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Dark imaginations of afterlife and darker geographical structures an analysis through sociology and physical geography

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Abstract

Humanity has created dark images related to afterlife referring to evil and punishment. In different parts of the World different civilizations and cultures have imagined several possible “places” which can be considered as hell or hell-related compositions. What has affected people in these imaginations? Sociology of religion, social anthropology and physical geography are functional for us in order to understand the dimensions of these imagined places. Do they exist in real? What is analyzed and discussed in this article is that there are certain geographical structures possibly inspired these narrations of purgatory or hell environments. When people’s surrounding geography changes inevitably their expectations or fears change too. This research will provide you some original discussions in several disciplines of social sciences.

Keywords: Purgatory, hell, sociology of religion, social anthropology, physical geography

Introduction

In Turkey, in daily life, many people use idiomatic expression in order to convey the meaning they want to tell. Some of the idioms are about hell (in Turkish language *cehennem* with its Arabic origin) like any other major language. Let us remember some examples:

- Hayatı cehennem etmek (to cause great distress and sadness).
- Cehennem ol! (go away!).
- Cehenneme kadar yolu var (he / she has way until the hell, which means they can go away wherever they want).
- Cehennemin bucağı (the parish of hell, which means somewhere extremely far away) (TDK Dictionary, 2024) ^[26].

When Turkish people, just like any other people with similar or related expressions in their own language, use these idioms they do not really think about either origins or etymology of the word. Cehennem, hell word in Turkish language (and in other languages culturally influenced by Arabic), has a story intertwines anthropology, societal elements and geography. Most of the people who use this word not really think about a real geographical structure in this world inspired it, rather than a believed and imagined afterlife place. But this is reality, science focuses on reality.

We will not get into the theological aspects of Jahannam (Hell) in the Middle East. However, knowing that there was a place called Gehenna (Ge Hinnom in Hebrew, which means the Valley of Hinnom) where children burned and sacrificed in the history (Britannica-a, 2024) ^[3] is important. This real place in history matches with the imagined concepts of hell fire and understanding of an “afterlife punishment place” in Abrahamic religions. An existing location gives its name to a religious word and inspires its illustrations in religious texts.

Of course it is not always this clear and obvious. Our point in this article is that there are certain matches between some structures of physical geography and sociocultural concepts and constructions of some purgatory or punishment places like hell in different cultures. We will take several examples and provide them to the discussions of international scholars. What we will not do is that to claim that there is a 100% correspondence between real physical locations and imagined places. We do not claim it.

What is emphasized and recommended in this article is that there are some inspirations, influences and motives determined in multilayered levels which can be studied in sciences of geography, social anthropology, sociology, religious studies and other related disciplines. We have selected some representing examples from different parts of the world. More examples by other researchers in the future are hoped and that would be a great contribution to the topic.

1. Evil Imaginations of Purgatory and Related Spaces

Our first example will be Himalayan glaciers. Approximately three million hectares, or 17%, of the alpine region is covered by Himalayan glaciers, as opposed to 2.2% in the Swiss Alps. The countless rivers that flow across the Indo-Gangetic plains draw their water from them, and together they constitute the largest body of ice outside the polar caps. Approximately 12,000 km³ of freshwater are stored in the Himalayan glacial snowfields. Millions of people in South Asian nations—Pakistan, Nepal, Bhutan, India, and Bangladesh—rely on perennial rivers like the Indus, Ganga, and Brahmaputra, which are sustained by about 15,000 Himalayan glaciers, creating a singular reservoir. 500 million people, or around 10% of the region's total population, live in the Gangetic basin alone (IPPC, 2007) ^[13]. Between 1990 and 2015, the general expansion of Himalayan glacier lakes was rapid; however, the rate of expansion varied depending on the lake type and the period. When we compared the various types of glacial lakes, we discovered that proglacial lakes made up the majority of the Himalayan glacial lakes' overall expansion. Between 1990 and 2015, their area increased by 46.9 km², or 51.6% of the entire expansion (Nie, 2017: 4) ^[19].

The Tam Pokhari Glacial Lake, also called Sabai Tsho, is located in the upper Hinku Valley of the Solukhumbu District of Nepal at an elevation of 4420 meters. Its coordinates are 27°440 N, 86°500 E. A break occurred in the moraine dam of the Tam Pokhari glacial lake on September 3, 1998. Massive flooding from the lake resulted in extensive damage to areas downstream (Osti & Egashira, 2009: 2944) ^[20]. The deglaciation of Nepal is intimately linked to the occurrence of glacier lakes and their expansion. Supra-glacial ponds are typically found in valley glaciers. Warming temperatures cause these ponds to enlarge and merge. The glacier ice-filled depressions are now filled with ponds. These are held in place by structurally fragile and unstable dams that are subject to frequent changes brought on by slumping, slope failures, and other issues. There is also a risk of catastrophic failure that could result in glacial lake outburst floods (Shrestha & Aryal, 2011: 72).



Image 1: Himalayan glaciers, (World Bank, 2019) ^[30]

Glacial lake outburst floods, at their worst, can discharge millions of cubic meters of water in a matter of hours. Up to thousands of cubic meters can be released in a single instant. Such discharges are obviously very powerful and have the capacity to cause significant geomorphic work. When it comes to the Lower Barun glacier, the downstream valleys are only sporadically populated for tens of kilometers, and the local population is not worried about a threat that is located well upstream. It is necessary to keep an eye on other lakes in order to assess potential threats. Over time, as the lake grows, the impoundment weakens, and there are more options for a trigger, the likelihood of an outburst generally increases. It is clear that the issue needs to be addressed immediately (Kattelmann, 2003: 147, 151) ^[14]. From its well defined headwall to its end at the eastern shore of Imja Tsho, Imja Glacier stretches for 5 kilometers. About two kilometers from the terminal, Lhotse Shar Glacier converges with Imja Glacier from the north; the latter squeezes the Imja Glacier flow unit towards the southern bank. There are numerous solitary ponds encircled by exposed ice cliffs spread throughout a large portion of the tongue covered with debris (Quincey, 2007: 148) ^[21]. Few examples have showed that on the one hand the climate crisis has effected the glacial areas very seriously on the other hand the description of the environment there make people feel the “cold” very deeply. Before switching to some Buddhist narrations created in that region’s surroundings we may focus little bit on how to conceptualize religious dimensions.

Conceptualizing Religious Aspects

Religions are important parts of societies for thousands of years. It makes little difference what one believes about religion when examining it from a societal perspective. The capacity to critically analyze religion within its social and cultural context is what matters. Several questions regarding religion pique the interest of sociologists: What relationships exist between religion and other social constructs such as age, gender, race, and educational attainment? What is the organizational structure of religious institutions? What is the impact of religion on social change? What impact does religion have on political or educational institutions, among other social institutions? (Crossman, 2019) ^[5]. These are sociological questions regarding religions.

It is important to keep in mind that anthropology also makes use of some techniques in humanities to analyze human attempts at complex symbolic activities such as art, music, folklore, oral and written poetry, and religion. Social anthropologists look at both the humanistic and scientific approaches to understanding the variations and commonalities in human behavior and civilizations (Scupin, 2016: 295) ^[22]. Religions are among core topics of sociology and social anthropology.

To the best of our knowledge, every society has had ideas that fall under the category of religion. These beliefs change periodically and among cultures. However, in spite of their diversity, we will refer to religion as any combination of attitudes, convictions, and customs around supernatural power—be it forces, gods, ghosts, spirits, or demons (Ember, 2015: 1500) ^[7]. A little amount of evidence of the religious activities and beliefs of the prehistoric *Homo sapiens neanderthalensis*, or Neandertals, dating from 100,000 years ago has been found by archaeologists.

Despite the fact that certain religious rituals and beliefs differ greatly throughout societies, religion is a cultural universal. Certain faiths, for instance, center around the worship of a supreme deity that is all-knowing and all-powerful, while others have multiple deities, or perhaps none at all. The Latin word *religio*, from which the word religion is derived, has been used to refer to several things throughout Western history. It often referred to "superstition" or "piety," while other times it described a "transcendent" experience that people had outside of their regular, everyday social lives. It has been always difficult for anthropologists defining religion with simple formulations because it has many variations between one region, culture and another (Scupin, 2016: 433) ^[22]. In human existence and culture, religion is fundamental. Anthropologists tackle some of the most profound, challenging, and timeless human questions—about sexuality, mortality, morality, difference, meaning, power, love, and kinship—through the study of religion. Since the beginning of the field, anthropologists have been deeply interested in religion. An astounding variety of beliefs, rituals, myths, symbols, institutions, religious experts, groups, deities, and supernatural forces have all been the subject of research on religious beliefs and practices around the world (Guest, 2018: 364) ^[11]. However, among these varieties and diversities we may come across some similarities and common points. Our study here can be considered based on this conception and understanding. One of the most widespread religions in the world, Buddhism began in India 2,500 years ago. Buddhists hold that the soul reincarnates and that individuals can break free from the cycle of reincarnation by adhering to the dharma, or teachings of the Buddha. This enlightened condition is known as nirvana. Siddhartha Gautama, an Indian prince who was born in Nepal, discovered that human life is suffering after witnessing the plight of the impoverished and dying. He gave up his money to live as a destitute beggar, spending his time traveling and in meditation. Finally, he gave up and adopted "the Middle Way," the theory that the road to enlightenment was not one of luxury or austerity but rather one of living in between the two extremes. Gautama eventually attained enlightenment while in a deep state of meditation beneath the Bodhi tree, also known as the tree of awakening. His place of enlightenment, the Mahabodhi Temple in Bihar, India, is today a popular destination for Buddhists (National Geographic, 2024) ^[18]. Interestingly when we come to Buddha and early beginning of Buddhism we are not far away from the Himalayan glaciers mentioned above.

In Buddhist cosmology *narakas* are the imagined locations connected to purgatory functions and related to the believed afterlife. Interestingly, compare to Middle Eastern¹ religions' conceptions of "hot" locations in Buddhism there are both hot and cold *narakas*. If we focus on cold ones we see eight of them in Buddhist sutras: arbuda (頰部陀), nirarbuda (刺部陀), atata (頰听陀), hahava (臃臃婆), huhuva (虎々婆), utpala (嚙鉢羅), padma (鉢特摩),

mahapadma (摩訶鉢特摩) (Global Buddhist Door, 2024 and Encyclopedia of Buddhism, 2024) ^[9, 8]. The concept of places like "cold hell" perfectly match with the physical geography and environments shaped through glaciers. We are not keen to emphasize some sort of mechanical determinism here, simplification simply would not work, let us be cautious and also remember that there are hot hells full of fire as well in Buddhism. What we try to do here is that to show and underline an interesting overlap between a geographical shape and socio-religious imaginations. Erta Ale, an active shield volcano in Ethiopia, has two smaller pit craters (North and South) inside its huge oval summit caldera, which has been the site of lava lake activity for many years. While activity in the N pit crater was more sporadic, the S pit crater had nearly constant thermal anomalies of varied intensities from October 2021 to May 2022. Although temperature intensities started to decline in mid-June 2022, this situation persisted until November 2022. Satellites track the volcano, and periodically visiting tour groups post photos and observations online. Based on infrared satellite data, this report covers activities from May through November 2022 (Global Volcanism Program, 2022) ^[10]. In the Danakil depression, which is a portion of the Africa–Arabia extensional plate boundary, there are multiple Quaternary shield complexes that are divided by normal faults, forming the roughly 120 km long continuous range known as the Erta Ale volcanic segment in Afar, Ethiopia. It symbolizes the northernmost portion of the Afar depression, which is located at the confluence of the Gulf of Aden, the main Ethiopian rift, and the southern Red Sea (Xu, 2017: 79) ^[31].



Image 2: Erta Ale Volcano (Volcano Discovery, 2024) ^[28]

If the gas flux through the lava column is the primary factor determining the lake height, then the Erta Ale lava lake's longevity may depend on the gas fluxes staying low enough to keep the lake level within its permitted range. If the gas fluxes are too high, the lake level will rise and build an edifice until the area and power output reach zero, with hot material only erupting during paroxysms, similar to a more conventional basaltic shield volcano (Barnie, 2016: 201) ^[1]. The gases under investigation in Erta Ale included a considerable quantity of aerosol particles in addition to gaseous species. Correlations between elements in condensate samples and sublimates together with natural incrustations were used to assess the aerosol composition, which comprised silicate and sulfate factions (Zelenski, 2013: 114) ^[33]. Although the volcano has been documented since the 1600s, a lava lake was not discovered until the

¹ Actually Christianity is originally a Middle Eastern religion too just like Judaism and Islam. Considering Christianity as a Western system is not based on the first foundation of the religion and its historical beginning. It happened so afterwards, especially for political / ideological reasons and the spread of the religion in the West.

1960s. It is known as the "smoking mountain" in the Afar language, a reference to its long history. The Red Sea, Gulf of Aden, and African Rift Valley form a tectonic triple junction that is the only one above sea level on Earth, and it is found in the Afar region (Seach, 2024) ^[23]. The volcano's being known as the "gateway to hell" in the Afar language (Earth Observatory, 2023) ^[6] again bring us to relevance and connections in our topic: dark or psychologically negative geographical shapes touch symbolically to the concept of hell. This is an inevitable mechanism in dark imaginations of humanity. Once again, we are not keen to explain it in a sharply deterministic way, we would like to underline overlapping and inspiring points which would not be difficult to find.

In ancient times there were interactions between Egypt and Ethiopia; actually "the close proximity of the Ethiopian highlands to the Red Sea has always provided the main line of external communication. This stretch of water has, since time immemorial, provided a means of transport and the Ancient Egyptians recorded voyages to the Land of Punt - God's Land. To them, Punt was the most ancient country, a sacred territory" (The Habesha, 2022). The ideas of hell found in the religion of the ancient Egyptians are strikingly similar to those found in today's religions. As a result, the concepts of hell found in the afterlife held by Christians, Jews, and Muslims are relatively recent. Hell might have been created by the ancient Egyptians, at least as a popular allegory. Simply put, the idea of hell as it was documented in ancient Egypt precedes the idea of hell as it is recorded in current religions. Those who were judged negatively faced a destiny that was quite akin to what we now know as hell, and maybe even more so to the more Middle Age notion of hell as a particular place beneath the earth. They must endure swords and knives as well as the infernal fire, which is frequently stoked by snakes that spit flames. The brutal goddess Sekhmet oversaw these horrifying punishments, which were carried out in the slaughterhouse. The victims were punished by an unquenchable fire, sometimes in deep pits or in cauldrons. Another place was the Lake of Fire, which was illustrated in the Book of the Dead and first mentioned in the Book of Two Ways in the Coffin Text. For the Sun God and his favored followers, who find there food and refreshing water, it is a place of rejuvenation; yet, for the cursed, it is a place of catastrophe. When they encounter the scorching, burning water and inhale the awful smell emanating from it, birds even fly away to avoid it (Watson, 2024) ^[29]. These narrations are not telling Erta Ale. However, is it easy to stop ourselves from thinking about it, remembering similarities, to be intrigued by the matches between actual geographical places and religious illustrations about afterlife and punishment. This is the point where we invite theologians, geographers, sociologists, historians and social anthropologists to focus deeper and more profoundly to this creative, dynamic and promising line of connections as a field of study.

The place where the unredeemed dead or the spirits of the damned reside, typically beneath the earth, is known as hell in several theological traditions. The underworld, a deep pit or far-off place of shadows where the dead are gathered, is referred to as hell in the archaic definition of the word. Dreams, ghosts, and demons emerge from the underworld, and in its most dreadful prisons, sinners pay the price for their transgressions—some say forever (Zaleski, 2024) ^[32]. Ereshkigal was "in Mesopotamian religion, goddess in the

Sumerian-Akkadian pantheon who was Lady of the Great Place (i.e., the abode of the dead)" (Britannica-b, 2024) ^[4]. She as the "ruler of the underworld, (...) looked after the souls of the dead and kept the balance. As a goddess, even the most powerful deities could not stand against her" (Morris, 2022) ^[17]. The afterlife was called the "underworld" and was thought to be underneath the material world in many different religions. It should come as no surprise that this kind of mythology predates Western civilization; Mesopotamians are among the first to mention an underground afterlife. But unlike most other ancient cultures, Ereshkigal, a woman, ruled the underworld in Mesopotamian mythology. Not only did this goddess play a significant role in Mesopotamian cosmology, but she was also highly revered and feared among the gods. Her name (Ereshkigal) can be translated as "Queen of the Great Below" or "Lady of the Great Place" (Morris, 2022) ^[17]. Ereshkigal, the Mesopotamian Queen of the Dead, was also known as Irkalla and Allatu (Mark, 2017) ^[16]. It is really such a superiority that this important position is occupied by a Goddess, a mythic female authority.

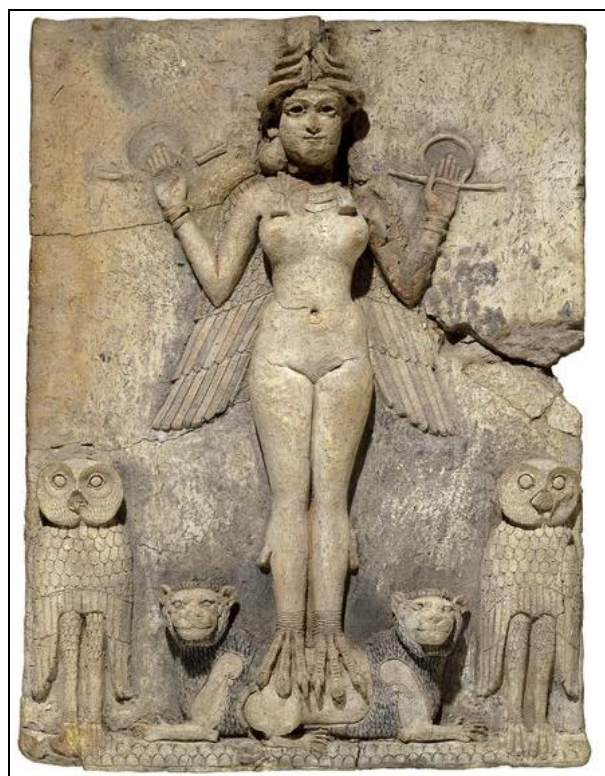


Image 3: A Possible image of Ereshkigal (she may be another Goddess), Old Babylonian, 1800-1750 BC (Mark, 2017) ^[16]

Mesopotamians did not view the hereafter as a utopian place, even though they did think that the souls of their departed loved ones continued to remain in the underworld. Kur, also known as Irkalla, was recorded in Mesopotamian texts as a barren land devoid of sunlight, vegetation, animals, and even water. Because of this, Mesopotamians thought that the only food and drink the dead got came from what the living ones gave them (Morris, 2022) ^[17]. Sumerian conception of Kur as a dark and gloomy cave brings us to our final geographical confrontation.

Did Sumerians hear about the nearby region of Zagros Mountains and cave systems there? With another way of asking, did they meet people or hear about the narrations of

those dark, deep caves? Again, proximity tells us something. A geographical system perfectly matches to the concept of Irkalla is right there, just near Mesopotamia. Maybe sometimes having something near but not exactly in your own territory may fuel and inspire creativity more than we can imagine. Let us imagine people say a volcano is there, a great cave system is there, we did not see it, but we heard the scary narrations about it! Perhaps this kind of indirect interactions should be really powerful in religious or mystical imaginations of world civilizations.

With multiple peaks rising between 3000 and 4000 meters above sea level, the Zagros Mountains constitute a continuous range that stretches along Iran's western and southern borders. Sedimentary rocks that are not volcanic make up the majority of the crust. They are part of a broader system that stretches from the Alps to the Himalayas. These are spectacularly relief-filled, structurally youthful mountains. The primary lithology is limestone, just like in many of the major mountain ranges in the world. The folded zones and the highland zones are the two parallel geological zones that make up the Zagros Mountains (Heydari, 2007: 654) ^[12]. Shanidar cave is carved into the massive limestone of the Lower Cretaceous age. The cave has one large entry hall and one small room; there are no further routes that may be accessed. The Shanidar Cave's entrance and main hall, measuring 15 by 25 meters, are among the biggest in the region; yet, the galleries' entire investigated length is thought to be fewer than 100 meters. It is one of the very few caves that are well-known in the area and that both local scientists and tourists visit often. It is formed in "the Bekhme massive limestone of the Sennonian age" (Stevanović, 2009: 87-88) ^[25]. When biologically analyzed "the samples from Shanidar Cave transect all show good concentration (187–508 grains per sample) and preservation (87.2–97.7% identifiable grains). Herbs are the more abundant (62.6–93.9%) followed by trees (0.6–22.6%) and shrubs (1.0–93.9%)" (Fiacconi, 2017: 68). Zagros Mountains "in explored caves, show very wide and low vadose passages; often also paragenetic features responsible for flat roofs. Entrenched canyons are relatively rare" (Bosák, 1999: 55) ^[2]. Another example, the Ashkawta Rash (in Sorani language The Black Cave) "opens 92 m above the river level of the Balakian River, which is located 135 m to the north and 163 m away as the crow flies. The plateau on top of the cave (about 6–8 m above the cave ceiling) lies on average about 104 m above the river. The ascent to the cave is difficult from the river side because of the banking of the limestone forming a multi-level terrace structure. A more natural access leads to the cave from downstream, following the slope of the main limestone layers along a path from the east" (Kerig, 2023: 2, 6) ^[15]. When we talk about dark imaginations and darker geographical forms, the name of "black cave" overlaps with our construction on the subject. Archaeological documentation and non-standard interviews with neighbors and excavation visitors could both provide evidence of the cave's recent use. Certain tales are particularly interesting. Locals, when asked about the origin of the term Ashkawta Rash, explained that it was the result of multiple cooking fires turning the white limestone of the cave roof black. These deposits have already been identified as bitumen-saturated limestones seeping naturally; however, cooking fires would also have contributed to the cave's blackening. It is feasible to use the highly bituminous limestones for fire buildup (Kerig, 2023: 2, 6) ^[15]. People

heard about caves, used them, and also in ancient times imagined that they are used by Gods as well, as purgatory places. These dark lines of geography, society, culture and imagination deserve further focus on them.

Conclusion

Religion, science, philosophy and arts have intertwined throughout the history of homo sapiens. Religious imaginations and symbolizations have been the mean of a desire towards control or deal with the nature, especially with its unknown dynamics on the one hand; humanity has tried to give an order to chaos and aimed to create an ethical system and set moral values, especially though concepts such as heaven and hell as places of award and punishment, on the other hand. How should we consider these imaginations today? Do we need to see them as relics of ancient times, which are outdated now; or can we consider these symbolic models and narrations as methodological tools of our collective subconsciousness or other determining parts of human mentality? It is open to discussion. When we look at through sociology and social anthropology it is clear that religions and religious cultural constructions work functionally for human groups, tribes or societies. The religion did not lose its functions at all. What we may say is that it has evolved, changed and transformed in thousands of years. The dark imaginations on hell or purgatory places give us clues of overlapping with existing, real geographical forms and structures. A new "geography" is challenging today: cyberspace. Will this virtual and digital "terrains" create their own religious interactions with imagination on award and punishment, namely heaven and hell? If we look at history, we see discontinued or totally changed religions. Cyberspace may feed some new conceptions of purgatory. Even, human societies may evolve "spaces" beyond cyberspace which we can try to foresee now through either our own strategic analyses or via assistance of some AI-supported technologies. Regardless what may happen in near or far future, we can easily say that geography and religious concepts of hell provided sufficient samples of matches and possible influences. Physical geography exist and evolves in its own way. Human societies and civilizations are not ignorant of it. Direct or indirect, consciously or subconsciously influences shape human conceptions. In our study we have seen it in the imaginations of hell. Other studies may show other similarities or evidence of inspirations. We are a part of nature, hence it would not have been possible any other way. Our ways of seeking order while confronting what we perceive as chaos, would inevitably be driven by the chaotic forms standing before us. Humanity creates while being created by the nature and environment in evolution.

References

1. Barnie TD, Oppenheimer C, Pagli C. Does the lava lake of Erta 'Ale volcano respond to regional magmatic and tectonic events? An investigation using Earth Observation data. *Spec Publ.* 2016;420(1):181-208.
2. Bosák P, Bruthans J, Filippi M, Svoboda T, Šmíd J. Karst and caves in salt diapirs, SE Zagros Mts. (Iran). *Acta Carsologica.* 1999;28(2).
3. Britannica-a. Gehenna. 2024. Available from: <https://www.britannica.com/topic/Gehenna>
4. Britannica-b. Ereshkigal. 2024. Available from: <https://www.britannica.com/topic/Ereshkigal>

5. Crossman A. Sociology Of Religion. ThoughtCo. 2019. Available from: <https://www.thoughtco.com/sociology-of-religion-3026286>
6. Earth Observatory. The Smoking Mountain. 2023. Available from: <https://earthobservatory.nasa.gov/images/152150/the-smoking-mountain>
7. Ember CR, Ember M. Cultural Anthropology. New York: Pearson; 2015.
8. Encyclopedia of Buddhism. 2024. Available from: <https://encyclopediaofbuddhism.org>
9. Global Buddhist Door. Dictionary. 2024. Available from: <https://www2.buddhistdoor.net/dictionary>
10. Global Volcanism Program. Report on Erta Ale (Ethiopia) (Venzke E, ed.). Bull Global Volcanism Network. 2022;47(12). Smithsonian Institution.
11. Guest KJ. Essentials of Cultural Anthropology. New York: W. W. Norton & Company; 2018.
12. Heydari S. The impact of geology and geomorphology on cave and rockshelter archaeological site formation, preservation, and distribution in the Zagros mountains of Iran. Geoarchaeology. 2007;22(6):653-69.
13. IPCC. Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability. 2007. Available from: https://archive.ipcc.ch/publications_and_data/ar4/wg2/en/ch10s10-6-2.html
14. Kattelmann R. Glacial lake outburst floods in the Nepal Himalaya: a manageable hazard? Nat Hazards. 2003;28(1):145-54.
15. Kerig T, Lechterbeck J, Waszk B, Serba P, Helms T, Soleman A, *et al.* Geo-and ethnoarchaeological investigations of a cave in the Northern Zagros Mountains (Ashkawta Rash, Iraqi Kurdistan). Quaternary International. 2023.
16. Mark JJ. Ereshkigal. 2017. Available from: <https://www.worldhistory.org/Ereshkigal>
17. Morris D. Goddess Ereshkigal: The First Ruler of the Underworld. 2022. Available from: <https://www.thecollector.com/goddess-ereshkigal>
18. National Geographic. Buddhism. 2024. Available from: <https://education.nationalgeographic.org/resource/buddhism>
19. Nie Y, Sheng Y, Liu Q, Liu L, Liu S, Zhang Y, Song C. A regional-scale assessment of Himalayan glacial lake changes using satellite observations from 1990 to 2015. Remote Sens Environ. 2017;189:1-13.
20. Osti R, Egashira S. Hydrodynamic characteristics of the Tam Pokhari Glacial Lake outburst flood in the Mt. Everest region, Nepal. Hydrol Process. 2009;23(20):2943-55.
21. Quincey DJ, Richardson SD, Luckman A, Lucas RM, Reynolds JM, Hambrey MJ, Glasser NF. Early recognition of glacial lake hazards in the Himalaya using remote sensing datasets. Global Planet Change. 2007;56(1-2):137-52.
22. Scupin R, DeCorse CR. Anthropology / A Global Perspective. New York: Pearson; 2016.
23. Seach J. Erta Ale Volcano. 2024. Available from: <http://volcanolive.com/ertaale.html>
24. Shrestha AB, Aryal R. Climate change in Nepal and its impact on Himalayan glaciers. Reg Environ Change. 2011;11:65-77.
25. Stevanović Z, Iurkiewicz A, Maran A. New insights into karst and caves of Northwestern Zagros (Northern Iraq). Acta Carsologica. 2009;38(1).
26. TDK Dictionary. Atasözleri ve Deyimler Sözlüğü. 2024. Available from: <https://sozluk.gov.tr>
27. The Habesha. Older than Egypt is Ethiopia. 2022. Available from: <https://zehabesha.com/older-than-egypt-is-ethiopia>
28. Volcano Discovery. Erta Ale Volcano. 2024. Available from: https://www.volcanodiscovery.com/erta_ale.html
29. Watson J. The Hell of Ancient Egypt. 2024. Available from: <https://www.touregypt.net/featuresstories/hell.htm>
30. World Bank. Melting Himalayan Glaciers: People, Environment, Economies. 2019. Available from: <https://live.worldbank.org/en/event/2019/melting-himalayan-glaciers>
31. Xu W, Rivalta E, Li X. Magmatic architecture within a rift segment: Articulate axial magma storage at Erta Ale volcano, Ethiopia. Earth Planet Sci Lett. 2017;476:79-86.
32. Zaleski K. Hell. 2024. Available from: <https://www.britannica.com/topic/hell>
33. Zelenski ME, Fischer TP, De Moor JM, Marty B, Zimmermann L, Ayalew D, *et al.* Trace elements in the gas emissions from the Erta Ale volcano, Afar, Ethiopia. Chem Geol. 2013;357:95-116.