SCANDINAVIAN JOURNAL OF BYZANTINE AND MODERN GREEK STUDIES

No 8 • 2022

Constantinople and the Sea: Narratives of a Human-Nonhuman Ecosystem?*

Tristan Schmidt

"That's why the highest function of ecology is the understanding of consequences."[1]

In times of ecological crisis and growing environmental awareness, ecocritical approaches are becoming more relevant in the field of pre-modern cultural history.[2] The establishment of the term *anthropocene* created a marker in the division of historical time, defining the beginning of massive global anthropogenic effects on Earth's geosphere and biosphere.[3] Although it is still a matter of discussion how (far) humans contribute to current environmental changes, the emergence of such a category clearly indicates a historical shift in the perception of human relations to their natural environment.[4]

* I developed first ideas for this study while I conducted an A.W. Mellon Fellowship at the Byzantine Studies Center at Boğaziçi Üniversitesi, Istanbul. This article has been finalized within the project "Towards Byzantine Zoopoetics: Humans and Non-Human Animals in Byzantium (10th-12th Centuries)" at the Uniwersytet Śląski w Katowicach/Silesian University in Katowice.

[1] F. Herbert, *Dune,* Appendix I.

[2] For ecocriticism in Byzantine studies, see Goldwyn 2018; for Antiquity see Schliephake 2020.

[3] The term "anthropocene*"* has been popularized by P. J. Crutzen and E. F. Stoermer 2000, 17–18. For its history, see Schliephake 2020, 2–3.

[4] When I use the term "environment," I refer to the physical surroundings of humans and animals, including other living beings. Despite the environmental diversity and the fact that different species and individuals perceive in different ways (see J. v. Uexküll, Umwelt, 117-19), I generally stick to the singular ("environment", not "environments"), unlike some of the literature I cite. When more specific distinctions are needed, I introduce sub-categories, such as "marine environment" to refer to a

Whereas the current discourse on the environmental crisis highlights anthropogenic change, the perspectives of pre-modern humans rather oscillated between the awareness of limited control over their environment on the one hand and, on the other, of being confronted with often insurmountable challenges posed by the natural conditions they lived in.[5] To trace the environmental concepts that resulted from this duality, research depends primarily on preserved artefacts, and most of all on texts.

In the case of Byzantine studies, much of the written material so far has been studied with a focus on socio-economic history or on the natural environment offering figurative references to moral and political ideas or metaphysical beliefs. Ecocriticism and the related approaches of eco- and zoopoetics, in turn, result from a new awareness of an all-encompassing entanglement between humans, animals and the environment at large. The main focus of interest is human-environmental relations in texts. Emerging from modern literary studies and often presenting ethical concern about current environmental issues, however, these approaches are not specifically designed to examine questions relating to pre-modern cultural history. In this paper, I want to test the ways in which they can, nevertheless, help explore conceptual human-environmental relations in Byzantine society.

I will first describe the relevant key features of ecocriticism, zoopoetics and ecopoetics that will then be applied to a corpus of diverse Byzantine texts concerning the marine environment and its human and nonhuman inhabitants, mostly from a specifically Constantinopolitan perspective. Whereas these texts have previously been subjected to traditional figurative and human-centered readings, I will show that environmentally aware interpretations can uncover further, implicit information about their authors' and recipients' environmental concepts.

---

specific surrounding, "non-human environment" to highlight features that are relevant only from a specific perspective (here: of "humans" who separate themselves from "animals"), or "literary environment(s)" to emphasize that narratives both reflect and re-construct the physical environment in a literary space.

[5] For landscape instability, natural catastrophe and human resilience in the Mediterranean, see Horden and Purcell 2000, 304–12; 339.

The results of these case studies allow for an assessment about the benefits of a more "environmentalist" perspective on Byzantine texts, point out implications for traditional anthropocentric interpretations and provide insight into the role of the natural environment (above all, its fauna) in human literary production.

Definitions

Finding clear definitions for "ecocriticism" that go beyond C. Glotfelty's "study of the relationship between literature and the physical environment" is difficult.[6] As L. Buell, U. K. Heise and K. Thornber point out, "ecocriticism" or "environmental criticism" are to be understood as umbrella terms defining an "eclectic, pluriform, and cross-disciplinary" initiative, not "limited to any one method or commitment."[7] The common ground is a focus on ecological contexts and on environmental orientations in texts, either explicit or "at least faintly present," in the form of subtexts.[8] L. Buell's famous "checklist" names core markers that help identify environmentally oriented works:

1) The nonhuman environment is present not merely as a framing device but as a presence that begins to suggest that human history is implicated in natural history.

2) The human interest is not understood to be the only legitimate interest.

3) Human accountability to the environment is part of the text's ethical orientation.

4) Some sense of the environment as a process rather than as a constant or a given is at least implicit in the text.[9]

[6] Glotfelty, 1996, xviii.
[7] Buell, Heise and Thornber, 2011, 418.
[8] Buell 1995, 7.
[9] Direct quotations from Buell 1995, 7–8.

It remains an object of debate how far textual descriptions of nature can represent the material world at all.[10] Considering the mediation by ambiguously cultural coded signs and mental images, it is generally acknowledged that a 1:1 transmission from "reality" to "text" is hardly possible. While this demands caution when using texts as transmitters of environmental "realities," Buell and others direct their attention to *how* humans refer to the environment "aesthetically, conceptually, ideologically," and to the impact of human-nonhuman environmental contact on language and expression themselves.[11]

These perspectives overlap with the essential aims of historic research on the conceptual relationship between humans and their material *and* perceived/imagined environment. According to Buell, "environmental(ist) orientations" or "subtexts" may be encountered in any kind of fictional or non-fictional material.[12] This analytical openness allows including a wide range of pre-modern sources such as moral advice literature, historiography, Christian zoology, geography and apocalyptic texts that largely defy modern distinctions between fiction and non-fiction. Strongly relying on cultural/literary mediation, their references to the natural environment, including the prominent fauna, are often ambiguous, with no clear-cut line being visible between their descriptive and metaphoric use. These texts, nevertheless, claim to convey world-knowledge, although the sources for this knowledge were not necessarily premised on empirical data as we understand it, but included other acknowledged methods such as prophetic vision and the exegesis of religious authorities.

In their readings of texts, ecocritics generally take a systemic perspective on the environment and its ecosystems. In this regard, they differ from research currently conducted under the term "animal studies" that is "mainly focused on the study of individual or species-specific aspects […] animal collectives or individual animals in […their] socio-cultural contexts."[13] Researchers from the field of cultural animal studies

[10] Bühler 2016, 65–68.
[11] Buell 2005, 30–40, citation at 33; Driscoll 2015, 226.
[12] Buell 1995, 8.
[13] Middelhoff and Schönbeck 2019, 14.

have recently attempted to combine both views, focusing on "literary texts and cultural spaces in which animals *and* environments are created and reflected in ways which negotiate and underscore the relations and co-dependencies between" them.[14] Core to this type of research are the concepts of "ecopoetics" and "zoopoetics", both of which express a concern with the entanglements and mutual impacts of humans, animals and the environment in the *poiesis* of literary production, respectively from a systemic-environmentalist, or a species-related perspective. Both terms imply a strong attentiveness towards the environment and (non)human species, all of which are considered to be contributors to (seemingly) human-made literary works.[15]

Pioneers in zoopoetics such as A. Moe aim to acknowledge that nonhuman animals are in fact co-makers of human creative writing, in a way that the poet's attentiveness to their "gestures and vocalizations" ("bodily *poiesis*") leads to "breakthroughs in form," language, rhythm and content.[16] K. Driscoll points to the "constitution of the animal in and through language, but also the constitution of language in relation and in opposition to the figure of the animal," referring to the role of animal metaphors as reflecting but also co-defining how humans see and describe themselves.[17] "Attentiveness" is a defining feature also of ecopoetics, although with a stronger focus on the entanglements between humans and nonhuman agents with(in) their shared environment. Both eco- and zoopoetics focus on the reflection of these relationships in literature, but also on the impact of the environment and its nonhuman inhabitants on the human creative process and the *poiesis* of texts.[18]

---

[14] Ibid., 14.

[15] Eco- and zoopoetics can be seen as trends within the wider frame of ecocriticism. While ecocriticism describes the exploration of human-environmental relations in general, propagators of ecopoetics focus on the impact of such entanglements on human poetry (and vice versa) (See Skinner 2001, 6), while zoopoetics expresses an emphasis on the agency of animals and other non-humans that engage "the human other" and thus influence their production of literature (Moe 2012, 28-29).

[16] Moe 2014, 7; 10; idem 2013, 1–17.

[17] Driscoll 2015, 226.

[18] For the controversy on the prefix of "eco-" or "environmental" poetics and its theoretical implications, see Bühler 2016, 34–35; 40; Middelhoff and Schönbeck, 2019, 21–22. For the ethic component of the approach, see ibid, 23.

Based on the overlap between ecopoetics and zoopoetics within the wider frame of ecocriticism, F. Middelhoff and S. Schönbeck propose a typology of relations between animals and the environment in literature that will guide the present study of Byzantine texts. For them, animals can indicate that "humans (writers and readers) are not only part of literary environments in the process of writing and reading but [… are] actively involved in ecological contexts." "As signifiers, animals [including humans; T.S.] and environments are mutually inclusive or appear as metonymically related entities," indicating their contiguity and interrelatedness. Finally, literary animals and the environment can act "as ambassadors for each other […] raise awareness for ecological complexity [… and] advocate a change of perspectives, relativizing anthropocentric views by bringing us in contact with the place and the world."[19]

Application and Case studies

The following analysis explores the assumption that connections between humans, (other) animals and the environment at large can be traced in Late Antique and Medieval texts, revealing underlying concepts of human-environmental relations. With a few exceptions, such as A. Goldwyn's ecocritical readings of Byzantine romance literature and T. Arentzens, V. Burrus' and G. Peers' study on arboreal imaginations,[20] representations of animals and the environment in Byzantine narrative texts have mostly been regarded as framing devices of human stories and history, as elements of anthropocentric symbolic systems expressing political messages, moral guidance, and transcendental insights.[21] This approach of interpreting nature and animals in literary texts chiefly as figurative elements and backgrounds for anthropocentric speech, and less as manifestations of a materially present environment, is by no means invalid; humans clearly wrote for other humans, focusing on their own species' concerns and interests.

[19] Ibid., 26–27.

[20] See Goldwyn 2018; Arentzen/Burrus/Peers 2021 and Arentzen, 2019, 113–36.

[21] On pictorial/figurative art and literature, see Maguire 1987 and Schmidt 2020.

Previous studies prove that this anthropocentric approach yields fruitful results when it comes to the most explicit messages embedded in texts and artworks. This does not mean, however, that the analysis has to stop at that point. In fact, a great deal of potential would be left unexploited if we would not regard these texts as testimonies for how humans perceived their entanglements with fellow creatures and the surrounding environment, and how these entanglements affected the construction of the texts and of the world their authors lived in/with.

The approach here aims to demonstrate that ecocriticism, ecopoetics and zoopoetics can provide new readings of old texts. To explore their potential, I compiled a selection of rather diverse Byzantine texts, comprising historiography, apocalyptic material and encomiastic poetry between the 6th and the 12th centuries. None of these texts are strictly fictional, although most have a literary character. Their animal/nature imagery oscillates between material description and semiotic meaning.[22] The general claim of these texts, however, is to explain the world and relate the history of the past, the present and the future. The common ground is their concern with the sea and its aquatic fauna. Most of them are written either in or by authors familiar with the city of Constantinople, a place that was and still is deeply entangled with its marine environment.

This preference of writers, orators and audiences from the Eastern Roman capital is not just a result of their general overrepresentation in the preserved material; it is a methodological choice to narrow the discussion to testimonies that arguably shared some common perspective on a concrete physical (and imagined) space. At the same time, the diversity of the texts allows us to go beyond the limitations and specificities of individual genres and authors.

The principal idea guiding my analysis is that "environmental(ist) subtexts" can be found even in "works whose interests are ostensibly directed elsewhere (e.g., toward social, political, and economic relations),"[23] and that these subtexts, despite the often-figurative function

[22] For literary animals as material-semiotic hybrids, see Borgards 2016, 237, referring to D. Harraway's concept of figures as "material-semiotic nodes" (Haraway 2008, 4).

[23] Buell 2005, 29.

of the animals and other elements of nature occurring there, hint to underlying environmental concepts. Such readings, and this is my second point, do not necessarily challenge the traditional anthropocentrism in previous interpretations of these texts. A third aspect to be discussed is whether it is possible to trace animal *poiesis* that influenced the production of the texts under investigation, or rather, how this *poiesis* should be defined so that it can provide a useful category for how we define Late Antique and Medieval Byzantine human-environmental relations.

Procopius and the Whale

The first text to be discussed was written by the 6th-century historian Procopius of Caesarea. In his history of the Justinianic wars, he inserted an excursus on several misfortunes and unusual events happening in the empire around AD 547, briefly before Empress Theodora passed away. One of these events was the stranding of a whale (κήτος) "which the Byzantines called Porphyrios" on the Black Sea coast near Constantinople:

> This whale had troubled Byzantium and the places around it for more than fifty years, not continuously, though, but in intervals, sometimes after a long period of time. And it sank many ships and frightened those on board of many [others], […]. It happened that, while the sea was very calm, a large number of dolphins gathered near the mouth of the Black Sea. And when they suddenly saw the whale they fled […] most of them came to the mouth of the Sangarios [mod. Sakarya] river. The whale, having captured some of them, directly swallowed them. And, either [still] hungry or caught by ambition, it pursued [them] no less [than before], until it came close to the land without noticing [and stranded]. […] When this [news] reached those living nearby, they immediately ran to it and hacked continuously with axes from all sides […]. When they loaded it in wagons, they found that its length was about thirty cubits, its width ten […]. Some ate [the meat] immediately; others decided to preserve the part they received […].[24]

[24] Τότε καὶ τὸ κῆτος, ὃ δὴ Βυζάντιοι Πορφύριον ἐκάλουν, ἐάλω. τοῦτό τε τὸ κῆτος πλέον

According to Procopius, the appearance of the whale, together with other disasters occurring at that time (earthquakes and a detrimental Nile flood) prompted contemporaries to see a prophetic sign. The author comments that this was senseless twaddle (λόγῳ οὐδενὶ), although his criticism targets the concrete readings by non-experts, rather than the validity of signs and omens as such. In fact, he refers to omens on several occasions, and he apparently possessed detailed knowledge of the famous Sibylline Prophecies.[25]

J. S. Codoñer presents an intertextual interpretation of the episode in the light of Procopius' criticism of Empress Theodora and Emperor Justinian, arguing for a metaphoric reading of the whale and highlighting the sublime apocalyptic references. He points to the striking similarities between Porphyrios and the *porfyreos […] drakōn* from the Sibylline Prophecies, a sign of hunger and impending civil war.[26] Procopius' description of the whale being cut and eaten has parallels with biblical and apocalyptic texts on the fate of the sea monster Leviathan.[27] An apocalyptic reading gains particular weight considering that in his infamous *Anekdota*, Procopius openly demonizes the imperial couple.[28]

μὲν ἢ ἐς πεντήκοντα ἐνιαυτοὺς τό τε Βυζάντιον καὶ τὰ ἀμφ' αὐτὸ χωρία ἠνώχλει, οὐκ ἐφεξῆς μέντοι, ἀλλὰ διαλεῖπον, ἂν οὕτω τύχῃ, πολύν τινα μεταξὺ χρόνον. καὶ πολλὰ μὲν κατέδυσε πλοῖα, πολλῶν δὲ τοὺς ἐπιβάτας ξυνταράττον [...]. ἐτύγχανε μὲν γαλήνη τὴν θάλασσαν πολλὴ ἔχουσα, δελφίνων δὲ πάμπολύ τι πλῆθος ἄγχιστά πη τοῦ στόματος Πόντου τοῦ Εὐξείνου ξυνέρρεον. οἵπερ ἐκ τοῦ αἰφνιδίου τὸ κῆτος ἰδόντες ἔφευγον […], οἱ δὲ πλεῖστοι ἀμφὶ τοῦ Σαγάριδος τὰς ἐκβολὰς ἦλθον. τινὰς μὲν οὖν αὐτῶν καταλαβὸν τὸ κῆτος καταπιεῖν εὐθὺς ἴσχυσεν. εἴτε δὲ πείνῃ εἴτε φιλονεικίᾳ ἔτι ἐχόμενον οὐδέν τι ἧσσον ἐδίωκεν, ἕως δὴ αὐτὸ ἄγχιστά πη τῆς γῆς ἐκπεσὸν ἔλαθεν. […]. ἐπεὶ δὲ τοῦτο ἐς τοὺς περιοίκους ἅπαντας ἦλθε, δρόμῳ εὐθὺς ἐπ' αὐτὸ ᾔεσαν, ἀξίναις τε πανταχόθεν ἐνδελεχέστατα κόψαντες […]. ἔν τε ἁμάξαις ἐνθέμενοι εὕρισκον μῆκος μὲν πηχῶν μάλιστα τριάκοντα ὂν, εὖρος δὲ δέκα. […] οἱ μέν τινες αὐτοῦ ἐν τῷ παρόντι ἐγεύσαντο, οἱ δὲ καὶ μοῖραν ταριχεῦσαι τὴν ἐπιβάλλουσαντο, […]." Procopius, *de bellis,* 7, 424:9–425:16.

[25] Ibid., 425; Codoñer 2005, 38–41. For Procopius and omens, see Murray 2017, 113, and Cameron 1966, 475–76.

[26] *Oracula Sibyllina,* 8, 86–94. Here, too, the appearance of the dragon is accompanied by earthquakes; see also Codoñer 2005, 41–42.

[27] See ibid., 45–50; Ps. 73:14; Klijn 1976, 141. The Syriac text was translated into Greek.

[28] On Procopius' criticism of the imperial couple and Justinian's "demonic nature", see Roberto 2022, 358–60.

In fact, it is unlikely that he mentions the empresses' death directly after the story of Porphyrios' perishing and the "relief" it allegedly caused by chance.[29]

From this perspective, the appearance of the whale in Procopius' text is clearly due to more than the result of the author's curiosity. Its principal function was a political and moral comment on imperial leadership, framed in the context of salvation history. This anthropocentric symbolic reading, however, should not divert our attention from the likely fact that Procopius' story, independent of any literary embellishment, dealt with one or several very physical animal(s) that placed itself/themselves in the account and prompted contemporaries to make sense of an unusual and noteworthy event.[30]

In the 19th century, American author Herman Melville suspected that the background of Procopius' story was actually a real encounter with a sperm whale. Judging from the color and size given by the Byzantine author, as well as the fact that this species occurs in the Mediterranean, his assumption is not implausible.[31] The hunting of dolphins is unattested, even for predatory sperm whales, though – it would rather fit the behavior of Orcas or even pilot whales.[32] The attacks on ships reported by Procopius, find parallel evidence in reports of sperm whales ramming whalers in the 19th century, although other whale species

[29] See Procopius, *de bellis*, 7, 426:21. Compare to the description of Theodora as a whore (Procopius, *Anekdota,* 9, 56–61) and the connection of the whale to a whore in the *Physiologos*, 1st redaction, ch. 17, 64–68) and in Rev. 17, discussed by Codoñer 2005, 50–53.

[30] For whale sightings in the Bosporus and (stranded) sperm whales in the Eastern Mediterranean in the early modern and modern period, see Papadopoulos and Ruscillo 2002, 200–6, and Kinzelbach 1986, 15–17.

[31] See Melville 2002, 175; for the presence of sperm and orca whales in the Mediterranean, probably already in Antiquity and the Middle Ages, see Rodrigues, Kolska Horwitz, Monsarrati and Carpentieri 2016, 928–38, who describe it as likely that stranded species were scavenged in Antiquity, and Reese 2005, 107–14.

[32] Although Orcas and pilot whales tend to hunt and live in groups, while male sperm whales can be seen alone. I thank Felicia Vachon (Dalhousie Univ., Halifax, Canada) for sharing her expertise with me.

use ramming in male-male competition as well.[33] Procopius' story, therefore, might in fact be inspired by a real whale that was stranded near the Sangarios river in AD 547. Considering the inconsistencies in the whale characteristics, it is likely that his text was enhanced with fictional elements, perhaps mixing reports on different species, not least to accommodate the metaphorical readings.

Codoñer's interpretation of the scene as a political comment informed by apocalyptic imagery is doubtlessly useful in understanding the episode, but this is just one way in which it can be interpreted. A more environmentally oriented reading is possible, and this leads to implicit concepts of human self-positioning in the ecosystem surrounding them. Not only in social terms, but also from an environmentally oriented perspective, Procopius reports the transgression of an equilibrium: on a metaphoric level, Porphyrios embodies disruptions caused by Empress Theodora and Justinian's allegedly detrimental impact on the social order. However, already on the literal level, the material whale's appearance is described as a major disruption that affected the marine environment around Constantinople: a space where humans traveled, hunted and gathered fish, not very different from other native species such as the dolphins that are explicitly mentioned as further victims of Porphyrios.[34]

The whale does not necessarily fit the motif of uncontrolled nature threatening the human world *per se*, which was a commonplace idea in Byzantine literature.[35] In the shared marine environment, humans and other creatures are described as equally affected. For Procopius, the dolphins seem to take on the role of prototypical representatives ("ambassadors") of a wider marine space around Constantinople that, with many of its inhabitants, was disturbed by an external intruder. Beyond the anthropocentric imagery, a more sublime awareness of

[33] See Panagiotopoulou, Spyridis, Abraha, Carrier and Pataky, 2016, 2–3; 15, and Carrier, Deban and Otterstrom 2002, 1755–56; Melville 2002, 172–73.

[34] Dolphins, too, profited from the fish migrations in the Bosporus, at times destroying the fishers' nets: see Devedijan 1926, 244.

[35] The original sin was thought to have caused the transformation of animals into threats to humans. See Della Dora 2016, 122 and Maguire 1987, 68–69.

being part of a multi-species system becomes visible; a system shared by human and nonhuman inhabitants, that is characterized by internal geographic boundaries and proves vulnerable to disruptive imbalances from outside. This concept fits well with the idea of the marine space as characterized by local zones of regulated coexistence between human and nonhuman species, as we find it in the *Hexaemeron* by the 4th-century church father Basil of Caesarea, one of the most influential authors in the Christian zoo-geographic discourse:

> The whales know the dwelling place marked out for them by nature, they have received the sea outside the places inhabited [by humans], the [sea] without islands, where there is no mainland placed on the opposite side. Therefore, it is not navigable, no need for knowledge or for any other thing persuades the mariners to make a bold attempt. This [sea] is occupied by the whales that are like the largest mountains, as those who have seen [them] tell; they stay within their own boundaries and harm neither the islands nor the coastal towns. In this way, every species […] dwells in those parts of the sea that are assigned to them.[36]

Basil's division of the sea into inner and outer spheres was repeated in later writings, such as the 12th-century *Hexaemeron* by Michael Glykas. The spheres are not positioned as conflicting regions, but rather as parts of a larger system with mutually accepted boundaries. In distinguishing the marine fauna according to their main dwellings in the littoral and coastal areas and the high seas, Basil's description followed an established ancient geographical tradition.[37] Considering the prevalence of coastal seafaring and the perceived dangers from high sea travel as

[36] Οἶδε τὰ κήτη τὴν ἀφωρισμένην αὐτοῖς παρὰ τῆς φύσεως δίαιταν, τὴν ἔξω τῶν οἰκουμένων χωρίων κατείληφε θάλασσαν, τὴν ἐρήμην νήσων, ᾗ μηδεμία πρὸς τὸ ἀντιπέρας ἀντικαθέστηκεν ἤπειρος. Διόπερ ἄπλους ἐστὶν, οὔτε ἱστορίας, οὔτε τινὸς χρείας κατατολμᾶν αὐτῆς τοὺς πλωτῆρας ἀναπειθούσης. Ἐκείνην καταλαβόντα τὰ κήτη, τοῖς μεγίστοις τῶν ὀρῶν κατὰ τὸ μέγεθος ἐοικότα, ὡς οἱ τεθεαμένοι φασὶ, μένει ἐν τοῖς οἰκείοις ὅροις, μήτε ταῖς νήσοις, μήτε ταῖς παραλίαις πόλεσι λυμαινόμενα. Οὕτω μὲν οὖν ἕκαστον γένος […] τοῖς ἀποτεταγμένοις αὐτοῖς τῆς θαλάσσης μέρεσιν ἐναυλίζεται. Basil of Caesarea, Homilies, 119:11–19. See furthermore Michael Glykas, Annals, 68,10.

[37] See Zucker 2005, 133–40.

visible in Byzantine texts, however, the separation into a better known, accessible coastal zone and a deep sea inhabited and represented by its own creatures (whales!) conceivably reflects conceptual categories that were common throughout the whole Byzantine era.[38]

Comparing Basil's text with Procopius, we find in both an implicit sensitivity to what in modern terminology would be called a marine "ecosystem," a term describing the "biological community of interacting organisms" considered in relation "to one another and to their physical surroundings."[39] For Procopius, the idea of potential transgressions between zones in the marine space and the disruption of their internal equilibria seems to be the very condition for a further anthropocentric interpretation that points to the transgressions committed by the imperial couple. A similar approach is visible in the much later Byzantine court poetry by the 12th-century encomiast Eustathios of Thessalonike, who offers detail on the naval warfare between the Normans of Sicily and Byzantium. Here, the appearance of the Norman king's fleet off Constantinople is compared to a sea monster (*kētos*/whale) that left its assigned dwelling to threaten the Byzantine capital, before the emperor forced it into retreat:

> Neither will I keep silence regarding the great whale, the new Typhon, how it wanted to be roused up from afar and sound a roaring noise and be discharged in a wave upon our land; it was, however, not able to do this; the fear of the emperor that dropped in front of its eyes like a profound darkness (something which happens also to the greater *kētoi*) forced the beast to remain in its own abodes. But, when lately it was roused up from the west by over-boldness, […] it shook some of its horny scales […] and it danced purposelessly [in front of] the [city] which is nurtured by the waves, […], shortly afterwards, however,

[38] For coastal seafaring as the principal mode of navigation still in the 16th century, see Braudel, 1985, 94–98; Pryor and Jeffreys 2006, 105; 341; 354. For ambiguous attitudes towards the sea as a place of connectivity and opportunity, but also as one of grave danger in Byzantine literary texts, see Nilsson and Veikou 2018, 265–77.

[39] See "Ecology" and "ecosystem" in *Oxford Dictionary of English*, 2nd ed., revised (Oxford, 2006) 552–53.

the guide of its path, the over-boldness, departed, and the darkness of cowardice […] made it return […] to its own abode […].[40]

Eustathios' poem offers a discourse on political events. It is unlikely that the imagery was informed by a concrete encounter of a whale in the sea around Constantinople. The use of the *kētos*-image representing the Norman transgression that is then contained by the emperor, however, seems premised on a general understanding of the sea that is similar to what we find in Procopius and Basil: a space marked by boundaries and internal zones, vulnerable to disruptions and in need of protection and restoration of its order.

"Order" or rather "equilibria" are principal categories also in modern ecological studies. In his influential "first law of ecology", the cellular biologist B. Commoner stressed the "elaborate network of interconnections in the ecosphere: among living organisms, and between populations, species, and individual organisms in their physico-chemical surroundings."[41] Response-cycles allow the adaption to and correction of imbalances, but "there is always the danger that the whole system will collapse," especially due to "external intrusions into the system".[42]

Although an analysis of Byzantine texts through the lens of current day ecology is at risk of anachronistic projection, it is hard to deny that Basil, Procopius and Eustathios based their descriptions and anthropocentric metaphors on an understanding of the sea as a space of multi-species encounter, regulated coexistence, but also as a place

[40] Οὐκ ἂν οὐδὲ τὸ τοῦ μεγάλου κήτους σιγήσωμαι, τοῦ νέου Τυφῶνος, ὅπως ἤθελε μὲν ἐκ μακροῦ ἀνασαλευθῆναι καὶ φλοῖσβον θέσθαι καὶ τῆς καθ' ἡμᾶς γῆς εἰς κλύδωνα κατερεύξεσθαι, οὐκ εἶχε δὲ τοῦτο ποιεῖν, ἀλλ' ὁ βασιλικὸς φόβος ὅσα καὶ σκότος βαθὺς ἐπίπροσθεν πίπτων τῆς ὄψεως (ὁποῖον δή τι πάσχειν καὶ τοῖς βαρυτέροις κήτεσιν ἔπεισι) μένειν τὸν θῆρα ἐπὶ τῶν οἰκείων ἠθῶν κατηνάγκαζεν. Ἀλλ' ὅτε που ἔναγχος ἀνασαλευθείη ἐκ τῆς ἑσπέρας ὑπὸ ὁδηγῷ […] θρασύτητι, […] ἐπέφριξε μέν τινας φολίδας […] καὶ τῆς κυματοτρόφου κατεχόρευσεν εἰς κενόν, […], μικρὸν δὲ ὅσον ὁ μὲν ἡγεμὼν τῆς ὁδοῦ, τὸ ποδηγοῦν θράσος, ἀπῆλθεν, ὁ δὲ τῆς δειλίας σκότος […] ἀνακάμψειν ἐκεῖνον πεποίηκεν […] τοῖς οἰκείοις ἤθεσιν […]. Eustathios of Thessaloniki, Orations, 211:17–212:32.

[41] Commoner 1971, 33. Commoner's relevance to the ecopoetic perspective has recently been pointed out by Kling 2019, 83.

[42] Commoner 1971, 35–37.

that is in constant danger of transgressions and disruptive imbalances. This understanding directly affected the applicability of their images; it preconditioned the way the imagery worked in the anthropocentric social, political and moral discourse. The animals and the environment presented in their texts are, therefore, not "just" literary and symbolic. They are implicitly linked to very basic ecological principles that guided the order of the *kosmos* and made the imagery work.

Apocalyptic visions and the fear of ecologic collapse

Commoner's scheme considers ecological collapse as an outcome of extreme imbalance in an ecosystem. As for Byzantine texts, it is difficult to find explicit awareness or even concern for the consequences of a large-scale destruction of the natural environment. In a recent talk, A. Goldwyn remarked on a general lack of "environmental grief" in Byzantine literature.[43] When destructions are mentioned, for instance in military contexts, they are considered local phenomena and often occur to overcome natural obstacles, e.g. to aid travel. In many instances, human interventions, such as the clearing of forests, were even considered a positive feature, often connected to the foundation of monasteries.[44]

Whereas the destruction of concrete places within the environment has left little trace in the texts, we do find reflections on human dependence on the wellbeing of their environment in the context of salvation history's ultimate form of collapse: the Apocalypse. The following passage shows a section of the 10th-century apocalypse of Andreas Salos, written in Constantinople by an otherwise unknown Nikephoros. Asked about when and how the world will end, Andreas

[43] A. Goldwyn, "Some Byzantine Trees: An Ecocritical Approach to Medieval Greek Nature Writing," Presentation at the 53rd spring symposium of Byzantine Studies, Birmingham, 27–29 March 2021.

[44] See the burning of woods by the army of Basil I traveling through the Antitaurus mountains (Theophanes continuatus, *Vita Basilii*, 48, 168), or the destruction of fields by Nikephoros Phokas' army near Tarsus (Leon Diakonos, *Historia*, 4.3, 58). See also Albrecht 2017, 87. For clearings in the context of building monasteries, see A. M. Talbot 2002, 41.

reports the old story of an apocalyptic emperor who brings stability to the disaster-stricken empire, before the Antichrist would appear:[45]

> There will be great joy then and gladness. Good things will come up from the earth, and from the sea riches will rise. […] After the emperor's death] Woe then to the earth *and the sea* [...] *the Lord will send his holy angels who are in charge of the winds to* […] *block up their breath* […]. *The great ships, not being able to sail the sea without wind, distressed by the constraint will blaspheme against the Lord our God.* […]. *One third of the animals, herd animals, birds [sea-]snakes* […] *will die. The sea will become like blood. And immediately one third of the fish will die, because God will be angry with them because of the sins of men* […].[46]

The text printed in italic contains additions found in a version (ζ) that appeared probably less than a century after the original.[47] While the other manuscripts generally relate the destructions on the earth and in the cities, version ζ shows extensions that reflect decidedly "maritime," concerns as they prominently describe disruptions within the marine environment. The other versions, by contrast, consider the sea primarily at the very end when Constantinople, the maritime metropolis, will be submerged.[48] We cannot be sure whether ζ was written in the Byzantine capital. It is likely that Constantinople, the setting of the story, was still

---

[45] See Kraft 2012, 213–57.

[46] Καὶ ἔσται πολλὴ χαρὰ τότε καὶ ἀγαλλίασις, καὶ ἀγαθὰ ἀπὸ τῆς γῆς καὶ ἀπὸ τῆς θαλάσσης ἀνατελεῖ πλούσια. […] Οὐαὶ δὲ τότε τῇ γῇ καὶ τῇ θαλάσσῃ. […] ἐν γὰρ ταῖς ἡμέραις ἐκείναις ἀποστελεῖ τοὺς ἁγίους ἀγγέλους αὐτοῦ ὁ κύριος τοὺς τεταγμένους ἐπὶ τῶν ἀνέμων […] ἀναφράξουσι τὰς ἀναπνοὰς αὐτῶν […]. τὰ δὲ μεγάλα πλοῖα μὴ δυνάμενα ἄνευ ἀνέμου *πλεῖν* τὴν θάλασσαν, τῇ βίᾳ στενοχωρούμενα, βλασφημήσουσιν ἐπὶ κύριον τὸν θεὸν ἡμῶν. […]. καὶ τὸ τρίτον τῶν ζώων, τῶν τε κτηνῶν καὶ πετεινῶν, ἑρπετῶν [τῶν τε θαλασσῶν, *add. V*] [...] τελευτήσουσιν. γενήσεται δὲ καὶ ἡ θάλασσα ὡς αἷμα. καὶ εὐθέως τὸ τρίτον μέρος τῶν ἰχθύων τελευτήσει, διότι ὠργίσθη αὐτοις ὁ θεὸς διὰ τὰς ἁμαρτίας τῶν ἀνθρώπων [...]. *Life of St Andrew the Fool*, vol. 2, 262:3855–57; 264:3875–77; 266:3906 and app. crit.; English translation based on ibid., 263; 265; 349.

[47] Mss C, K, V and partly E. See ibid, vol. 1 84–85; 99.

[48] See ibid., vol. 2 274. For the common motif of the submergence of Constantinople, see Kraft 2021, 162.

the reference, although this version's perspective could represent other sea-centered communities as well.

As in the previous examples, the narrative focus is strongly anthropocentric: relationships with the sea are characterized by exploitation; the cause of the disruption is a divine punishment of human sin;[49] humans are targets of the disasters as well as their indirect cause. When it comes to the consequences of the disruption, however, the perspective changes, as the text makes clear that the *whole* environment and its inhabitants is going to suffer: not only will humans slaughter each other, but also their animals on land and those in the sea will suffer and die.

The inhabitants of Constantinople, but also other marine communities, were especially dependent on the daily fish catch and great fish migrations.[50] Depicting the collapse of their basis of life, the text inevitably points to the entanglement and dependence of humans living by the sea on the wellbeing of their marine environment. This dependence becomes clear not only regarding fishing and nutrition, but also in the context of traveling by sea. The sudden inability to do so highlights humans' lives not just by, but on and from the sea, pointing to their existence as sea-dwellers and partakers of the marine environment surrounding their terrestrial homes.

Underneath the anthropocentric story of human sin and punishment, the text shows awareness of a systemic entanglement between humans, animals and their environment. In ζ, this entanglement receives an explicitly maritime quality: the version connects apocalyptic ideas to the concrete realities of a specific (marine) environment, revealing a subtext that appears to qualify as a form of environmental concern from the perspective of a decidedly sea-centered lifestyle and thinking.

Similar, but more land-centered notions of ecological collapse can be found in other apocalyptic texts. A Syriac apocalypse story attributed

[49] As Kraft 2021, 168, points out, this indirect causality is a major difference to modern environmentalism that stresses the immediate anthropogenic causality of natural disasters.

[50] See Dagron 1995, 57–73. For fish migrations in the Bosporus, see Devedijan 1926, 2–3.

to Daniel (dating unclear) announces that "the Lord will spill blood on the surface of the earth; and the animals of the field will suffer, and the birds […]."[51] In a Greek vision of Daniel (13th–14th centuries) it says that the "the waters will dry up and there will be no rain on earth. […] God will shower the earth with fire […]." Then the suffering earth "will cry out to the heaven: I am a virgin, Lord, in front of you."[52] As in Salos, the *causes* for disaster are presented as the results of human agency. A. Kraft rightly points out that nature was generally "denied an autonomous causal efficacy" in these texts.[53] As for the *consequences* and from an environmentally oriented perspective, however, nature was certainly more than "a theater stage, which passively supports the protagonists' performance with its setting and décor", but an essential base for human wellbeing that is equally affected by the events.[54]

To a certain degree, these imagined situations of communal human-animal and environmental suffering can be seen in the light of the post humanist sympoietic reading that A. Goldwyn proposed for the literary garden spaces in Byzantine romances. For him, these places, usually inhabited by women, are designed as human-animal-plant-systems "in which the individual is not autonomous but […] nestled peacefully among a network of other beings."[55] This reading is supported by an imagery that compares, merges and entangles humans, animals and plants, suggesting a form of "kinship with [nonhuman, non-organic] others" and subversively diluting the clear-cut borders between "human" and "animal/nature."[56]

---

[51] Ed. and German translation in Schmold, *"Vom Jungen Daniel",* 46–47. For the unclear dating, see Brandes 1990, 317, n. 3.

[52] "Καὶ τὰ ὕδατα ἀποφρύξουσι, καὶ ὑετὸς ἐπὶ τῆς γῆς οὐ δοθήσεται. […] βρέξει ὁ θεὸς πῦρ ἐπὶ τὴν γῆν […]. Τότε βοήσει ἡ γῆ πρὸς τὸν οὐρανὸν λέγουσα· παρθένος εἰμί, κύριε, ἐνώπιόν σου." Schmold, *Vom Jungen Daniel,* 142; For the dating, see A. Kraft 2018, 115.

[53] Kraft 2021, 159–60.

[54] Ibid., 160.

[55] Goldwyn 2018, 197; 203; quote at 203.

[56] Ibid., 210, see examples at 210-12. This concept is based on D. Haraway's posthumanist reading of the world as a collectively producing sympoietic system consisting of entangled, rather than self-producing and autonomous (= autopoietic), elements (see Haraway 2016, 33–34; 58–98).

One must admit that the apocalyptic texts presented here are far from the sympoietic harmony envisioned in the garden landscapes of Byzantine romances. Beyond their principal idea of order that is clearly premised on human dominance over and exploitation of nature, however, they do point to a general understanding of human participation in larger, entangled ecosystems, where the grim consequences of salvation history are ultimately shared by its human and nonhuman inhabitants. This understanding does not necessarily transgress the traditional categorical borders between "humans" and "animals"; it does, however, mitigate their relevance in the face of major eco-systemic disruptions, and proves that environmental awareness and concern were a significant driving force behind the creation and design of these texts.

Encomia, ecologic standstill, and the "ambassadors" of the sea

From visions of disaster, this analysis now moves to more joyful moments in the Constantinopolitan seas and focuses on encomiastic poetry. Written for the elite and presented at court festivities, these texts combine a strong reliance on traditional literary motifs with comments on recent historical and political events. The presence of animals and the natural environment in this genre has widely been interpreted as framing devices, but this does not exclude the presence of subtexts that shed light on human concepts of their environment and its ecosystem(s).[57] More than that, the encomia provide an opportunity to discuss in concrete terms the impact of physical animals on the creation of literary texts.

The first example is from an encomium by the court orator Nikephoros Chrysoberges, written for Emperor Alexios IV in 1203. The speech welcomes Alexios who had just reached Constantinople, backed by a crusader fleet that helped him and his father regain the throne.[58] This political adventure would eventually end in the crusaders capturing the city, but this is of secondary concern here. More important

[57] For the interpretation of animals and the environment as anthropocentric signs and symbols, see, for instance, Schmidt 2020 and Stone 2003 (discussed below).

[58] See, Brand 1968, 462–75.

is the moment when Alexios arrived in the city on a Venetian galley. According to Chrysoberges, the worthy cause guaranteed good winds, unlike in other, less amicable circumstances, when western ships were repulsed by a judging sea. "The Italians agreed to be your [Alexios'] allies, their sea passage was easy and the path of the ships convenient." Since they carried the emperor's "gentleness," God calmed the sea.[59] It was not only humans who greeted Alexios when he approached the capital, but also "the sea […] gladly separated quickly. And the dolphins and the whales [κήτη] leaped up from all sides out of their hiding places, as the poet says. And they [did not fail to] immediately recognize you as the lord."[60]

The imagery in this text provides a direct reference to a Homeric description of Poseidon in his chariot, hovering over the sea: "the whales/ *kētoi* gamboled up from all sides around him, [coming] out of their hiding places, and they [did not fail to] recognize their master."[61] Its application in welcome speeches to new arrivals who reached Byzantium by ship was popular also with other orators. This is evidenced in 1179, when young Agnes of France arrived in Constantinople on a Genoese ship to meet her fiancé Alexios (II) Komnenos, and Eustathios of Thessalonike described her approach in similar terms:

> "the sea was easy to manage […], God calmed the wide waters with its great *kētoi*, as one might say […] The *kētoi* under the sea leaped and gamboled up to those who were watching, which itself is a prodigious spectacle [described by] rhapsodists […]; [As they approached, the human inhabitants took over the cheering for the princess,] the whole coastline was full and the whole people of the city created a boundary

[59] "ἡνίκα γὰρ Ἰταλοὶ […] συμμαχεῖν ὡμολόγησαν, εὔοδος ἦν ἐκείνοις ὁ πλοῦς καὶ ἡ ἐπιφορτίδων κέλευθος εὐμαρής·" Nikephoros Chrysoberges, Orations, 26:22–26.

[60] "ἡ θάλασσα […] μετὰ γηθοσύνης, εἶπεν ἄν τις, διίστατο τάχα. καὶ οἱ δελφῖνες καὶ τὰ κήτη πάντοθεν ὑπεσκίρτων ἐκ τῶν κευθμώνων κατὰ τὸν ποιητήν. οὐ δ' ἠγνοήκασί σε τὸν ἄνακτα τάχα." Ibid., 27:13–17.

[61] "ἄταλλε δὲ κήτε' ὑπ' αὐτοῦ πάντοθεν ἐκ κευθμῶν, οὐδ' ἠγνοίησεν ἄνακτα·" Homer, *Iliad,* 13.27–28.

for the water of the sea; drowning out the [sounds of] the great roaring waves they raised [their] praise up to the heaven."[62]

A third example can be found in a monody by Basil of Ochrid, written for the deceased Empress Bertha of Sulzbach in 1160. It recalls her sea travel to Byzantine Epiros in the 1140s on her voyage to Constantinople, where she would marry Manuel I. The text describes the passage of the Adriatic, but the targeted audience was Constantinopolitan. Its author, Basil, was well acquainted with life in the capital and in the coastal city of Thessalonike.[63] Again, one encounters the image of the personified sea that, together with "the submarine *kētoi*" was "aware of this good freight [=Bertha]; the [sea] calmed down the [head-]winds, […], the [*kētoi*] that came up from below, jumped and joined in cheering, and a dolphin and a pilot fish escorted you to the Illyrian promontory."[64]

In all three cases, the sea and its animals frame the glorification of (future) members of the imperial family entering Constantinople. Basil's speech is a typical monody, praising the deceased empress and her husband. In Chrysoberges, the welcoming sea reveals an attempt to justify a foreign intervention on behalf of Alexios IV. Regarding Eustathios' animal imagery, A. Stone has convincingly argued that the sea creatures metaphorically relate to members of the French court ("beasts belonging to the dry land, made marine") who, albeit unwillingly, accompanied Agnes. The imagery indicates opposition among the French nobles towards the marriage alliance to Byzantium

[62] "[…] τὸ ἐν θαλάσσῃ εὔφορον· […] ἐστόρεσε δὲ θεὸς μεγακήτεα πόντον, εἴποι τις ἂν [...] κήτεα δὲ τὰ ὑπὸ τῇ θαλάσσῃ ἐπὶ τοῖς βλεπομένοις ἀνασκιρτᾶν ἀτάλλοντα, ὃ δὴ καὶ αὐτὸ τερατῶδές ἐστι ῥαψῴδημα, [...]· ἔπληθεν ἡ αἰγιαλῖτις ἅπασα καὶ ὄρον ἐποιεῖτο τοῦ θαλαττίου ὕδατος τὸ συστηματικὸν φῦλον τῆς πόλεως, οἳ καὶ κύματα μέγα βοῶντα ὑπερφωνοῦντες τὰς εὐφημίας ἀνύψουν ἕως καὶ εἰς οὐρανόν·" Eustathios of Thessaloniki, *Orations*, 253:14; 17–20; 254:48–51.

[63] For Basil's life and his domiciles, see G. Messina's introduction in Basil of Ochrid, *Epitaph*, 41–48.

[64] "οἶμαι τότε τοῦ καλοῦ τούτου φόρτου καὶ θάλασσα συνεπαισθανομένη, καὶ τὰ ὑποβρύχια κήτη, ἡ μὲν ταῖς ἀντιπνοίαις τῶν ἀνέμων ἐσπένδετο, […] τὰ δὲ βυσσόθεν ἀνανηχόμενα ἐσκίρτα καὶ συνηγάλλετο, καὶ δελφὶς καὶ πομπίλος προέπεμπόν σε πρὸς τὰς Ἰλλυριάδας ἀκτάς·" Ibid., 94:110–115.

– an alliance that, in Eustathios' depiction, was obviously approved by the *kosmos*![65] The use of the Homeric *topos* of the favorable sea was obviously standard practice for marine welcome scenes, providing a good opportunity for the orators to demonstrate their knowledge of this literary tradition.

Despite the literary and political character of the imagery, I want to argue once more for the existence of underlying subtexts on human perceptions and relationships to their marine environment. The first point is that all three orators describe the presence of future empresses and emperors on the sea as exceptional events that caused a *standstill*, i.e., the suspending of the normal laws of the marine ecosystem. Contrary to St. Basil's idea of the marine space being inhabited by species respecting their assigned abodes, the marine creatures now leave their accustomed areas, suspend any habit of chasing and devouring their usual prey, and venerate the divinely supported, almost super-human sea travelers. In this act of gathering and venerating, they do not substantially differ from the "ordinary" humans in Constantinople whose relationship towards the new arrivals are equally marked by submission and praise.

For a moment, boundary-crossing ceases to be a transgression, as the conceptual division between humans and other species becomes blurred; even the predator-prey relationships are suspended, which is reminiscent of the paradisiacal *Tierfrieden*.[66] It is arguably this tension between the imagined "normality" and the "state of exception" that defined the attractiveness of the imagery and made it appealing for people who experienced their marine environment as an entangled system, governed by principles (boundaries, antagonisms, dependencies, etc.) that could be suspended only in extraordinary situations.[67] Besides being part of a long-standing literary tradition, the imagery therefore seems to point to a concept of the (marine) *kosmos* similar to what we have seen in the previous sections, indicating a stability and continuity of ideas and subtexts over centuries and across different authors and texts.

---

[65] Stone 2003, 119; citation from Eustathios of Thessaloniki, *Orations,* 253:22.

[66] See Genesis 1, 27–30; Jesaia 11:6–8 and 65:25.

[67] See also the last section on apocalyptic collapse as a further "exception."

The second point regards the selection of animals and their roles as representatives of the marine fauna. Chrysoberges, Basil of Ochrid and also Procopius give prominence not only to the presence of *kētoi* in the human-traveled sea, but also to another species: dolphins. Here, the encomiasts apparently went beyond their Homeric model. Dolphins were without doubt "literary animals," possessing their own tradition in Greco-Roman literature.[68] Their selection in our texts, however, was by no means detached from the physical presence of that species in Constantinopolitan waters at the time.

Whereas whales were relatively rare in the Bosporus and the Sea of Marmara, dolphins constituted a fairly common sight. A particularly important trait in their descriptions is their behavior when they would come up to the water surface and jump alongside moving ships.[69] The latter phenomenon, which can be seen in the waters around Istanbul even today, is explicitly described by Basil of Ochrid.[70] The iconicity of dolphin appearances at the surface, their characteristic bending and jumping, is attested not only in the vivid literary descriptions, but also in figurative art, such as the wall and ceiling decorations in the Hagia Sophia:

Literary testimonies show that the relationship and interaction between humans and dolphins was seen as special, setting them apart from other marine creatures. Some ancient authors even perceive dolphin behavior in the presence of humans as a display of deliberate communication.[71] Claudius Aelianus (2nd–3rd centuries AD) describes cooperative fishing between humans and dolphins. He reports on "a tame dolphin" that behaved towards humans "as if [they were] private friends"; when it encountered a boy it was attached to in friendship, it "leapt up and swam along him." Oppian (3rd century AD), too,

[68] See Hünemörder and Höcker 2006.

[69] For the importance of the water surface in conceptualizing the sea for land-based human observers, see Dobrin 2021, 3–4.

[70] Similarly, see the 12th-century romance by Constantine Manasses, *Aristandros and Kallithea*, 56a, 178 interpreting this same behavior as a metaphor of unreliable friendship.

[71] Although hard to prove, human-dolphin communication (even conversation) is widely accepted as a fact in modern society. See Kuczaj II 2013, 114–123.

Fig. 1: *Depictions of jumping dolphins in the Hagia Sophia (photos kindly provided by D. Hendrix).*

Fig. 2: *Modern statue of jumping dolphins in Gezi Park, Istanbul (photo kindly provided by M. Yamasaki).*

assumes that "like the humans, the followers of the sea-resounding Zeus [=dolphins] have reason and understanding."[72]

The idea of a special relationship and similarity to humans made dolphins less prototypical members of the marine fauna than other sea creatures.[73] At the same time, their status and their regular presence at the water surface gave them a particular saliency. In this context, it is worth coming back to A. Moe's idea of "gestures of animals – and the

[72] See Claudius Aelianus, *de natura animalium,* 2.6 ("δελφῖνα ἠθάδα […] ὥσπερ οὖν ἰδιοξένοις χρώμενον τοῖς ἐκεῖθι […] συνεσκίρτα, καὶ πῇ μὲν τῷ παιδὶ παρενήχετο".); Oppian, *Halieutika*, 5. 422–23 ("ἴσα γὰρ ἀνθρώποισι νοήματα καὶ προπόλοισι / Ζηνὸς ἁλιγδούποιο·"); for further sources, see Powell 1996, 32. See also the episodes of dolphins saving shipwrecked persons in 12th-century romances: Eustathios Makrembolites, *Hysmine et Hysminias*, 11.13,1–4. 146.

[73] For prototype theory, see Lakoff 2008, 39–57.

vocalizations embedded in those gestures – [which] have shaped the making of human poetry."[74] I propose that the prominence of the motif of gamboling and jumping dolphins is indeed more than the continuation of an ancient literary-artistic tradition by medieval authors, as the imagery itself was connected to real experiences of material encounters.

The iconic saliency of dolphin appearances in the human-marine contact zone – behavior that was even attributed communicative qualities – comes rather close to what Moe describes as poetry-shaping body language. Independent of the question of intentionality, dolphins fascinated their human observers and, by their noteworthy behavior, introduced themselves as figures into the texts;[75] they promoted themselves as "ambassadors" of the wider marine fauna, not in spite, but because they deviated from the expected prototypical behavior of most other marine creatures.[76] With some caution, the same can be said for whales. Even though human-whale contacts were less frequent, whales did gain particular visibility once they appeared (or were stranded at the shore), giving their observers rare insights into an otherwise hardly accessible marine space.

Whether this impact of physical animals on the selection and reproduction of literary animals can be considered "co-making" is a different question; the answer very much depends on the definition of animal agency.[77] Analyzing these descriptions not only as literary metaphors but also as the effects of an actual material animal presence, however, suggests that even in highly culturally coded poetic language the rendering of "literary" animals was by no means detached from physical encounters. It thus appears inadequate to explain the

[74] Moe 2014, 11.

[75] For animals entering texts as "figures," which makes poetry production a more than human affair, see Borgards 2016, 239–40.

[76] For the deviation of the dolphin from the prototypical "fish" as a factor that increases its saliency, making it more likely to make a lasting impression on human observers, see Yamasaki 2023.

[77] For agency in the sense of conscious action and, consequently, a perspective that stresses the dominance of human interpretation, see Obermaier 2019, 159. For a perspective on "agency" in terms of cause and effect on "collectives and networks," independent of intentionality, see Borgards 2016, 237.

prominence of dolphins (and whales) in sea-related poetry by referring to the literary tradition alone, as the intervention of physical animals and their behavior (intentional or not) is reflected in the way these creatures are presented. In that sense, one can justifiably describe the process of creating animal-related poetry as a "more-than-human process,"[78] even though we cannot ignore that "the power of interpretation remains with the author,"[79] and that "rendering animals in language involves power relations that are inherently askew."[80]

Discussion

The added value provided by ecocriticism, ecopoetics and zoopoetics to readings of medieval sources is that they promote sensitivity towards environmental and animal-related subtexts. This analysis has shown that traces of these subtexts are detectable in the whole range of sea-related Byzantine texts examined here. Often, they are perceivable only in an indirect way, eclipsed by the more explicit messages that traditional, anthropocentric and symbol-focused readings uncover. The approaches applied here help focus our attention on the subconscious conceptual thinking behind literary texts and artworks. It is even possible to argue for the production of animal-related literature as a process of *co-poiesis* that included nonhuman agents, even though this does not substantially change human interpretative and artistic dominance. The application of ecocritical and ecopoetic/zoopoetic approaches to the cultural history of human-environmental concepts thus adds a new perspective, without necessarily contradicting traditional readings. These new perspectives can be summarized under three core categories:

Environmental orientation

When it comes to environmental orientation, L. Buell remarked that "few works fail to qualify at least marginally, but few qualify unequivocally

[78] Castellanos 2018, 132.
[79] Obermaier 2019, 159.
[80] Castellanos 2018, 133.

and consistently."[81] Applied to our Byzantine texts, it would indeed be futile to define any of them as "environmental writing" in the strict sense of the term. Neither is it possible to detect explicit interest in animals and the environment for their own sake, nor does any author consciously discuss human responsibility for the environment, if we exclude the identification of human sin as an indirect, moral cause of natural disaster. This should not be too surprising, considering that pre-modern humans perceived their dependence on the natural environment stronger than their descendants in current-day western (post-) industrial societies; they simply had far more limited capabilities to cause destruction on a large scale. This does not mean that local phenomena, such as deforestation, were nonexistent or not noted.[82] It seems, however, that, in particularly with regard to the sea, a substantial or even total destruction of the environment was contemplated only in the extreme case of the apocalypse.

More than the other texts, the apocalyptic visions show an underlying awareness of entanglement and interdependence between humans, animals and the environment. Even though the texts focus on human sin and redemption as the causes of the cosmic destruction, they make clear that the disasters themselves (will) cause suffering for the whole *kosmos*. The descriptions are premised on the awareness that other species and the environment at large are preconditions of human life on earth. In this sense, we can argue that the environment, as it is presented in these texts, indeed possesses the character of "a process rather than as a constant or a given" (Buell).[83] It is not just the background of human story and history, but a crucial factor whose change deeply affects human

[81] Buell 1995, 8.

[82] On (the few) Ancient Greek and Roman authors discussing the vanishing of woodlands and erosion, see Hughes and Thirgood 1982, 60–75. See, by contrast, examples of Byzantine sources describing forests as obstacles to human activity, rather than something worth protecting in Albrecht 2017, 87. Horden and Purcell 2000, 309–10; 324–28; 331–41 argue that human impact, e.g. on deforestation and soil erosion, was mostly limited and localized, and not a cause of "catastrophic change" but one among many (nonhuman) factors in a "mutual caused process of co-evolution of people and their landscapes" in the pre-modern, pre-industrial Mediterranean.

[83] See above, p. 69.

existence. The particular marine focus in one of the versions of Andreas Salos shows how individual conceptualizations of entanglement with certain ecosystems directly affected the visions of collapse.

In addition, the other texts indicate at least an implicit contemplation of the sea as a space representing the coexistence of humans and other animals, disruptions of which affect all participants. Both Procopius and Eustathios, while discussing disruptions in the political sphere, fall back upon metaphors of a marine ecosystem that is heavily disturbed by external intruders. Basil of Caesarea's description of the compartmentalized sea provides a conceptual background to these descriptions that highlights the importance of marine boundaries whose transgression lead to incalculable risks. The encomiasts, in turn, present a counter draft to this focus on destructive disturbances. They build their imagery on the idea of a state of exception when the marine creatures leave their assigned abodes and the customary boundaries between sea, land, human and nonhuman temporarily lose their relevance.

Anthropocentrism and the representation of physical nature

One central goal of ecopoetics/zoopoetics is the rejection of the anthropocentric perspective in the readings of texts. Most traditional interpretations are based on the assumption that texts (signs) do not directly represent the environment, including concrete animals, since they refer to culturally coded mental constructs; in this capacity, these literary animals and environment(s) serve as figures of speech in discussions on human society, rather than contemplate the physical world and its non-human inhabitants as such. As this analysis has shown, such an anthropocentric perspective is by no means to be rejected; on the contrary, it reveals the most visible and, from the perspective of the authors and recipients, the most intentional messages embedded in these texts. In this regard, the function of the (literary) environment and its animals is indeed principally instrumental.

A further analysis of environmentally oriented subtexts, however, shows that attentiveness towards other species and the material environment seems to be constantly present in these texts. In fact,

this awareness often appears to provide the very basis for the moral and political readings of animals and natural phenomena. The whole imagery of sea monsters that physically and metaphorically transgress into the Byzantine sea space draws its appeal not only from the references to biblical and mythical models; but it is equally based on a concept of the sea inhabited by multiple species and ordered by internal boundaries that maintain a fragile balance. The motif of the welcoming sea in the encomia, in turn, owes its effectiveness to the idea of possible exceptions and reversals of the usual rules that temporarily re-define the behaviors and relationships between humans and animals in their common environment.

The apocalyptic texts, finally, depend on the implicit consideration that humanity's fate was inseparably entangled with the fate of other nonhuman creatures that inevitably enter the focus of these texts. The present paper is, therefore, not intended to dismiss the traditional anthropocentrism guiding the interpretation of the texts. It rather offers an invitation to go beyond deciphering symbols and metaphors for human agents, and discover the awareness of the *kosmos* as a network of multiple relevant species that likewise characterize our sources.

Co-poiesis in the literary production?

The final aspect that this analysis highlights is animal *poiesis* in the production of texts; in other words, how far did the presence of physical animals and the environment affect literary animals and environment(s)? Our Byzantine authors do not comment on the literary representations of living species, nor do they show explicit efforts to include animals and the inanimate environment in their texts. My discussion of dolphins and, to a certain degree of whales, nevertheless indicates that the presence and behavior of physical animals had an impact on their literary representation. Following A. Moe's assumption of the poet's attentiveness towards animal body language, I propose that the century-old imagery owed its transmission and attractiveness partly to the fact that human-dolphin (and whale) contacts were actually perceived as special and outstanding. It was, therefore, not only literary conventions,

but an ongoing material-semiotic exchange that made these creatures representatives or ambassadors for a whole diversity of species.

Whether this can be considered agency or not is a different question. In the sense of conscious intention, agency ends at the latest point where human-centered interpretation begins. What the zoopoetic perspective can achieve, however, is a reassessment of the position of animals and the environment between metaphoric function and material presence in texts and artworks.[84] The examples show the two poles defining their role, on the one hand, as mental concepts and figures embedded in literary traditions, and on the other hand as physical presences that, by their appearance and behavior, defined their observers' concepts of the marine environment at large.

[84] See Driscroll and Hoffmann 2018, 4.

Sources

Basil of Caesarea, *Homilies*. Ed. E.A. de Mendita & S. Y. Rudberg, *Basilius von Ceasarea. Homilien zum Hexaemeron.* Berlin 1997.

Basil of Ochrid, *Epitaph*. Ed. G. Messina, *Basilio Achrideno: Epitafio per l`imperatrice alemanna.* Catania 2008.

Claudius Aelianus*, De natura animalium*. Eds M. García Valdés, L. A. Llera Fueyo & L. Rodríguez-Noriega Guillén. Berlin & New York 2009.

Constantine Manasses, *Aristandros and Kallithea.* Ed. O. Mazal, *Der Roman des Konstantinos Manasses.* Vienna 1967 (Wiener Byzantinistische Studien 4).

Eustathios Makrembolites, *Hysmine et Hysminias*. Ed. M. Marcovich. *Eustathius Macrembolites De Hysmines et Hysminiae amoribus libri IX.* Munich & Leipzig 2001.

Eustathios of Thessaloniki, *Orations*. Ed. P. Wirth, *Eustathii Thessalonicensis opera minora magnam partem inedita*. Berlin & New York 2000 (CFHB 32).

Homer, Iliad. Ed. Martin L. West, *Homeri Ilias.* 2 vols. Stuttgart 1998–2000.

Leon Diakonos, Historia. Ed. C. Hase, *Leonis Diaconi Caloënsis historiae libri decem et liber de velitatione bellica Nicephori Augusti.* Bonn 1828 (CSHB 3).

Life of St Andrew the Fool. Ed. L. Rydén, 2 vols. Uppsala 1995 (Studia Byzantina Upsaliensia 4,1–2).

Michael Glykas, Annals. Ed. I. Bekker, *Michaelis Glycae Annales*. Bonn 1836 (CSHB 24).

Nikephoros Chrysoberges, *Orations*. Ed. M. Treu, *Nicephori Chrysobergae ad Angelos orations tres*. Breslau 1892 (CXXVII. Programm des Königl. Friedrichs-Gymnasiums).

Oppian, *Halieutika*. Ed. F. Fajen, *Oppianus. Halieutica. Einführung, Text,* Übersetzung *in deutschermSprache, ausführliche Kataloge der Meeresfauna.* Stuttgart & Leipzig 1999.

Oracula Sibyllina. Ed. J. Geffcken. Leipzig 1902 (Die griechischen christlichen Schriftsteller der ersten drei Jahrhunderte [8]).

Physiologos. Ed. F. Sbordone. Milan 1936.

Procopius, *Anekdota*. Ed. J. Haury & G. Wirth, *Procopii Caesariensis Opera Omnia*, vol. 3, *Historia…Arcana*. Leipzig 1963.

Procopius, *de bellis.* Ed. J. Haury and G. Wirth, *Procopii Caesariensis Opera Omnia*, vol. 2, *de bellis*. Munich and Leipzig 2001.

Schmold, H. (ed. and trans.), *Die Schrift „Vom Jungen Daniel" und „Daniels letzte Vision": Herausgabe und Interpretation zweier apokalyptischer Texte.* Hamburg 1972.

Theophanes continuatus, *Vita Basilii.* Ed. I. Ševčenko, *Theophanis Continuati ... Vita Basilii imperator*. Berlin and Boston (CFHB 42).

Studies

Albrecht, S. 2017. "'Der Wald, ein Ort, der von Bäumen bestanden wird, der von Feuchtigkeit gedeiht, eine Aufhäufung von Holz, ein Morast'," in H. Baron & F. Daim (eds.), *Ein wundervoller Anblick und von* überreichem *Nutzen? Schritte zu einer byzantinischen Umweltgeschichte.* Mainz, 79–101.

Arentzen, T., V. Burrus & G. Peers, 2020. *Byzantine Tree Life: Christianity and the Arboreal Imagination*. Cham.

Arentzen, T. 2019. "Arboreal Lives: Saints among the Trees in Byzantium and Beyond," *Scandinavian Journal of Byzantine and Modern Greek Studies* 5, 113–136.

Borgards R. 2016. "Tiere und Literatur," in R. Borgards (ed.) *Tiere: Kulturwissenschaftliches Handbuch.* Stuttgart, 225–244.

Brand, C. 1968. "A Byzantine Plan for the Fourth Crusade," *Speculum* 43.3, 462–475.

Brandes, W. 1990. "Die Apokalyptische Literatur," in F. Winkelmann & W. Brandes (eds.), *Quellen zur Geschichte des frühen Byzanz (4.–9. Jahrhundert): Bestand und Probleme.* Amsterdam (Berliner byzantinische Arbeiten 55).

Braudel, F. 1985. *La Méditerranée et le monde méditerranéen à l'époque de Philippe II, vol. 1. L'espace et l'histoire*. Paris.

Bühler, B. 2016. *Ecocriticism: Grundlagen-Theorien-Interpretationen*. Stuttgart.

Buell, L. 2005. *The Future of Environmental Criticism: Environmental Crisis and Imagination.* Malden, MA, Oxford & Carlton.

Buell, L. 1995. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture.* Cambridge, MA, and London.

Buell, L., U. K. Heise & K. Thornber 2011. “Literature and Environment,” *The Annual Review of Environment and Resources* 36, 417–440.

Cameron, A. 1966. “The ‘Scepticism’ of Procopius,” *Historia* 15, 466–482.

Carrier, D. R., S. M. Deban & J. Otterstrom 2002, “The face that sank the Essex: potential function of the spermaceti organ in aggression,” *The Journal of Experimental Biology* 205, 1755–1763.

Castellanos, M. 2018. “Constituents of Chaos: Whale Bodies and the Zoopoetics of Moby Dick”, in K. Driscoll & E. Hoffmann (eds.), *What is Zoopoetics? Texts, Bodies, Entanglement.* Cham, 129–148.

Codoñer, J. S. 2005. “Der Historiker und der Walfisch. Tiersymbolik und Milleniarismus in der Kriegsgeschichte Prokops,” in L. M. Hoffmann (ed.), *Zwischen Polis, Provinz und Peripherie: Beiträge zur byzantinischen Geschichte und Kultur*. Wiesbaden, 37–58 (Mainzer Veröffentlichungen zur Byzantinistik 7).

Commoner, B. 1971. *The Closing Circle: Nature, Man, and Technology.* New York.

Crutzen, P. J., & E. F. Stoermer 2000. “The ‘Anthropocene’,” *Global Change Newsletter* 41, 17–18.

Dagron, G. 1995. “Poissons, pêcheurs et poissoniers de Constantinople,” in . C. Mango & G. Dagron (eds.), *Constantinople and its Hinterland: Papers from the Twenty-seventh Spring Symposium of Byzantine Studies, Oxford, April 1993*. Aldershot, 57–73 (Society for the Promotion of Byzantine Studies 3).

Della Dora, V. 2016. *Landscape, Nature, and the Sacred in Byzantium*. Cambridge.

Devedijan, K. 1926. *Pêche et pêcheries en Turquie*. Istanbul.

Dobrin, S. I. 2021. *Blue Ecocriticism and the Oceanic Imperative*. Abdingdon.

Driscoll, K. 2015. “The Sticky Temptation of Poetry,” *Journal of Literary Theory* 9.2, 212–229.

Driscoll, K. & E. Hoffmann 2018. *What is Zoopoetics? Texts, Bodies, Entanglement.* Cham.

Glotfelty, C. 1996. “Introduction: Literary Studies in an Age of Environmental Crisis” in C. Glotfelty & H. Fromm (eds.), *The Ecocriticism Reader: Landmarks in Literary Ecology.* Athens, GA, xv–xxxvii.

Goldwyn, A. 2018 *Byzantine Ecocriticism: Women, Nature, and Power in the Medieval Greek Romance.* Cham.

Haraway, D. 2016. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham & London.

— 2008. *When Species Meet*. Minneapolis and London.

Herbert, F. 2010. *Dune*. London.

Horden, P. & N. Purcell 2000. *The Corrupting Sea: A Study of Mediterranean History.* Oxford & Malden, MA.

Hünemörder, C. & C. Höcker 2006. "Dolphin," in: *Brill's New Pauly*, Antiquity volumes, ed. H. Cancik, H. Schneider, & M. Landfester, English transl. ed. by C. F. Salazar & F. G. Gentry, consulted online on 19 April 2022 <http://dx.doi.org/10.1163/1574-9347_bnp_e313540>.

Hughes, J. D. & J. V. Thirgood 1982. Erosion, and Forest Management in Ancient Greece and Rome," *Journal of Forest History* 26.2, 60–75.

Kinzelbach, R. 1986. "The Sperm Whale, Physeter macrocephalus, in the Eastern Mediterranean Sea," *Zoology in the Middle East* 1.1, 15–17.

Klijn A. F. J. 1976. "Die syrische Baruch-Apokalypse," *Jüdische Schriften aus hellenistisch-römischer Zeit* 4.2, 103–191.

Kling, A. 2019. "Action, Framework, and the Poetics of "Co-Making": A Testing Device for Ecological Narratives," in F. Middelhoff, S. Schönbeck, R. Borgards, & C. Gersdorf (eds.), *Texts, Animals, Environments: Zoopoetics and Ecopoetics*. Freiburg i. Br., Berlin & Vienna, 83–95 (Cultural Animal Studies 3).

Kraft, A. 2021. "Natural Disasters in Medieval Greek Apocalypses," *Scrinium* 17, 158–171.

— 2018. "An inventory of Medieval Greek Apocalyptic Sources (c. 500–1500 AD): Naming and dating, editions and manuscripts," *Millennium-Jahrbuch* 15, 69–143.

— 2012. "The Last Roman Emperor 'Topos' in the Byzantine Apocalyptic Tradition," *Byzantion* 82, 213–257.

Kuczaj II, S. A. 2013. "Are Conversations Between Dolphins and Humans Possible?" *International Journal of Comparative Psychology* 26, 114–123.

Lakoff, G. *Women, fire, and dangerous things. What categories reveal about the mind.* Chicago.

Maguire, H. 1987. *Earth and Ocean: The Terrestrial World in Early Byzantine Art*. University Park & London (Monographs on the fine arts 43).

Melville, H. 2002. *Moby-Dick or The Whale*. Hertfordshire.

Middelhoff, F. & S. Schönbeck 2019. "Coming to Terms: The Poetics of More-than-human Worlds," in F. Middelhoff, S. Schönbeck, R. Borgards, and C. Gersdorf (eds.), *Texts, Animals, Environments: Zoopoetics and Ecopoetics*. Freiburg i. Br., Berlin & Vienna, 11–40 (Cultural Animal Studies 3).

Moe, A. 2014. *Zoopoetics: Animals and the Making of Poetry*. Lanham, MD, & Plymouth.

— 2013. "Towards Zoopoetics: Rethinking Whitman's 'Original Energy'," *Walt Whitman Quarterly Review* 31.1, 1–17.

Moe, A. 2012. "Zoopoetics: A Look at Cummings, Merwin & the Expanding Field of Ecocriticism," in Humanimalia 3.2, 28-55.

Murray, J. 2017. "Procopius and Boethius: Christian Philosophy in the Persian Wars," in C. Lillington-Martin & E. Turquois (eds.), *Procopius of Caesarea: Literary and Historical Interpretations*. London & New York, 104–120.

Nilsson, I. and M. Veikou 2018. "Ports and Harbours as Heterotopic Entities in Byzantine Literary Texts," in C. von Carnap-Bornheim, F. Daim, P. Ettel & U. Warnke (eds.), *Harbours as Objects of Interdisciplinary Research – Archaeology + History + Geosciences*. Mainz, 265–277 (RGZM. Tagungen 34).

Obermaier, S. 2019. , "You Are the Animal That You Eat. On the Symbolism of Food Animals in the Courtly Epic of the Middle Ages," in T. Schmidt & J. Pahlitzsch (eds.), *Impious Dogs. Haughty Foxes and Exquisite Fish. Evaluative Perception and Interpretation of Animals in Ancient and Medieval Mediterranean Thought*. Berlin & Boston, 133–164.

Panagiotopoulou, O. , P. Spyridis, H. M. Abraha, D. C. Carrier & T. C. Pataky, "Architecture of the sperm whale forehead facilitates ramming combat," *PeerJ*, 1–18.

Papadopoulos, J. K. & D. Ruscillo 2002. "A Ketos in Early Athens: An Archaeology of Whales and Sea Monsters in the Greek World," *American Journal of Archaeology* 106.2, 187–227.

Powell, J. 1996. *Fishing in the Prehistoric Aegean*. Jonsered.

Pryor, J. H. & E. Jeffreys 2006. *The Age of the ΔΡΩΜΩΝ: The Byzantine Navy ca 500–1204*. Leiden and Boston (The medieval Mediterranean 62).

Reese, D. 2005. "Whale Bones and Shell Purple-dye at Motya (western Sicily, Italy)", *Oxford Journal of Archaeology* 24/2, 107–114.

Roberto, U. 2022. "Procopius and his Protagonists," in M. Meier & F. Montinaro (eds.), *A Companion to Procopius of Caesarea.* Leiden and Boston, 355–73 (Brill's companions to the Byzantine world 11).

Rodrigues, A. S. L., L. Kolska Horwitz, S. Monsarrati A. Charpentieri 2016. "Ancient whale exploitation in the Mediterranean: species matters," *Antiquity* 90.352, 928–38.

Schliephake, C. 2020. *The Environmental Humanities and the Ancient World: Questions and Perspectives.* Cambridge.

Schmidt, T. 2020. *Politische Tierbildlichkeit in Byzanz, spätes 11. bis frühes 13. Jahrhundert.* Wiesbaden (Mainzer Veröffentlichungen zur Byzantinistik 16).

Skinner, J. 2001."Editor's Note," *Ecopoetics* 1, 5-8.

Stone, A. F. 2003. "The Oration by Eustathios of Thessalonike for Agnes of France," *Byzantion* 73.1, 112–126,

Talbot, A. M. 2002. "Byzantine Monastic Horticulture: The Textual Evidence," in A. Littlewood, H. Maguire & J. Wolschke-Bulmahn (eds.), *Byzantine Garden Culture*. Washington, D.C., 37–68.

von Uexküll, J. 1909. *Umwelt und Innenwelt der Tiere*, Berlin.

Yamasaki, M. 2023 [forthcoming]. *Conceptualizing Bronze Age Seascapes: Concepts of the Sea and Marine Fauna in the Eastern Mediterranean in the Second Millennium BCE.* Turnhout (Levant and Eastern Mediterranean Archeology 2).

Zucker, R. 2005. *Les classes zoologiques en Grèce ancienne: D'Homère (VIIIe av. J.-C.) à* Élien *(IIIe ap. J.-C.).* Aix-en-Provence.