MANKIND QUARTERLY Mankind Quarterly, 66(2), 337-354 2025 Winter Edition
ISSN: 0025-2344

Causes of Decapitation in Dvin: Interpretation of Historical Evidence

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Abstract

This article examines the excavated fire temple in Dvin, the capital of medieval Armenia. Dvin was located at the crossroads of numerous external trade routes as well as internal commercial networks. During the course of the excavations, skulls were recovered that displayed clear evidence of violent trauma. Fractures of the occipital condyles and damage to the left mastoid region were observed at the base of the individuals' skulls. These injuries suggest that the victims were held by the hair, and their heads were struck with a sword. This study explores the potential causes of the observed violence and considers whether these acts may have been connected to ritual practices, particularly sacrificial offerings associated with the fire temple or with Zoroastrian religious traditions.

Keywords: Armenia, Dvin, Early Middle Age, Fire temple, Trauma, Decapitations

The article is dedicated to the blessed memory of archaeologists A. C. Zhamkochyan and F. S. Babayan.

1 Introduction

In the Peace Treaty of 387 AD, Armenia was divided between the Roman Empire and Sasanian Iran. By the Act of Nisibis, Eastern Armenia was included in the sphere of Sasanian political, socio-economic, and cultural life, first with the status of a kingdom (until 428 AD), then with the status of a Marzpanate. Armenia was located at the junction of strategic, transit, and trade caravan routes stretching from East to West that also served as cultural highways, connecting two opposing dynasties, Byzantium and Sasanian Iran. Armenia and Armenian culture found themselves in a very difficult situation, when the task of the day became not only to resist, to preserve the national identity and originality, but also to secure a stable place in the future competition.

Early medieval Armenian religious thought and concept were formed in the competition between two opposing ideologies: Sasanian Zoroastrianism and Armenian Christian thought, when the former often forcibly dictated its approaches and norms. The Sasanian state-religious elite, unlike its predecessors, the Achaemenids and the Parthian Arshakunis (Boyce, 1987, pp. 95–96, 102), imposed religious intolerance.[1] The eloquent evidence of this is the behaviour of the military commander, Great Minister and king Yazdgird. Armenian historian Elishe wrote: "He was the ruler and master of all the kingdom of Persia, and his name was Mihrnerseh; and there was no one who would dare to disobey him. And not only the nobles and the little ones, but also the king himself was counted with his commands." (Elishe, 1957, p. 88). Being a fanatical Zoroastrian, anti-Christian and anti-Armenian, he gave the command: "All the peoples and languages that are under my power, let them abandon the laws of their false teachings, and let all of them, to the last one, come to worship the sun, bringing sacrifices to it, and calling it a god, and performing the service of fire. And besides all this, let them fulfil the laws of the teachings of the Mogs, without making any omissions" (Elishe, 1957, pp. 17–18), and "if you accept our faith of your own free will, you will receive gifts and honours from him [the king], and you will receive taxes from the treasury, but if you do not agree of your

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[1] Some kings of this dynasty, such as Yazdegerd I (399-420 AD), treated Christians and Jews with tolerance.

own free will, then we have an order to erect shrines in villages and cities and light the fire of Vram in them, and to appoint Mogs and Mogpets as servants of the faith throughout your entire country." (Elishe, 1957, pp. 70–71). This edict led to the establishment of fire temples in the capitals of Armenia, Artashat and Dvin. The Sasanian shahs were always strict regarding matters of faith, and their magi lit fires in Georgia as well: the Nekresi fire temple in eastern Georgia, in Kakheti, and the Atashgah fire temple in the historic area of Old Tbilisi.

In 531 AD, Khosrow I (Anushirvan) ascended the Sasanian throne. While he is often credited with military and economic reforms, his religious policy was also significant. According to modern scholars, he reinforced Zoroastrian orthodoxy, suppressing heterodox practices and dissenters. Payne (2015) argues that Khosrow punished nobles who deviated from the imperial religion — in some cases by execution — in order to stabilize his reforms and strengthen the role of the Zoroastrian clergy. According to Payne (2015, pp. 67–70), the ruler prosecuted and punished adherents of "irrational" or "deviant" religious practices that diverged from the norms of the state Zoroastrian church, including, in some cases, the execution of high-ranking offenders.

Fire temples were built in villages and cities, while in remote mountainous regions pirs — shrines composed of sacred rocks, caves, and holy springs — were deeply venerated (Canepa, 2013; Shenkar, 2024). Archaeological and textual scholarship supports the idea that many of these mountain sites were already sacred pagan locations long before they were integrated into a formal Zoroastrian religious framework. Canepa (2013) argues that several of the most important Zoroastrian sanctuaries were deliberately founded in locales with dramatic natural features — mountains or lakes — but lacked prior monumental construction, suggesting a re-appropriation of pre-existing sacred geography. Moreover, Shenkar's (2024) research indicates that early Iranian worship of fire often took place in the open air, without closed temple buildings, and that sacred natural places — including rock outcrops and springs — played a central role in early fire cult practices.

The Greek historian Herodotus (5^{th} century BCE) reports that the Persians (early-Iranian people) did not erect statues, temples, or altars, considering such practices foolish; instead, they offered sacrifices on the highest mountain peaks. According to him, they sacrificed to "Zeus" (a Hellenic name for the sky), as well as to the sun, moon, earth, fire, water, and winds. Furthermore, he describes their sacrificial ritual: no altar is built, no fire is lit, and when a man wishes to sacrifice, he brings the victim to a pure, open place and invokes the deity while wearing a wreath of myrtle. However, in the course of the centuries when these natural sacred sites were used, more formal temple structures began to be built. This process is especially well documented in the Sasanian period: Canepa (2013) argues that many "Avestan" sanctuaries, initially located in spectacular landscapes such as mountains or lakes, were transformed into monumental ritual centres. According to architectural scholarship, the enclosed fire temples familiar from later Zoroastrianism developed only at a later stage, while for much of their history, worship at these elevated, remote sites continued in open-air contexts. These mountain sanctuaries (pirs), — such as Pir-e Sabz (Chak-Chak), — became major pilgrimage destinations.

The Zoroastrian cult gave rise to a network of fire temples stretching along the Silk Road throughout, - Greater Iran, from Armenia through Central Asia and into China (Pulleyblank, 2018). Archaeological and historical research supports this. For instance, scholars point to the presence of Zoroastrian shrine-temples in Sogdian settlements along the route (Pulleyblank, 2018; Zamotaeva & Kring, 2017). In China, contemporary sources indicate that Zoroastrianism had a recognized status by the sixth century. There were temples in Chang'an, Luoyang, and other cities along the Silk Road, operated by foreign Zoroastrian communities (Pulleyblank, 2018; Zamotaeva & Kring, 2017). Moreover, archaeological work in Central Asia shows early cultic architecture. For example, at Kyzyltepa, a fire-altar structure dating to the Achaemenid or early Sasanid period has been unearthed, including a terracotta pan blackened by soot (Xin, 2023). Finally, recent excavations have uncovered a site at Mingchaqtepa (Uzbekistan) where a square building with a circular fire pit bearing signs of burning was identified — this has been interpreted as a Zoroastrian temple (https://www.youtube.com/shorts/NDcIcL3_al8). The Silk Road had a profound impact on the spiritual life of the peoples living along the route, pulling them out of isolation and fundamentally changing their worldview. Zoroastrian burial rites became predominant throughout the Silk Road.

In the 5th to 7th centuries, during the peak of trade, castles and other civil buildings were hastily converted into fire temples. The architecture of roadside fire temples was characterized by simplicity in layout and design. Some archaeological (Aspāḳu, Dayr-e Gachin) and historical evidence suggests that during the Sasanian period, certain fortified structures, including caravanserais, may have been re-consecrated or adapted as Zoroastrian fire temples (https://www.iranicaonline.org/articles/khorasan-xxiv-monuments-of-khorasan; https://www.iranicaonline.org/articles/dayr-e-gacin).

Zoroastrian traditions in Armenia have a long history. The burials of dismembered bodies found in cemeteries from the Late Iron Age (Lori Berd, Nor Armavir) relate to pre-Zoroastrian beliefs (Khudaverdyan et al., 2013, 2021). Osteological material from the Lori Berd site shows post-mortem changes (Khudaverdyan et al., 2013, p. 86). Two men (burials 105: 18-20 years old; 107: 50-55 years old) had their heads cut off in the middle; only the right parts of the skulls were buried. Neatly arranged chopped fragments of the postcranial skeleton were found under the right part of the skull (burial 105) (Khudaverdyan et al., 2013, Figures 1-3). Marks of pitting, scratching, and defects on articular surfaces were identified on the bones. "Scratches" and "gnawing" sometimes affected the entire circumference of long bones. There is no doubt that these destructions are the result of small animals' activities during the complete or partial consumption of soft tissues. The bodies of the deceased were possibly left on elevated ground for the soft tissues to decay and be consumed by scavenging birds before being buried in the cemetery.

Sacrifices are an important part of the religious rituals of any traditional society. The main idea of traditional sacrificial ritual actions is to appease a particular lower or higher deity in order to free the family or clan from various misfortunes. As is known, local sacred practices allowed for human sacrifices in certain cases. However, this evidence pertains to events from quite some time ago (Khudaverdyan et al., 2013). Materials from the Shirakavan cemetery indicate that the local population practiced sacrifices. In one case, a woman was laid in a curled position, with the skull of a man found near her head; in another case, the skull of a younger woman was found alongside the skeleton of a man; in a third case, the skull of a younger woman was found with the skeleton of a mature woman. It is important to note that the skulls of the victims were located near household items in the graves (animal bones were found in the vessels). It is likely that sacrifices were performed during ritual memorial ceremonies. Anthropological analysis suggests that the victims were first rendered unconscious and then their heads were chopped off. The trophy skulls showed signs of trauma (a strong blow was delivered to the crown). The heads of the victims were severed, most likely with a sword.

The severed human head held significant symbolic value in the cultic systems and magical rituals of the Greeks, Etruscans, Scythians, Carthaginians, Celts, Thracians, Taurians, and other ancient peoples, as noted by ancient writers (Strabo, IV; Herodotus, IV). An explanation for the ritual of decapitation can be found in numerous mythological narratives associated with the veneration of chthonic deities, particularly Dionysus. The tradition of collecting heads is known from prehistoric times to the present day. Attempts to turn to ethnology in search of an explanation for this custom have led to the emergence of many different theories. Some authors believe it relates to ancestor worship, while others see these individuals as cannibals who buried the skulls of their victims for ritual purposes. A third perspective is that the skulls are military trophies buried as treasure. Neolithic skulls from Catal-Hoyuk have been found in unexpected locations, such as open spaces between structures or under the floors of houses. The prevailing view links these skulls to ritual ancestor veneration (Mellaart, 1967). During the excavations at the Areni 1 cave, a series of clay structures and vessels were discovered buried in the cave's deposits at the back of the first gallery. Three of these contained skulls of individuals that, based on radiocarbon analysis results, date to the last quarter of the 5th millennium BC (4300–4000 BC, calibrated — Early to Late Eneolithic) (Khudaverdyan et al., 2017).

Each method of handling the body and the place where a person was buried likely held its own significance. This may have depended on who the deceased was or who performed the ritual.

2 Dvin, capital of Armenia from 5th to 9th century

The vestiges of the capital city of Armenia, Dvin, the one - time centre of trade, crafts and culture, lie some 35 km to the south of Yerevan. The city was founded in the thirties of the fourth century by the Armenian

King Khosrov II Kotak (332-338AD), a descendant of the Arshakoony dynasty. Valuable information on the foundation of the city is available from the historians Pavstos of Byuzand (4th c.) and Movses Khorenatsi (5th c.). They attest that King Khosrov undertook construction work on a hill called Dvin where he transferred the court from Artashat and afforested in the vicinity of the new capital. Dvin developed and thrived till it grew into a hub of international transit trade. Feudal relations were dominant all over Armenia throughout the 4th-5th centuries, with strong Hellenistic traditions. Dvin was in the focus of these complicated historical-political, social and cultural events because it was virtually the only city of major economic and cultural consequence in medieval – Armenia.

The archaeological investigation of this famed city was begun at the close of the 19th century but it was only in 1937 that regular, long-term excavations were launched that have been going on to date. The diggings resulted in rich findings of great scientific value that relate to all domains of Armenian material culture. Discoveries were made in the citadel and living quarters of the city: palatial and church structures, buildings meant for economic and communal facilities, invaluable specimens in profusion betokening the various products of medieval Armenian craftsmanship, imported goods, coins, etc. Archaeological work revealed that the origins of life on the hill of Dvin go back to the Eneolithic period, lasting until the 13th century. Dvin, that important city rich in medieval Armenian fine-arts products, played a key role under "marzpan" (medieval governor) rule and continued its economic significance under Arab sway. It is a unique landmark, and the excavations there have made it possible to draw a picture of Armenian 5th-8th century culture, of its evolutionary stages, and to get an insight into the salient changes in medieval culture as a whole.

The forced establishment of the Sasanian fire temple in Dvin took place when the marzpan Chihor-Vshnasp Suren seized the Patriarchal seat from Hovhannes Gabeghenatsi, the Catholicos of Armenia (557-574 AD), and turned it into the residence of the Persian official. The Catholicos of Georgia and historian Arseni Sapareli wrote: "From this time on, the Persian marzpans occupied Armenia (Somkher) and the Christian order was neglected, and the church doctrine faded away... and the episcopates were turned into shrines" (Hakobyan, 2020, p. 135). Khosrov Anushirvan ordered the demolition and destruction of monasteries and churches, and the construction of fortifications within the borders of the Sorea, in Persian Armenia (Frye, 1962).

In the 1970s, the Dvin archaeological expedition carried out excavations in the southern part of the Church of St. Gregory the Illuminator. During the excavations, one of the unique buildings of Armenian secular architecture was discovered: the 5th-6th century palace complex, which most likely served as the residence of the Armenian Patriarchs (Figure 1).

Archaeological work revealed that the palace had existed for about a century and then was subjected to fire and destruction in 572 AD during a rebellion. A building was opened next to the columned hall of the palace, which is organically connected with the overall plan of the palace (Kalantaryan et al., 1992). In the centre of the building was a square stone platform made of three large tuff slabs, and covered with a thick layer of ash, next to which a large pot filled with ash was placed in a vertical position. In the centre the platform had a square base for a square pillar, on which a special vessel with a constantly burning sacred fire was placed. The Parthian term for a fire temple — aturosan — has been preserved in the Armenian language as atrushan, meaning "place of the burning fire." The presence of refuse from later periods may suggest the existence of specific sacrificial rites during which, in the course of regular purifications of the sanctuary, the remains of animal offerings and altar ash were deposited in the subterranean chamber (Kalantaryan et al., 1992).

The excavated area of the building was covered with gravel and bone-mixed soil, which is most likely associated with the existence of an earlier pagan shrine. Sacrifices, burning and washing were performed there during the ceremonies. The remains of sacrifices, as sacred relics, were not thrown away, but were buried in the surrounding area. The same applied to the ashes from the sacred fire. Following the Zoroastrian belief, the sacred area was consecrated and cleansed with holy water several times a day, in the morning, afternoon and evening (Boyce, 1987, p. 10, 12, 76, 79, 135; Rak, 1998, p. 16).

Special water jars with lids were kept for this purpose. One such lid, covered with red glaze and bearing a unique design, was found in the area of the prayer hall (Hakobyan, 2020, p. 138; Kalantaryan,

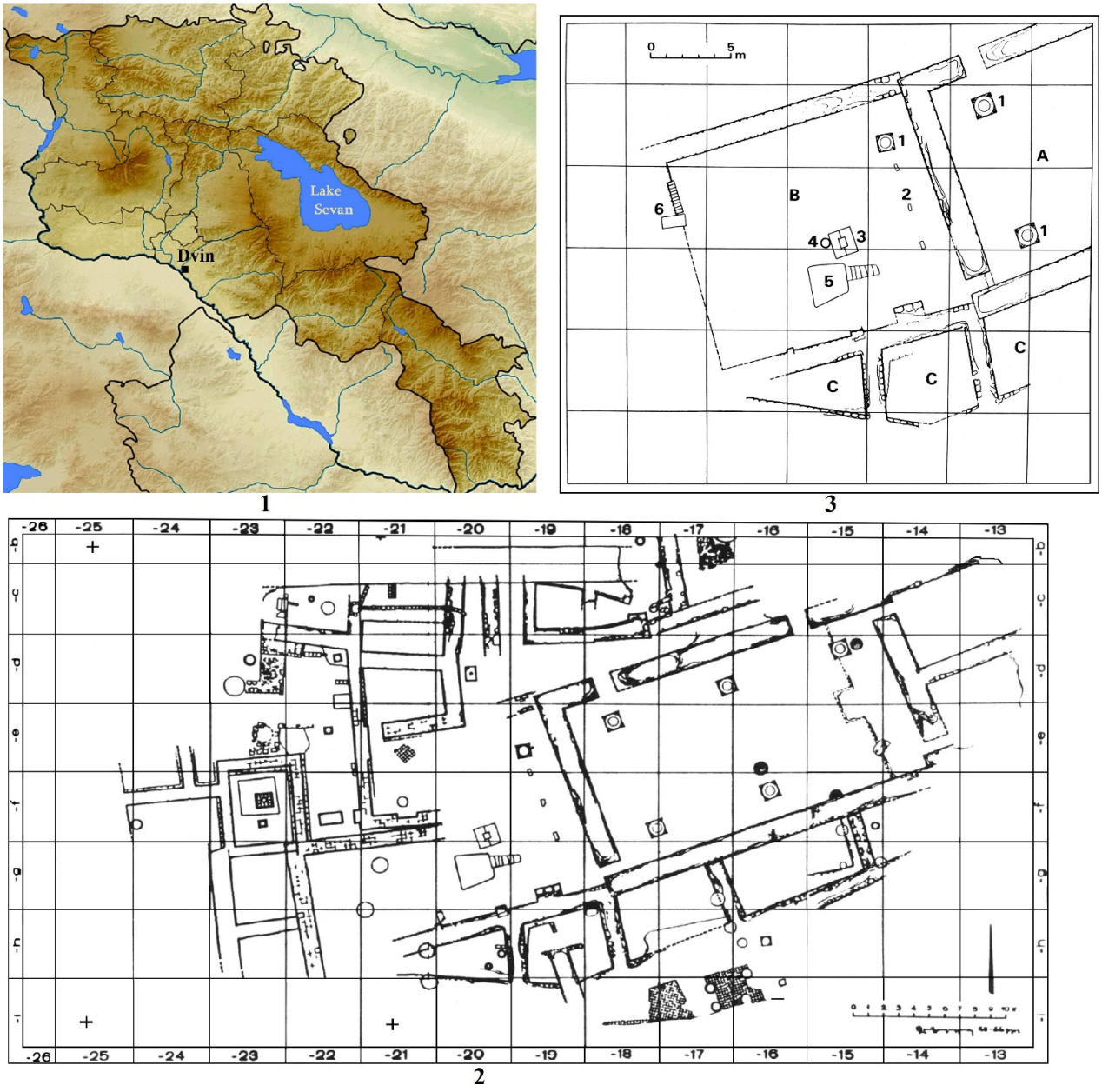

Figure 1: 1. Location of medieval Dvin; 2. Dvin, city centre, overall plan of the excavation in the area of the old Catholicos Palace; 3. Excavation plan for the reconstruction of the Catholicos' Palace: A. The Column Hall of the Catholicos Palace, probably used as a prayer hall; B. Sasanian annex, most likely fire temple (Kalantaryan et al., 1992); C. Adjoining rooms; 1. column bases in situ, 2. upright stone blocks, 3. stone podium, probably altar base, 4. clay vessel with ashes, 5. underground room with stairs, 6. underground room with stairs (Kalantaryan et al., 1992).

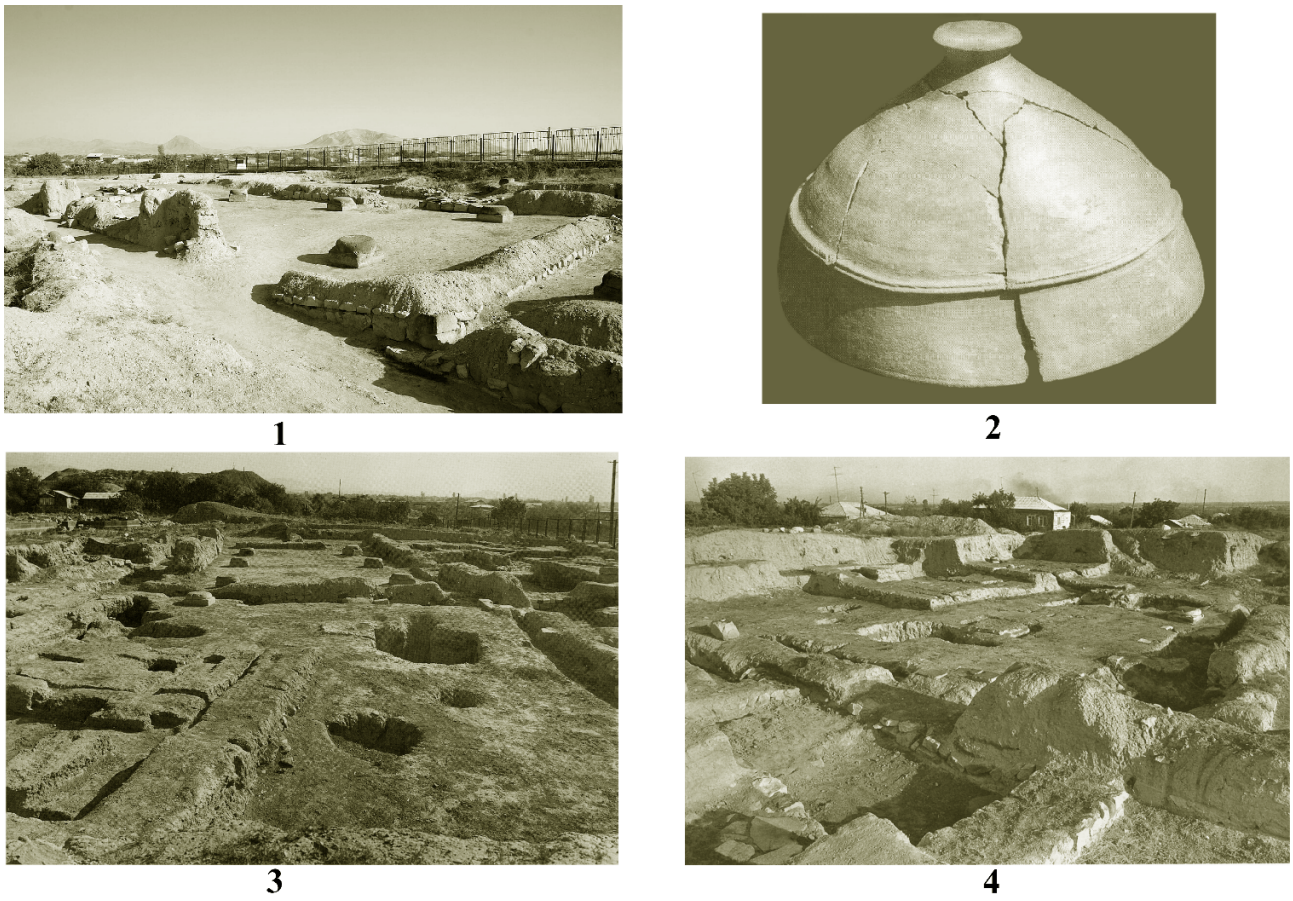

Figure 2: 1. Column of the Catholicos Palace; 2. Pithos lid, ceramic, ca. 6th century AD, from Sasanian addition to palace hall; 3. In front, Sasanian extension, probably fire temple with superstructure of the 9th century, behind it columned hall of the Catholicos Palace, from the west; 4. View from the east into the Sasanian annex, probably a fire temple; on the right, door to the columned hall of the former Catholicos Palace; in the centre of the picture a stone base, probably for a fire altar (Kalantaryan et al., 1992)

1986, pp. 87–88). The jars filled with water were placed on both sides of the platform.

The pagan temple at Dvin, in terms of its architectural layout, is comparable to the forms of Sasanian fire temples, although it does not represent a canonical or fully developed example of the fire-temple type. However, the pagan temple was destroyed by Armenian rebels during the rebellion of Karmir Vardan in 572 AD, and it is difficult to accurately restore its layout. After the palace complex was destroyed and burned down together with its "fire house", it was never restored as it was considered desecrated.

3 Material and methods

The human skulls analysed for this article were excavated by archaeologists Nyura Akopyan (excavations in 1978), Frina Babayan (excavations in 2011) and Akhavni Dzamkochyan (excavations in 2013) in Dvina. No post-cranial bones have been buried. The skulls were in a satisfactory state of preservation, allowing for the determination of sex, age, and pathological conditions, which constitute the main focus of this study. Among the analysed skulls, two belonged to females and one to a male. The materials were recovered from a stratigraphic context attributable to the Early Medieval period (400-700 AD).

International standard procedures (AlQahtani et al., 2010; Buikstra & Ubelaker, 1994; Lovejoy et al., 1985; Meindl et al., 1985) were used to morphologically determine the age and sex of the individuals. In addition, gross observations of abnormal changes appearing in ancient skeletons principally provide the basic information for palaeopathological diagnosis. Particular attention has been paid to traumatic lesions that may be associated with violence.

Traumatic injuries to the skeleton can manifest in a variety of patterns depending on the force of impact, its direction, and the structural integrity of the affected bone (Galloway, 1999; Lovell, 1997). Several individuals in the assemblage exhibited evidence of possible perimortem cranial trauma. Perimortem injuries are defined as those sustained while the bone was still fresh and malleable. Specific diagnostic features can be used to distinguish perimortem from postmortem damage. Due to the plastic nature of fresh bone, perimortem fractures frequently exhibit outward bevelling in the direction of the applied force, particularly on the thin laminar bones of the cranial vault. These can present as linear, comminuted, or puncture fractures with corresponding bevelling (Lovell, 1997). The fracture edges are typically irregular, as fresh bone flexes and fragments remain partially attached (Sauer, 1998). Cranial vault fractures, depending on the force of impact, may also demonstrate radiating and, in some cases, concentric fracture lines, which terminate upon reaching an open suture or an existing fracture (Berryman & Haun, 1996). Fractures of the skull base are generally classified into bending and bursting types. Bending fractures result from direct, localized trauma, producing depression at the impact site and typically leading to comminuted or perforating fractures. Bursting fractures, by contrast, are caused by objects with a broad surface area or indirect trauma. The force is transmitted through the cranial bones. In thinner areas with limited elasticity, the bone fails, producing bursting fractures.

In cases of decapitation, a detailed description was recorded, including the specific bones affected, the direction of the blow, indications of the type of weapon used, and the morphology of associated cut marks. These observations were supplemented with schematic drawings of the trauma distribution and a photographic record. Diagnostic skeletal markers of decapitation include damage to the upper cervical vertebrae (and occasionally C7 or T1), mastoid processes, occipital regions, posterior mandibles, and first ribs (Anderson, 2001; Ardagna et al., 2005; Aufderheide & Rodriguez-Martin, 1998; Buckberry & Hadley, 2007; Khudaverdyan, 2017). Beheading-related injuries can also affect the odontoid peg (McKinley, 1993) and transverse processes of the vertebrae, particularly when an axe rather than a sword was employed (Waldron, 1996). Even in the absence of skeletal evidence, contextual indicators may suggest decapitation, such as the absence of the skull (though this may also result from post-depositional processes including intrusive burials, animal activity, or environmental factors) (Okumura & Eggers, 2008), the recovery of an isolated cranium without associated postcranial elements (Nagaoka & Abe, 2007), or the placement of a skull in a non-anatomical position (Boylston et al., 2000).

The presence of antemortem fractures was determined macroscopically (Buikstra & Ubelaker, 1994; Ortner & Putschar, 1985). In the present study, bearing in mind the various diseases, pathological changes were completely described and given tentative diagnosis.

4 Results

4.1 Individual 1

The columned hall excavated in 1978 bears resemblance to the Armenian glkhatun with its tent-shaped roofing, a type of dwelling widely attested in civil architecture and preserved as a vernacular housing tradition in many rural regions of Armenia to the present day. The stone bases of the wooden columns are of simple workmanship, consisting of a square lower section with a rounded socket designed to support the posts. In the second excavation sector, at a depth of 1.5–2 m (Figure 2), archaeologist N. G. Akopyan recovered the skull of a female individual aged approximately 20–25 years (Table 1, Figure 3-1). The skull is incomplete, and the facial skeleton is poorly preserved. This deterioration may be indicative of an intentional attempt to disfigure the facial features of the deceased — possibly as a means of erasing personal identity — or it may be the result of pathological processes, such as an infectious disease (e.g., leprosy).

An exostosis in the external auditory canal was identified in this individual. Auditory exostoses are bony outgrowths commonly associated with repeated exposure to cold water, often linked to habitual aquatic activities such as diving (Kennedy, 1986; Manzi et al., 1991). Prolonged exposure to cold air and water is known to stimulate the thickening of the bone surrounding the external acoustic meatus, leading to canal narrowing and, in some instances, complete occlusion. Alternative etiologies proposed in the literature

include chronic otitis, genetic predisposition, and repetitive biomechanical stress associated with mastication (Aufderheide & Rodriguez-Martin, 1998).

A small, circular "button" (or "ivory") osteoma, measuring approximately 12 mm in diameter, was observed on the left parietal bone. This benign osteogenic lesion is composed of dense lamellar bone with vascular channels and displays minimal marrow space (Aufderheide & Rodriguez-Martin, 1998; Ortner, 2003).

Signs of nasal trauma were identified in Individual 1, specifically affecting the left side of the nasal region (Figure 3-1). The right side of the facial skeleton is largely absent, most likely due to a combination of postmortem damage and taphonomic processes.

Skeletal changes consistent with *facies leprosa* were also noted (Figure 3-1). These include destructive lesions within the nasal cavity, along with atrophic changes and marginal pitting of the nasal bones. The nature and pattern of these nasal alterations strongly suggest leprosy as the underlying condition — more so than any other known pathological process documented in medieval Armenia (Vardanyan, 1995, 2000).

Mechanical fractures of the occipital condyle and damage to the mastoid processes were observed at the base of the individual's skull (Figure 3-1). These bone fractures are considered perimortem in nature, dated to the moment of death. Such injuries are definitively interpreted as resulting from the decapitation of an individual in an upright position (Manchester, 1983, p. 63). The head is severed from the body with a sharp blow from the chopping implement. The blow was delivered from behind, evidently by a right-handed individual. All of the above circumstances suggest a criminal context for the event. However, a ritual aspect cannot be entirely ruled out — for example, the possible existence of fire-worship sanctuaries.[2]

Woman beheaded for leprosy? Medieval citizens feared individuals afflicted with leprosy due to uncertainty, misinformation, ignorance, and a desire for self-preservation. Myths and misconceptions surrounding the disease profoundly influenced societal attitudes and responses toward those who suffered from it. For the afflicted, these misunderstandings were historically devastating. Branded as outcasts, they were often seen as symbolic embodiments of evil. Leprosy served as a stark moral warning — interpreted as divine punishment for sin — and reinforced societal adherence to religious norms, as well as fear of divine retribution.

4.2 Individual 2

During the 2011 excavations archaeologist F.S. Babayan uncovered at a depth of 40 cm the cranial vault and mandible of a female individual aged 18–20 years. Associated faunal remains were also present at the site (Table 1, Figure 3-2).

[2] There is no direct ritual connection between severed heads and Zoroastrian fire temples known from historical, textual, or archaeological evidence. However, several indirect considerations may be relevant for interpretation:

1. Pre-Zoroastrian traditions:

In the Iranian cultural sphere, some pre-Zoroastrian groups may have practiced forms of ritual violence, trophy-taking, or display of enemy heads. If the site exhibits cultural continuity or syncretism, the act might reflect older local customs rather than orthodox Zoroastrian ritual.

2. Political or military symbolism:

In Sasanian contexts, decapitation is more commonly associated with punishment, warfare, or public demonstration of power, not with fire-temple ritual. A severed head near a temple could therefore reflect political intimidation, execution, or suppression of resistance rather than religious practice.

3.Secondary use of sacred or administrative spaces:

Temples were sometimes reused or repurposed during periods of conflict or regime change. Violent acts occurring near such structures might be linked to political messaging rather than liturgy.

4.Local syncretism and elite ideology:

In frontier regions (including Armenia), Zoroastrian elements sometimes merged with local cults. While still speculative, unusual ritual behavior could reflect hybrid practices not found in normative Zoroastrian texts.

If a severed head is found in association with such a site, political violence, punitive display, or local non-Zoroastrian ritual traditions are more plausible explanations than orthodox Zoroastrian rites.

During the restoration process, it was determined that the facial skeleton and the base of the skull were absent. The left mastoid process was partially preserved and exhibited no signs of trauma. In addition to several small, healed, and superficial cut marks observed on the frontal bone, four shallow incisions (1–3 mm in length), consistent with sharp-force trauma, were recorded on the right ramus of the mandible (Figure 3-2). An additional cut was identified on the left side of the basal surface of the mandible, measuring approximately 4.5 mm in length. These injuries were inflicted perimortem. The absence of bone healing or signs of infection suggests that the woman died as a direct result of these violent acts.

4.3 Individual 3

While clearing the inner wall of a large building during the 2013 excavations, archaeologist A.S. Zhamkochyan (with the participation of A.Yu. Khudaverdyan) uncovered, in layers dating to the 11^{th}–13^{th} centuries, large deep pits (tonir – circular hearths dug into the floor and coated internally, primarily used for baking bread [lavash]) with brick linings, ceramic drainage pipes, and scattered fragments of plain and glazed pottery. At a depth of 1.63 m, near one of these pits, an isolated male skull was discovered (Table 1, Figure 3-3), accompanied by animal bones. The pit itself contained the skeleton of a large bovine. The biological age of the individual was estimated to be between 20 and 25 years. The skull displays signs of microcephaly — a congenital condition characterized by an abnormally small cranial vault, typically resulting from reduced brain volume. In such cases, cranial development is restrained by failure of the brain to grow to normal size. Potential aetiologies include congenital infections such as measles, varicella (chickenpox) or cytomegalovirus, as well as various genetic syndromes.

The individual also presents with cranial deformities, including plagiocephaly without evidence of cranial suture synostosis, facial skeletal asymmetry, and abnormalities of the atlanto-occipital joint. The facial skeleton is markedly deviated to the left. However, a definitive diagnosis of muscular torticollis cannot be established due to the absence of cervical vertebrae and the mandible. The skull is more malformed on the right side.

Multiple instances of enamel hypoplasia were identified. Enamel hypoplasia represents a disruption in amelogenesis and is indicative of systemic stress during early development. While genetic factors may contribute (Goodman & Rose, 1990), nutritional deficiencies and infectious diseases remain the most common causes.

Evidence of maxillary sinus inflammation (sinusitis) was observed. Acute maxillary sinusitis is typically secondary to viral upper respiratory infections, during which mucosal oedema obstructs the maxillary ostium, leading to the accumulation of purulent material. Chronic rhinitis, characterized by persistent mucosal thickening, can also result in similar obstruction. Notably, an enlargement of the left infraorbital foramen (7×6 mm) was documented, accompanied by signs of infection spreading into the orbital cavity (Figure 3-3). This may have led to orbital inflammation (ophthalmia), a serious complication that can arise in the absence of timely intervention.

A perimortem trauma was identified in the region of the right infraorbital foramen. Post-trauma, an osseous outgrowth developed at the injury site, forming a broad-based bony projection with irregular yet well-defined margins. The dimensions of this lesion are approximately 7×6.5 mm.

In addition, several antemortem cut marks consistent with sharp-force trauma were found on the frontal bone. Six superficial linear incisions ranging from 3 to 6 mm were present on the frontal region, and two additional cuts (2.5–3 mm) were observed on the left parietal bone. No signs of post-traumatic osteomyelitis were detected.

Mechanical fractures of the occipital condyles and damage to the left mastoid process were observed at the base of the individual's skull. The nature of the fractures indicates that they occurred perimortem, at the time of death (Figure 3-3). We have already noted that injuries of this kind have only one explanation, beheading of an upright person (Manchester, 1983). A linear fracture of the left mastoid process on the external surface, along with specific destruction of the occipital condyles, indicates that the blow was delivered from behind, most likely by a right-handed individual. Analysis of the reconstructed trauma has made it possible to reconstruct the circumstances of the individual's killing. It is probable that the fatal

blow was inflicted by a person standing behind the victim. Holding the victim by the hair, the head was severed by the sword with a sharp left swipe.

Table 1: Bioarchaeological characteristics of Individuals 1–3

Category	Individual 1	Individual 2	Individual 3
Sex	Female	Female	Male
Age at death	20–25 years	18–20 years	20–25 years
Preservation/ general description	Incomplete skull; facial skeleton poorly preserved; right facial region largely absent	Cranial vault and mandible preserved; facial skeleton and cranial base absent	
Pathologies/ diseases	Possible facies leprosa (destructive nasal lesions, bone atrophy, marginal pitting); exostosis of external auditory canal; "button" osteoma (left parietal, 12 mm)	No systemic pathology; healed superficial cut marks on frontal bone	Microcephaly; plagiocephaly; facial asymmetry; possible congenital cranial deformities; enamel hypoplasia; maxillary sinusitis; enlarged infraorbital foramen with possible orbital infection
Trauma antemortem/ perimortem	Nasal trauma (left side); perimortem fractures of occipital condyles and mastoid processes — indicative of beheading from behind	Several perimortem cut marks on mandible (right ramus and left basal surface), no healing — lethal sharp-force trauma	Multiple antemortem sharp-force cuts on frontal and left parietal bones; perimortem fractures of occipital condyles and mastoid process — beheading from behind; perimortem trauma at right infraorbital foramen
Taphonomy	Facial region partly destroyed (possible intentional disfigurement or pathological process)	Skull base absent due to taphonomic processes	Skull isolated; associated faunal remains
Interpretation/ context	Beheading, likely from behind by a right-handed individual; possible social stigma and exclusion due to leprosy (fear, myths, ritual component not excluded)	Violent death caused by sharp-force trauma to mandible; no healing indicates immediate lethality	Violent death by beheading; cranial asymmetry congenital; additional antemortem injuries reflect earlier episodes of stress or interpersonal violence

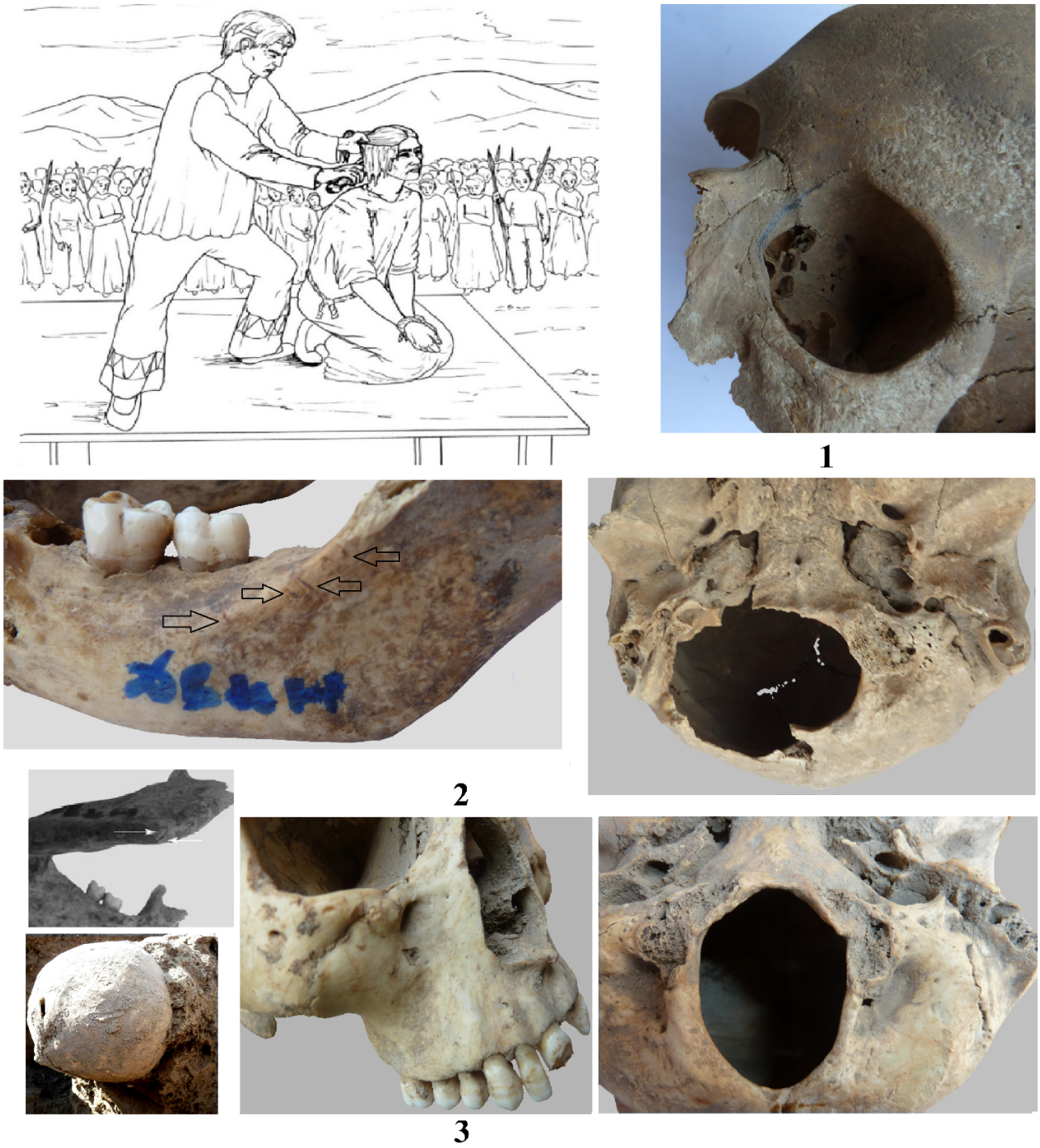

Figure 3: Reconstruction of the execution; **1.** *Individual 1:* fracture in the nasal bones and facies leprosa, mechanical breaks of occipital condyles and damage of the mastoidal; **2.** *Individual 2*: traumatic injury to the mandible; **3.** *Individual 3*: direct traumatic injury in infraorbital foramen, mechanical breaks of occipital condyles and damage of the left mastoidal.

5 Discussion

Zoroastrianism is a religion with a history spanning over 2,500 years — and possibly even more (Boyce, 1987, p. 16). It continues to be practiced today by the Parsees, primarily in the Indian state of Maharashtra (mainly Mumbay) and most of the rest in Gujarat. Parsees also live in certain regions of Iran, notably in the provinces of Kerman and Yazd, and in the capital city of Tehran.

Fire holds a central and multifaceted role in Zoroastrianism. It serves two primary functions:

A. The eternal fire (atash) is sacred and must never be extinguished. It is to be meticulously protected not only from being put out, but also from direct sunlight and exposure to the open air. Even within the temple, the fire is kept in a sheltered area, tended exclusively by a priest who maintains it by adding fuel. High flames are not required; maintaining glowing embers is sufficient.

B. Fire also functions as a medium for conveying prayers to the divine, much like in other religious traditions. It receives ritual offerings such as water, milk, incense, and fragrant or precious woods. Ceremonies may be conducted directly at the eternal flame, at a secondary flame kindled from it, or in an adjacent room where lay worshippers can participate.

This brief and schematic overview is intended to highlight the distinctions within Zoroastrian fire worship — namely, the existence of different types of sacred fire and the corresponding architectural accommodations within temples.

Offerings to fire and water formed the foundation of daily worship rituals, known to the Indo-Aryans as *yajna* and to the Iranians as *yasna* (from the root *yaz-* meaning "to sacrifice, to worship"). These rituals involved libations to fire, often derived from blood sacrifices, which were evidently performed on a regular basis. The Indo-Iranians approached the act of taking animal life with reverent awe and solemnity. They never killed without an accompanying consecratory prayer, which, according to their beliefs, ensured the continuation of the animal's soul.

The awareness of a kinship between humans and animals is reflected in ancient sections of the *Yasna* liturgy: "We pray to our souls and to the souls of domestic animals who nourish us... and to the souls of beneficial wild creatures" (Yasna, 39, p. 1–2). At times, this cult assumed ominous forms. Specifically, human sacrifices were offered to the royal sacred fire of the Sasanians in the temple of Anahita at Istakhr. It should also not be ruled out that there may have been political motives aimed at creating an atmosphere of fear and deterring potential uprisings against the newly established Sasanian administration. During the Parthian period, a child was reportedly sacrificed once a year to the fire deity in a Zoroastrian temple in Adiabene (Lelekov, 1991).

Armenia was under Achaemenid rule and, as an Achaemenid satrapy, was significantly influenced by Persian culture — including, naturally, the impact of Zoroastrianism. During the Seleucid period, the country was divided into several independent principalities whose rulers bore Persian names and paid tribute. Following the Roman victory over the Seleucid army in 190 BCE, Roman influence extended throughout Asia Minor. From that point onward, Armenia functioned as a buffer state between Parthia and Rome, periodically allying itself with one or the other.

In the year 572, dissatisfied with Persian policies, the Armenian nobility and clergy initiated an uprising. The struggle was led by the Armenian nakharar houses of the time, under the leadership of the Mamikonian family and with the support of the Armenian Apostolic Church. The national liberation movement was headed by Vardan Mamikonian the Younger (also known as Vardan the Red) and the Catholicos of All Armenians, Hovhannes II, who gathered an army of 10,000 warriors. In 572, the marzpan Suren (builder of the Sasanid fire temple in Dvin) traveled to Ctesiphon to report the events to the Sasanian authorities, and subsequently returned to Dvin, the capital of Marzpanate Armenia, with a force of 15,000 troops. By that time the number of Armenian rebels had doubled, and they succeeded in defeating the Persian army. Marzpan Suren was killed in his own residence in Dvin, and his severed head was sent to the Byzantine patricius Justinian, who resided in the city of Theodosiopolis (Simocatta, 1996).

The motif of the severed head frequently appears in battle scenes described in the History of Taron (Mamikonyan, 1989, p. 76–78). For instance, Tigran Kamsarakan beheads the Persian Vardukhri and, throwing the head to his servant, says: "Hide it; when we reach Matravan, we shall play ball in front of

Surb Karapet" (The Monastery of Surb Karapet was a major religious and cultural centre in the regions of Taron and Sasun. – Author's note) (Mamikonyan, 1989, p. 107). In another episode, Prince Vahan mocks Persian prisoners by tossing the head of the Persian general Mihran into a sieve, declaring: "When this man entered our land, the armies faced one another and wished to compete. They searched for a ball and could not find one. They did not dare ask the Greeks, for they were mortal enemies. When we looked at our own army, we saw that we, too, had no ball. So we cut off this head and played. But we heard that you have arrived in the city of Bustr from Shahastan, where the land is flat and smooth. We know that you will be skilled at the game. Take your cousin's head, and let it be our ball from generation to generation" (Mamikonyan, 1989, p. 81).

The severed heads found in Dvin are more likely linked to criminal or socio-political events rather than Zoroastrian religious practices. Ritual beheadings were not part of canonical Zoroastrian rites. However, during periods of religious conflict, executions motivated by faith could have taken place. It is quite possible that beheading was used as a means of demonstrating power or instilling fear — not as a religious act, but as a political or religiously-justified action. Beheading could also have been the result of mass executions following uprisings, interethnic clashes, criminal activity, or public punishments. Thus, these findings more likely reflect the complex socio-political environment of the time rather than a religious tradition.

Dvin's strategic location along the Silk Road made it easy for Zoroastrian traders to come in contact with the local population. This geographic and economic position facilitated continuous migratory movements, which can be considered a contributing factor in the transmission and spread of infectious diseases.

All of the individuals examined in this study exhibited pathological signs indicative of infectious conditions, including leprosy and maxillary sinusitis. The individuals under investigation appear to have belonged to a lower social stratum that suffered from a lack of essential nutritional resources. Malnutrition and physical debilitation would have made them particularly vulnerable to disease. No evidence of formal burial practices was identified in relation to these individuals. Attention should also be drawn to the associated faunal remains. The nature and proximity of the animal bones to human crania are unlikely to be coincidental. In the case of the female individuals, the facial bones were either absent or severely damaged. This may reflect the deliberate destruction of facial features in an effort to obliterate individual identity, or alternatively, the result of pathological processes, such as those caused by advanced leprosy.

Throughout history, individuals with pronounced physical disabilities have often been regarded with prejudice — not only because their impairments limited their participation in social life, but also because they evoked a sense of mystical fear among the able-bodied. In medieval culture, the worldview closely intertwined the microcosm (the human being) with the macrocosm of universal existence. Within this rigid conceptual framework, there was little room for those perceived as physically "imperfect" from birth. It is reasonable to assume that disability was interpreted as a deviation from the divine order — that is, from the concept of the human as created in the image and likeness of God. Consequently, individuals with visible impairments were often viewed as incomplete beings, unworthy of attention or inclusion. They could not expect even a neutral attitude from society, as the dominant belief at the time held that blindness, congenital deformities, and other disabilities were either divine punishment for sin or the result of satanic intervention in a person's fate. Such individuals are frequently mentioned in historical documents, literary texts, and legal codes from both antiquity and the medieval period (Malofeev, 2003, p. 66).

During the early Christian period in Armenia, leprosaria (Classical Armenian: borotanotsner) were already in existence (Khorenatsi, 1893, p. 41). In 260 CE, Princess Agvida Salakhuni (wife of the noble Suren Salakhuni) founded what is considered the world's first leprosarium, with a capacity of 35 beds (Vardanyan, 2000, p. 29). Later, in 365 CE, the Council of Ashtishat decreed that leprosaria and hospitals (bzhshkanotsner, in Classical Armenian) be established throughout Armenia. It was also decided that pharmacies and healing institutions be exempt from taxation. Historical sources attest that monasteries began to build charitable hospitals and free "pharmacies for the poor" at an accelerated pace, providing care for the indigent (Buzand, 1987, III, VIII). According to law, Armenian physicians were not permitted to refuse medical assistance — even to the destitute.

Given the presence of such institutions, a question arises: Why was the woman from Dvin executed?

Was her death connected to an infectious disease, such as leprosy? In contrast to Armenia's relatively progressive medical care, lepers in medieval Europe were typically banished from settlements — or, in more extreme cases, killed (Malofeev, 2003, p. 125). Moreover, institutional leprosaria did not appear in Europe until some 300 years later than in Armenia (Vardanyan, 2000, p. 29). During this period, hundreds of thousands of individuals accused of witchcraft or satanic affiliation were executed. What explains this mass hysteria surrounding impurity, sorcery, and the demonic that swept across Europe during the 15^{th} to 17^{th} centuries? It is conceivable that leprosy was perceived not merely as a physical ailment, but as a mark of moral and spiritual corruption. The afflicted body of the leper was interpreted as evidence of inner sin and divine punishment. Notably, so-called "witches' marks" — lesions or discolorations of unknown origin — were commonly cited as proof of a pact with the devil.

In his work on Medieval witch trials, Kantorovich (1990) writes that individuals bearing such marks were often subjected to the "needle test". If a particular area of the skin failed to register pain, it was interpreted as insensitivity to divine judgment — a trait of the damned. Assuming that accounts of these "witches' marks" have a factual basis, one must ask: What were these marks in reality? It is plausible that a significant number of those accused of witchcraft suffered from a common disease. In leprosy, affected skin areas often develop white or reddish patches that become anaesthetic — lacking sensitivity to heat, cold, or pain. In some cases, lepromatous nodules form in the dermis or subcutaneous tissue, which may coalesce into larger conglomerates. Whether inquisitors and judges genuinely believed they were condemning incarnations of evil rather than sick human beings remains an open question. It is worth noting that medieval physicians had a relatively accurate understanding of leprosy and its symptoms (Vardanyan, 2000, pp. 28–29).

Individual 3 from Dvin presents with a microcephalic cranial structure and marked facial asymmetry, characterized by a leftward slant. In the context of the Middle Ages, such physical anomalies were frequently met with societal stigma and harsh treatment. This response was largely rooted in prevailing religious doctrines, pervasive superstition, and the absence of medical knowledge regarding the aetiology of disability. Individuals exhibiting visible physical differences were often perceived as portents of misfortune or ill omens, which frequently resulted in their social exclusion, marginalization, or even persecution.

Despite the scarcity of historical records, it is still possible to attempt a reconstruction of the circumstances surrounding the deaths of these individuals. Persons suffering from infectious diseases or physical disabilities were often treated as a form of "scapegoat", upon whom society projected its fears, sins, and misfortunes. They were suppressed or eliminated because they were perceived as a threat, with society mystically transferring all evil onto them — evil that the collective sought to expel in order to restore order and purity.

6 Conclusions

Human sacrifice was a complex and multifaceted ritual practice found in various ancient societies across the world. Although its forms and meanings differed substantially between cultures, it was generally embedded in broader religious, social, and political systems. In many cases, human sacrifice functioned as a means of communicating with deities, ensuring cosmic order, legitimizing political authority, or marking critical moments of social transformation. Archaeological and textual evidence from the Near East, the Mediterranean, Mesoamerica, and parts of Eurasia indicates that such rituals were often associated with ideas of purification, propitiation, or the renewal of life (Propp, 1998). In some cultures, sacrificial victims were perceived as intermediaries between the human and divine spheres, and their deaths were thought to secure divine favour during warfare, agricultural cycles, or periods of crisis. In other contexts, human sacrifice represented an instrument of social control, reinforcing power hierarchies within stratified communities. Despite their ritual significance, human sacrifices were never merely acts of religious devotion. They were embedded within a broader ideological framework that reflected the values, fears, and worldviews of ancient societies.

The interpretation of these practices requires careful integration of archaeological data, written sources, and anthropological models, allowing modern researchers to understand not only the mechanics of ritual killing, but also the cultural logic that shaped its use and eventual decline. In the context of ancient

Iranian religion, the relationship between human sacrifice and Zoroastrian belief is characterized primarily by rejection. The teachings attributed to Zoroaster (Zarathustra) explicitly emphasize the sanctity of life, the necessity of moral choice, and the importance of maintaining purity in both the physical and spiritual realms. Within this doctrinal framework, the taking of human life for ritual purposes was considered fundamentally incompatible with the principles of asha — truth, order, and righteousness. Historical and textual sources suggest that certain Zoroastrian Iranian tribes may have practiced forms of ritual killing or violent rites associated with warrior cults or funerary customs (Lelekov, 1991). However, Zoroastrian reform introduced a strict moral distinction between legitimate ritual practice and acts that were regarded as demonic or chaotic, associated with druj — falsehood and disorder. Consequently, human sacrifice came to be viewed as a corrupt and impure act, condemned by Zoroastrian religious authorities.

In the Middle Ages, two conceptions of impairment — and, by extension, of illness more broadly — coexisted in a state of ambivalent tension. On the one hand, impairment was frequently interpreted as a consequence of sin; on the other, it was also regarded as a condition necessitating physical healing. A central medieval idea was the perceived deviation of the impaired body from a culturally constructed norm, whereby such a body was viewed as disordered and inherently challenging. In medieval eschatological thought, the impaired body appeared to be denied continuity in the afterlife: Resurrected bodies were not imagined as retaining the physical defects or imperfections they bore in life. Certain categories of medieval historical sources, such as chronicles and historiographical works, often omitted references to individuals with impairments, as such figures were not considered appropriate subjects for narratives focused on the deeds of the powerful and the noble. Moreover, the belief that physical impairments and infectious diseases were manifestations of divine judgment for moral transgressions was deeply entrenched in the cultural and religious consciousness of Dvin during this period. However, this perception seems paradoxical given that Armenia was the first country to establish leprosaria, suggesting a more compassionate and institutional approach to the care of individuals afflicted with such conditions.

Acknowledgements

We are grateful to Ani Sahakyan of the Institute of Archaeology and Ethnography of the National Academy of Sciences of Armenia for preparing the graphic illustration of the skull, and to Tigranuhi Levonyan of the same institute for scanning and processing the photographs. We would also like to thank all the reviewers for their detailed comments and valuable suggestions on the manuscript.

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