (Rome: Università di Roma “La Sapienza,” 2010), 14, 18; Lorenzo Nigro, Lucio Calcagnile, Jehad Yasin, Elisabetta Gallo, and Gianluca Quarta, “Jericho and the Chronology of Palestine in the Early Bronze Age: A Radiometric Reassessment,” *Radiocarbon* 61 (2019): 211–241.

⁸⁵ Ronny Reich and Eli Shukron, “Light at the End of the Tunnel,” *BAR* 25.1 (1999): 22–25, 27, 30, 32–33, 72.

⁸⁶ David Ussishkin, “Lachish,” *NEAEHL* 3:897–911.

⁸⁷ Mariusz Burdajewicz, “Rabbath-Ammon,” in *NEAEHL* 4, 1243–1249.

⁸⁸ Albright, *The Archaeology of Palestine*, 88; Lawrence E. Toombs and G. Ernest Wright, “The Fourth Campaign at Balatah (Shechem),” *BASOR* 169 (1963):1–60; William G. Dever, “The MB IIC Stratification in the Northwest Gate Area at Shechem,” *BASOR* 216 (1974):31–52; David Ussishkin, “Notes on the Fortifications of the Middle Bronze II Period at Jericho and Shechem,” *BASOR* 276 (1989): 29–53; Edward F. Campbell, “Shechem. Tel Balâtah,” *NEAEHL* 4:1345–1354; David Ussishkin, “Tel Shechem/Tel Balatah: The Rampart of Wall A and the Character of the Middle Bronze IIC Compound,” *IEJ* 69 (2019): 1–19.

⁸⁹ Larry G. Herr, “Jordan. The Early Periods in Central Jordan,” *NEAEHL* 5:1843–1851.