

Soundscapes of Eranshahr

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Abstract

Aspects of the sensory experience of past environments, such as tastes, smells, textures (including of food), sounds, and other sensory stimuli, cannot be fully reconstructed and appreciated with archaeological evidence alone. Interpreting the importance of sounds from archaeological evidence presents challenges due to the ephemeral nature of sound and biases inherent in historical sources. The recreation of soundscapes, closely associated with sensory archaeology, addresses this gap by focusing on the auditory environment of past societies. This article presents the methodology used to create a soundscape of a Sasanian city, Rev-Ardashir, to better understand auditory experiences in ancient urban settings. The methodology involves an extrapolation of sound-related data from a comprehensive analysis of historical sources, complemented by archaeological investigations and contextual environmental information. Through meticulous analysis of available data and the application of theoretical frameworks from sensory archaeology, this research has the potential to enhance our understanding of the daily lives and behaviors of Sasanian city dwellers and illuminate gaps in historical and archeological research.

The sound file that accompanies this article can be downloaded from [the website of *al-‘Uṣūr al-Wuṣṭā*](#) or played online under “Soundscape Archaeology” on [the website of Lorenzo Mencaroni](#).

Introduction

The terms “music archaeology,” “acoustic archaeology,” “auditory archaeology,” and “sound archaeology” are often used interchangeably to describe the study of music, sounds, and auditory experiences and their perception by historical or prehistoric societies. During the last century, this field has evolved thanks to studies in other closely related disciplines, including ethnomusicology, ethnoarchaeology, and experimental archaeology.¹ Such studies include the reconstruction of musical instruments and songs or the acoustic reconstruction of heritage sites.² However, mundane, everyday sounds also offer valuable insights into

1. A. A. Both, “Music Archaeology: Some Methodological and Theoretical Considerations,” *Yearbook for Traditional Music* 41 (2009): 1–11, at 2.

2. Among the others, S. Banfield, *The Sounds of Stonehenge* (Oxford: BAR Publishing, 2010); S. Mills, *Auditory Archaeology: Understanding Sound and Hearing in the Past* (New York: Routledge, 2014); S. Butler and S. Nooter, eds., *Sound and the Ancient Senses* (London: Routledge, 2018); M. Bull, ed., *The Routledge Companion to Sound Studies* (Abingdon: Routledge, 2019); M. Díaz-Andreu and N. Santos da Rosa, eds., *Exploring Ancient Sounds and Places: Theoretical and Methodological Approaches to Archaeoacoustics* (Oxford: Oxbow Books, 2024).

understanding a past place.³ One recently developed research field is the modeling of soundscapes,⁴ which relies on reconstructing the anthropic and environmental contexts of a chosen case study.⁵ These sounds are not limited to musical instruments but can include environmental noises such as the wind, those made by animals, human activities with a tool or a weapon, etc.⁶

This paper outlines a protocol for soundscape modeling using the Sasanian city of Rev-Ardashir as a case study. Underlying the methodology are three fundamental premises. First, this article is only one step in reconstructing a cityscape, and it is anticipated that it will soon be integrated with similar research on other sensorial experiences. Second, the act of listening to a space, and the consciousness of its specific environmental and anthropogenic sounds, is one of the factors that contribute to turning a “space” into a “place” and thus underlines the importance of sensorial studies for the reconstruction of ancient environments.⁷ Third, the soundscape modeling remains a research project *in itinere*; as new data are gathered, the audio track will be continuously improved and enriched, with further iterations to be developed in the future. While soundscapes offer less academic audiences an intriguing way to access historical research, they also serve the scholarly community by revealing gaps in the current state of historical and archeological research.

Methodological Challenges and Opportunities

This article initiates a discussion on how soundscape modeling can be developed as an analytical tool for the study of historic environments. Sound and soundscapes in media such as video games and movies have already been the subject of some scholarly analysis.⁸ Although a comprehensive review of the relevant literature falls outside the scope of this article, these other studies hint at soundscapes’ potential to bridge academic

3. Mills, *Auditory Archaeology*, 12; Díaz-Andreu and Santos da Rosa, *Exploring Ancient Sounds and Places*; D. Nadali and F. Pinnock, eds., *Sensing the Past: Detecting the Use of the Five Senses in Ancient Near Eastern Contexts* (Wiesbaden: Harrassowitz Verlag, 2020).

4. See, among the others, R. Till, “Sound Archaeology: Terminology, Palaeolithic Cave Art and the Soundscape,” *World Archaeology* 46 (2014): 292–304, at 295; M. Pardoën, “Archéologie du paysage sonore. Reconstruire le son du passé,” *Revue de la BnF* 55, no. 2 (2017): 30–39; idem, “**Bretez II** et l’archéologie du paysage sonore: La restitution sensorielle,” *In situ* 42 (2020); A. Pinto et al., “Modéliser les sonorités du passé: Étude de cas à Malia (Crète, âge du bronze),” *Anabases* 41 (2025): 345–53.

5. C. S. Lund, “Sound Tools, Symbols or Something Quite Different? On Possible Percussion Instruments from Bronze-Age Sweden—Including Methodological Aspects of Music—Archaeological Research,” in *Studien Zur Musikarchäologie VIII*, ed. R. Eichmann, F. Jianjun, and L.C. Koch, 61–93 (Berlin: Verlag Marie L. Leidorf, Buch am Erlbach, 2012); Till, “Sound Archaeology.”

6. Till, “Sound Archaeology,” 295.

7. Ibid., 300.

8. P. Winfried, R. Greiner, and M. Frey, *Audio History des Films: Sonic Icons, Auditive Histsphäre, Authentizitätsgefühl* (Berlin: Bertz and Fischer, 2018); G. Guillen, H. Jylhä, and L. Hassan, “The Role Sound Plays in Games: A Thematic Literature Study on Immersion, Inclusivity and Accessibility in Game Sound Research,” in *Proceedings of the 24th International Academic Mindtrek Conference*, 12–20 (New York: Association for Computing Machinery, 2021).

research and public engagement. However, one of the principal advantages of historically informed soundscape modeling lies in working with, and creatively navigating, historical uncertainties and textual and archaeological lacunae. Interrogating the presence of sound-producing agents, as we will see in this study, provides a valuable example of how acoustic reconstruction can prompt archaeologists and historians to reconsider multiple components of the urban environment. Such reflections also draw attention to auditory markers of individuals of different ages, genders, and abilities who are otherwise largely absent from both written and material evidence. Addressing these issues is possible through collaboration with specialists from different fields, as such an analytical tool both requires and flourishes through interdisciplinary cooperation. The collaboration among disciplines (linguistics, archaeology, history, zooarchaeology, etc.) and the use of the sensorial dimension provide a layered understanding of antiquity.

Additional issues are likely to emerge as this field of research continues to develop, alongside the methodological challenges outlined here. The reconstruction of historical soundscapes, particularly those of cities distant from the authors' own cultural and temporal contexts, is fraught with challenges related to ethnocentrism and, in this case, Orientalism. These biases may manifest as the selective emphasis on certain sounds, the misinterpretation of historical sources, and the projection of contemporary soundscapes onto past environments. Beyond simply acknowledging these risks, the methodology presented here aims to establish both an effective workflow and a set of best practices. The systematic documentation of each phase of the process, along with its underlying rationale, enables the identification of potential biases and sources of historical inaccuracy. This, in turn, informs the development of appropriate mitigation strategies.⁹

The methodological practice adopted here involved three phases: the first consisted of identifying sounds as extrapolated from textual, archeological, and other sources (Table 1). Then, sound effect tracks were recorded or collected from available online libraries (Table 2). The third and final phase was the creation of the soundscape model.¹⁰ The technical contribution and expertise of a sound engineer were necessary to implement the second and third phases.

9. Accompanying the ethical challenge is a technical one: the long-term storage and accessibility of soundscapes. This is particularly relevant when, as in this case, authors intend to make their soundscapes available as open-access resources. A range of potential storage solutions has been identified, including SoundCloud, developing a dedicated website, dissemination via social media, and the creation of a podcast series. SoundCloud allows for interaction with listeners and offers the option to restrict the downloading of tracks. However, the disadvantages include the limited capacity to integrate accompanying text and images and its primary association with music rather than with academic content. Alternatively, a purpose-built website could provide a centralized space for storing soundscapes, with the added benefit of integrating textual and visual contextualization and fostering engagement through comment sections. Yet, this option includes technical costs, risks of cyberattacks or data breaches, and difficulties in fully restricting downloads. A third possibility is the production of podcast episodes, which explore the research processes underpinning historical soundscape reconstruction while serving as a tool for public outreach. However, podcasts are not a viable solution for long-term storage, as they tend to align more closely with commercial or public-facing initiatives rather than with academic archival practices. Nevertheless, they may provide a valuable bridge between scholarly research and a broader audience.

10. Also available on [the website and portfolio of the sound engineer who modelled this soundscape](#).

Phase 1: Choosing a City and Identifying Its Sounds

The Sasanian city of Rev-Ardashir was located on the shores of the Persian Gulf, in the Fars region of Iran (see Fig. 1). The archaeological remains at Rishahr, located six kilometers south of the modern Bushehr town, have been identified as being the potential location of Rev-Ardashir.¹¹ The rationale for choosing Rev-Ardashir as a case study lies in its strategic importance within the Persian Gulf, particularly in relation to long-distance trade and the diverse human groups that may have passed through the city.¹² August 406 CE was the date chosen for the soundscape because it falls within a period generally considered tolerant towards Christians, and it preceded the later calendar change (discussed below), which informed the selection of the associated Zoroastrian sound elements. Seasonal context further helped to narrow down potential sound sources, such as migrating birds and the presence (or absence) of weather-related sounds.

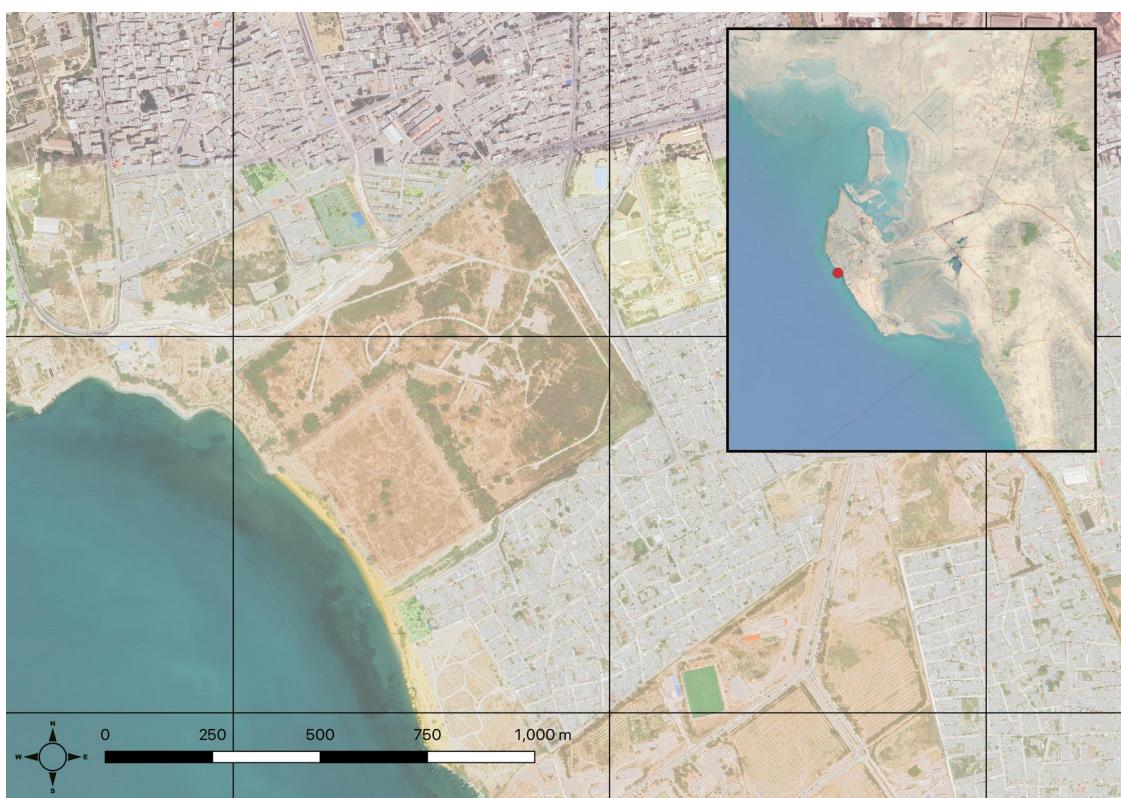


Fig. 1. Satellite imagery showing the potential location for Rev-Ardashir. This location is marked in red in the insert map, and the mudflats are visible. The map was created by the author with QGIS using Google satellite imagery.

11. R. A. Carter et al., “The Bushehr Hinterland: Results of the First Season of the Iranian-British Archaeological Survey of Bushehr Province, November–December 2004,” *Iran* 44 (2006): 63–103, at 68.

12. The city is closely tied to ongoing debates about trade in the Indian Ocean during the Sasanian period. The broader framework of oceanic connectivity, and the degree of its intensity, are central themes in recent scholarship. For instance, S. M. N. Priestman, “The Sasanian origin of Siraf,” in *Iran and Persianate Culture in the Indian Ocean World*, ed. A. C. S. Peacock, 15–48 (London: I. B. Tauris, 2024).

Rev-Ardashir has not been excavated, so there is no archaeological evidence of its urban spaces. However, its strategic significance outweighs this limitation; archaeological and historical research on other Sasanian cities was used to extrapolate data relevant to the soundscape. The comparative archaeological data mostly rely on excavations of Veh-Ardashir (Iraq),¹³ Merv (Turkmenistan),¹⁴ and Qasr-i Abu Nasr (Fars).¹⁵ The first two are coeval to Rev-Ardashir, as opposed to sites such as Siraf or Istakhr in Fars, where excavation did not reach the Sasanian stratigraphy.¹⁶ Secondly, excavations at Veh-Ardashir and Merv uncovered non-elite urban areas, in contrast to Siraf or Istakhr, where investigations have primarily focused on palatial and religious complexes.¹⁷ The assumption is that some features relevant to the soundscapes were common to most cities of the empire, including building materials used, the presence of religious centers, and domesticated animals that were part of daily life.

Gathering and collating information from environmental, archaeological, and historical sources were key to defining a list of potential sound sources, which are summarized in Table 1. The first column provides the broad umbrella category under which the sounds

13. M. Cavallero, “The Excavation at Choche (The Presumed Ctesiphon), Area 2,” *Mesopotamia* 1 (1966): 63–80; idem, “The Excavation at Choche, Area 2,” *Mesopotamia* 2 (1967): 48–56; R. Venco Ricciardi, “The Excavation at Choche, Seasons 1966, 67, 68,” *Mesopotamia* 3–4 (1968–69): 57–68; idem, “The Excavation at Choche,” *Mesopotamia* 5–6 (1970): 41–47; St. J. Simpson, “The Land behind Ctesiphon: The Archaeology of Babylonia during the Period of the Babylonian Talmud,” in *The Archaeology and Material Culture of the Babylonian Talmud*, ed. J. Gellar Markham, 6–38 (Leiden: Brill, 2015).

14. G. Herrmann, V. M. Masson, and K. Kurbansakhatov, “The International Merv Project Preliminary Report on the First Season (1992),” *Iran* 31 (1993): 39–62; G. Herrmann and K. Kurbansakhatov, “The International Merv Project Preliminary Report on the Second Season (1993),” *Iran* 32 (1994): 53–75; idem, “The International Merv Project Preliminary Report on the Third Season (1994),” *Iran* 33 (1995): 31–60; G. Herrmann, K. Kurbansakhatov, and St. J. Simpson, “The International Merv Project Preliminary Report on the Fourth Season (1995),” *Iran* 34 (1996): 1–22; idem, “The International Merv Project Preliminary Report on the Fifth Season (1996),” *Iran* 35 (1997): 1–33; idem, “The International Merv Project Preliminary Report on the Sixth Season (1997),” *Iran* 36 (1998): 53–75; idem, “The International Merv Project Preliminary Report on the Seventh Season (1998),” *Iran* 37 (1999): 1–24; idem, “The International Merv Project Preliminary Report on the Eighth Season (1999),” *Iran* 38 (2000): 1–31; idem, “The International Merv Project Preliminary Report on the Ninth Year (1999),” *Iran* 39 (2001): 9–52; St. J. Simpson, “Merv, an Archaeological Case-Study from the Northeastern Frontier of the Sasanian Empire,” *Journal of Ancient History* 2, no. 2 (2014): 1–28.

15. D. S. Whitcomb, *Before the Roses and Nightingales: Excavations at Qasr-i Abu Nasr, Old Shiraz* (New York: The Metropolitan Museum of Art, 1985).

16. D. Whitehouse, “Excavations at Sīrāf: First Interim Report,” *Iran* 6 (1968): 1–22; idem, “Excavations at Sīrāf: Second Interim Report,” *Iran* 7 (1969): 39–72; idem, “Excavations at Sīrāf: Third Interim Report,” *Iran* 8 (1970): 1–18; idem, “Excavations at Sīrāf: Fourth Interim Report,” *Iran* 9 (1971): 1–17; idem, “Excavations at Sīrāf: Fifth Interim Report,” *Iran* 10 (1972): 63–87; idem, “Excavations at Sīrāf: Sixth Interim Report,” *Iran* 12 (1974): 1–30; A. P. Cameron et al., *Siraf: History, Topography and Environment* (Oxford: Oxbow Books, 2009); M. V. Fontana, ed., *Istakhr (Iran), 2011–2016: Historical and Archaeological Essays* (Rome: Quaderni di Vicino Oriente, 2018).

17. Among the many examples, see D. Huff, “Qala-Ye Dukhtar bei Firuzabad. Ein Beitrag zur sassanidischen Palastarchitektur,” *Archäologische Mitteilungen aus Irān* 4 (1971): 127–71; idem, “Der Takht-i Nishin in Firuzabad. Mass-Systeme sassanidischer Bauwerke,” *Archäologischer Anzeiger* (1972): 517–40; R. Ghirshman, *Fouilles de Chāpour: Bīchāpour I* (Paris: Musée du Louvre, 1971).

in the second column fall. The third column shows the information extrapolated from the sources in the second column. The fourth column lists the sound sources potentially associated with the data, while the fifth column delineates the pertinent limitations and caveats.

Table 1: Soundscape Dataset

Type of Source	Source	Information	Sound Sources	Caveats
Environmental	Anthropic environment		People (including children): coughing, moving, talking, whispering, yelling	Dialogues were ideated, translated, and subsequently recorded (for further details on the dialogues and their translations, see the Appendix). It is assumed that men had a more prominent presence in public spaces. However, historical texts such as the Book of a Thousand Judgements indicate that we cannot confirm whether women were secluded during the fifth century CE. The Talmud (see Historical Sources below) mentions that Rabbi Judah's wife used to go to market. The presence of children along the city's streets and their potential activities are conjectural based on a mention in the Talmud.
	Google Earth satellite imagery	Vicinity to the sea	Waves	The proximity of the sea is speculative, as the exact location of the city's urban spaces is not confirmed.
	iNaturalist Current zoological literature	Wild animals and plants observable in urban centers of the area	House sparrow, laughing doves, house crows, white-throated kingfisher, purple sunbird, booted eagle, black-headed gull, common sandpiper,	These are present-day fauna; their historical presence is not confirmed.

Type of Source	Source	Information	Sound Sources	Caveats
Environmental (cont.)			grey heron, sand flies, ¹⁸ mosquitos, ¹⁹ wasps, ²⁰ bees ²¹	
	Iran Climate Guides ²²	Meteorological information for August	Very hot climate, potential breeze from the sea	This is present-day information, as there is not (to the best of the author's knowledge) an updated study on meteorology and climate of the Bushehr region in the fifth century CE.
Historical	Rose, "Festivals and the Calendar." ²³	The <i>frauuašis/ faward-īgān</i> festival was celebrated in August until 500 CE.	<i>Fawardīgān</i> is a ten-day period during which the souls of the dead (i.e. the <i>frauuašis</i>) are commemorated. After worship, families offer fruit, flowers, incense, and wood in individual rituals conducted by a priest around a small temple fire. ²⁴	These are present-day fauna; their historical presence is not confirmed.

18. M. Darvishi et al., "Epidemiological Study on Sand Flies in an Endemic Focus of Cutaneous Leishmaniasis, Bushehr City, Southwestern Iran," *Frontiers in Public Health* 3 (2015): 1-14.

19. M. Khoobdel et al., "Short Communication: Species Diversity, Habitat and Abundance of Culicid Mosquitoes in Bushehr Province, South of Iran," *Biodiversitas: Journal of Biological Diversity* 21 (2020): 1401-6.

20. Z. A. Alizadeh et al., "Review of Two Seed Wasps Genera (Hymenoptera: Eurytomidae) in Iran with Description of a New Species," *North-Western Journal of Zoology* 16, no. 1 (2020): 29-35.

21. T. Ghassemi-Khademi, "A Review of the Biological Status of Iranian Dwarf Honey Bees (*Apis Florea*)," *Journal of Middle East Applied Science and Technology* 13 (2014): 508-13.

22. M. Fani, F. Mehdizadeh Saradj, and S. A. Agha Yazdanfar, "Vernacular Characteristics of the Built Environment in Bushehr City," *International Journal of Environmental Studies* 79, no. 2 (2022): 213-44; "Iran Climate Guides," World Climate Guide: Historical Weather Averages Worldwide, accessed December 22, 2025.

23. J. Rose, "Festivals and the Calendar," in *The Wiley Blackwell Companion to Zoroastrianism*, ed. M. Stausberg and Y. S. D. Vevaina, 379-91 (Chichester: John Wiley & Sons, 2015), 381.

24. J. J. Modi, *The Religious Ceremonies and Customs of the Parsees* (Bombay: British India Press, 1922), 147.

Type of Source	Source	Information	Sound Sources	Caveats
Historical (cont.)	Shapur's (r. 240–70 CE) inscription; <i>Chronicle of Seert</i> ²⁵	Greek-speaking Christians settled in Rev-Ardashir by the time of Shapur I.	Greek speakers in this city during his reign	It is unclear if Greek speakers lived the area 150 years later.
	Isho'yahb III of Adiabene's letters; <i>Acts of Martyres</i> ²⁶	Two Greek and Syriac churches active by the end of the third century CE. Episcopal seat of Pars here, becoming independent in the early fifth century CE	Christian chanting, prayers in Syriac	Conjectures pertain to the types of prayers and the languages in which they were spoken.
	<i>Reshir-i Parsan</i> ; Syriac texts ²⁷	Potential source of pearls, presence of pearl merchants	Pearl fishers and merchants	There is no known archaeological evidence of pearl harvesting and trade in Rev-Ardashir.
	Modern scholarship ²⁸	Rev-Ardashir as a major Sasanian trade emporium within the Persian Gulf	Presence of merchants, market, boats, and port Traders from Arabia and India	Conjectures pertain to the languages spoken and items sold. There is no known archaeological evidence for a market in Rev-Ardashir.

25. The Chronicle of Seert, trans. A. Alcock (unedited, 2014); N. Miri, “Locating Sasanian Rew-Ardashir and Early-Middle Islamic Reishahr,” *Pazhoheshha-Ye Bastan Shenasi Iran* 6, no. 10 (2016): 161–72, at 167.

26. M. Kozah, “Isho’yahb III of Adiabene’s Letters to the Qataris,” in *An Anthology of Syriac Writers from Qatar in the Seventh Century*, ed. M. Kozah et al., 43–88 (Piscataway, NJ: Gorgias Press, 2015), 88; *Acts of Martyres* as identified by Miri, “Locating Sasanian Rew-Ardashir,” 167.

27. Miri, “Locating Sasanian Rew-Ardashir,” 168; *The Chronicle of Arbela*, trans. T. Kroll (Lovanii: In Ædibus E. Peeters, 1985); *Chronicle of Seert*.

28. Mentioned in G. Gropp, “Christian Maritime Trade of Sasanian Age in the Persian Gulf,” in *Golf-Archäologie: Mesopotamien, Iran, Kuwait, Bahrain, Vereinigt Arabische Emirate und Oman*, ed. K. Shippmann, A. Herling, and J. F. Salles, 83–88 (Berlin: Verlag Marie L. Leidorf, Buch am Erlbach, 1991), 86; Miri, “Locating

Type of Source	Source	Information	Sound Sources	Caveats
Historical (cont.)	<i>Denkard</i> ²⁹	List of professions occupying stalls in market-place	Sounds of working professionals: blacksmith, ironsmith, silversmith, roofer, string maker, those who worked with mortars (spicers?), tailor, pot maker, carpenter, washerman, cobbler, potter, baker, book painter, painter, cup maker, tanner, dyer, various builders, barber, tent maker, maker of sweets and other finger foods, goldsmith, tablecloth maker, saddler	There is no known archaeological evidence for a market in Rev-Ardashir.
	Letters of Medieval Jewish Traders ³⁰	List of traded items	Presence of traders of: cloves, teakwood, ginger, pearls	There is no known archaeological evidence for a market in Rev-Ardashir.
	The Talmud ³¹	Details of daily life	Domestic animals: donkeys, horses, dogs, pigs, geese, cats. Wind moving leaves in gardens. Opening/closing wooden doors. Carts transporting goods along streets. “Collectors of charity” moving about city. Leather workers in the market.	The presence of these elements in Rev-Ardashir is speculative (no archaeological evidence).

Sasanian Rew-Ardashir,” 168.

29. Mentioned in T. Daryaee, “Bazaar and Merchants in Late Antique Iran,” *Comparative Studies of South Asia, Africa and the Middle East* 30, no. 3 (2010): 401–9, at 404.

30. S.D. Goitein, ed. and trans., *Letters of Medieval Jewish Traders*, translated from the Arabic (Princeton, NJ: Princeton University Press, 1973).

31. *The Complete Babylonian Talmud* (Soncino, n.d.).

Type of Source	Source	Information	Sound Sources	Caveats
Archaeological	Excavations and surveys ³²	Zoroastrian population	Chanting/prayers	Conjectures pertain to the texts used by practicing Zoroastrians. The presence of a fire temple within Rev-Ardashir is speculative (no archaeological evidence).
	Whitehouse and Williamson, “Sasanian Maritime Trade” ³³	Presence of a fort	Clamor of swords Training exercises	The presence of a fort and garrison soldiers in Rev-Ardashir is speculative (no archaeological evidence).
	Excavations ³⁴	Mudbrick houses Earthen floor surfaces	Footsteps Construction sounds	No archaeological evidence in this region.

The Natural Environment of Rev-Ardashir

Rev-Ardashir has been identified with the Rishahr area on the Bushehr peninsula, a ridge of quaternary sandstone twenty-one kilometers long and up to six kilometers wide, which is separated from the inland by mudflats fifteen kilometers across (see Fig. 1).³⁵ These mudflats were part of the alluvial stratigraphy of the River Hilleh, which, over the centuries, created a peninsula from the original island.³⁶ Given this topography, the port would have required provisions from the hinterland, especially for potable water, as there is no perennial surface water, and the hydric resources of the wells are of poor quality.³⁷ The isthmus connecting

32. St. J. Simpson, “Nomads and Monks, Soldiers and Sailors, Farmers and Fishermen: New Archaeological Insights into Life in the Persian Gulf from Late Antiquity to the Medieval Period,” in *Ex Oriente Lux: Collected Papers to Mark the 75th Anniversary of Mikhail Borisovich Piotrovsky*, ed. A. A. Zolotova, 288–335 (Saint Petersburg: The State Hermitage Publisher, 2019), 294.

33. D. Whitehouse and A. Williamson, “Sasanian Maritime Trade,” *Iran* 11 (1973): 29–49.

34. St. J. Simpson, “Sasanian Cities: Archaeological Perspectives on the Urban Economy and Built Environment of an Empire,” in *Sasanian Persia: Between Rome and the Steppes of Eurasia*, ed. E. W. Sauer, 21–50 (Edinburgh: Edinburgh University Press, 2017).

35. Whitehouse and Williamson, “Sasanian Maritime Trade,” 65.

36. Carter, Priestman, and Tofighian, “Bushehr Hinterland,” 68.

37. Whitehouse and Williamson, “Sasanian Maritime Trade,” 40; Carter, Priestman, and Tofighian, “The Bushehr Hinterland,” 68.

Bushehr to the mainland is marshy, with occasional quicksand, and there is no convenient approach on the seaside. In the nineteenth century CE, provisions were transported by boat to avoid the marshes when coming from the east and transferred from larger sea-going vessels to smaller boats to be brought into the port.³⁸ This topography and historical examples suggest that the city might have relied heavily on boat transport in Sasanian times.³⁹

Climatic information on Rev-Ardashir is primarily derived from current-day information on Bushehr, as no research has been conducted on the historical meteorological conditions of the area to date.⁴⁰ Annual rainfall is insignificant in the summer, and the warmest temperatures occur between mid-July and mid-September.⁴¹ As a result, the likelihood of rain during August was minimal, influencing our predictions of which fauna were present and which weather sounds should be omitted from our soundscape.

The soundscape of Rev-Ardashir in August includes primarily birds and insects, because other species of wild fauna (mammals, fish, amphibians, and reptiles) are assumed to be less integrated within such an anthropic environment. Rats and mice were likely present but not necessarily significant sources of sound. The many bird species currently common in the Bushehr area (Table 1) comprise both perennial and migratory species that are observed in August. Among the sound-producing insects, hence excluding arachnids, moths, butterflies, etc., varieties of mosquitoes have a substantial presence.⁴² Sand flies are also common, to the point of constituting a problem today.⁴³ Different wasps and bees are also observed in the region.⁴⁴ They were very likely present in the fifth century CE, although specific research on the historical diffusion of these species is needed to confirm.

As regards the flora, it is difficult to ascertain the degree and varieties of plants in the region without archaeological excavations and consequent environmental and zooarchaeological analysis. Currently, grey mangroves are typical of the area. Orchards and gardens possibly grew within houses' courtyards or other city green areas. Due to the absence of detailed information on the types of vegetation that once existed in the city and recognizing that vegetation has only a minimal impact on a soundscape, flora are minimally represented in this sound reconstruction.

38. X. de Planhol, “Būšehr i. The City,” *Encyclopædia Iranica* 4 (1990): 569–72.

39. A detailed diachronic study of water resources and the alluvial stratigraphy should be undertaken to determine whether present-day hydric and topographic conditions are comparable to those of the Sasanian era.

40. To the best of the author's knowledge.

41. Fani, Mehdizadeh Saradj, and Yazdanfar, “Vernacular Characteristics,” 214.

42. Khoobdel et al., “Short Communication.”

43. Darvishi et al., “Epidemiological Study on Sand Flies.”

44. Ghassemi-Khademi, “Review of the Biological Status”; Alizadeh et al., “Review of Two Seed Wasps.”

Historical Sources

Historical texts mention domestic animals within Sasanian cities, including donkeys, horses, dogs, pigs, sheep, goats, geese, and cats.⁴⁵ The above-mentioned topographical information does not necessarily preclude the presence of beasts of burden typically used to transport goods over long distances, such as camels or horses, even in the absence of direct archaeological evidence, as the absence of evidence is not necessarily evidence of absence. Indeed, evidence for horses is well documented at other Sasanian sites.⁴⁶ The importance of horses and the criteria for their beauty, which were used to inform the recorded dialogues in the soundscape (see Appendix), are inferred from the seventh-century text *Khosrow and the Page* in particular.⁴⁷ The dialogue not only underscores the cultural significance attributed to the animal in historical texts, but also invites reflection on the animals' practical needs and purposes in a region where the maximum distance between points could reach twenty-one kilometers. Although this distance may sound short, it could not easily be covered on foot in a single day, particularly when transporting goods or by people with diverse mobility impairments.

For information on the city's population and identities at the time of foundation, al-Ṭabarī and the Middle Persian text *Karnamag-i Ardashir-i Pabagan* claim that Ardashir I founded Rev-Ardashir/Rishahr between 220 and 226 CE.⁴⁸ This act was considered part of his strategic campaign to gain mercantile supremacy within the newly established political context of the Sasanian dynasty.⁴⁹ The date of Rev-Ardashir's foundation is significant not only in positioning it within the regional trade network but also for establishing which of the social and cultural identities present in the city had already been in place for approximately 180 years. Historical sources describe Rev-Ardashir not only as a trade emporium of the Persian Gulf, but also as the seat of the metropolitan of Persis belonging to the Church of the East.⁵⁰ The missionaries of the Church of the East seem to have traveled to India and Ceylon, and the *Chronicle of Seert* mentions the Catholicos of the Church of the East being sent by Yazdegerd I (399–421 CE) to Fars to investigate piracy.⁵¹ This means that the Syriac presence in the city was substantial in 406 CE.

45. *Complete Babylonian Talmud*. See also M. Mashkour, "Interactions between Humans and Animals on the Iranian Plateau during the Prehistory and Historical Periods," paper presented at the annual Vladimir G. Lukonin Memorial Lecture of the British Museum, London, June 19, 2025.

46. E-mail communication with M. Mashkour, October 5, 2025.

47. S. Azarnouche, trans., *Husrawī Kawādān ud Rēdag-ē. Khosrow fils de Kawād et un page* (Paris: Association pour l'avancement des études iraniennes, 2013).

48. V. F. Piacentini, "Ardashīr i Pāpakān and the Wars against the Arabs: Working Hypothesis on the Sasanian Hold of the Gulf," *Proceedings of the Seminar for Arabian Studies* 15 (1985): 57–77, at 57; C. E. Bosworth, trans., *The Sāsānids, the Byzantines, the Lakhmids, and Yemen*, vol. 5 of *The History of al-Ṭabarī* (Albany: State University of New York Press, 1999), 16.

49. Piacentini, "Ardashīr i Pāpakān," 60.

50. As presented in the arguments by Whitehouse and Williamson, "Sasanian Maritime Trade," 40; Gropp, "Christian Maritime Trade," 86; Miri, "Locating Sasanian Rew-Ardashir."

51. Whitehouse and Williamson, "Sasanian Maritime Trade," 41.

Given this multiculturalism, it is likely that the languages spoken would have included at least Pahlavi (Middle Persian), Syriac, Armenian, and potentially Greek. Sources confirm the presence of Greek-speaking Roman captives in 240–70 CE.⁵² The presence and degree of diffusion of Indian and Arab merchants on the Iranian shores at this time are still debated in modern scholarship.⁵³ Languages spoken in India in the fifth century CE comprised Pali and Old Tamil, while merchants from eastern Arabia would have potentially spoken in dialects of Old Arabic, Aramaic, and potentially Sabaic and Himyaritic. The presence of Jewish people in Rev-Ardashir is not historically confirmed, hence there is only one Aramaic sentence in the dialogue. However, the Talmud reveals significant information about Sasanian urbanscapes by mentioning the presence of domesticated animals, wooden doors, etc. (Table 1). Hence, the information drawn from these sources concerning features common in urban settings is employed in the soundscape modeling, even though there is no direct evidence for a Jewish community in Rev-Ardashir specifically.

Local resources would have mainly been limited to marine products, primarily fish, other seafood, and pearls, due to the isolated topography of the area.⁵⁴ Although not historically or archaeologically confirmed, the existence of a market (*wazar*) selling all sorts of items is highly likely. The list of professions that occupied the market is listed in the Denkard (Table 1), so we can presume the presence of various kinds of smiths, craftspeople, and food sellers.⁵⁵ The Talmud also mentions leather workers as well as sellers of wine, dried fruit, ox, slaves (often referred to as “maidservants”), oil, herbs, vegetables, fruit, linen and other garments, and geese and meat.⁵⁶ Despite Rev-Ardashir’s position on an isthmus and its clear reliance on maritime and riverine trade, it is not methodologically sound to infer the absence of urban crafts, such as tanning and other industries attested in inland centers. In the context of a Late Antique economic system, complete dependence on trade alone would have been economically precarious, if not implausible.⁵⁷

Among other historical sources, the *Madigan-i Hazar Dadistan* (*The Book of a Thousand Judgements*) records the existence of the enslaved, a social class otherwise largely absent from historical sources.⁵⁸ An interesting passage refers to the “income of the slave,” suggesting that work undertaken by enslaved individuals was remunerated, possibly through selling goods in the market or engaging in other economic activities.⁵⁹ Similarly, other sections refer to the income of a married woman, from which it is possible to infer

52. Miri, “Locating Sasanian Rew-Ardashir,” 167.

53. Priestman, “The Sasanian origin of Siraf.”

54. Miri, “Locating Sasanian Rew-Ardashir,” 168.

55. Daryaei, “Bazaar and Merchants,” 404.

56. In order, *Mas. Sanhedrin* 20a, *Baba Bathra* 98a, *Berachoth* 62b, *Baba Metzia* 100a, *Baba Kama* 84b and *Baba Metzia* 100a, *Sanhedrin* 101a, *Baba Bathra* 88a, *Berachoth* 44b, *Avodah Zarah* 72a, *Sanhedrin* 106a and *Menachoth* 43a, and *Avodah Zarah* 22b.

57. If such a city did exist, it would prompt the necessity to further investigate Rev-Ardashir’s true status, economic structure, and the extent to which craft production and related activities were undertaken locally.

58. A. Perikhanian and N. Garsoian, trans., *The Book of a Thousand Judgements. A Sasanian Law Book* (Costa Mesa, CA: Mazda Publishers, 1997).

59. *Ibid.*, 101, §11–15.

that some women might have economic agency and a degree of independence.⁶⁰ The Talmud mentions the selling of slaves and the presence of women and children at the market.⁶¹ These texts thus imply that some of the audible voices in the streets or at the market may have belonged to the enslaved, children, and women.

These various voices would also have been raised in prayer. The calendar moved out of sync with the solar year until 500 CE, so in 406 CE the month of Farvardin had receded to August, together with the *frauuašis* festival, also known as *frawardīgān*.⁶² This ten-day festival was celebrated in honor of the spirits of the dead and is still in use in present-day Zoroastrian communities.⁶³ Flowers and other items, such as wood and water, are an important part of the ceremony, as one of the aims is to keep the memory of the beloved dead evergreen.⁶⁴ The prayers recited during these days include the *Afringān*, the *Satum*, and the *Farokhshi*, while the *Baj* ceremony is performed in the fire temple.⁶⁵ Different *Gathas* (Zoroastrian hymns) are recited on different days, including the *Roz Astād*, *Roz Marespānd*, *Gāthā Ahunvad*, *Gāthā Vohukhshathra*, and *Roz Aspandārmad*. Music is an important, convivial element in celebrating holy days, possibly related to the fact that Paradise is referred to as the “House of Song.”⁶⁶ However, at the present stage, it has not been possible to find enough information to reconstruct plausible musical elements dating to this period.

Archaeological Evidence

The warm climate affects the current-day urbanization of Bushehr, with the cool breeze from the sea being directed throughout the city via architectural elements such as high enclosures and long walls forming narrow alleys oriented toward the seaside.⁶⁷ Rev-Ardashir and other ancient cities in nearby locations would likely have had similar architectural elements. As evident from the archaeological remains in Veh-Ardashir, Merv, and Qaṣr-i Abu Naṣr, mudbrick was the predominant building material for domestic buildings in the period.⁶⁸ While these Sasanian cities are not located in the same region as Rev-Ardashir and lie within distinct climatic zones, particularly in the case of Merv, the available archaeological evidence indicates that mudbrick architecture was employed across the whole of Eranshahr, albeit with some planimetric and architectural variations.⁶⁹

60. Ibid., A2, §14–15; A3, §13–14; A7, §11–13.

61. Mas. Baba Kama 84b, Nedārim 49b and Baba Kama 91a, and Sukkah 56b, respectively.

62. Rose, “Festivals and the Calendar,” 381.

63. W. W. Malandra, “Frawardīgān,” *Encyclopædia Iranica* 10, no. 2 (2000): 199.

64. Modi, *Religious Ceremonies and Customs*, 476–78.

65. Ibid., 478.

66. B. Lawergren, “[Music History i. Pre-Islamic Iran](#),” *Encyclopædia Iranica Online*, last updated February 20, 2009.

67. Fani, Mehdizadeh Saradj, and Yazdanfar, “Vernacular Characteristics,” 216–17.

68. Simpson, “Merv, an Archaeological Case-Study,” 17.

69. D. Rossi, “The Evolution of Sasanian Urbanism after the Arab-Muslim Conquest” (PhD diss., Cardiff University, 2025).

Echoes and alterations to sound reverberation within mudbrick architecture are a phenomenon of internal spaces; hence, similar effects will not be perceivable in the case study's soundscape, since the narrative is mainly set outside. Albeit no archaeological evidence suggests the presence of wooden doors, some extracts of the Talmud, such as the fact that light inside was visible when passing the door of a carpenter, hint at either a shabby wooden door or a textile door.⁷⁰ Thus, the sound of a door opening has been included in the model. The Talmud and archaeological investigations also confirm that the streets were made of beaten earth and included some main arteries large enough for wheeled carts, potentially including trash collection vehicles.⁷¹

Phase 2: Collection of Sound Files

The sources outlined in the preceding paragraphs described sound effects that can be reproduced and recorded. When available, sound effects were downloaded in .wav format from [Soundsnap](#), an online sound library, or from other online resources as specified. Other sound effects, such as dialogues and *walla* (background crowd noise and ambient conversation), were recorded by the author and a sound engineer.⁷² Yet others are “Foley sounds,” a term in sound engineering that encompasses artificially created effects designed to reproduce the sounds of everyday actions. Originating from the practices of sound artist Jack Foley, the term typically refers to manipulating objects to imitate environmental or bodily sounds.

Reconstructing dialogues in ancient languages poses a number of challenges. Recreating exact pronunciation, accents, and the musicality of sentences is nearly impossible, leaving us with only conjectures based on comparative linguistics and surviving written records. Phonetic reconstructions rely heavily on linguistic analogies, which are often speculative. Similarly speculative are the volume and pitch of speech. While some similar sound-based projects have favored “oralization” (sound without words)⁷³ over “verbalization” (including spoken language) due to concerns about historical accuracy, this project deliberately embraces verbalization. This approach creates an opportunity to enhance public engagement with the material and to encourage interdisciplinary collaboration through linguistic exploration. A voice-altering software used in music production, [Audimée](#), was employed to modify the author’s voice for the dialogues.⁷⁴

70. Mas. Shabbat 23b.

71. Simpson, “Merv, an Archaeological Case-Study”; *Complete Babylonian Talmud*.

72. The recognizable dialogues and their translations are in the Appendix.

73. For instance, “[Projet Bretez](#),” MSH Lyon St-Étienne, accessed December 16, 2025; Pardoën, “‘Bretez II’ et l’archéologie.”

74. Audimée’s interface includes characters distinguished by gender, labeled “Male 1,” “Male 2,” “Female 1,” “Female 2,” and those associated with a proper name. The characters’ differences in pitch and timbre are classified according to musical criteria, such as “unprocessed, Soul, R&B, Blues, etc.” For functional purposes, this article follows Audimée’s gender distinctions, while noting that differences in pitch (low or high) do not necessarily correspond to gender identity.

Women's voices are less prominent in historical records, potentially reflecting their reduced visibility in city streets during this period. However, historical sources never explicitly state that women were confined to their homes or prohibited from selling goods in marketplaces, as noted in the discussion of historical sources above. Therefore, it was decided to include a variety of vocal pitches in the marketplace scenes.

The dataset of collected sound effects has been summarized in Table 2. The sounds (first column), along with their related sources (second column), are associated with mitigation measures taken to enhance historic accuracy if relevant and notes for further recordings (third column). For recorded sources and Foley sounds, the recording date and location have been documented to monitor potential sound contamination and define the degree of historical accuracy. In most cases, additional recordings are needed to expand the dataset and offer more variety.

Table 2: Table of Sound Effects and Their Sources.

Sound Effect	Source	Notes
Yawn	Foley (London, n.d.)	
Drinking water	Foley (London, June 18, 2025)	
Door opening	Foley (London, May 13, 2025)	Modern door. Additional recordings of opening doors needed to establish eventual sound differences between types of door materials. Reconstructions of ancient doorways would be even more accurate.
Footsteps	Foley (London, May 13, 2025)	The soil composition of the recording differs from that found in Rev-Ardashir. Additional recordings of footsteps on different soil compositions and compaction levels are needed to establish eventual sound differences.
Birds chirping	Foley (London, May 13, 2025)	Some of the birds presumably found in Rev-Ardashir are also native to Europe, but not all. Hence, this sound effect is dampened in the soundscape modeling to avoid the potential recognition of bird species.
Insects buzzing	“Insects Buzzing and Swarming (6 [sic],” and “Fly Buzz Close 01”	
Cat meowing	“Cat Vocalization – Angry – Long 1”	

Sound Effect	Source	Notes
Dog barking	Foley (London, May 16, 2025) “Interior with Dog Barking outside”	
Donkeys	“Donkeys – Braying at the Market – Assem Souk”	
Axe chopping wood, throwing wood on wood	“Chopping Wood inside a Barn (11 [sic],” and “Impact – Falling – Throwing Wood on Wood – Log Chunk on a Cellar – Indoor Perspective 3”	Recordings made with modern axes. Additional recordings of chopping various timber species and with axes made with Sasanian techniques and technology are needed to establish eventual sound differences.
Walla (indistinguishable chattering)	Author reading Middle Persian aloud (London, May 15, 2025) “EFX EXT Group Men Working Walla 01 A,” and “EFX EXT Group Men Working Walla 02 A”	
Children playing	“Crowd Kids Play Co op Park Lite 1,” and “119 Ambiance People Outdoor Courtyard Day Kids Playing Talking”	
Zoroastrian chanting	Dastur, “Farokhshi Ceremony and Prayer”	It is assumed that modern-day Zoroastrian prayer and chanting is as historically accurate as possible. Given that the soundscape narrative is focused on open-air spaces and the prayers were carried out within fire temples, this sound effect is deliberately dampened.
Horses	“Horse on Dirt up Fast and Stop with Breaths,” and “Animal Horse Footstep Trot by on Gravel and Leaves”	
Sharpening knives	Foley (London, May 13, 2025)	Modern knives used for recording. Additional recordings of knives made of different materials and made in accordance with Sasanian techniques and technology are needed to establish eventual sound differences.

Sound Effect	Source	Notes
Fireplaces	“Fireplace Ambience – Calm – Light Flame Rumbling and Burning Noise – Loopable”	
Seagulls	“PWL04 0329 Soundsnap Alasca 2 0 Ambiance Salmon River Seagulls 2”	
Waves	“Sea Wash 02”	
Dialogues	Author reading Middle Persian and Syriac aloud (London, May 13–May 20, 2025; Barcelona, November 4–November 9, 2025)	
Coins clinking	“Coin Purse Handle 2”	Additional recordings of coins made of different materials and in accordance with Sasanian (and trade partners') weights and molds are needed to establish eventual sound differences.
Boats	“Sounds of a Single Soft Squeak of a Wooden Boat”; “Rope Pull Creak”; “Sound of a Double Squeak of a Wooden Boat, Slow Speed”; “EFX EXT Africa Mekoro Boat Paddling River Fast 02”	Additional recordings of boats of different sizes and made with Sasanian techniques and technology are needed to establish eventual sound differences.
Blacksmith	Foley (London, May 13, 2025) “Ilmarinen Blacksmith Modern Smithy Outdoors Forge Blower Anvil Magnet Dampener 12 Hammer Strikes Moderate Aggressive Ringing 2 S,” and “Block of Ice – Melting with a Hot Iron – Sizzling, Bubbling, and Steaming 4”	Additional recordings of different blacksmith tools, including those made with Sasanian techniques and technology, are needed to establish eventual sound differences.
Coughing and related noises	Foley (London, May 16, 2025) “Coughing from a 40 Year Old Man with a Dry Cough x4, Stereo”; “Male 18 Year Old Baby with a Cough and Choke in the Distance”; “Human Cough – Man”; “Cough – Clear Throat – Male 30s – Roomy – Neumann U89”	
Pig	“EFX SD Pig Snort 04”	

Sound Effect	Source	Notes
Chopping of food	“Carrot – Slices and Dice Cut – Chopping Slow with a Knife – on a Wooden Chopping Board 2,” and “Food – Cucumber – Cutting Using a Winco KC401 Clever Knife – Wooden Cutting Board – Chopping, Slicing, and Swiping – Slow”	
Movement of cloth	Foley (London, May 13, 2025) “582 Foley Clothes Movement Light Stop Small Special Distance”	Additional recordings of different cloth types and cuts are needed.
Wooden cart	“Ancient Game Wood Wheel Wagon Mechanism 1”	Additional recordings of different wooden carts, including those built with Sasanian techniques and technology, on different road types are needed to establish eventual sound differences.
Grinding spices	Foley (London, May 13, 2025)	
Pottery clinking	“Putting Designed Medieval Kitchen Pottery on a Wooden Table and Sliding Them”; “Clay Pot Big Move Slow Sequence”; “Flower Pot 3 – Ceramic – Smashing 1 – DPA 4017”	
Wind	“JORD Desert Wind Light Gust Very Quiet the Day the Day [sic]”	
Goose	“ARM Park near a Lake Duck and Goose Vocal with People Voices around in a Long Reverb”	
Raven	“Common Raven (<i>Corvus corax</i>)”	
Eagle	“Booted Eagle”	
Sunbird	“Purple Sunbird”	
White-throated kingfisher	“White-Throated Kingfisher <i>Halcyon smyrnensis saturatior</i> ”	
Crow	“EFX EXT Cape Cod Summer Crow Forrest 01”	

Phase 3: Modeling a Soundscape

Sound effect tracks in .wav format were imported into the software ProTools. Pro Tools is a digital audio workstation widely used in the audio production industry for manipulating and mixing sound files, which makes it perfect for soundscape modeling. The tracks were edited and remixed, as Pro Tools enables users to cut, copy, paste, and move segments of audio. Mixing capabilities include the use of virtual effects processors and plugins to shape the sound of each track. In the mixing phase, levels and pan positions were adjusted, and various effects such as reverb, delay, and dynamic processing (including compression and equalizer), were applied to create a polished final mix. Once finished, all the tracks were mixed and exported in a final soundtrack in stereo .wav format. For this project, a narrative script was used to enhance the immersive and sensorial experience for listeners. The sequence employs time compression to allow the listener to experience a variety of places within a limited timeframe, thereby maximizing informational content.

The five-minute soundscape begins with the main character yawning and drinking a glass of water. They then open their front door and venture through the streets of the city. The initial section is relatively quiet, featuring the distant echo of Zoroastrian chanting, reflecting the character's suburban location, away from the city center. As the character approaches the market, the soundscape intensifies into a babel of voices and noises. Insect buzzing becomes more prominent in proximity to food and animals, adding further layers of environmental realism. Towards the end of the market, the character reaches a section dedicated to horses and purchases one with minimal bargaining, possibly indicating that they were overcharged or deceived. The soundscape concludes by the seaside, with boats, mixed voices dialoguing about matters that could have been audible in such an important harbor of the Gulf, and a phrase in Greek, subtly evoking the multicultural nature of trade and mercantile activity. Finally, the character returns home on horseback.

Conclusion

Soundscape modeling offers a novel approach to understanding ancient landscapes and their environments. This article has presented the methodology used to prepare a case study of the Sasanian city of Rev-Ardashir in order to highlight the advantages for multiple fields of study of considering a city's soundscape. Since sounds are integral to any environment and significantly contribute to transforming a "space" into a "place," they have significant potential as an analytical tool for historians and archaeologists alike.

Another outcome of using soundscapes as analytic tools is to restore a sense of agency to individuals who are otherwise largely unheard, as it were, in the historical record. As the narrative of the soundscape was being drafted, it prompted several questions. For instance, were there disabled people in the Sasanian Empire who required assistance to move themselves or transport goods? Could beasts of burden such as horses and camels have played a fundamental role even in a marsh-surrounded city like Rev-Ardashir? Did women sell items in the market? Which crafts might have been practiced in a city built on an isthmus? Was Rev-Ardashir entirely dependent on trade, and how feasible would such an economy be in Late Antiquity? Was the available water potable, and how might people of

different ages and with various impairments have accessed it? Addressing these questions required collaborative interdisciplinary work, including consultations with linguistic specialists. Some of the decisions made for this soundscape were based on very limited evidence—for example, the presence of women in the market, the role of horses and camels, or the availability of water. For this reason, the article also indicates how the methodology highlights existing information gaps, which may be revised as further studies yield new insights. Soundscapes therefore provide a means to engage with historical uncertainties and with the textual and archaeological lacunae that characterize our knowledge. Questioning the presence of animals, workers, flora, and other sound-makers in this study offers a valuable example of how sonic reconstruction can help scholars reconsider overlooked aspects of the urban environment; for example, species of birds or insects that left no trace in the record but were nevertheless integral to daily life. Hence, this approach highlights the necessity of further studies on sensory dimensions of the past, drawing attention to environmental components that otherwise might escape both the archaeological and the historical record.

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75. E. Soli P. Dastur, vocalist, “*Farokhshi Ceremony and Prayer: Audio Recording*,” available at E. R. R. Motafram, compiled by R. G. N. Panthaky, “Farokhski Ceremony and Prayer,” AVESTA.org, accessed December 16, 2025.

Appendix⁷⁶

Lines are presented in approximate order, as some overlap or occur simultaneously. Repeated lines have been omitted after their first occurrence.

Ādur Wahrām kū? [“Where is the fire temple?”] (Pahlavi)

Awīš nibēs! [“Write to him!”] (Pahlavi)

*Bšt' bsq?*⁷⁷ [“There’s something evil in the packs.”] (Aramaic)

Ēn sag abēr gursag, gōšt dahēd! [“That dog is hungry, give him food.”] (Pahlavi)

Dahēd. [“He gives.”] (Pahlavi)

Ay mardom. [“Come, people [to my aid].”] (Pahlavi)

Kaltsats em. [“I am hungry.”] (Armenian)

W-terşethāh l-mardhīth d-tethē la-nūhrā d-māthan madhnħā.⁷⁸ [“And I directed my course that it may come to the light of our Land, the East.”] (Syriac)

Āb! [“Water!”] (Pahlavi)

Pad āzādīh dārēm! [“I am grateful!”] (Pahlavi)

Dialogue between Simeon and Dadisho⁷⁹ (Syriac)

- S: *Shalmeth mayā dīl, āḥ. Īth bērā qarīwā?* [“I finished my water, brother. Is there a well nearby?”]
- D: *Bērā raḥīqā ṭāw men hārkā, āḥ, elā māṣenā d-aštawtaph qalīl mayā amākh.* [“It’s quite far from here, brother, but I can share some water with you.”]
- S: *Ō alāhā nebrakhākh! B-shaynā w-wa-shlāmā!* [“Oh, God bless you. In quiet and peace [Safe travels]!”]

Gursag. [“Hungry.”] (Pahlavi)

Waččag-im wēmār, ay mardom, ō frayād rasēd, nān dahēd! [“My child is very sick, people [come to my aid], give me bread.”] (Pahlavi)

76. The Middle Persian and Armenian dialogues were created in collaboration with Ruben Nikoghosyan; Michael Ethington ideated the dialogues in Syriac. The Syriac pronunciation follows G. Bohas, *Les Bgdkpt en syriaque selon Bar Zo'bî* (Toulouse: Centre d’études du monde arabe et de l’Asie, 2005).

77. G. Leube and C. G Häberl, “There’s Something Bad in the Packs: A Vernacular Aramaic Phrase in al-Ṭabarī’s and al-Mas‘ūdī’s Histories?” *Journal of Semitic Studies* 69, no. 1 (2024): 179–203.

78. *L’Hymne de la perle des Actes de Thomas. Introduction, text, traduction, commentaire*, trans. Paul-Huber Poirier (Turnhout: Brepols, 2021), §63.

79. The characterization of these two figures, both Syriac, warranted distinguishing them by giving them Syriac names.

Dārēnag. [“Dried fruits.”] (Pahlavi)

Asp xrēd, ay mardom, asp ī nēk, dandān bārīk, u-š war frāx kū sī sār kār kunēd. [“Buy a horse! Oh people! Horse of good, narrow teeth, wide chest, who works for thirty years!”] (Pahlavi)

May, may, may xwarēd, kū šād bawēd, ud nēk ziwēd sāl sad! [“Wine, wine, wine, drink so that you will be happy and live well one hundred years!”] (Pahlavi)

Ay bānūg, awar! [“Hey, lady, come!”] (Pahlavi)

Ay mardom, awar! [“Hey, people, come!”] (Pahlavi)

Ēdar āyēd! šiftālūg ī armanīg barēd! [“Come here! Take Armenian peaches!”] (Pahlavi)

An ēzm⁸⁰ xwahom.⁸¹ [“I need some wood.”] (Pahlavi)

Čē arzēd⁸²?! [“How much does it cost?!”] (Pahlavi)

Aspān ī sugdīg, aspān ī tāzīg, aspān ī armanīg, harw ēk weh az raxš ī rustahmīg. [“Horses of Sogdiana, horses of Taziq, horses of Armenia! Every one better than Roksh-e Rostam!”] (Pahlavi)

Bistag ī abaršahrīg, xwarišn ī abargarān! [“Pistachios of Khorasan, the food of the gods!”] (Pahlavi)

Ay mardom, awar! abrišam ī čīnīg hast, pad wahāg ī xōb. [“Hey, people! Don’t you want embroidered golden silk?! Come here.”] (Pahlavi)

Arz nē dārēd. [“Worthless.”] (Pahlavi)

Pad drōd pōšēd! [“Wear it wealthily!”] (Pahlavi)

Ēdar wēnēd bāragān ī šabistānīg kū az hamag bāragān weh ud nēkōgtar! [“Here there are riding animals [horses], which, among all the other riding animals, are better and nicer!”] (Pahlavi)

Asbān ī tāzīg. [“Arabian horses!”] (Pahlavi)

Aspān ī gušn, aspān ī mādag, kurragān (coal), pēš ī amāh harw gōnag asp ku xwāhēd hast. [“Male horses, female horses, colts, here with us, all types of horses that you want!”] (Pahlavi)

80. The term *ēzm* is found associated with the wood used for fire temples; hence it has been preferred over the more general terms *čōb* and *dār*.

81. Among the three forms, *xwāhēm*, *xwāhom*, and *xwāham*, the form *xwāhom* has been used here because it is associated with the Fars dialect.

82. *Arjed* for the Parthian pronunciation.

Dialogue at the market between the Main Character and the Vendor (Pahlavi)

- MC: *Pad drōd! ēn asb pad čand frōšēd?* [“Prosperity/Peace! How much is that horse?”]
- V: *Pad drōd! ēn asb asb ī xwadāy ī man, nē frōšēm.* [“Prosperity/Peace! This horse is my Lord’s, and we do not sell it.”]
- MC: *Wīst dēnār wahāg dahēm!* [“I will give you twenty dinars for it.”]
- V: *Az ēdar be šaw! amāh ēn asp nē frōšēm.* [“Go from here! We do not sell this horse.”]
- MC: *Kadam asp-ēw pad panj dēnār tuwān xrīd? az šahr ū šahr raftan rāy, asp ī mādag ayāb asp ī gušn weh?* [“Which horse is possible to buy for five dinars? For going from land to land, is the female horse or the male horse better?”]
- V: *Pad ēd kār uštar ī bahlīg weh, kū ēdar nē frōšēnd. bē stōr ī bayaspānīg-iz weh, u-š anōh frōšēnd.* [“For that, the camel is better, which we do not sell here.⁸³ But the messenger [post] horses are also good, and we are selling them here.”]
- MC: *Ēdar dēnār ī ašmāh!* [“Here is the money!”]
- V: *Ēdar asp ī tō, dōst ī grāmīg! pad drōd bawēh!* [“Here is the horse, my dear friend! Be healthy [have a good journey]!”]

Pad drōd! [“Prosperity/Peace!”] (Pahlavi)

Ašmāh māhīg xwarēd! [“They eat fish.”] (Pahlavi)

Awiš nibēs! [“Write to him!”] (Pahlavi)

Tō čē māhīg xwārē? [“Which fish do you eat?”] (Pahlavi)

Egō pōlō krustallous angeia. [“I sell glass vessels.”] (Greek)

Abāg ān zangābīl ī Farroxzād čē oftād? imrōz pad dast ī kē hast? [“What happened with the ginger of Farroxzad? Which hands is it in today?”] (Pahlavi)

Māhwīndād ī dibīr paččēn ī nāmag ū tō nē dād? [“Didn’t Māhwīndād the scribe give a copy of the letter to you?”] (Pahlavi)

Dialogue at the harbor between Merchant 1 and Merchant 2 (Pahlavi)

- M1: *Az pidar ī Rabbān Ayūb xwāstī kū hambāy ī tō bawēd?* [“Did you ask Rabban Job’s father⁸⁴ to be your partner?”]
- M2: *Ōy wāzārgān ī abēr nēk ud rāst-gōwišn!* [“He is a good, truth-speaking merchant...”]
- M1: *Imsāl murwārīd az drayāb nēk abar nēyāmad-ast.* [“This year, the pearls did not come up well from the sea; he lost some money.”]

83. Mashkour, “Interactions between Humans and Animals.”

84. The existence of this merchant, the father of Rabban Job, is attested in the *Chronicle of Seert* (35), although this pearl dealer lived during the reign of Xusro Anushirwan. Also known for translating religious texts from Syriac into Pahlavi, Rabban Job stands as an embodiment of the complex intersectional identities that defined Eranshahr.

- M2: *Murwārīd az Māzūn abāyēd xrīdan. anōh murwārīd ī Māzūnīg abēr nēk ud društ ast.* [“He will buy pearls from Oman, pearls from Oman are very big this year.”]

U-m dēhgān andar srāy ī xwēš āwurd ud xwāst kū-m az mar ī duxt ī grāmīg-aš čandal ī hindūg āwūrēm. [“And the dēhgān brought me to his palace, and he asked that I, for his beloved daughter, bring him Indian sandalwood.”] (Pahlavi)

Awar, ay mardomān, awar. Mēxak az hindūgān; Mēxak az hindūgān. stēr-ē pad dō drahm! Ay, mardom, mēxak ī hindūgān! [“Hear, people, hear! Cloves from Industan! Cloves from Industan! One statter for two drahms!⁸⁵ Come people, cloves from Industan!”] (Pahlavi)

U-m bē drahm ēnyā pul nēst. pēš-ī tō dēnār ast ayāb nē. [“I do not have any money except for dirhams. Do you have dinars or not?”] (Pahlavi)

Kištīg as Hāmāwarān āmad ayāb nē? abāyist kū bār ī kundur ī-m xrīd, andar ayābēm. abāyēd kū dār ī sāj abāz frestēm! [“Has the boat from Yemen arrived or not? I needed to receive the load of frankincense, and I must send teakwood back!”] (Pahlavi)

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85. Silver coins.

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