Judaica: Neue digitale Folge 7 (2026)
https://doi.org/10.36950/jndf.2026.3
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Introduction: Nature Miracles and Paradoxography in Biblical Reception of the First Centuries

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1 The Book of Nature and the Books of Marvels

Can nature be interpreted like a book? The expression "book of nature" appears first in Augustine's writing and develops in the Middle Ages into a theology of the readability of nature. Augustine himself uses the metaphor in a rather nonchalant way, but not as a standing expression. He speaks of "the book of created nature (*magnus liber ipsa species creaturae*). Look carefully at it top and bottom, observe it, read it. God did not make letters of ink for you to recognize him in; he set before your eyes all these things he has made."[1] Augustine then goes on to tell Faustus, a Manichean, that he "should first look at the whole of creation as if reading a certain great book about the nature of things (*quasi legens magnum quendam librum naturae rerum).*"[2] Although Augustine uses the metaphor only twice throughout his vast work, the concept seems to underlie his exegetical practice, as can be gleaned from his exegesis of the creation story and his theology of the Trinity.[3] Similar tendencies are also found in earlier Christian writers.[4] Rabbinic scholars saw the Torah as the blueprint for creation.[5] The correlation between the divine realm and nature, the understanding of creation through the biblical text and vice-versa, emerges thus not only as a common theme, but as a common sense in Late Antiquity, which left distinct marks on the period's knowledge production. Especially the marvels of the earth, of creation, are understood as permanent signs that reflect and point to higher truths which God hid in his creation.[6] In this logic, God was a "signifying creator," as Michael D. Swartz has pointed out: "the idea that

This research was funded by the Swiss National Science Foundation as part of the larger project "Concept and Impact of the Miracle in the Third Century" (PZ00P1_208647).

1 *Sermon* 68 on the New Testament, cited from Juurikkala, "The Two Books of God," 485.
2 *Contra Faustum* 32, 20 (CSEL 25/1, 782), cited from Juurikkala, "The Two Books of God," 490, who uses "Teske's translation slightly emended."
3 Juurikkala, "The Two Books of God," 491.
4 Groh, "The Emergence of Creation Theology," 21–34; Benjamins, "The Analogy between Creation and the Biblical Text," 13–20.
5 Genesis Rabbah 1,1; and see the discussion of the material examples involved by Visotzky, "Genesis Rabbah 1, 1," 127–40.
6 Iannello, "Il motivo dell'aspidochelone," 154–56.

God embedded signs in the world that could be read by human beings with the proper knowledge and consciousness."[7] Thus, the late antique interest in creation was largely concerned with discovering, identifying, contextualizing, and explaining divine signs, miracles, and secrets; terms that correlate in Late Antiquity.[8] The articles collected in this special thematic section draw attention to the ways in which miracles, and especially nature miracles described by ancient Greek periegetic writers and often collected in lists ('paradoxographies'), have been used to explain 'signs' identified in Scripture, such as ambiguous and unknown words, but also how Scripture was used to explain these wonders. Both Jews and Christians used the miracle—pagan or biblical—to explore uncharted territories of knowledge in Late Antiquity, and both communities continued the paradoxographic tradition and composed lists of biblical miracles or of miraculous deeds by Saints.[9]

The importance of signs is reflected in the sophisticated and extensive vocabulary the period used to describe them, such as Greek *ἔργον*, *σημεῖον*, *τέρας*, *θαῦμα*, *δύνᾰμις*; Latin *virtus*, *signum*, *prodigium*, *miraculum*, *potentia*; or Mishnaic Hebrew גבורות, מעשה, פלא, נס, סימן, אות.

In Late Antiquity, terms reflecting divine intervention but also describing properties of things, such as *δύνᾰμις*, *potentia*, and גבורות replaced earlier terminology of divine intervention (*τέρας* and מופת), while *γνώρισμα* (originally "token of identification or recognition") and נס (originally "landmark") were newly introduced to refer to places where miracles occurred.[10] Much of this vocabulary is characterized by the sensual reaction of the human body to a "miracle act," the physical and intellectual response to the bewilderment caused by the sensory perception, usually through sight, of the unexpected.[11] In spite of the rich vocabulary, the modern distinction between miracles as things that happen beyond nature and are hence attributed to a divine power, and marvels as inexplicable but natural events, was not absolute in Antiquity and did not bear on the terminology.[12]

7 Swartz, *The Signifying Creator*, 2. As Swartz points out, this idea and its conclusions were also relevant to discourses on non-textual creation.

8 Guttmann, "The Significance of Miracles for Talmudic Judaism," 366 and n6, citing Tillich, RGG IV, 669, "Geheimnis, Wunder und Offenbarung sind Korrelatsbegriffe."

9 See, for example, m. Avot 5:6 for three lists of ten miracles each, one of which (the 10 miracles at the Red Sea) is detailed in the Mekhilta de Rabbi Yishmael, Beshalch 5, see Stemberger, "Wunder und unglaubwürdige Ereignisse im rabbinischen Judentum," 22, or a list of six miracles in Midrash Numeri, Sifre Bemidbar 131, cited in Stemberger, 24. See further Amsler, "Late Antique Art and Paradoxography," for the paradoxographic programme that seems to govern the floor mosaic of the Huqoq synagogue. On Christian miracle lists of Saints and how they relate to and differ from ancient paradoxographies, see Doroszewska, "Stunning with a List, Dazzling with a Catalogue," 159–91.

10 See Moule, "The Vocabulary of Miracle," 235–38; Kadushin, *The Rabbinic Mind*, 161–62; Becker, *Wunder und Wundertäter*, 184–203. To Becker's evidence should be added that the LXX translates גבורותך in Deut. 3:24 as *δύναμίν σου* (196n43). On the increased use of *γνώρισμα* in Late Antiquity, see Hähnle, "ΓΝΩΡΙΣΜΑΤΑ," 141.

11 I borrow the terminology "miracle act" from Prêtre, "The Epidaurian Iamata," 17, which quite literally captures the meaning of the Greek *ergon* or Aramaic מעשה, which both mean "deed" or "act."

12 Gerolemou, "Introduction," ix, and Bartlett, *The Natural and the Supernatural*, 1–33.

Late antique scholars and exegetes who sought to systematically decipher creation, understand the biblical text, and map out God's plan for the past and the future often relied on the knowledge compiled in paradoxographies, collections of natural wonders. Under a creationist lens, this ancient natural history with its emphasis on wonder, described the extraordinary features of creation such as huge or peculiar fauna and flora, rivers, springs or lands with special qualities, astonishing races were read as signs and examples of the deep primordial past and the distant messianic future.

The genre name paradoxography is an old neologism, first used in the sense of "paradoxographer" by the Byzantine scholar John Tzetzes (1110–1180 CE).[13] Beyond the controversies of whether the lists constituted a genre or not, paradoxographies offer modern scholars a way to understand ancient and medieval concepts of the miraculous and paradoxical, for the collections are attempts at category-making.[14] Their telling titles such as *On Wondrous Things*; *Wondrous Stories*; *A Collection of Wondrous Things*; *Inquiry on the Paradox*; or *A Collection of Inquiries on the Paradox* point to the existence of fairly stable notions of what classifies as "wonder."[15] The formation of the category seems to have originated in the Hellenistic period, enabled by the Alexandrinian bibliographical project and the spread of libraries.[16]

The anonymous late antique Christian work *Physiologus* is a good example of how this knowledge was put to use. The *Physiologus* mined paradoxographical knowledge for particular characteristics of undomesticated animals to explain Scripture. The analogy between biblical text and creaturely behavior also explained the purpose of the latter reciprocally. Since the work's content has often been described as "fabulous" or "fantastic" by modern scholars, the *Physiologus*' reliance on the natural history of its day cannot be stressed enough.[17] Suggestions for the *Physiologus*' time of origin range between the mid-second century and the second half of the fourth century CE. The work's vivid content seems to have had an immediate impacted on art, and it was already translated in Late Antiquity and the early Middle Ages from Greek to "Ethiopic, Armenian, Georgian, Syriac, Coptic, Arabic, Romanian, Old Church Slavonic, and Latin."[18] The beauty of nature wonders, which by definition escape and exceed habitual knowledge patterns, is that they invite many different interpretations. At the same time, there is no end to nature wonders. Copies and translations of the *Physiologus* therefore often enrich the

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13 In the *Chiliades* 2.35.131; see Geus and King, "Paradoxography," 432.

14 For the most recent controversy over "genre," see the back-to back discussions of Høgel, "Telling a Thauma in Hagiography and Paradoxography," 40–48 (paradoxography is a genre); Nilsson, "To Render Unbelievable Tales Believable," 59–80 (paradoxography is not a genre).

15 Geus and King, "Paradoxography," 432.

16 See Jacob, "De l'art de compiler," 121–40; Overduin, "In the Realm of the Two-Headed-Snake," 74–75. A summary of the Alexandrinian intellectual project is provided by Thomas, *Art, Science, and the Natural World*, 5–18.

17 Spittler, "The Physiologus and the Apocryphal Acts of the Apostles," 153, and references there.

18 The first mention of the *Physiologus* is by Tyrannius Rufinus in 407/408; see Iannello, "Il motivo dell'aspidochelone," 154; Eggenberger, "Der Physiologus Bernensis," 191. On translations, see Gohar Muradyan, trans., *Physiologus. The Greek and Armenian Versions with a Study of Translation Techniques* (Leuven: Peeters, 2005), 1.

text with more examples or add different interpretations.[19] It was also not long before the text was stripped of its biblical allegories by some redactors, as for example in the alphabetical *Glossary of Ansileubus*.[20]

Based on a cursory comparison of two recensions, the paragraph on a giant fish (*kētos*/ *κῆτος*) called *aspidochelonēs* (*ἀσπιδοχελώνη*) may serve to paradigmatically illustrates the interpretative potential of the wonder.[21] Two natures (*φύσεις*) of this giant sea creature are interpreted allegorically in this paragraph: its habit to dive if mistaken by sailors for an island, and the fragrant breath with which it lures food into its mouth.[22] The Greek recension A begins the respective paragraph with the fragrant breath and interprets it with Proverbs 5:3–5, "For the lips of the adulterous woman drip honey, and her speech is smoother than oil;… ." Recension B, on the other hand, sees the characteristic as an allegory of 2 Cor. 2:11, "… For we are not unaware of his [Satan's] schemes."[23] In total, the passage cites or alludes to seven different biblical verses, followed by biblical and hagiographical examples of people who escaped malevolent humans. On the other nature of the fish, we read:

> The other nature of the sea creature is that it is very big and resembles an island. Ignorant seafarers attach their vessels to it as if it were an island. They anchor their ship and hammer down stakes. They light a fire on top of the fish to cook what they need. As soon as the animal feels the heat it dives into the deep and takes the ships with it.[24]

The text is interpreted allegorically as referring to a man who puts his hope in the devil and will be taken with the latter down to Gehenna, the place of future punishment (*γέενναν*).

A Syriac book of natural history, possibly translated from Greek, contains the exact same facts in an entry on the *kētos*-creature, yet without the biblical allegories.[25] It is tempting to see this text as the source of the nature wonders in the *Physiologus*, but as we have already seen, the reverse is also possible. The back and forth between reference works and literary texts shows that the hard facts, such as the two natures of the *aspidochelonēs,* were taken seriously. These facts were eventually woven into texts that appear to modern scholars to be completely fictional, but which were the product of

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19 Cf. the overview of different arrangements in Lauchert, *Geschichte des Physiologus*, 107–9.

20 See Curley, *Physiologus,* xxviii.

21 Aelian (*De natura animalium*, 122–23) and Pliny (*Historia naturalis* 9.4,11) talk about other sub-species of the *kētos* and the *kētos* itself, the mythological sea monster that wanted to swallow Andromeda.

22 Aelian, *De natura animalium* 2.21, records a snake that attracts birds with its breath.

23 For recension A, see Kaimakis, *Der Physiologus nach der ersten Redaktion*, 55a; for recension B, see Lauchert, *Geschichte des Physiologus*, 249.

24 *Physiologus* 17. Based on the Greek text and translation by Schönberger, *Physiologus: Griechisch/Deutsch*, 32 (slightly revised).

25 Ahrens, *Das Buch der Naturgegenstände*, 73 (§ 100).

serious research and served as a form of "edutainment" or even "scientific imagination" for people in Late Antiquity.[26]

While the *Physiologus* described the fact that a certain fish was mistaken for an island as one of its characteristics, other authors switched to the perspective of seafaring adventurers, often interweaving several wonders of the sea into a gripping and informative first-person account, a kind of a paradoxical *periplus* (a description of coastal landmarks and the surrounding waters). Of course, exploratory expeditions always yield surprising finds and new experiences, but many of the ancient *periploi* were clearly not written by seafarers themselves, and the authors took poetic license. One of the earliest *periploi* describes the voyage of the Carthagian explorer Hanno, who ventured beyond the rocks of Gibraltar and Maroc—the pillars of Heracles—which symbolized the end of the world to the Greeks. The further south Hanno traveled, the more the vegetation changed, and the crew saw things they had never seen before.[27] As a literary text, the *Periplus of Hanno* was still read in Roman times, as were other *periploi* such as the *Periplus of the Erythraean Sea*. Though the latter maintains a factual style, it often digresses into political and mercantile issues, which would not be necessary if the goal were truly coastal orientation, but from the beginning the genre seems to have been intended to inform a broader audience about distant lands in an engaging way.[28]

The "fish that looks like an island" certainly had great potential to be engaged with in various ways. For example, the pseudepigraphic letter attributed to Alexander the Great addressed to his teacher Aristotle describes how Alexander and his army nearly drowned on his expedition to India because they mistook a fish for an island.[29] The same fish also appears in the travelogues of the Talmudic sage Rabbah bar bar Hanah, and in the early medieval stories of *The Seven Voyages of Sinbad the Sailor* or *The Voyage of Saint Brendan the Abbot*.[30] Even the Avesta and later Middle Persian literature refer to a dragon mistaken for a picnic place.[31]

The search for parallel motifs is easy and quickly fruitful. In the past, this has led to overly simplistic and hasty classifications of certain motifs as derivative and 'popular,' resulting in the classification of the respective stories as fictional entertainment drawn from common lore. However, the proliferation of certain paradoxographic knowledge in Late Antiquity does not necessarily indicate a culture of imitation based on borrowing and adapting plots but may instead point to a common intellectual quest to contextualize, use, and make sense of the nature wonder as part of creation and still significantly

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[26] Spittler, *Animals in the Apocryphal Acts of the Apostles,* 7; and ní Mheallaigh, *The Moon in the Greek and Roman Imagination*, esp. 112-120.

[27] See the summary in Romm, *The Edges of the Earth in Ancient Thought*, 19–20.

[28] Casson, *The Periplus Maris Erythraei*, 7–10; 45–47.

[29] *Alexander Romance* (3.17); b. Baba Batra 73b; for the first voyage of Sinbad see Coulter, "The 'Great Fish' in Ancient and Medieval Story," 37–38; for the ninth/tenth century CE work on Brendan, see Iannello, "Il motivo dell'aspidochelone," 151–63, and Mackley, *The Legend of St. Brendan*, 14–16.

[30] See Konstantakos, "The Island That Was a Fish," 185–86; for Saint Brendan, see Iannello, "Il motivo dell'aspidochelone," 162–63.

[31] Yasht 19.40; Yasna 9.11; Zamyād-Yašt 6:40-41, see Konstantakos, "The Island That Was a Fish," 290.

Figure 1: A *kētos* casting up Jonah as imagined around the end of the third century CE, Anatolia (The Cleveland Museum of Art 1965.238, https://www.clevelandart.org/art/1965.238). A similar snake-like *kētos* swallowing and emitting Jonah is also depicted on the fourth century CE Brescia Lipsanotheca. In a Syriac paradoxography, the *kētos* is warded off with menstrual blood, something that the Babylonian Talmud suggests as a therapy against a lustful primordial snake (b. Shabb. 110a). See § 101 in Ahrens, *Das Buch der Naturgegenstände*.

distinct from it. Indeed, while the time under question catalogued miracles, a hymn by Isaac Watts from 1715 lets the congregation sing: "Lord, how thy wonders are displayed wherever I turn my eye."[32] If everything is a wonder, however, nothing is significant anymore.

2 Mapping the Book(s) of Nature and the Bible onto each other

In a forthcoming article, Philip Thibodeau observes that ancient empiricism includes not only to direct observations in nature, but also to observations in books. This explains well what we have observed so far, namely that the phrase 'book of nature' seems to refer to books about nature, and especially the knowledge collected in paradoxographies, rather than being a metaphor for actual nature, i.e., creation. Augustine actually asks for someone to write a book specifically on the fauna, flora, and mineralia of the Bible and their properties for exegetical purposes.[33] His "field glasses" take the form of books.

In a program explaining which secular books monks should study to "obtain knowledge of this world," the sixth-century CE Christian scholar Cassiodorus suggests that the monks read certain geographical works.[34] Interestingly, he emphasizes the very visual images that these texts, accompanying illustrations and maps, create, and how they allow for mental travel.

> I urge you also that it is useful to read through geographical writings so that you know the location of each place you read in holy books. You will fully achieve this if you hasten to read carefully the small book of Julius Orator that I have left you. He has included in four sections information on the seas, islands, important mountains, provinces, cities, rivers, and peoples; almost nothing relevant to an understanding of geography is lacking in the book. Marcellinus of whom I have already spoken should also be read with equal care. He described in minute detail the cities of Constantinople and Jerusalem in four books. Then learn from Dionysius' briefly sketched Map where you may almost see with your own eyes what you heard of in the book mentioned above. Then if you are fired up with interest for this noble subject, you have the book of Ptolemy who described every place so clearly that you might almost think that he was an inhabitant of all regions. Thus, although you are in one place (as monks ought to be) you may traverse mentally what others in their travels have collected with great deal and effort.[35]

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32 No. 152: "I sing the Almighty Power of God," in the *United Methodist Hymnal*, 62.

33 Augustine, *De doctrina christiana* 2.39.59, and see discussion by Heyden, "Liber creaturae und sacra scriptura," 162–64.

34 *Institutions* 1.1. Translation follows *Cassiodorus: Institutions of Divine and Secular Learning and On the Soul*, 105.

35 Institutions 1.15.1-2. Translation follows Cassiodorus, 157–58. The references pertain to Julius Honorius' *Cosmographia*; to Marcellinus Comes' work on Jerusalem and Constantinople, which is not extant; to Dionysius Periegetes' *Pinax mundi*; and to Ptolemy's *Geographia* (see Cassiodorus, *Cassiodorus: Institutions of Divine and Secular Learning and On the Soul*, 157n215-217 and 158n218).

In such mental journeys, even the edges of the inhabited world, the *oikoumenē* could be visited, just as Ptolemy had, in a sense, 'mapped them within reach.'[36] Already in Homer, the most remote borders of the world—*ta eschata* in Greek geographical vocabulary—became intertwined with distant time, the past Golden Age, when gods mingled with humans.[37] In the monotheisms of Late Antiquity, these places were aligned with the future in which everything will be different, and in which extremely good and bad things will happen, just as in the most faraway places.[38] *Terra incognita* and *mare incognitum* both become sites of utopian speculation.[39]

Yet, a utopia does not have to be far removed in a geographical sense. The rabbinic sages consistently imagine the Land of Israel as a place of megafauna and megaflora based on the biblical testimony, such as a description of the people in Canaan as giants (Anakites) and a grape cluster that has to be carried by two people (Numbers 13:21–28). But also verses like Psalm 72:16: 'Let abundant grain be in the land, to the tops of the mountains' were interpreted under the same premise.[40] Even though some Babylonian rabbis have seen at least parts of the Land of Israel, they evaluated it through the biblical filter.

Paradise, or, more precisely, the garden of Eden, is another concept that was associated with both a distant time and a distant place in Late Antiquity. The different associations, however, depended on the language in which people studied Genesis 2:8: "Now the Lord God had planted a garden in the east, in Eden; and there he put the man he had formed." The Hebrew word *qedem*, translated here as "east," can also mean "before" in a temporal sense. Readers and listeners of the biblical text in Hebrew have tended to understand it in the temporal sense, and the Aramaic Targums translate it accordingly.[41] Several rabbinic texts therefore include the garden of Eden into their lists of things that God had created *before* the beginning of the seven days of creation.[42] The LXX, on the other hand, translates the Hebrew *qedem* as "east," causing Greek speaking Jews and especially late antique Christians to struggle with the precise location of this earthly paradise. Some thinkers place it on the other side of the *Ōkeanos*, with the four rivers that emerge from it (the Euphrates, Tigris, Gihon and Pishon) and that flow

36 Ptolemy was not the one who invented latitudes and longitudes, but he compiled the biggest record (over 6000 respective indications) in his *Geographia*; see Talbert, *Roman Portable Sundials*, 117–20.

37 Gazis, "Beyond the Stream of the Ocean," 111–13.

38 On the geographical dimension of the terminology see Romm, *The Edges of the Earth in Ancient Thought*, 38–41; or Liddell and Scott, *A Greek-English Lexicon*, s.v. ἔσχᾰτος.

39 Geus, "Utopie und Geographie," 56.

40 On rabbinic testimonies to the colossal fauna and flora in the Land of Israel/Canaan, see Berkowitz, "The Tall Tales of Babylonian Talmud Bekhorot 57b," 13–14, citing b. Bekh. 57b; b. Ketub. 111b; b. Hullin 59b. Berkowitz reads b. Meg. 6b in the same sense as "the Talmud does not reserve colossal-scale flora, fauna and people for the land of Israel alone" (14) but also for Rome. Yet b. Meg. 6b does not refer to divine creation, but to human constructions such as the gigantic size of Rome, the size and number of its marketplaces and baths.

41 Inglebert, *Interpretatio* Christiana, 81n231.

42 The reference to Gen. 2:8 is made explicit in *Tanhuma Buber* Naso 19, cited in Swartz, *The Signifying* Creator, 23.

beneath the waters of the *Ōkeanos* into the *oikoumenē*; others imagine it as a more or less hidden place in the far East.[43] Northern India was an area traditionally associated with many wonders.[44] For example, in the *Life of Makarios the Roman* Theophilos and his companions encounter people of the dog-headed race, the Cynocephali that Ctesias had located in India, only about twenty miles away from Paradise.[45]

The interest in this distant and time-transcending place caused a paradigm shift. The Orient, actually the geographical periphery from a European perspective, gradually moves to the center and becomes the focal point of *orient*ation on early Christian T-O maps, with Asia being twice as large as Europe or Africa. European Christians moved themselves to the periphery on their material and, hence, on their mental maps. The Hereford *mappa mundi*, created in England around the year 1300 and an elaborate version of the basic T-O scheme has Jerusalem in the center, the Garden of Eden at the top with Christ on his throne just above it (but outside the *oikoumenē*), while England occupies a very small place in the lower left corner.

Another divide in the theorization of nature miracles caused by the language in which the biblical text was read concerns the already mentioned idea of pre-creation. As Felix Böhl has shown, the concept goes back to Genesis 2:2, which, in the Hebrew Bible reads: 'On the seventh day God finished the work that had been undertaken.'[46] This implies that the first Sabbath was not entirely without work. Midrash Bereshit Rabbah 10:9 connects this fact to the difficult question of *exactly* when the Sabbath begins during twilight. While this is a difficult question for humans, God knows. That is why he could finish some work during this time without working on the first Sabbath. Although several lists exist of things that were created in the twilight of the first Shabbat (like the mentioned garden of Eden), Böhl has shown that seven items show up on every list and it is likely that they constituted the very first list.[47] All these items are described by the biblical text as acts of God: the rainbow, the manna, script, incision (of writing), and tablets (of the ten commandments); the mouth of Balaam's donkey; and the mouth of the earth (that swallowed Korah and his kin).[48] The list were expanded to accommodate

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43 Inglebert, *Interpretatio Christiana*, 82–85.

44 Inglebert, "Pars Oceani Orientalis," 189–92.

45 See van Pelt, "The Life of Makarios the Roman."

46 Translation follows JPS. See Böhl, "Das Wunder als Bedingung," 82–84.

47 Böhl, 79.

48 Rainbow: *I set* my bow in the clouds (את קשתי נתתי בענן, Gen 9:13); manna: *I will rain* bread for you from heaven (ממטיר לכם מן השמים, Ex 16:4); script, incision, and tablets: The tablets *were God's work*, and *the writing was God's writing*, incised upon the tablets (והלחת מעשה אלהים המה והמכתב מכתב אלהים הוא חרות על הלחת, Ex 32:16); the mouth of Balam's donkey: And יהוה opened the mouth of Balaam's donkey (ויפתח יהוה את פי האתון , Num 22:28); the mouth of the earth that swallowed Korah: But if יהוה *creates* something new, so that the ground opens its mouth and swallows them up with all that belongs to them, and they go down alive into Sheol (ואם בריאה יברא יהוה ופצתה האדמה את פיה ובלעה אתם ואת כל אשׁר להם וירדו חיים שׁאלה , Num 16:30), cf. the discussion by Böhl, 79–82. After his initial claim that the items on the core list of seven are all works of God, Böhl focuses on the manna's location in heaven, and the fact that Hebrew "my (rain)bow" (*kashti*) is spelt like "my likeness" (*kishuti*). Thereby, he ultimately fails to recognize the mouth of Balaam's donkey as a work of God and not a mere association of yet another 'mouth.'

more and even non-biblical items, like the first tong with which other tongs could be made or the enigmatic *shamir* that helped Solomon build the temple without producing noise, but the gist is clear: nature wonders have been part of the creational process.[49] Thus, obvious changes to the order of creation in the biblical narrative that are only indirectly attributed to God are explained by decrees that God imposed on certain elements during the six days of creation and that commanded them to behave differently at a given point in time (e.g., the opening of the Red Sea, the feeding of Elijah by ravens, the standing still of sun and moon on Joshua's command).[50] This latter explanation also resonated with readers of the LXX, whose text read at Genesis 2:2: 'And God finished on the sixth day his works which he made,' and thus did not have the challenge or, rather, the possibility of reckoning with the creational wonder-working power of the first twilight.[51] Jewish and Christian readers of the Septuagint, such as Augustine, had to solve two puzzles: how creation can renew itself daily even though the work of creation ended after seven days, and the place of divine miracles, such as seemingly spontaneous creations, in creation. Augustine correlated both with the second creation narrative (Gen 2), in which the ground brings forth the trees, and saw the reason for repeated and seemingly spontaneous creation in a seed-like predisposition. He concludes that creation "is endowed with a dual potentiality, one that allows for the natural development" of creation "and another that allows for the miraculous development" of creation."[52]

The late ancient natural history clearly developed in tandem with the Bible and the books of nature. The already encountered *aspidochelonēs* was introduced as a *kētos*-creature in the Physiologus; these creatures were created on the fourth day of creation together with all the other life in the sea according to Gen 1:21, and from the information given there, other characteristics of the animal could be inferred. In his homilies on the six days of creation, the *Hexaemeron*, Basil of Caesarea, while relying on the already mentioned characteristic island-like size and shape of the animal, places the *kētos* into the deep and inaccessible waters of the *Ōkeanos*, the stream encircling the three known continents Europe, Asia, and Africa:

> *Let the waters bring forth* (Gen 1:20).
> What necessary things were not created immediately?!
> What luxury was not given freely to life?!
> Some [were given] to supply the needs of humankind, some to make the human an observer (θεωρίαν) of the marvel of creation.[53] But some are terrible (φοβερὰ), so as to take our idleness to school.

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[49] See the synopsis of respective lists in Swartz, *The Signifying Creator*, 81.

[50] See Böhl, "Das Wunder als Bedingung," 85, and references there.

[51] *καὶ συνετέλεσεν ὁ θεὸς ἐν τῇ ἡμέρᾳ τῇ ἕκτῃ τὰ ἔργααὐτοῦ ἃ ἐποίησεν*. On the text of the LXX see Böhl, 83–85.

[52] Augustine, *The Literal Meaning of Genesis* 6,13, paraphrased by Moffatt, "Augustinian Miracles," 58–77, and see Böhl, "Das Wunder als Bedingung," 89–90.

[53] Against Blomfield's "contemplate" I prefer "observe," a sense in which the verb θεωρέω is often used in Aristotle; see Liddell and Scott, *A Greek-English Lexicon*, s.v. θεωρέω. Basil quotes Aristotle 19 times in the Hexaemeron according to Blomfield, 341.

God created great kētē-creatures (κήτη, Gen 1:21). Scripture gives them the name of 'great' not because they are greater than a shrimp and a sprat, but because the size of their bodies equals that of great hills. Thus, when they swim on the surface of the waters one often sees them appear like islands. But these monstrous creatures do not frequent our coasts and shores; they inhabit the sea called *Atlantikon*. Such are these animals created to strike us with terror (φόβον) and consternation (ἔκπληξιν).[54]

Quite explicitly, at least for his readers, Basil moves the *kētos* to the ends of the world, the Atlantic, the sea beyond the pillars of Hercules, the western outermost end and border of the inhabited world, *oikoumenē*. Like the last things at the end of time, the "last" and distant spaces exist to frighten humankind in order to educate them and to instill a sense of respect for the Creator, the original meaning of *thauma*.[55] Jacob of Serugh's sixth century *Hexaemeron* fully returns to the image of the *Ōkeanos* as the deep, encircling, serpentine primordial sea.[56] In Jacob's view, the leviathan (Ps 74:14; Isa 27:1; Job 41) also belongs to the category of primordial sea monsters (Greek: *kētē*/Hebrew: *tannin*). Moreover, the creature is synonymous with the primordial deep waters, *tehom* (Gen. 1:2).

The command demanded the little waters (to produce) small, creeping, living beings and the abundant waters (to produce) large fish and stout, creeping, living beings. The unlimited bottomless abyss (*tehum*) it demanded to make sea serpents grow as itself. … Behold, in the boundless abyss there is a leviathan which is large as the sea, and which is as boundless.[57]

3 Modern and Ancient Concepts of Nature and the Purpose of this Special Thematic Section

Paradoxographies do not explain miracles, they list them in prose. By way of organization, they create a web of possible connections.[58] For the biblically oriented religions of Late Antiquity, they served as an initiation into the miracles of creation.[59] Knowledge of the particulars of nature and their correlations with the biblical text was sufficient—no additional explanation of the miracle was needed. This self-sufficiency of paradoxographies has long troubled modern scholars, who interpreted the lack of explanation as sloppy scholarship, a mere exercise in antiquarianism and compilation techniques.[60]

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54 Hexaemeron 7, 68E–69A. The translation follows Schaff and Wace, eds., *The Treatise de Spiritu Sancto*, 94, slightly modified.

55 Liddell and Scott, *A Greek-English Lexicon*, s.v. θαυμάζω, b. *honor, admire, worship*.

56 See Romm, *The Edges of the Earth in Ancient Thought*, 43, and generally his discussion of the concept of *Ōkeanos* there.

57 Jacob of Serugh, *Hexaemeron* V 43–46. 55–56. Translation follows Muraoka, *Jacob of Serugh's Hexaemeron*, 129.

58 See Jacob, "De l'art de compiler."

59 Heyden, "Liber creaturae und sacra scriptura," 161.

60 Jacob, "De l'art de compiler," 121, summarizes this type of argument.

More recently, it has been pointed out that existing explanations were not thoroughly removed, and that the sense of wonder did not hinge on these explanations.[61] Moreover, in some cases, "the explanation itself may *be the marvel*."[62] The fact that paradoxographies are still scrutinized in ways other *peri*-texts are not (compilations of knowledge *on* (Greek peri, περι) something), shows how difficult it is for the modern mind to acknowledge the miracle as a fact in its own right.

The trope of ancient knowledge of nature being flawed, incomplete, and increasingly blurred at the edges is stubbornly persisting. Yet, to acknowledge that there is something unknown, that there are mysteries and wonders, is not a concession to ignorance, but sound knowledge in itself. No ancient map, for example, shows any awareness that its edges were "jagged and often imprecise."[63] Rather, there existed clear concepts of the extension of the *Ōkeanos* or the inhabitable zones beyond the torrid zone. The roots of the verdict of imprecision simply lie in the juxtaposition of old maps with modern ones. The ancients themselves did not have a sense that their knowledge was deficient.[64] It is not a sign of lack of knowledge, for example, that natural wonders are generally located at the ends of the world, but reflects the fact that the inhabited world, as conceived by the Greeks and Romans, is centered on the Mediterranean and its adjacent regions. Because of its temperate climate, the region is home to much less exciting fauna and flora than the tropical zones of Central Africa or India, or the spectacular natural phenomena of the polar zone. In the end, paradoxographies, like any other handbook, were sources of knowledge. And like any other such source, they were regularly contested and modified.

Few concepts have undergone such fundamental changes in meaning since Antiquity as the notion of wonder or miracle. Used and abused by secular and clerical leaders alike to implement their political agendas, miracles, whether perceived as the result of divine intervention or a "whim of nature," were discredited during the processes that led to the so-called "scientific revolution" of the 16th and 17th centuries.[65] Ultimately, a mechanistic and totalizing conception of nature, governed by rules that could be written into mathematical formulas, triumphed over more modest views that "suspend absolute judgments in favor of conditional ones ... and thrive as long as ambiguity and paradox were seen as productive and not considered either dangerous or ineffective."[66] Thus, miracles became the stuff of ignorance, the "beliefs" of the uneducated. At the same time, a dematerialized version of belief became the ideal, with the result that belief in matter and its potency was considered idolatry.[67] The burden of proof was now on those who

[61] Spittler, "Apollonios, Amazing Stories," 419–21.

[62] Spittler, "Apollonios, Amazing Stories," 421.

[63] Johnson, *Literary Territories*, 9, using a quote from Eco, *From the Tree to the* Labyrinth, 26. Early cognitive maps were mostly firmly encircled by the *Ōkeanos*. Although there were discussions about the number of continents, everybody thought to have a firm grasp on the facts.

[64] As Lehoux, *What Did the Romans Know?*, 15, succinctly put it: "It is not that the Romans knew only little and were puzzled about a lot, but that they thought—just as we do—that they had a pretty good idea of what was going on in the world."

[65] See Daston and Park, *Wonders and the Order of Nature, 1150-1750*, 329–63.

[66] Reill, "The Legacy of the 'Scientific Revolution', 42.

[67] Meyer and Houtman, "Introduction," 1–23.

believed in miracles.[68] However, proving a miracle on the basis of the current paradigm was and is impossible, because it places the miracle or paradox outside of law-governed nature. Yet, since the miracle is not subject to the laws of nature, it cannot be claimed to have actually occurred.[69] The Western concept of science and the construction of a nature that is supposed to *function* according to *laws* thus moved the miracle and the paradox of nature to the margins of knowledge production.

These views have profoundly influenced the way in which miracles have historically been studied by modern scholars. For example, while miracles attributed to divine intervention have been studied with great attention in theology, the wonders of nature suffered neglect. Typically, scholarly research questions about miracles revolve around credibility, the degree of skepticism applied by ancient authors, belief versus fact, emotion, or imagination.[70] The creative palette of possible research questions is obviously limited by our own cultural understanding of the miraculous, which sees little or no use for miracle stories. The view can be roughly described as follows: monsters are for children, inexplicable healings for the religious, and to philosophize is to see the miracle in the everyday.

The days when ancient miracle collections were called the "tabloids" of Antiquity are luckily behind us.[71] But the need to compare their content with that of "more serious" genres remains, and the recent postmodern attempts to rehabilitate the miraculous through the emotion-curiosity-knowledge symbiosis does not contribute as much as it promises. Based on the work of Stephen Greenblatt or Ralf Neer, for example, the "aesthetic and emotional resonance" of *thauma* (wonder) in Antiquity or its usefulness as a theoretical concept "in the practice of cultural poetics" can be analyzed fruitfully.[72] But while miracles can evoke emotions (good or bad) and arouse curiosity, both of which are prerequisites for the production of knowledge, the ancient engagement with miracles was not only emotional, and thus somewhat haphazard, but very systematic.[73]

Paradoxographies should therefore be taken seriously and on a par with other systematic projects of knowledge organization of the time, such as aetiologies, aretologies, historiographies, and ethnographies. Sometimes paradoxes are embedded in a "rhetoric of the marvelous;" at other times they may be encountered without special emphasis, simply as an established part of nature.[74]

Recent studies of the ancient concept of nature have nuanced its particularities if compared to the modern one. For example, ancient "nature" includes regular and para-

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[68] On belief as a (problematic) immaterial concept, see Meyer and Houtman, "Introduction," 1–3; Pels, "The Modern Fear of Matter," 27-39; on the different premises see Larmer, "The Meanings of Miracle," 42–46.

[69] See Basinger, "What Is a Miracle?," 27-28.

[70] E.g., Erlemann, *Kaum zu glauben*; Twelftree, ed., *The Cambridge Companion to Miracle*; Nicklas and Spittler, eds., *Credible, Incredible*; Remus, *Pagan-Christian Conflict over Miracle in the Second Century*; Brewer, *Wonder and Skepticism*; and countless punctual deliberations about the credibility of miracles wherever they appear.

[71] Thus Hansen, *Phlegon of Tralles' Book of Marvels*, 12–15.

[72] Lightfoot, *Wonder and the Marvellous*, 11 and 7.

[73] For this approach see, for example, Brewer, *Wonder and Skepticism in the Middle Ages*, 26–45.

[74] Schepens and Delcroix," 398.

doxical animals (e.g., unicorns, dragons, sea monsters, mythical creatures); humans and god(s); demons and angels.[75] Moreover, animate beings were not placed in strict hierarchical relationships to one another, but, rather, in a hierarchical order with considerable overlap between animals and demons; animals, angels, demons, and humans; or god(s) and humans.[76] Because of this lack of a concept comparable to modern dichotomies such as "natural/preternatural" or "immanence/transcendence," it is important to analyze the miraculous in the imperial period and Late Antiquity (or generally in premodern societies) along emic categories, and along the emic laws believed to govern the regular *and* the irregular, as well as emic conceptions of matter.

How a culture defines the possibilities and limits of matter largely determines what is considered possible and what is not. The mathematical, law-driven conception of nature that dominates modern scientific inquiry is the result of long negotiations about the potential of matter: is there or is there not a Cartesian divide between mind and body? Is matter pneumatic or inert? Is it independent, even capricious, or subject to laws?[77] Obviously, it makes a big difference to the notion of what is considered possible if nature is seen as matter filled with effective properties (*dynamis/virtus*), useful for various purposes, but only moderately controllable.[78]

The present thematic section is intended to stimulate further research that takes paradoxography and the ancient engagement with it to have been a serious scholarly pursuit that not only shaped but also advanced imperial period and late antique knowledge. The political and calendrical dimensions of miracles are discussed by **Maureen Attali**[79] in her paper on *Scroll of Fasts* (*Megillat Taanit).* The scroll lists 34 auspicious days on which fasting is forbidden because "miracles (*nissim*) have occurred for Israel" (Palestinian Talmud *Taanit* 2.13 and *Megillah* 1.8). The list served the Maccabees, the Hasmoneans, and finally the rabbinic sages to legitimize their authority. The alignment of *Megillat Taanit* with contemporary paradoxographical and aretological projects offers many new angles for understanding its purpose and meaning. **Robyn Walsh**[80] shows that the Gospel writers participated in the systematizing paradoxographic projects of their Roman contemporaries. In presenting Jesus as a miracle (*thauma*), the evangelists draw on content and literary topoi familiar from paradoxographies such as the eyewitness account and combine them with faith (*pistis*). It is precisely by adopting the aesthetically successful literary modes of their time, which obviously included paradoxographies, that the Gospels achieved acceptance and circulation: they met the literary expectations of the audience. **Monika Amsler**'s paper[81] then shows how the miscellaneous format of the

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[75] Gordon, "Good to Think," 25.

[76] Gilhus, "Animals in Late Antiquity and Early Christianity," 355–65.

[77] See Reill, "The Legacy of the 'Scientific Revolution.'"

[78] On different notions of *dynamis*, see Amsler, "*Voces magicae* and Imperial/Late-Antique World-Making. Part 1," 29–44.

[79] https://doi.org/10.36950/jndf.2026.4

[80] https://doi.org/10.36950/jndf.2026.5

[81] https://doi.org/10.36950/jndf.2026.6

genre allowed paradoxographies to be easily dissected and mined for individual paradoxes by other authors. These were then used to supplement the geographical scenery of narrative worlds or as philosophically and theologically productive objects to "think with." Even the Babylonian Talmud uses paradoxical material from Greek and Roman cognates, but the miracles were thoroughly "rabbinicized," that is, embedded in the hermeneutical world of the rabbinic sages and adapted to the discursive nature of the Talmud. The late antique hagiography *Life of Makarios the Roman* similarly uses paradoxographical material to overcome epistemological barriers and to imagine God's "unfathomable power and glory," as **Julie Van Pelt**[82] observes. This glory is easily demonstrated through the wonders of God's creation. Written in the genre of a travelogue to the ends of the world, the text is well designed to take the reader or listener from one extraordinary creature to an even more amazing one. Thereby, the *Life* dips into what Pelt terms the "paradoxographical mode." The result is a paradoxography woven into the *Life* of a saint which is shown to be the greatest marvel of all. The images of the synagogue in Dura Europos have already been analyzed from different perspective, but **Barbara Crostini**[83] is the first to apply to them the "lens of paradoxography." This allows her to explain why the panels depicting scenes from the life of the prophet Elijah do not follow the biblical narrative's chronological sequence. The panels clearly emphasize certain miracles, particularly the most dramatic ones. Indeed, many details in the drawings that seem to depart from the biblical text can either be explained as theater props or as being based on the scripts by the Jewish playwright Ezekiel the Tragedian. Painted masks also suggest that the space was used for theater performances. *Thaumata* were indeed the stuff of plays, and the word itself synonymously used for puppet show, toy theater, juggler's booth, menagerie, or mechanical devices.[84]

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[82] https://doi.org/10.36950/jndf.2026.7

[83] https://doi.org/10.36950/jndf.2026.8

[84] Liddell and Scott, *A Greek-English Lexicon*, s.v. θαῦμα. On the marvellous automata used in ancient (religious) theater, see now Bur, *Technologies of the Marvellous in Ancient Greek Religion*.

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