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Climate and Loss: Notions of Eco-Apocalypse in Zoroastrian Literature

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Climate and Loss:
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A B S T R A C T

Water resources in Central Asia are diminishing, leaving communities behind in environments that pose strains that are not only economic, ecological, and physiological but also spiritual. In this article, I seek to show how we might begin to understand the spiritual impacts of climate change on Central Asian communities with historical ties to and cultural memories of Zoroastrianism, which predates Islam in the region by between one thousand and two thousand years. By using Zoroastrian literature, including Avestan and Pahlavi texts, I will examine 1) the presence of nature in Zoroastrian cosmology and eschatology; 2) how notions of apocalypse in Zoroastrian texts are reflected through prophecies of climate change; and 3) how spiritual geographies of celestial lakes and rivers mentioned in ancient texts connect with the physical geographies of material lakes and rivers in the region, such as the Aral Sea in Karakalpakstan and Hamun Lake in Iran. By understanding the connection between past and present, celestial and physical, and spiritual and ecological, researchers can think more critically about the spiritual impacts of climate change on communities residing in these regions.

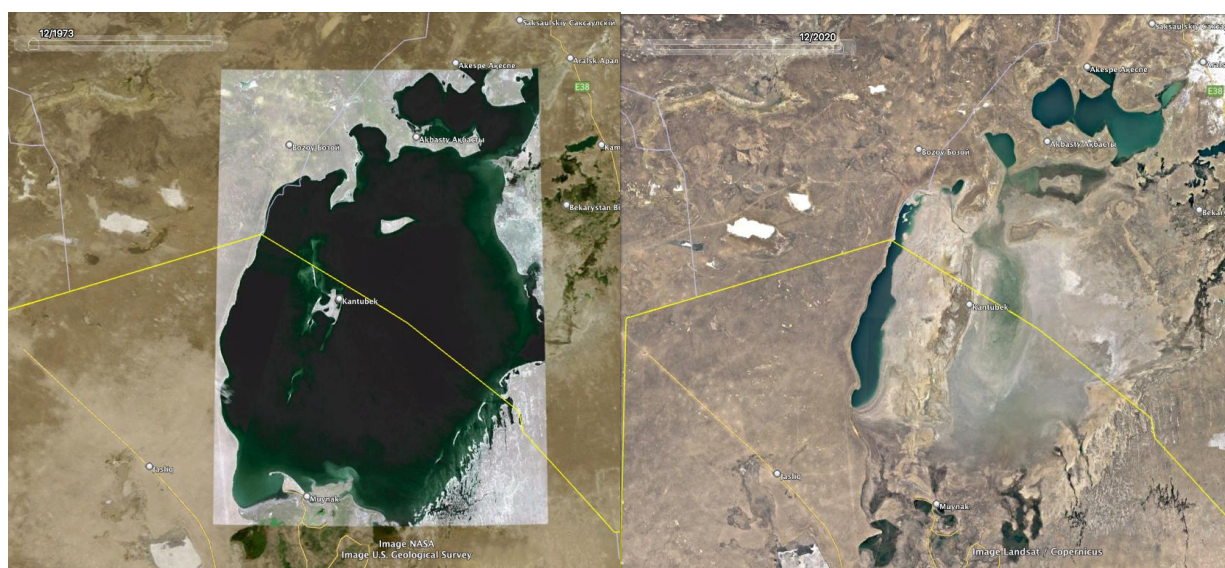
Keywords: climate change, spirituality, Aral Sea, Chorasmia, Karakalpakstan, Zoroastrianism, Avesta, Bundahisn, Mazdean religion, apocalyptic literature, eco-apocalypse, spiritual geography, Zand î Wahman Yasn, Zoroastrian eschatology, Zoroastrian cosmology

PROLOGUE

... And the water of rivers and springs will
diminish and it will have no increase ...

— Zand-i Vohuman Yasht 4:46

In the town of Muynak, Karakalpakstan, rusted hulls rest on the waves of scorched sand. This has not always been the case: Muynak was once a productive fishing town on the shore of the Aral Sea, landing, at times, thirty thousand tons of fish annually (Reimov 172).¹ When the sea dried up, it took Muynak’s fishing economy with it. Muynak, previously a port village, is now located roughly 150 miles away from what’s left of the Aral Sea’s southern water basin (Mirovalev).



NASA satellite imagery of the Aral Sea in December 1973 (left) and February 2022 (right). Courtesy of Google Earth

¹ The Aral Sea is actually a lake, taking its English name from the Kyrgyz name, Aral-denghiz, which means “Sea of Islands.” This name referred to the thousands of small islands that dotted the lake’s surface (*Britannica*). The Aral Sea was once the fourth largest inland lake in the world, but it is now mostly desert, having shrunk 90 percent of its size since the 1960s (Micklin 844) and losing its namesake islands.

Geologists have noted that the Aral Sea is no stranger to climate change (Burr 141). The Aral Sea structural basin, which contains most of the Central Asian region, is a graben that dates back to the Pliocene Epoch — approximately 5.3 to 2.6 million years ago.² However, scientists estimate that the Aral Sea lake (so called here to distinguish it from the structural basin) is much younger. Using sediment structure analyses and carbon dating, some geologists date the Aral Sea lake to the Late Pleistocene Age, approximately 130,000–11,700 years ago, while others say the lake appeared during our present Holocene Epoch, which started approximately 11,700 years ago (142–43). The most recent research, however, dates the Aral Sea lake to 17,000–13,000 years ago, when glaciers in the Tian Shan and Pamir mountain ranges began melting at the end of the last Ice Age and “supplied a constant source of water for thousands of years” (148). The Aral Sea’s most recent collapse, however, is human-caused, attributed to unsustainable irrigation techniques and the diversion of water from the Syr Darya and Amu Darya rivers that feed the lake (141).

The Aral Sea has become a case study of climate change and ecological disaster, attracting researchers who seek to understand the lake’s geological, hydrological, and climatological mechanics, as well as the economic hardships and public health issues that continue to affect the region (141). Since its regression, the Karakalpak people have faced new environmental realities that threaten their identity and livelihood. They mitigate the economic impact of desertification by turning their post-apocalyptic landscape into a tourist attraction, but tourism cannot address the psychological and physiological issues connected to the sea’s disappearance. Losing a sea, lake, or river is far from inconsequential and cannot simply be reduced to a matter of resource degradation: ripples of ecological loss reverberate through human communities, extending beyond the scientific and economic realms and into the spiritual.

INTRODUCTION

There is a deep concept of ecology at play in the Mazdean religion, popularly known as Zoroastrianism — one that entangles the cosmic and the natural, connects seen and unseen forces, and unites the material and spiritual realms in a cosmic battle against evil. This theological ecology locates

² Dates from the International Commission on Stratigraphy’s International Stratigraphic Chart, 2013.

understandings of the divine and spiritual within the natural world and is described in Zoroastrian literature, which spans over three millennia. It includes Avestan texts derived from oral compositions; Pahlavi texts that were composed centuries later to compile explanations, commentaries, and traditions; and inscriptions that date back to the Achaemenid and Sasanian Empires (Skjærvø 2–6).

The *Avesta* is a collection of sacred scripture that consists of the *Yasna*, *Yashts*, *Videvdad*, *Visparad*, and the *Khordeh Avesta*. Within the *Yasna* are the *Gathas*, seventeen hymns that Zarathustra composed after receiving teachings from Ahura Mazda. It wasn't until the seventeenth century, however, that the community referred to these sacred teachings as 'sacred texts,' likely as a result of pressure and influence from Christian and Muslim communities (Skjærvø 2). Scholars estimate that only a quarter of the original *Avesta* has survived into present-day versions (Ara 159). Pahlavi texts came later, after the Arab conquests brought Islam to the region, and they include translations of Avestan passages that had been lost, a summary of the original *Avesta*, as well as more literary texts that are especially relevant to the study of Zoroastrian cosmology and eschatology (160).

The *Bundahišn*, the Book of Primal Creation, was written in Pahlavi and answers questions about the origins (and purpose) of existence that Avestan texts do not. It tells the story of Zoroastrian cosmology, that is, how the world was created, for what purpose, and how it will end. It dates back to the ninth century CE, during the Islamic period (160). The *Zand ī Wahman Yasn* is another Pahlavi text, known to be the most complete apocalyptic eschatological Zoroastrian text (Cereti 1). It provides details on what the end of time will look like, how it will be experienced by humans, and what will come after it. Scholars date this text back to either the period of Alexander the Great's invasion of Asia, around the fifth century BCE, or the late Sasanian period, around the seventh century CE, at the beginning of the Muslim conquests. If the former is true, it is one of the earliest documented apocalyptic texts (Cereti 1).

While the *Avesta* contains hints of apocalyptic themes, this text does not have the same anxious undertones as the Pahlavi texts (Cereti 13). Invasions, such as those by Alexander the Great and then by Arab Muslims, are linked to increases in the production and circulation of Zoroastrian apocalyptic literature, when fears of identity loss under the rule of foreign invaders would have been widespread (Cereti 12). Scholar Carlo Cereti explains this theory as such:

As with other apocalyptic works, our texts must have been conceived in a period when the identity of the community was menaced and when poor material conditions gave rise to the hope for a better future for the faithful (Cereti 2).

The *Zand ī Wahman Yasn*, in particular, paints a vivid picture of human struggle through the climate loss taking place just before the birth of the Saoshyant (savior) and the Great Renovation of the world (*Zand ī Wahman Yasn* 4: 41–48). Likely as a result of these invasions and the destruction of culture that followed conquest, these texts appear fragmented at times and describe multiple layers of traditions without attribution (Cereti 2). Because the information in these later texts cannot be verified, and because they were created at the end of the height of Zoroastrianism as a state religion, many practicing Zoroastrians, as well as scholars, consider them to be a deviation from original doctrine. Scholars such as Alan Williams, however, argue that the numerical decline in Zoroastrian texts occurring at this time does not equate with an intellectual decline: “A more positive impression of Zoroastrian thought is obtained once it is acknowledged that the priests of the ninth century were neither composing a new philosophy nor trying to embalm a dead one: rather they wrote to record and defend the religious values of their old tradition in the fullest possible way” (Williams 21). Regardless of whether or not these texts hold liturgical weight, they certainly hold weight as sources of Zoroastrian literature and within the folds of cultural memory.

In this article, I will use Zoroastrian literature, including Avestan and Pahlavi texts, to examine 1) the role of nature in Zoroastrian cosmology and eschatology; 2) how notions of apocalypse in Zoroastrian texts are reflected in prophecies of climate change; and 3) the relationship between cultural memory and landscape in the context of the spiritual geographies of mountains, lakes, and rivers in present-day Central Asia and Iran, and how understanding this relationship can help researchers think critically about the spiritual impacts of climate change on communities residing in these regions.

NATURE AND ECOLOGY IN ZOROASTRIANISM

It is not known where and when Zarathustra, the prophet of Zoroastrianism, was born, lived, or received the *Gathas*, the teachings of Ahura Mazda. Scholars estimate, however, that Zarathustra lived at some

time between 1800 and 600 BCE, somewhere in the region now known as Central Asia (Foltz & Saadi-nejad 417, 2007). The lack of references to the hallmarks of sedentary lifestyles (e.g., towns, temples, farming, grains) in Old Avestan texts, combined with the lack of archaeological evidence from this period, suggest that Zoroastrianism originated in a pastoralist context (Grenet 22, 2015). Echoes of the pastoral lifestyle are present throughout the *Avesta*.

I want freedom of movement and freedom of dwelling for those with homesteads, to those who dwell upon this earth with their cattle ... (Yasna 12:3)

Reverence for elemental nature likely stems from this pastoral nomadic context, in which pastures, fire, and water were crucial to survival. As a result, many Zoroastrian rituals are fixed around notions of purity, both in terms of preventing pollution from taking place and purifying what becomes polluted. It should be noted that while Zoroastrianism promotes reverence for the natural elements, its notions of purity and pollution are more ritualistic and theological than biological and scientific (Choksy xvii). As Richard Foltz and Manya Saadi-nejad point out, the dualistic Zoroastrian worldview describes a theological ecology for an ongoing moral battle between good and evil, while the worldview of modern understandings of ecology are amoral (Foltz & Saadi-nejad 427). However, Zoroastrian views of pollution are not always at odds with science. The main source on ritual purity in Zoroastrianism is the *Vendidad*, or "Law against demons," but the *Dēnkard*, a Pahlavi book, also discusses ritual purity, and states that water made impure from dead matter such as skin and bodily fluids, cannot be used for drinking, agriculture, or cleaning (*Dēnkard* 452, 11: 17–21; Choksy 12). Although these exhortations are framed in terms of religious impurity, they are also scientifically supported: Consuming water that has been contaminated with waste can, indeed, result in a host of health issues.

A theological ecology, which connects the realms of gods and humans through nature, is present in Zoroastrian literature. In Zoroastrian cosmology, the natural world was created as the backdrop for the cosmic duel between Ahura Mazda, the supreme, wise god and all that is good, and Ahriman, his evil primordial twin representing all that is bad. Humans serve as mediators between the cosmic and natural and are responsible for keeping the Cosmic Order, called Asha, on Earth, by guarding over Ahura Mazda's good creations—fire, water, and earth. It is through these natural elements that deities reveal

themselves and involve themselves in the lives of humans by way of weather, harvests, fertility, and protection (Skjærvø 13–14). These elements, then, are seen not just as sacred creations but as extensions of the deities themselves. In Zoroastrian eschatology, it is through the natural world and changes in the climate that Zoroastrians will know the cosmic battle is coming to an end and the great resurrection is near. Nature is thus the stage for, object of, and victim of apocalypse in Zoroastrian literature.

NATURE AND TEMPORALITY IN ZOROASTRIAN COSMOLOGY

It is through nature and temporality that Ahura Mazda, omniscient and good, establishes the Cosmic Order, or Asha, needed to defeat Ahriman, his primordial evil twin. Accordingly, Zoroastrianism perceives the world as a positive creation; evils such as illnesses, pollution, natural disasters, and death are corruptions of this good creation by Ahriman (Skjærvø 11). While early Avestan texts mention cosmology and the inherent goodness of creation, it is only the later, Pahlavi, texts, such as the *Bundahišn*, that provide details about cosmology as it relates to the cosmic battle (Stausberg 235). In these texts, nature and temporality are fashioned by Ahura Mazda to limit the scope of the inevitable cosmic battle with Ahriman, and both nature and time are intended to take new forms when the battle against evil is finally won.

The *Bundahišn* describes time as a divine instrument of Ahura Mazda used to create a timeline for the inevitable cosmic battle with Ahriman. Temporality itself is divided into “limited time,” or “time with a long domain,” and “unlimited time,” or “time without borders” (Stausberg 238). According to the *Bundahišn*, Ahura Mazda determined that the cosmic duel will take place over twelve thousand years, evenly divided into four phases that each lasts three thousand years. In the first phase, Ahura Mazda creates time, interrupts the infinite, and begins fashioning things into existence (239). During this time, Ahura Mazda recites a prayer that causes Ahriman to fall into a deep sleep. In the second phase, Ahura Mazda’s creations in thought become realized and alive albeit immobile (239). These creations include the sky, water, earth, a sole-created plant, a sole-created bull, a sole-created man, Gayomard, and fire. “Fire came last, and it took two forms — as visible fire, and as an unseen vital force pervading all the animate ‘creations’” (Cohn 84). Between the end of the second phase and beginning of the third, Ahriman wakes up from his three-thousand-year-long nap and decides to attack Ahura Mazda’s creation, polluting it in the process.

In the third phase of Zoroastrian cosmology, known as the mixture, Ahriman's invasion sets the world and limited time into motion (Stausberg 239). As a result of Ahriman's invasion, Ahura Mazda's perfect creation is corrupted. The sole-created plant, bull, and man are sacrificed to make room for multitudes of plants, animals, and humans. Death now follows life, and reproduction is required for the continuation of Ahura Mazda's creations (Cohn 84). The earth and other planets begin their respective orbits. The darkness of night follows the light of day (Panaino 239). In the invasion, Ahriman pollutes Ahura Mazda's pure creations: water becomes salty, soil becomes infertile sand, plants and animals become venomous, and fire begins to produce smoke (Cohn 86). The originally flat land becomes disrupted when Ahriman burrows himself into the earth, forming mountains (*Bundahišn* 6C: 1). Ahura Mazda, being all-knowing, foresaw this would happen and sealed the site through which Ahriman invaded his creation. The divine clock, to which Ahriman was then officially bound, started ticking, and the world he invaded was his prison.

Without the creation of time to interrupt the infinite, "it [the primordial battle] would have been never-ending, because played out in infinite space and time, so without physical and temporal limits" (Panaino 238). Time and nature are thus traps created by Ahura Mazda to set temporal and physical limits to the cosmic battle and ensure victory over evil (239). As these phases play out, it is the role of humans to exercise their free will and choose Order (*Asha*) over Chaos (*Druj*). Zoroastrians do this through rituals, such as the Kusti ritual performed daily by lay people and the Yasna Haptanghaiti performed daily by priests, and live according to the mantra of "good thoughts, good words, good deeds" ("The Kusti Ritual").

NATURE AND RESURRECTION IN ZOROASTRIAN "APOCALYPTIC ESCHATOLOGY"

As Carlo Cereti rightly points out, apocalypse and eschatology, though typically related, are not synonymous: A text can be eschatological without being apocalyptic (Cereti 12). Texts in the *Younger Avesta*, for example, delve into Zoroastrian eschatology without the apocalyptic urgency found in the *Bundahišn* and *Zand ī Wahman Yasn* (13). Cereti suggests describing these later texts, especially the *Zand ī Wahman Yasn*, as "apocalyptic eschatology" (12).

In the *Avesta*, the *Zamyad Yasht* provides the oldest dated Zoroastrian eschatological narrative, mentioning the Saoshyant, or the savior (Yasht 19:88–89, 92–96, Stausberg 269). The *Frawardin Yasht*

also references the Saoshyant as three individuals but does not give any further detail (Yast 13: 62, 85, Stausberg, 270). It is not until we look at the later texts of the *Bundahišn* and *Zand ī Wahman Yasn* that we get more details about the Saoshyants, the final phase of Ahura Mazda's plan to defeat Ahriman, and what that means for humans and the world (270).

The final three thousand years is the period during which the Final Renovation (also Resurrection or Renewal), will take place: Ahura Mazda will defeat Ahriman, good will permanently triumph over evil, and the world will be made "perfect" (Cohn 89). When Ahriman invaded nature, he burrowed into the earth, causing mountains, made water salty, and made animals and plants venomous (*Bundahišn* 7:13, 8:1). When evil is defeated, however, nature will return to its original, Mazadean state. Mountains will become flat again, and as they are flattened, a river of molten metal will form. All humans, including the dead, who will have been resurrected and rejoined with their physical bodies, will gather and be judged for their deeds. All of humankind will walk through the river of molten metal (*Bundahišn* 30:19–20, 33). "To the righteous it will be like walking in warm milk, only the wicked will know that they are indeed in molten metal" (Cohn 97). Those who do manage to cross the river will continue to exist, reunited with spouses and children, no longer bound to limited time, and under the eternal, unchallenged rule of Ahura Mazda, seen as the perfect existence (99).

NATURE AND SAOSHYANT(S) AS ALLIES AGAIN EVIL FORCES

It will take all three thousand years of the last phase to get to the point of the Final Renovation, and there will be hardships, through which the Saoshyant(s)³ will lead humankind. The Saoshyant is the son

³ At some point in history, the one Saoshyant was tripled: older texts, such as the *Zamyad Yasht*, refer to the Saoshyant as one person, while younger texts, such as the *Bundahišn* and *Zand ī Wahman Yasn* refer to three separate Saoshyants. Scholars believe this was a result of political influences. As a state religion of the Achaemenid, Parthian, and Sasanian empires, Zoroastrianism underwent an eschatological makeover. While Zoroastrians looked forward to the Final Renovation when they would be joined with Ahura Mazda and admitted to eternal bliss, this did not necessarily serve the interests of the state. "The making wonderful' had to be postponed, officially and definitively, to a remote future" (Cohn 102). This revision, made in the fourth century BCE, resulted in a heretical version of Zoroastrianism known as Zurvanism. Nevertheless, this revision was adopted by later Achaemenid monarchs (102). The Sasanians also adopted this version of Zoroastrian eschatology as well as the 12,000-year division of limited time instead of the previous six-thousand- and nine-thousand-year versions (102–3). This then led to the expansion of the Saoshyant from one to three men, one for each millennium of the final phase (103).

of Zarathustra, prophesied to be born of a virgin mother who will become impregnated with Zarathustra's seed when she bathes in the lake where his seed is stored; the lake is guarded by 99,999 *frawahrs*, powerful supernatural spirits that aid Ahura Mazda (Stausberg 270). Nature, in this case a lake, protects the future of the Zoroastrian community. The connection between this lake and the Saoshyants positions the Earth as a potential ally of Ahura Mazda's followers.

Scholars believe that the idea of the Saoshyant predates Zarathushtra and the Mazdean religion but grew stronger as the Zoroastrian community faced identity loss and persecution after the invasions of Alexander the Great and Arab Muslims. "It [belief in the Saoshyant] has helped generation after generation of Zoroastrians, through all the misfortunes that befell them, to keep alive their faith in the eventual perfecting of the world" (Cohn 101). Belief in the Saoshyant (or three) ultimately offered hope to the Zoroastrian community, and this hope is stored at the bottom of a lake.

PROPHECIES OF CLIMATE CHANGE IN ZOROASTRIAN "APOCALYPTIC ESCHATOLOGY"

The events in the *Bundahišn* and *Zand ī Wahman Yasn* that lead up to the Final Renovation describe an eco-apocalypse. Nature is not only the backdrop to and stage for the apocalypse, but the being upon which it will be inflicted. Nature is also the apocalyptic conduit: humans feel the wrath of these last days because their fates are intertwined with that of Earth.

In the *Zand ī Wahman Yasn*, Ahura Mazda tells Zarathustra what will signal the end of times, describing a gradual degradation of human communities and the world around them. "The great country will become a town, the great town a village, the great village a family, and the great family a skeleton" (*Zand ī Wahman Yasn* 4: 8). This degradation stems from people's choosing Chaos, or Lie (*Druj*), over Order, or Truth (*Asha*), and neglecting the community itself. People will no longer follow Ahura Mazda's teachings, love and show affection to one another, care about the welfare of others, or revere the soul. Instead, people will become deceitful and will bury and burn the dead, polluting the natural world with dead matter, which will be everywhere and unavoidable (4: 14, 20, 23–24, 28). During this time, practitioners of the Mazdean faith will be scarce, and only one out of a thousand fires will be preserved, and even then without "proper fuel and fragrance" (4: 31).

There will be cues from the natural world that something is amiss. The sun will sit lower on the horizon, days will be shorter and nights longer. Famine will plague the Earth. The *Zand ī Wahman Yasn* is very specific: 80 percent of crops will fail and 90 percent of plants, trees, and shrubs will die. The few crops and plants that do survive will not be edible (*Zand ī Wahman Yasn* 4: 18–19, 42). Weather fluctuations, described as “the hot wind and the cold wind,” will prevent crops and seed from flourishing, and rain will be toxic with “noxious creatures” (4: 44–45). Livestock will be born stunted and weak (4: 47–48). Drought will also be widespread: Water will disappear from rivers and will not be replenished (4: 46). Throughout the eco-apocalypse described in Zoroastrian literature, humans will know that the cosmic battle between the forces of good and evil is coming to a close and will feel the wrath of this battle through climate change: “And in that perverse period ... the Spandarmad earth will swell up, and suffering, death, and indigence will be very severe in the world” (4: 64).

The hope offered to Zoroastrians through these apocalyptic texts is that they will eventually be saved from their suffering by the Saoshyants. The Saoshyants, also called “The Revitalizers,” will be named Ukhshyad-erta, Ukhshyad-nemah, and Astwad-erta. According to the *Bundahišn*, they will be born from the seed of Zarathustra, stored at the bottom of a lake and under the protection of Anahita (also Anahid), goddess of the waters and fertility (*Bundahišn* 67: 43–45). Although the seas, lakes, and mountains mentioned in religious texts may be part of the celestial Earth, their names and descriptions inspire visionary geographies in the imaginations of their readers (Corbin 16). As a result, this celestial lake has been associated with the Hamun Lake region in present-day Iran and Afghanistan (Cereti 270). It should also be noted that the Hamun Lakes, once bio-diverse and productive, have receded, losing 89 percent of their surface area between 1999 and 2001, due to drought and anthropogenic stressors (Rad et al., 1). Oktor Prods Skjærvø notes that, by traditional count, the year 2000 CE marked the middle of Ukhshyad-nema’s four millennia (Skjærvø 29).

SPIRITUAL GEOGRAPHIES, COMMUNITIES, AND CLIMATE CHANGE

Zoroastrian literature, including Avestan and Pahlavi texts, takes readers on a journey and provides them with geographic context. The stories of creation and apocalypse found in the *Avesta*, *Bundahišn*, and *Zand ī Wahman Yasn*, explain how mountains, rivers, lakes, seas, land, and multitudes of flora and

fauna came into being, describe the deities that interact with humans through the natural world, and explain the purpose of creation in the final battle. In his reflections on the spiritual geography of the Great Basin in the US, geographer Richard Francaviglia said "... stories are always about places, more specifically what happens to people as they are exposed to those places" (Francaviglia xv). Place, in Zoroastrian cosmology and eschatology, is of spiritual prominence: It is not just a backdrop but rather as much part of the story as the deities, humans, and other players in the cosmic battle against evil.

When Francaviglia defines something as spiritual, he means that it has "a power that resides within something, a power that helps to bring the inanimate to life" (xx). Using this definition, the places and lakes mentioned in Zoroastrian texts, as well as water itself, are all spiritual both in their physical and celestial forms. The *Avesta*, *Bundahišn*, and *Zand ī Wahman Yasn* all take the time to introduce the places where scenes are playing out, and people have connected them to places in their physical landscapes. Both the *Vendidād* and *Khordeh Avesta* introduce the sixteen countries that were created by Ahura Mazda and list their good "Mazdean" qualities as well as their bad "Ahrimanic" qualities (Fargard 1: 1–81; Yasht 10). The spirituality of these places resides in their association with Ahura Mazda, his intention to bring them into existence, and the people's connecting these celestial landscapes with their own.

Water is seen as the element that begets life itself. In the *Bundahišn*, creation begins from a single drop of water (Najarai 174). After Ahriman attacks Ahura Mazda's creation and pollutes it, each element fights its own battle against darkness through its deity. Water's battle created the seas, lakes, and rivers (*Bundahišn* 7: 1–17). Scholars continue to trace the connections between the names of these mythical places and existing natural ones. Although they do not claim any exact matches, they can draw etymological links between the places mentioned in the *Avesta* and *Bundahišn* to ones that actually exist in present-day Iranian and Central Asian landscapes (Najari 174).

Whether these connections are scientifically accurate doesn't matter: a place's significance is determined by people's perception of that place. If people attribute spiritual value to a place, it becomes sacred and spiritually significant for as long as it persists in the cultural memory. What Francaviglia said of the Great Basin applies globally: "faith and landscape conspire to resurrect old myths and create new ones" (Francaviglia 18). In the making of a spiritual geography, history, religion, spirituality, etymology, linguistics, politics, and other fields of study converge and become bound (xv). The places mentioned

in Zoroastrian literature constitute the spiritual geography of the Mazdean faith, the communities that occupy these landscapes, and the Zoroastrian community in diaspora.

A SPIRITUAL GEOGRAPHY OF THE ARAL SEA

Until 2018, many scholars remained unconvinced that Zoroastrianism actually had a footing in Chorasmia, the ancient region presently occupied by Uzbekistan and Karakalpakstan. As Frantz Grenet puts it, “evidence for Zoroastrianism was scant” (Grenet 68, 2018). In the *Vendidad*, Chorasmia is not listed by name, but it is listed in the *Khordeh Avesta* by its ancient name of Xwārizma (69).

Where Rulers, excellent, order round about the lands, where mountains, great with much fodder, abounding in water, where flowing waters, broad with water, hurry to Iskata and Pouruta, to Mouru and Haraeva, to Gau, Chughda, and Qairizao [Chorasmia] (Yasht 10: 14, Bleeck 58)

One hypothesis for this discrepancy is that the *Vendidad* was written before the Achaemenid Empire, and the *Yasht* that mentions Chorasmia was written during the Achaemenid period, when Chorasmia was integrated into the Achaemenid Empire. This theory is also supported by archaeological evidence, such as the inclusion of Chorasmia in the list of countries in the Behistun Inscription (Grenet 69, 2018).

But then archaeologists at Akchakhan-kala uncovered fragments of large wall paintings that are believed to depict Zoroastrian deities, including Srōsh (god of prayer and protector of the soul after death), the Fravashis (pre-created souls of ancestors), and Zam-Spandarmad (goddess of the Earth) (68). This, combined with the other “scant” evidence for Zoroastrianism in Chorasmia such as the use of the Zoroastrian calendar, evidence of funerary practices, and ossuary iconography, suggests that, in fact, Zoroastrianism was present in the region surrounding the Aral Sea.

The Aral Sea itself has been linked to the mythical geography found in later Pahlavi texts, such as the Iranian *Bundahišn*. The Aral Sea is mentioned in the Iranian *Bundahišn* as *Xwārazm* Lake, which roughly translates to “lowland” or “netherland,” either because the lake is located in a graben at a low height (Najari 177) or because of its location on the lower end of the Amu Darya (Oxus) River (Grenet

69, 2018). "... [I]t is uttered about Xwārazm Lake that Ahrišwang has given it authority, delight, competency and liveliness" (Najari 177).

The Aral Sea, or Xwārazm Lake, was described as lively, and its water was described as blue and a little salty (177). Now, sadly, it is neither lively nor blue, and the salt left behind after its disappearance causes salt storms and contaminates the air (Micklin 843).

SĪSTĀN BASIN, HAMUN LAKE, AND ZOROASTRIAN APOCALYPSE

The Aral Sea is not the only source of water connected to Zoroastrian literature that has fallen victim to human-caused climate change in recent decades.

The Hamun Lake region is located in the Sīstān Basin between present-day Iran and Afghanistan. It was once known for its biodiversity and vast wetlands, which covered 1,544 square miles, roughly the size of Connecticut. But all this disappeared in the early 2000s, and, in 2002, it was in ecological and social crisis (*New Humanitarian*). Because of the region's previous fertility and vibrance, it has been home to human civilization for thousands of years, but its disappearance is blamed for leaving "hundreds of thousands of people in desperate conditions and causing massive out-migration from the region" (Rad 1). Due to water shortages and mass unemployment of those who depended on the lake, there are increased social and political tensions between Iran and Afghanistan over water distribution (*New Humanitarian*). The consequences of ecological destruction are political, social, cultural, and spiritual.

Present-day Hamun Lake is believed to reflect the Frazdān Lake in the Bundahišn (Najari 179) or Lake Kayānsē in the *Zand ī Wahman Yasn* (Saadi-nejad 7). If the former, it is described as having the ability to judge one's moral qualities and is associated with Anahita, the Zoroastrian goddess of the waters and fertility (Saadi-nejad 7). "Frazdān Lake is located in Sīstān, it is said if a well-doer man throws something in it, the lake accepts it; in the case the man is not ... the lake gives the thing back" (Najari 179).

The mythical Lake Kayānsē appears in the *Zand ī Wahman Yasn* and plays a prominent role in the apocalypse. It is at the bottom of this lake that Anahita placed the seed of Zoroaster under the protection of 99,999 *frawahrs* (Saadi-nejad 7). It is also within this lake that the virgin mothers of the Saoshyants will become impregnated and give birth to the "Revitalizers" (7). Hamun Lake, in its

connection to the mythical Lake Kayānsē, plays a crucial role in the Zoroastrian imagining of apocalypse in Pahlavi literature. It is where the promise of the Renovation is preserved.

CONNECTIONS, NOT CONCLUSIONS

Water, resource degradation, and climate change in present-day Iran and Central Asia are routinely discussed in economic, social, political, psychological, physiological, ecological, and climatological terms. The spiritual impacts of these ecological crises are present but are not as visible or easily documented. Understanding the spiritual geographies that these lakes occupy in Zoroastrian literature, however, may help us better understand how they inform the collective memories of the communities that live in these regions.

Though “merely” mythological from a scientific standpoint, the views of nature presented in Zoroastrian cosmology and eschatology should not be dismissed: they reflect a pastoral perspective of the interconnectedness between humans and the natural world that is reflected in current events. Scholar Abbas Amanat reflects on how cultural, mystical memories and deep history still impact communities’ spiritual perception of their environment:

Mythical and mystical memories of nature and the associated pastoral life, part of Iran’s deep history, may seem quite distant from everyday life in today’s Iran and modern challenges to its environment. Yet material life on the Iranian plateau always relied on the maintenance of a delicate balance with natural resources. (Amanat 931)

The deep ecology in Zoroastrian literature connects deities and humans through the natural world. In Avestan and Pahlavi notions of eco-apocalypse, the fate of humankind is sealed with that of nature, and a state of imbalance between deities, humans, and nature reveals the apocalyptic end.

The Zoroastrian community is fated to suffer under the rule of non-Zoroastrians. Humankind as a whole is fated to suffer as well. Zoroastrian eschatological apocalyptic texts describe an eco-apocalypse where human communities deteriorate as nature deteriorates, but they also describe a time of salvation: ... “That for the hope of the final-most material existence and for the sake of the salvation

of their souls, they must bear and suffer the trouble, evil, and oppression of those alien *div*-worshippers"⁴ (*Zand ī Wahman Yasn* 4: 67).

Through centuries of persecution, the Zoroastrian community clung to the hope this vision offered them — the hope that the final Saoshyant ultimately will lead the side of Ahura Mazda to victory in the last phase of the cosmic battle against evil, and the community will continue for eternity in a state of "perfect existence."

What happens to that hope when the lake identified with the celestial one that is storing the seed of their savior disappears?

⁴ The term "*div*-worshippers" refers to the worship of demons or monsters. The word '*dīv*' may also appear as *daeva* and is not to be confused with the concepts of *jinn* and *g̃ūl* (Omidshah).

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