



Historical Background of Paleo Mega Lake of Rey

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ABSTRACT

Over the past decade, a vast ancient Lake has been discovered in the central region of Iran, known as the Paleo Mega Lake of Rey (PAMELA). Considering that the presence of water in the lake coincides with the existence of human civilizations in the region, it is expected that references to this lake may be found in ancient Iranian texts. In this paper, we aim to meticulously examine the provided data while accurately pinpointing the geographical locations, names, and relevant regions connected to this lake. For this purpose, the majority of historical texts, travelogues, city histories, royal biographies, and other available sources have been reviewed. In general, with reference to the mentioned historical texts, it becomes evident that in many ancient texts, the PAMELA has been mentioned by names like the *Faraxkurt* Lake and *Saveh* Lake. Numerous ancient sites and structures in the vicinity of the lake have been identified. Additionally, significant data related to periods when the lake was filled with water has been acquired. Consequently, there is no longer any room for uncertainty regarding the presence of the lake during the era when humans resided in the territory of Iran.

Keywords: Paleo Mega Lake of Rey, *Faraxkurt* Lake, *Saveh* Lake, Historical text, Travelogue.

1. Introduction

In this article, our primary objective is to explore the evolution of writing and calligraphy in *Iran*. Additionally, we will introduce the largest ancient lake in human history, recently discovered in *Iran*. This lake presents several intriguing facets and notable challenges, one of which pertains to its connection with the ancient people of *Iran*. Consequently, we are dedicated to conducting a comprehensive review of various sources, including books,



27 travelogues, biographies, and more, to identify individuals who have made references to this
28 remarkable lake.

29 **2. How the Discovery of PAMELA Lake Unfolded**

30 Climate change and the vanishing of ecosystems present significant challenges to the
31 countries in the Middle East region. Climate studies indicate wet periods in the history of inland
32 lakes in these areas. The ancient Lake Re, known as the largest lake in human history, spans
33 across *Iran*, *Afghanistan*, and *Pakistan*, and is considered one of the most influential climatic
34 and ecological factors of the Holocene epoch (Figure 1). Some of the coastal sediments of this
35 lake were initially brought to attention in *Nazari* studies (Nazari et al., 2010) and Berberian
36 (Berberian, 2014; Berberian & Yeats, 2016). Ultimately, in *Jarahi* research (H Jarahi, 2021),
37 it was identified as a unified mega-lake. These findings suggest that our ancestors thrived in a
38 different climate than what we experience today.

39 *Maghsoudi* (Maghsoudi, 2021) and *Nazari* (Nazari et al., 2021) have also mentioned the
40 existence of an ancient lake in the Great Desert region. However, it was in *Jarahi* research
41 (Habibi, Pourkermani, Ghorashi, Almasian, & Jarahi, 2023; H Jarahi, 2021; H. Jarahi,
42 Moghimi, Tan, Saygılı, & Karagöz, 2022a, 2022b; Najafian A., Jarahi, & Bayraktutan M.S.,
43 2022) that the PAMELA theory was first introduced. This theory explores a vast lake, 1.7 times
44 the size of the *Caspian Sea*, covering the central deserts of *Iran*, parts of *Afghanistan*, and
45 *Pakistan*. Investigations reveal that this lake began filling up at the onset of the *Holocene*
46 (*Younger Dryas*) and has existed in these regions for at least over 10,000 years. This timeframe,
47 considering *Iran's* ancient history, aligns with the rule of various tribes and kings in *Iran*.
48 Therefore, it is expected that historical texts mention this lake.

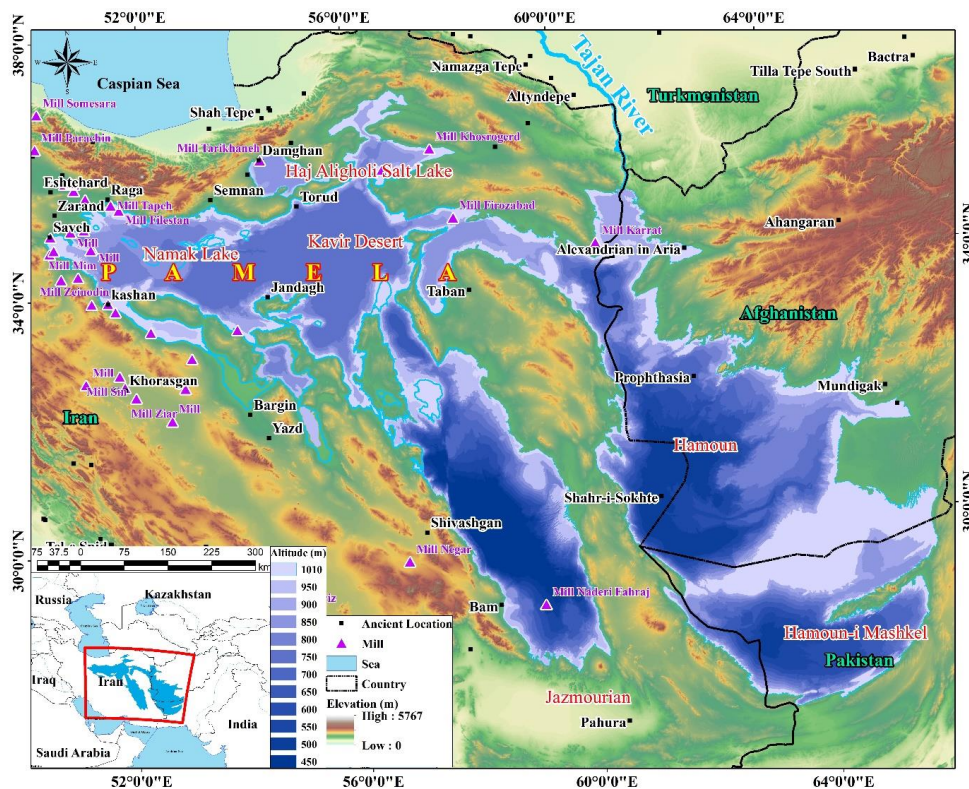


Figure 1: The geographical location of the ancient Lake of Rey is depicted with changing shades from dark to light blue. This lake covered parts of three countries: Iran, Afghanistan, and Pakistan (H Jarahi, 2021). Important deserts are marked in red, and ancient sites are shown in black. Purple triangles represent mill hills. The positions of the mill hills near the lake's shore correspond entirely to ports and shallow coastlines. The given digital elevation data is accurate to 12.5 meters, obtained from the AleosPalsar satellite.

3. PAMELA in historical text

Paleo Mega Lake of Rey, recognized as one of the most pivotal environmental determinants in human existence, delineated an epoch characterized by a flourishing maritime and piscatorial industry. This article seeks to aggregate and scrutinize historical manuscripts referencing the lake, with the purpose of further scholarly exploration. Consequently, a



62 comprehensive selection of over 350 volumes, encompassing literature, travelogues, urban
63 chronicles, biographies, and more, has been meticulously culled and meticulously examined.
64 Given their substantial number, specific citation of these sources is omitted in this context.
65 Subsequently, the ensuing texts have been singled out for in-depth investigation, to be
66 expounded upon in subsequent sections.

67 The earliest known literary opus that delves into the subject matter of this lake is the
68 *Avesta*, dating back to the *Achaemenid* epoch (648 to 330 BCE) (Bleeck & Spiegel, 1999;
69 Darmesteter & Mills, 2008). Another noteworthy composition, the *Bundahishn*, was authored
70 during the *Sassanid* era (224-652 CE) (Hale, 2008) and has undergone recurrent revisions
71 (Oryan, 2021). Within these literary tomes, a myriad of archaic nomenclature and symbolism
72 is chronicled, some of which have faded into the annals of history. Nevertheless, certain
73 geographic locales and appellations endure. A salient instance is the expansive water body
74 known as *Faraxkurt* Lake (*Vouro kasa*). The precise geographical demarcation of this lake
75 remains a subject of robust scholarly discourse (Green, 2022; Oryan, 2021). *Pourdavoud* has
76 posited the possibility of it being synonymous with the Caspian Sea (Pourdavoud, 2015), *Bahar*
77 regards it as the Indian Ocean (Bahar, 2000), while *Derakhshani* identifies it as the Persian
78 Gulf (Derakhshani, 2003).

79 The *Avesta* and *Bundahishn* also make allusions to specific geographical and historical
80 sites contiguous to *Faraxkurt* Lake. As such, it is apparent that *Faraxkurt* Lake was
81 geographically situated at the base of the Alborz mountain range. Additionally, the *Shushigan*
82 Mountains (Kerman) and *Khurasgan* (Isfahan) were geographically aligned with the periphery
83 of *Faraxkurt* Lake (Figure 1). The geographic localization of these *toponyms* underscores their
84 proximity to PAMELA. Consequently, the discord amongst historians emanates from the lake's
85 arid state and the paucity of its remnants in the contemporary era.



86 Curtis (Curtis, 1990) argues that in the expansive arid expanse of the *Great Desert* and
87 the *Lut Desert*, there once extended a vast lake. *Haghighat* (Haghighat, 1962), recounting the
88 history of the city of Semnan, reports that some 2,000 years prior to the Common Era, King
89 *Tahmures* erected the city of *Semnan* on the banks of Lake *Saveh*. He also elucidates the
90 formation of the *Iranian* Plateau, highlighting that the southern lands of *Semnan* once
91 comprised coastlines and plains. *Tarih-e-Qomi* (Qomi, 1934) alludes to an extensive lake
92 spanning from Rey to *Saveh* during the reign of the *Arsacid Kings* (specifically, *Goudarz* in 91
93 BC). This perspective is further reinforced by the assertions of Strange (Strange, 1930).

94

95 *Kateb* (Kateb, 1458), in reference to *Yazdgird II*, one of the Persian monarchs (reigning
96 from 421 to 439 CE), conveys the following:
97 *Yazdgird* commanded three generals: *Mibodar*, *Bidar*, and *Eqdar*. He instructed them to
98 establish three cities. *Mibodar* founded *Mibod*, *Eqdar* established *Eqdā*, renowned for its
99 association with the *Gabars* village. *Bidar* laid the foundations of *Bidah*. These three cities
100 were served by a port known as *Bargīn*, located along the shores of Lake *Saveh*. This port was
101 situated at a distance of 11 *Farsangs* (an ancient *Iranian* unit of length equivalent to
102 approximately 6 kilometers) from Yazd (Afshar, 1978).

103

104 In his travelogue concerning the deserts of *Iran*, *Hedin* (Hedin, 1910) provides a more
105 comprehensive account of the characteristics of the ancient lake that once existed in this region
106 compared to other authors. Hedin references ancient *Iranian* texts indicating that during the
107 reign of *Anushiravan* the Sassanid (531-579 CE), the *Gara Chai* River flowed into the
108 expansive Lake *Saveh*. He meticulously traced the remnants of the lake's shorelines to the cities
109 of *Jandagh* and *Torud* (Figure 1). Hedin also reveals that the city gate of *Jandaq* was



constructed using timber from ships that traversed the Desert Sea, located between *Jandagh* and *Torud*.

Zakariya Qazvini, in "*Athar al-Bilad*" and "*Akhbar al-'Ibad*" (F. H. A. M. Qazvini, Browne, & Nicholson, 1330; Z. M. Qazvini, 1275), recounts, "In ancient times, there was a lake near *Saveh* that desiccated and transformed into arable land around the time of the birth of the Holy Prophet Muhammad (the last Prophet of Islam, 550-570 CE)."

Likewise, *Siroux* (Siroux, 1949) postulates that Lake *Saveh* had desiccated by the time of the birth of the last Prophet of Islam. *Eghtedari* (Eghtedari, 2022) corroborates *Siroux's* assertions regarding the period of the lake's desiccation. In the book "*Tariqh-e-Qomi*" (Qomi, 1934), based on *Okhravi and Djamal* (Okhravi & Djamali, 2003), there are mentions of Lake *Saveh* and its desiccation. Additionally, it is reported that Lake *Saveh* was refilled in 1886 CE, according to a report from *Sadid-o Saltaneh*, an official from the late Qajar period, and this was reiterated two years later by *Ein al-Dawla* King (Persia, 1888).

Gabriel (Gabriel, 1939) provides invaluable insights into the details of a lake situated in the current location of the Central Desert (Great Desert). He recounts stories depicting the desert as an expanse resembling a sea with ships, ports, and lighthouses, among other elements. Other researchers have also made references to ports known by various names such as "*Barghin*," "*Barjin*," "*Barajin*," and "*Parchin*" (Pirniya & Afsar, 1991). *Rajabi* identifies the two cities of *Jandagh* and *Torud* as two forgotten ports in the desert (Rajabi, 2004).

129

130 4. Conclusion

In general, based on the referenced historical texts, names such as the *Faraxkurt* Lake and Lake *Saveh* allude to the presence of a large lake in the central region of *Iran*. The geographical locations of cities and places mentioned in historical texts indicate that the lake's water level must have been at least approximately 1000 meters higher than sea level. Therefore,



135 from at least 2000 years BCE until 570 CE, the lake remained filled with water. Ancient cities
136 like *Saveh*, *Rey*, *Aveh*, *Kashan*, and others were all situated at elevations ranging from 970 to
137 100 meters above sea level. Consequently, during this time frame, the lake's water level was
138 approximately 1000 meters higher than sea level. However, historical records do not provide
139 information about the extent to which the lake's water level receded after desiccation.
140 Moreover, in the past two centuries, historical records indicate a re-filling of the lake, at least
141 in the eastern region (*Salt Lake*).

142 **Appendix**

143 **Note about Iranian historical texts**

144 *Iran* boasts a rich history dating back to ancient times. Discoveries and evidence
145 unearthed at archaeological sites provide compelling indications of human habitation from the
146 inception of the Holocene epoch to the contemporary era (Matthews & Nashli, 2022). In the
147 realm of contemporary geopolitics (Studies, 2020) and across recorded history (Axworthy,
148 2007), *Iran* has consistently occupied a pivotal and distinctive role. It stands as a vibrant hub
149 where ideas, ideologies, movements, technologies, and methodologies are conceived,
150 developed, consumed, imported, and exported in innovative forms, often transcending the
151 boundaries of Asia and extending into global networks of interaction.

152 Throughout history, *Iran* has played a central role in the Silk Roads (Frangipane, 2015),
153 a role that, in a modern context, serves as a crucial bridge connecting China to the
154 Mediterranean Sea (Griffiths, 2021). The methods of writing in ancient *Iranian* societies have
155 been widely dispersed since 3000 BCE, and written artifacts have endured across a diverse
156 array of locales and contexts. Written sources, particularly those inscribed in long-extinct
157 languages, require specialized skills for their reading, comprehension, and
158 interpretation (Matthews & Nashli, 2022). For archaeologists, a significant concern pertaining
159 to these texts lies in the challenge of contextualizing them historically: who were the authors,



160 who possessed the ability to decipher them, and how were they employed within the field of
161 archaeology?

162 Early European explorers and traders, such as *Pietro della Valle* in the early 17th century
163 and *Cornelius de Bruin* in the early 18th century, have contributed reports and cartography
164 documenting some of *Iran's* prominent locales and structures, including *Persepolis* (Swanick,
165 2012; Weerdenburg & Drijvers, 1991). The journey toward unlocking the wealth of ancient
166 *Iranian* sources commenced with *Georg Grotefend's* identification of *Achaemenid* kings'
167 names in 1802 through deciphering ancient Persian inscriptions at *Persepolis* (Swanick, 2012),
168 a breakthrough that substantially enriched our understanding.

169 An achievement that was significantly increased by *Henry Rawlinson's* decipherment in 1840-
170 1840 of the trilingual *Bisotun* inscription (*Darius the Great*), near *Kermanshah* (Larsen, 1996;
171 Peter, 2009; Rawlinson, 1846).

172 The nascent development of archaeology in *Iran* was intimately connected with the
173 burgeoning *Iranian* nationalism during the Qajar period, particularly under the rule of *Naser*
174 *al-Din Shah* (1846-1896)(Abdi, 2001; Goode, 2007). Consequently, the history of writing and
175 script in *Iran* has been inextricably linked to an evolutionary odyssey. The texts currently at
176 our disposal represent but a fraction of *Iran's* ancient heritage.

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