From Hearths to Volcanoes: the Armenian *glkhatun* —

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Introduction

Legend has it that Vahagn, the personification of fire and thunder, taught the art of war to the Rapyans, the mythical ancestors of the Armenians. After each session, the assembly would gather around Mount Tondrak – more commonly known as Tonir – the last active volcano in the Armenian highlands, hidden in the Tsaghkunyats Ridge. One day, while baking bread, Vahagn pulled some embers from the crater and ordered his apprentices to share them with humans so that they too could bake bread in their hearth.[1]

The *glkhatun*, literally 'head house' in Armenian, consists of a large rectangular room, often carved deep into the side of a slope, with a hard earthen floor bordered by retaining walls of volcanic rock and no openings other than the door and the *yerdik* – an oculus through which the smoke arises from the hearth. *Glkhatner* are already known for the structural properties of their *hazarashen*, a complex wooden roof, which scholars regard as the precursor of early Christian church domes. This paper is less concerned with the structural capacities of this subterranean structure than with myth and the cosmology embodied in the *glkhatun*. Its aim is to explore the imaginative associations between dwelling and the volcanic landscape and the inter-relations between geological time and human life.

It is hard to resist the formal comparison between the vernacular structure, already described by Xenophon during his passage through western Armenia in the fifth century BC, and Mount Ararat, with its ring of volcanic vents. Because of its mass, Ararat is omnipresent in the landscape. Although visible from many sites in present-day Armenia, and geographically close, the mountain lies within the borders of present-day Turkey.[2] The volcano (whose last known eruption took place in 1840) has become ever more present in Armenian iconography as a source of mythological identity.

While this comparison may seem anecdotal, I argue for the importance of assessing the *glkhatun* across multiple scales beyond that of the building: from a territorial perspective, examining the geomorphology surrounding and formed by the 'head houses' settlements; a resource-based perspective, exploring material history through acts of making; an environmental perspective, investigating the material flows between people and the environment; and a talismanic perspective, identifying the ways in which the assembly of architectural elements not only serves a function, but embodies the collective and cross-generational imaginary of a place.

All these are intertwined across scales. The *glkhatun*, beyond the architectural object, becomes a lens through which the ramifications unfold: the view from below, starting with the hearth as the epicentre of the family group; the dome that delimits the living space and involves both the structural and talismanic; the dwelling that grows organically as the family expands. Once past the oculus, the view from above invites the reader to look at the assembly of 'head houses' from a topographical standpoint; finally arriving at the mountain that transcends both the time and space of empires and nation-states, bringing us closer to the geological and cosmogonic source of the *glkhatun*.

Although *glkhatner* share a strong kinship with early dwellings dating back to the Bronze Age, it was only after multiple foreign invasions and conflicts between neighbouring empires – resulting in the destruction of Armenian cities in the 13th and 14th centuries, along with the decline of the urbanisation process in the Armenian highlands – that a critical mass of the population returned to the ancient caves carved out of the rock, finding refuge in the recesses of the earth. The *glkhatun* was one of these semi-subterranean dwellings, still constructed up until the Sovietisation of Armenia. Very few *glkhatner* survived the 'dark and cold years' in Armenia,[3] and as a result, many of the best-preserved examples are now found in present-day Azerbaijan, Georgia and Turkey in villages that were primarily inhabited by Armenian communities. Although this paper draws on the fascinating survey plates by Severov and Charleman compiled in Longinoz Sumbadze's extensive book *The Architecture of the Georgian Folk Dwelling Darbazi* (1960), for the sake of consistency and readability I refer predominantly to Armenian terminology. The work and writings of cultural anthropologist Harutyun Marutyan, particularly his essay 'Home as the world', were an essential point of entry for my exploration of the myths and rituals surrounding the *glkhatun*.

The sources to which this paper refers belong to a tradition of writing about architectural vernaculars that relies on generalising buildings in order to categorise a particular 'vernacular', seen as an 'authentic tradition' within which variants can be identified. I am aware that this is not without its flaws. Where do categories begin and end? What about the underlying assumption that some ways of building are authentic and others not? I cannot pretend to answer these questions, especially as many of the objects studied have unfortunately disappeared. However, materials from the photographic archives of the State Museum of Ethnography, as well as the interviews conducted during the summer of 2021 in central Armenia with families still inhabiting *glkhatner*, have allowed me to bridge some gaps.

The hearth

The *tonir*, a sunken hearth around which people cooked, ate and slept, was considered the centrepiece of the *glkhatun*. It consists of a truncated cone of thick coils of clay, stacked one on another and dried in the sun. The bulge tapers to the opening rim, whose edge is thickened and turned slightly outwards to grip the hard earthen floor. The most common kind has a depth of 1.5m and ranges from 60 to

Fig.1 Soghomon Vardanyan, Village house: plan and section, date unknown. Courtesy of Grakan Hayrenik JSC. (From: Soghomon Vardanyan, *The Architecture of the Armenian Traditional House*, 32, Fig.13: see note 27.)

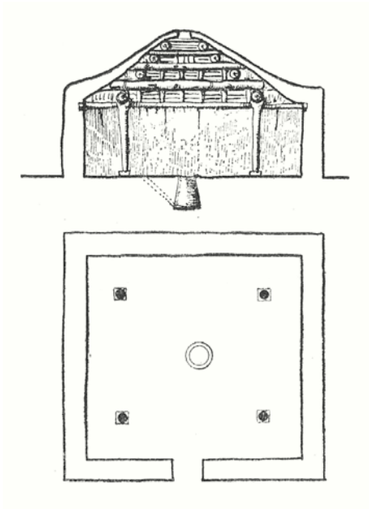


Fig.2 *Glkhatun*, Tsaghkunk, 2021. Photograph by the author.

80cm in diameter. Once dried, the *tonir* was plunged into a previously dug pit and heated from within by a small fire, gradually fed with dry dung or fir wood until its clay reached sufficient strength. The inside of the *tonir* was then greased with a cloth dipped in sheep's fat. This way the inner walls were smoothed out and the *tonir* might serve for up to 50 years. A conduit, *akuka* or *ak*, made of clay, or formed by an alignment of stone, flowed from the bottom of the *tonir* to the surface of the ground through an *akula*, a horseshoe-shaped opening, to draw in the air needed to sustain the fire (Fig.1).[4]

A constellation of body-sized indentations carved into the ground is usually arranged around the *tonir* in a concentric pattern, inverted cavities or 'seats' used by the cook who, along with the dishes that make up the family fare, prepares *lavash* – the traditional flat bread central to the Armenian diet. The dough, rolled into a thin elliptical shape, bakes almost instantly when pressed against the inner surface of the *tonir*. Actions performed by the family are literally 'drawn' into the ground by the *tonir* (Fig.2). The hearth was the organising principle of the inner world. If the dwelling extended over more than one *glkhatun*, all adjacent rooms were interconnected by an opening to the *tonratun* (the oven room), the primary source of heat. In the colder regions of Armenia, the opening of the *tonir* was closed by a carpet-covered table (the *kursi*). After the fire was out, the family would gather around the hearth – elders and guests having the seat of honour facing away from the entrance door – and dip their feet into it, enjoying the warmth stored by the clay body.[5] Mats and cushions were spread on and around the *tonir* for sitting, eating and sleeping during the long winter nights. In the last century, families would occasionally cover it with a glass sheet to retain the embers' heat, while diffusing their light.

Fig.3 *Gvirgvini* in the Peikrishvili *darbazi* in Rabati, 1938. Photograph courtesy of Nodar Sumbadze. (From: Longinoz Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, pl.73: see note 7.)

The hearth was not only a source of heat but also of radiance. The fire made a sphere of light, underlining the limits of the living, while gaining ground on the realm of darkness in which the evil eye resided. The *tonir* had to be kept clean at all times and malicious words and cursing were forbidden around it. Because of its importance and antiquity, bread and its making have always had a mythic dimension in Armenia. 'People in the region of Javakhk, for instance, believed that the angels of newly baked bread flew around the tonir during the baking and struck anyone who offended the bakers.'[6] From the subterranean fire a column of smoke streamed up through an opening in the ceiling. The *yerdik* not only allowed fumes to escape, but also served as an emergency access during winter in the case of unicameral dwellings, as well as a skylight to illuminate the home. Cut-outs were made in the lower edges of the *yerdik* frame, from the corners to the middle, allowing light to penetrate the submerged room more effectively. One can only imagine the contrast produced by the abundance of sunlight and air flowing through the oculus (Fig.3) and reinforced by the coolness emanating from the half-buried walls during hot afternoons, particularly when it comes to more complex dwellings consisting of several poorly lit chambers and hallways. The cold of winter and the heat of summer forced people to spend a lot of time inside their homes. According to Sumbadze, the *yerdik* also served a temporal function. Thanks to the positioning of solar rays – which, in the morning, descended along the slope formed by the wooden steps that made up the ceiling, to merge into a single beam of light at noon – the inhabitants could estimate the time quite accurately and thus structure their daily activities around the hearth.[7]

The hearth has always held an important place in the Armenian household, having both physical and sacred aspects, where various occurrences mainly related to fertility and births were registered

within the family in the form of rituals.[8] Here I refer to the 'Cosmic Tree' allegory developed by Demirkhanyan and Frolov, which sheds light on how people interpreted the vertical axis between the *tonir* and the *yerdik* embodied by the smoke column. In this interpretation, the roots dive deep into the hearth to the underworld, absorbing and transporting the raw energy of fire to the column of smoke, while the canopy spreads along the curvature of the dome structure, symbolising the celestial sphere.[9] In Armenian tradition, the fire born from the hearth acts as a figurative representation of the vertical structure of the world. Its death and regeneration are associated with the measure of the cycle and thus become a source of fertility:

> The hearth fire's smoke streaming through it was believed to endow the *yerdik* with the life-giving qualities of the hearth, and several rituals indicated that the large room below the opening was symbolically equated with the womb. In one ritual devised to reverse barrenness, a childless woman would be pulled by a rope from the floor to the ceiling and out through the opening. This magical practice, symbolising the rebirth of the barren woman herself, was repeated three times, especially during the fertility-related *Trndez* festival.[10]

During celebrations or at the beginning of the Holy Week, it was common to draw a starry sky on the smoke-blackened ceiling with the help of a long stick whose end was covered with a cloth coated with flour. Fire was understood as the incandescent state of matter. In this way, the ritual revived the belief that the seed of heat, arising from the hearth, made airborne by the smoke, conferred vital properties upon the *yerdik* located at the hearth of the celestial sphere.[11]

The dome

The architecture of the *glkhatun* was predominantly driven from within. The *hazarashen* crowned roof construction stands in close relation to the early development of rural dwellings. The most extensively documented dwellings are the *glkhatun* located in present-day Georgia, or *darbazi* (the Georgian term for *glkhatun*) (Fig.4), which share strong similarities with those found in Eastern and Western Armenia.[12] Within the range of *glkhatun* dwelling types, almost all known varieties of crowned roofs – comprising both the longitudinal and the centred system – proceed from the most rudimentary construction of the Colchic house made of a quadrangular roof of parallel layers already described by Vitruvius,[13] to the octahedral and dodecagonal angular *hazarashen*, of which the *gvirgvini* (literally 'crown' in Georgian) is the most accomplished form in its spatial complexity.

The main living quarters of the *glkhatun* were predominantly square. The first step in the construction of the 'head' or crowned roof was to place four logs – generally trimmed or split following the grain of the wood – along the edges of the stone walls, creating the base frame. Four shorter logs were then mounted at the corners, creating a new square base. After building four to ten more layers of increasingly smaller logs, the stack of frames would give way to an opening in the ceiling, the *yerdik*. Two variations are derived from this construction technique. The first is the quadrangular *hazarashen* of parallel layering (Fig.5a) favoured in the more heavily forested regions of eastern Armenia, where long spans of wood were available. Here, builders could place four long logs parallel to the walls. In each subsequent layer, the logs were laid alternately on two opposite sides of the frame, offset towards the centre of the room from the layers below. As a result, the original frame decreased progressively, leading to a square of the same proportions for the light aperture. The greater the height of the *hazarashen*, the more visible the geometric clarity, giving the whole a pyramidal shape truncated by the *yerdik*. The logs are simply stacked on top of each other without any prior cutting, their diameter gradually reducing. Only in certain instances were minor cuts made in the upper or lower rows to ensure fit and stability of the system, supplemented by wood pegs to consolidate the corner joints. The second variation was that of the quadrangular *hazarashen* of angular layering (Fig.5b), where each subsequent row of square timber frames rotates 45° from the lower one. This scheme offered more stability and the advantage of halving the span of the logs and therefore reducing the depth of the dome. The height of a row was formed over the whole square perimeter by the thickness of the beams, which were all superimposed at the same level, whereas in roofs of parallel layering, the beams did not create a solid surface, but a frame which required an infill before the earth cover. Several methods were used, ranging from logs split down the middle and laid against each other, to tightly fitted overlapping planks, to a two-layered structure, consisting of posts (rafters) laid at a distance from each other on which wicker was laid. The unevenness of the wooden roof was filled in from above with needles or covered with juniper branches. The flat surface was then covered with earthen sods placed upside down and coated with thick clay often mixed with chopped straw. Once the clay had dried, a layer of soil was poured over it and firmly tamped down. The family would occasionally add new soil to the roof when heavy rains washed it away. Each region had its own nuances in the layout of the roof. In some places, the earth layer was 50–70cm thick, and the roof surface was overgrown with grass, giving the *glkhatun* its characteristic hillside appearance.

Another type of crowned roof, more popular in mountainous regions, made use of crossbeams at the corners of the stone walls (Fig.5c). This type of dome was found mainly in Western Armenia, where wood was in short supply. It was therefore necessary to use a system that allowed a multitude of shorter timber elements to be fitted together without reducing the covered area. This technique gave the crowned roof of the *glkhatun* its common name: *hazarashen* ('made of a thousand pieces'). In present-day Armenia, both quadrangular and octagonal types of dome were used. But most common were mixed types, in which the first two or three rows were octagonal, thereafter – once the span was sufficiently reduced – being replaced by quadrangular ones (Fig.5d).[14] While in the case of parallel layering, the shape of the plan was rectangular on all rows (more often even square), angular layering (with or without crossbeams) had the capacity to accommodate the constraints and asperities of the ground plan related to the contingencies of the geomorphology in mountainous regions. The angular crowned roof managed to absorb the irregularities of the underground room in its geometry (frame by frame), culminating in the ever-rectangular *yerdik*, thus reinforcing and defining the centrality of the dwelling (Fig.6). This flexibility allowed builders to accommodate the terrain and use the materials available in each region – in the north they generally worked with beech, hornbeam, or certain varieties of conifer, while in the south and west they mostly used poplar. Hence, the tectonic logic of the crowned roof structures was also the result of an economic principle of material use, which determined both the scale and the scope of each dwelling.

The *glkhatun* roof, as a rule, was constructed separately from the walls and rested on a wooden belt carried by wall pillars. In most cases, these were assisted by free-standing supports between them in the form of wooden posts – usually four to eight in a square-based *glkhatun*. In octagonal and mixed *hazarashen*, they were placed at the corners of the first polyhedron. Struts resting on pillars and in line with the axis of the dome were sometimes used to hold up the logs in addition to the vertical supports. These pillars were generally of square or circular trunk-like sections – in rare instances, actual tree trunks were used as pillars

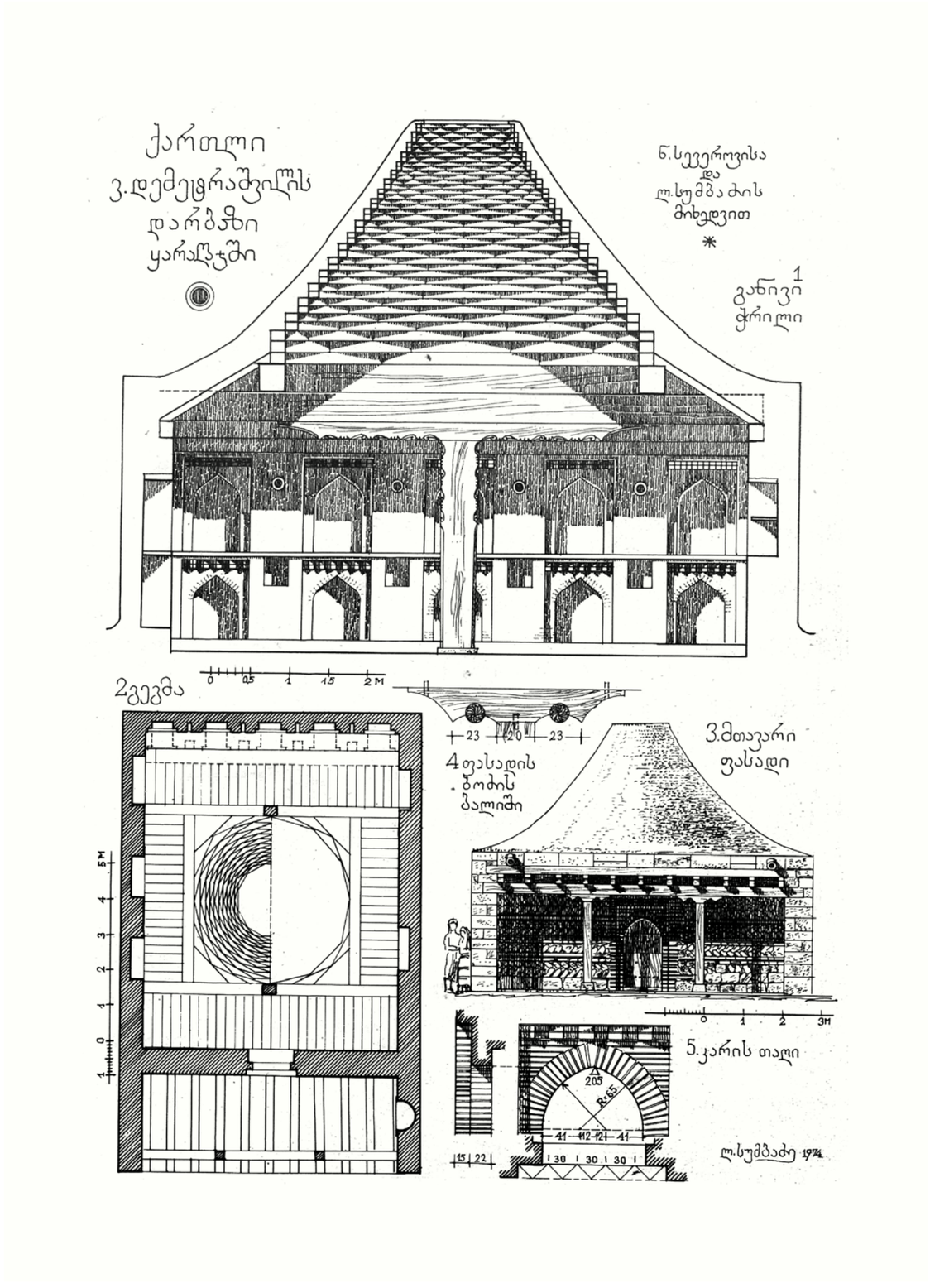
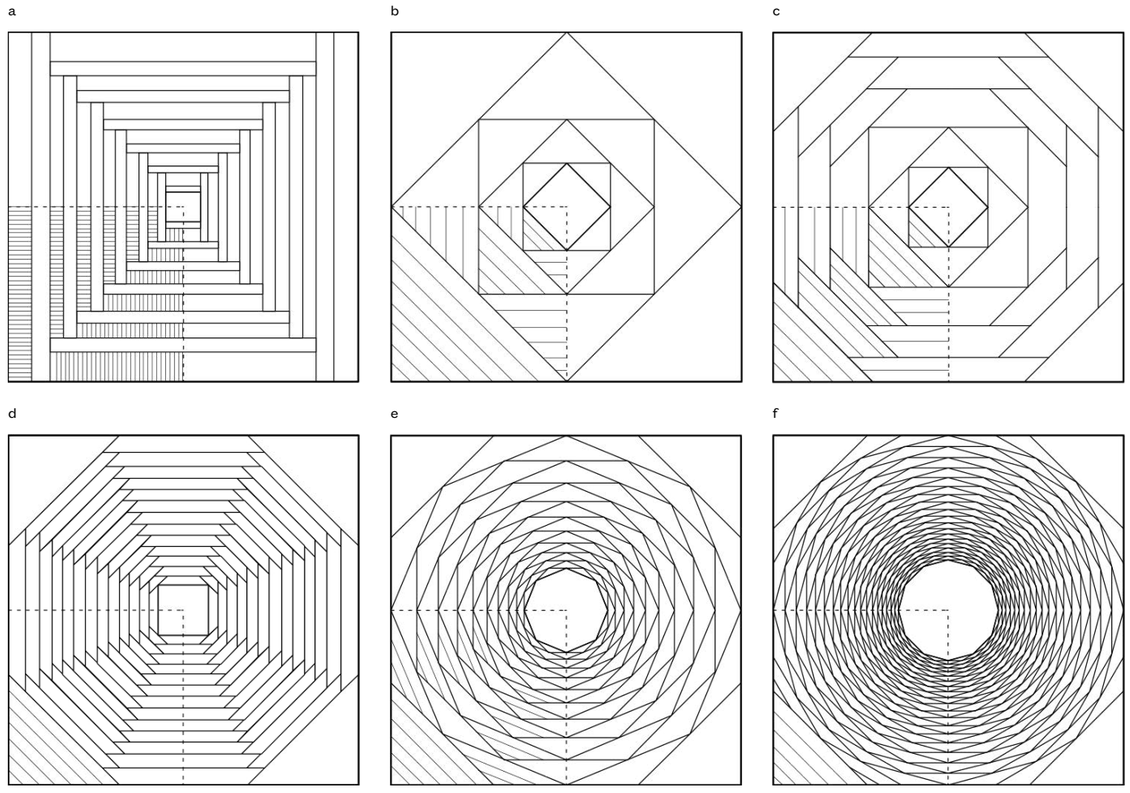


Fig.4 N. Severov and L. Sumbadze, The Demetrashvilis *darbazi*, in Karagadji (Kartli): 1. Cross-section, 2. Plan, 3. Façade, 4. Cushion of pillar in portico, and 5. Ornamentation of entrance door, 1922–27. Courtesy of Nodar Sumbadze. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, pl.9: see note 7.)

Fig.5 Ellen Hafner's variations of crown roof constructions: a. Quadrangular frames of parallel layering, b. Quadrangular frames of angular layering rotating 45° from the lower one, c. Quadrangular frames of angular layering with crossbeams (for the first three rows), d. Octagonal frames of parallel layering, e. Octagonal frames of angular layering, and f. Dodecagonal frames of angular layering. Drawings after Sumbadze [as Fig.1], pl.13. (Redrawn by Manuel Potterat from: Ellen Hafner, 'Hinweise zur Hasaraschenkonstruktion im armenisch-georgischen Raum', *Beiträge zur armenischen Baugeschichte*, vol.1, ed. Hartmut Hofrichter, Kaiserslautern: Universität Lehr- und Forschungsgebiet Baugeschichte, Geschichte des Städtebaues Denkmalpflege, 2001, 10, 13).



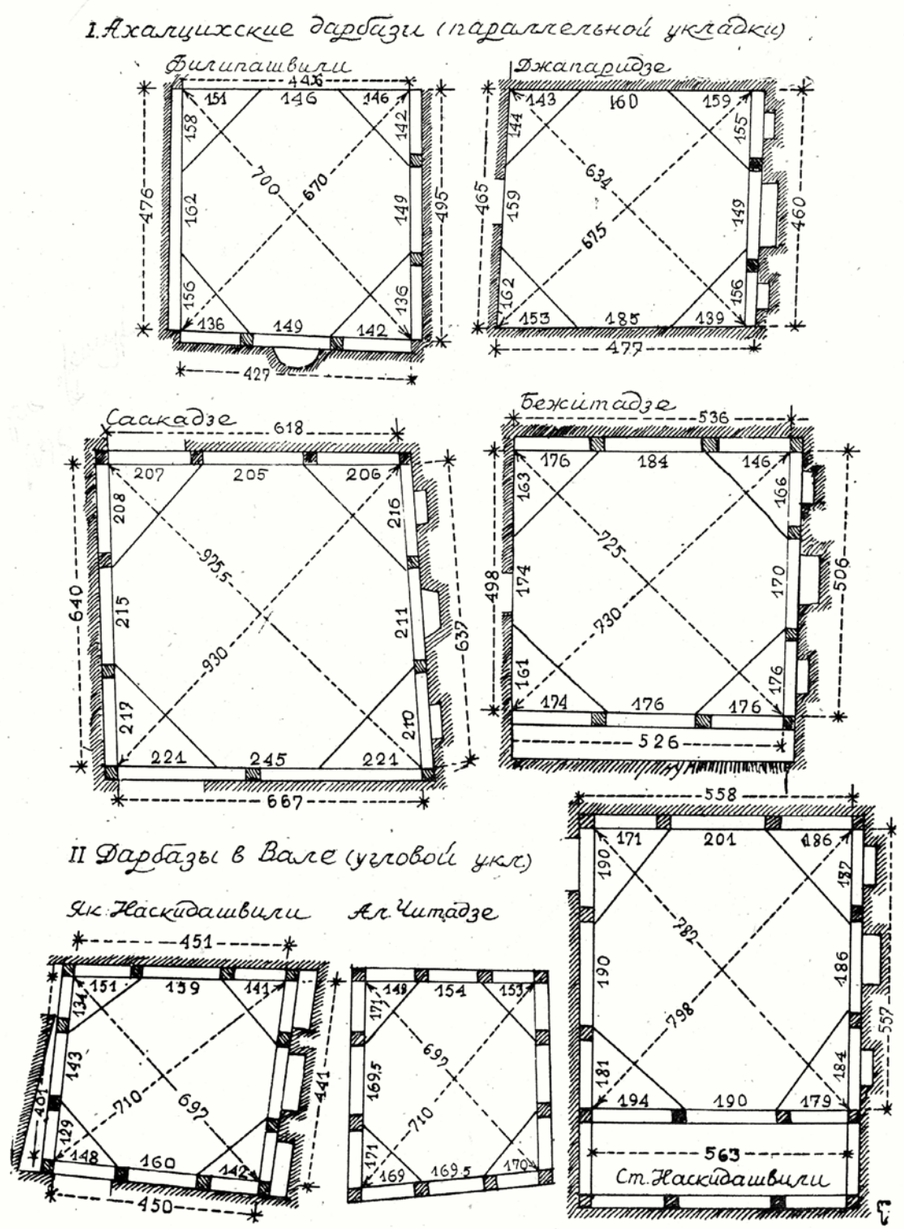


Fig.6 L. Sumbadze, The re-partition of *gvirgvinis* in Meskheti: 1. *Akhaltsikhe darbazi* of parallel laying, 2. *Vale darbazi* of angular laying, date unknown. Courtesy of Nodar Sumbadze. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, 58, Fig.17: see note 7.)

enlarged into a fork shape at the upper end to accommodate the beam (or *bodzi* in Georgian).[15] These pillars became columns when crowned with sub-beams or saddle beams. They played an important role in the architectural design of the interior and, in a region regularly subject to earthquakes, this feature became crucial.[16] Builders have always been suspicious of the load-bearing capacity of the walls, other than in some cases, mainly within present-day Georgia, where the walls were more prone to be seismically safe.[17]

Although all the pillars behaved similarly in terms of structural logic, there was always a free-standing vertical support in the *glkhatun*, usually located in the back row facing the entrance, which carried a high symbolic value. The 'mother column' (or *dedabodzi* in Georgian) consisted of a stone or wooden base on which rested the 'trunk' crowned by a saddle beam that served as a capital and further reinforced its presence within the inhabited complex. It was often supplemented by two arms protruding from the middle of the wooden shaft and connecting with the beam, evoking an anthropomorphic form. The 'mother column' became the main measure of the scale of the interior, with its height fluctuating between 2.3 and 2.8m.

The 'mother column' was covered with ornaments, carved deep into the wood by the master carpenters, or chiselled with elaborate motifs when the decorative elements were confined to the capital (Fig.7). In addition, the family would apply its own markings, starting with the year the edifice was built, as well as inscribing each new birth, thus recording the evolution of the extended family over generations. The 'mother column' became a unifying element with regard to the spatial organisation of the interior, but also a temporal figure within which important events were registered on the surface of the wood itself. Along with the hearth, the 'mother column' was a site of ritual and talismanic observances:

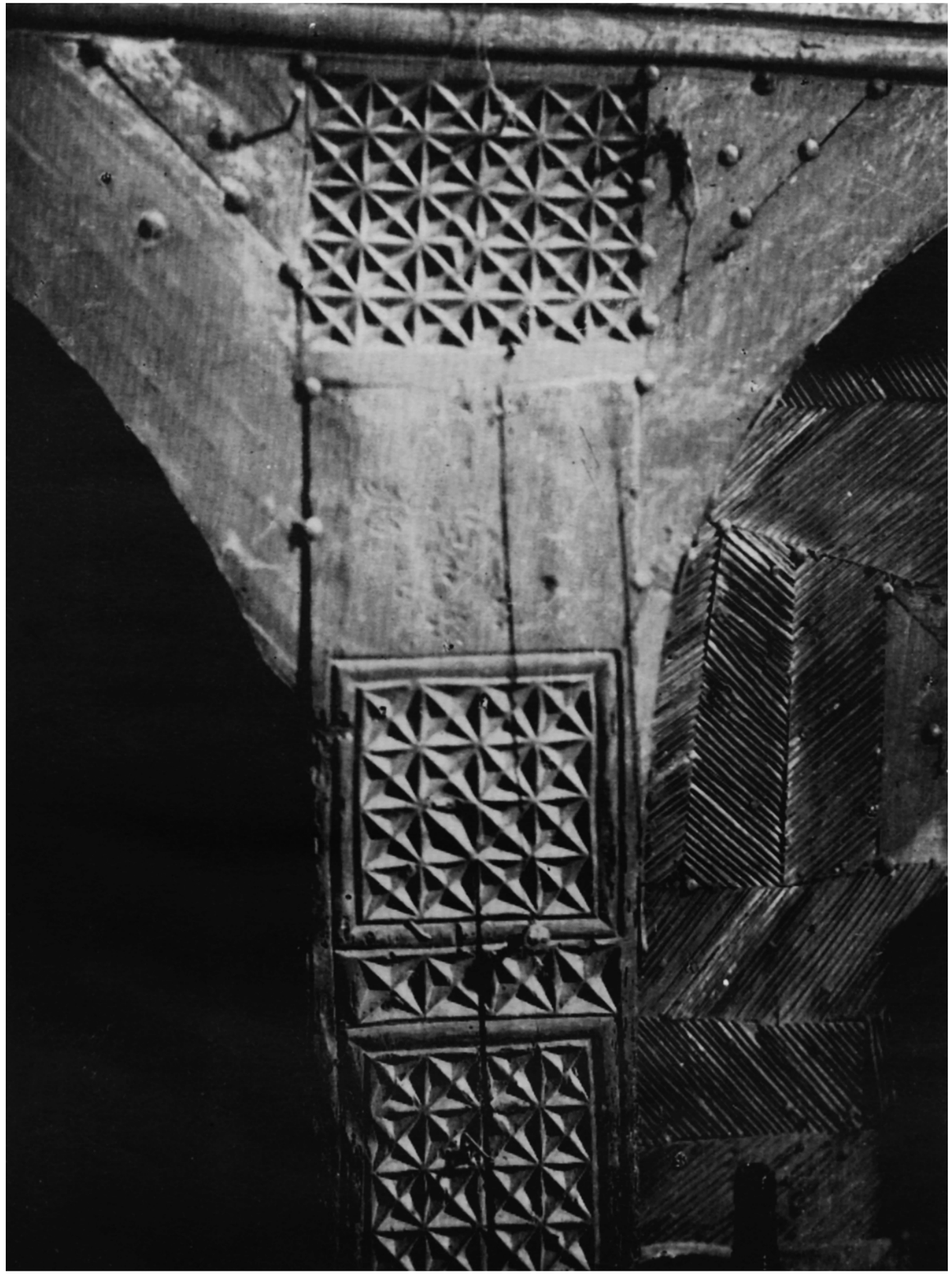


Fig.7 *Darbazovani*, owned by Saakadze, in Rabati. Upper part of pillar in large *darbazi*, 1938. Photograph courtesy of Nodar Sumbadze. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, pl.71: see note 7.)

‘a bride kissed it before leaving her paternal home, a newborn child was turned around it three times as a protection against evil, and the remnant of a shroud was tied to it to ward off other deaths’.[18] The family had an interpersonal relationship with the column; icons and amulets, tools and utensils were hooked or hung on it. Still today, the ‘mother column’ is used as a support for photographs and portraits of the family’s ancestors. When the family moved elsewhere, the ‘mother column’ was taken away as a member of the household and a repository of memories.

At night, the faces of the illuminated pillars described a circle around the hearth, delineating a safe place from shadows believed to harbour evil spirits.[19] By day, the ring extended to the angular belt formed by the layering of thick basalt rocks. Earth and clay interstices provided a gap between the blocks, enabling them to move during earthquakes without dislocating the whole structure. Apart from the retaining wall, a series of niches was sunk into the mineral shackle to relieve its weight. Pots or jugs were often inserted horizontally between two stones – resulting in small aumbries where the family would store items and relics dedicated to the saint of the home.[20]

In a unicameral dwelling, the only opening other than the *yerdik* was the entrance door. As such, it played a prominent role in an interior that could seem to exist as a world in and of itself. The threshold, often framed by the heaviest log, or a cyclopean block, marked the frontier between the intimacy of the domestic sphere and the wider community. The traditional village door was made from solid boards arranged vertically and bound together by two or three horizontal planks called *goti*, or ‘belt’ in Armenian. It had no handle on the inside and one had to push the ‘belt’ to open it. With its blank inner surface, the doorway acted as a drawing board, with the family using chalk on the wooden panel. The motifs often appeared as animal figures, invoking fertility and prosperity on the first

day of the year to favour the growth of livestock for the coming season.[21] Apart from the *yerdik*, the doorway served as an important boundary in relation to all intrusions or threats, both human and non-human. The oculus, and the *glkhatun*'s sole door, were the only architectural elements that involved iron. A latticework consisting of two ornamented rods crossing at right angles divided the light aperture into four parts – protecting the access from above, while preventing small livestock from escaping from the inside out. As points of tension between the intimacy of the household and the potential for external menace, both gateways were regularly protected by charms and ritualistic ceremonies, thus marking the passage from the underworld epitomised by the hearth to the surface:

> On Easter Monday, children might climb on to the roof and settle around the opening, where they would rub stones together as though milling grain. They would call to the mistress of the house through the opening, chanting 'to grind, to grind; what to grind?', the mistress of the house through the opening, chanting 'grind the mice, grind the scorpions' and so on, until the children had ground them all and thus rid the home of all the evil forces waiting to enter (Hovsepian 1892: 68).[22]

Dwelling

The *glkhatun*, as a single entity, could initially encompass the various domestic and livestock activities. The room could be as large as 50 to 100 sq.m and accommodate an extended family, with as many as 50 individuals spanning three or four generations.[23] However, with developments in animal husbandry, agriculture, horticulture and above all crafts and trade, it became essential to build houses with multiple rooms gathered under an aggregate of interlocking roof structures, the aim being, on one hand, to save building materials by using the existing walls and, on the other, to have a more economical heating system.[24] In addition, this *modus operandi* ensured that the branching and weaving of internal family ties was not impaired. Life in rural Armenian communities was patriarchal, with explicitly defined gender roles that had spatial implications. The domestic sphere was primarily governed by women, while the outer world was the domain of men: 'When the head of a family or his son died, it was said that "the door has closed", suggesting that only men were considered connected with the outer world. As one proverb puts it, "Man is the outer side of a house's wall, woman is the inner".'[25] These roles, although challenged by the forces of the last century, still prevail in some parts of rural Armenia. Once married, the son was expected to build new living quarters adjacent to his father's household. An additional incentive for several families to live together in the same dwelling was the tax system. Until the Soviet era, the Armenian population was assessed by the number of *yerdik*. According to architect Soghomon Vardanyan in his book *The Architecture of the Armenian Traditional House*, the village headman, much like the priest with his parishioners, would identify his fellow citizens by the number of *tsukh* (for smoke columns) spreading over the territory.[26] Thus, people had more interest in staying under the same 'roof' rather than dividing into several individual households.

I have found no trace of sketches or construction drawings prior to the ethnographic surveys supervised by G.N. Chubinashvili at the beginning of the last century. I can only suppose – based on my interviews with elders who witnessed the construction of a *glkhatun* in their youth – that the families were responsible for the design and the building process and that the pattern was repeated by generational familiarity, cell around cell, and adaptation to local contingencies and the material and human resources available at the time. Some villages had their share of craftsmen. Only wealthier families were able to hire skilled artisans to embellish parts of the structure. They would defray wages in the form of a trade, bartering livestock, or products made by the family in question. The proportions and construction elements were based on anthropometric measurements – a know-how that was the prerogative of craftsmen, as well as the male population.[27]

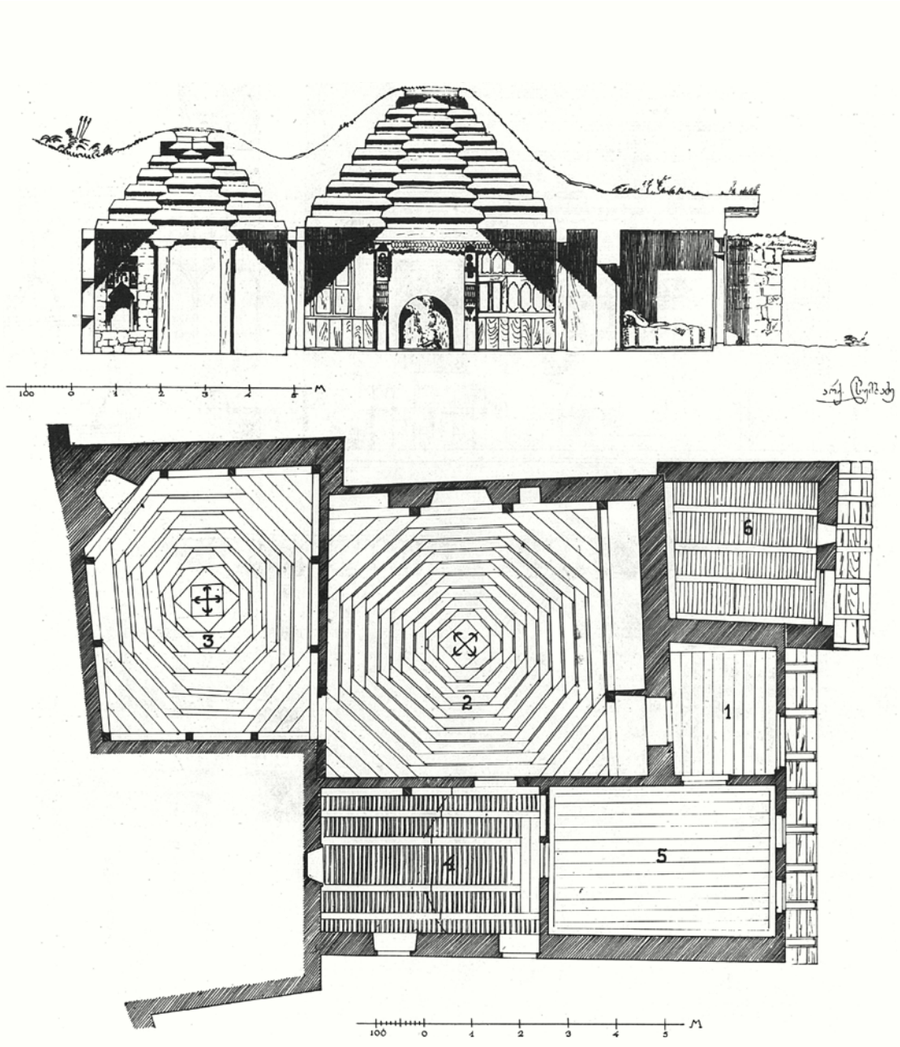
Apart from rare cases observed in the high mountain villages of the Zangezur range in southern Armenia, where oblong halls were covered by roofs comprising up to three *hazarashen*-type crowns,[28] the very structure of the *glkhatun* as a unicameral dwelling – whose characteristic lies in the vertical axis of the hearth upon which the composition of the interior was built – did not allow for expansion other than an incremental multiplication of its singular structural logic. Hence the inhabited ensemble, in which a group of nuclear families cohabited spanning several generations, was composed of a series of rooms (*tun* in Armenian [pl. *tner*], related to the notion of shelter, family, or home) supplemented by the designation of their respective function (Fig.8).[29] The central hearth crowned by a *hazarashen*, the *glkhatun*, which as previously noted literally means 'head house' or 'main house', was the epicentre around which a series of volumes was deployed for specific uses, such as the pantry, or the *tonratun* (bread house). The *tonir*, depending on the region, had become duplicated – its function as a bread oven was gradually removed from the hearth to become a room with a separate entrance, sometimes acting as a small workshop, where the family would work the wool and clay.[30] Among the variety of rooms adjacent to the *glkhatun*, the cattle shed had both an antiquity and a special status, not least for having its own type of roofing. Originally, animals were separated from humans by a simple wooden partition within the unicameral dwelling. The proximity and spatial interconnection of these two entities was based on the need to care for the livestock – the family's most precious asset. Moreover, as fuel was scarce, the possibility of using the heat generated by the animals, combined with the semi-buried nature of the dwelling, made it possible to withstand the harshness of winters.

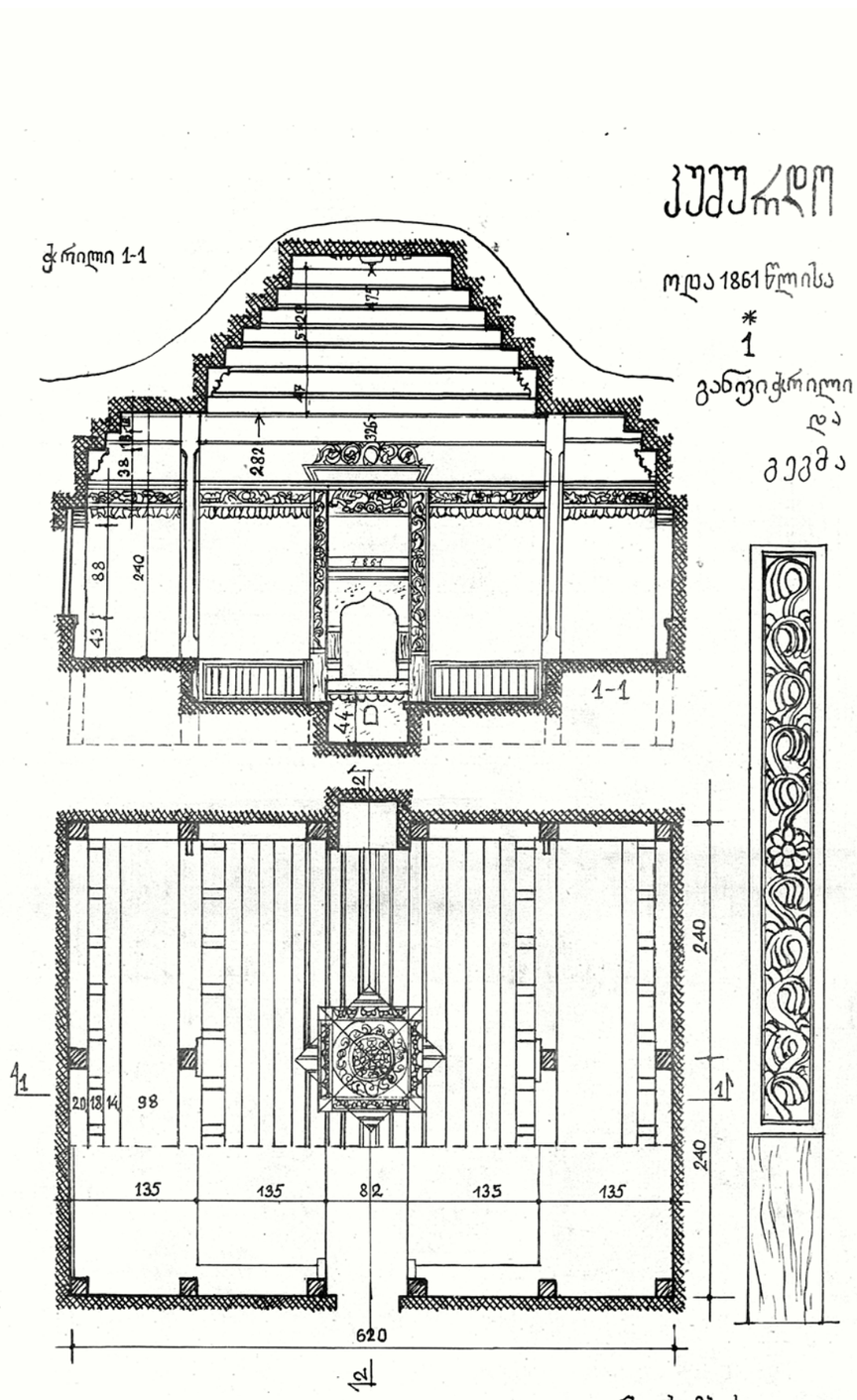
This partitioning was a step towards separating the livestock from the *glkhatun* inside a cattle shed. The latter often included a long narrow hall of 10–20 sq.m adjacent to or in the shed itself. The *gomi* (stable) *oda* (living room) was common in the harsher mountainous uplands where the alpine and sub-alpine meadows favoured livestock rearing as the main branch of the family economy. While the *glkhatun* was predominantly used as a cool room during the hot season, the *gomi oda* served as winter quarters because of its thermal properties and was traditionally considered a male privilege.[31] An additional fireplace was built in the wall opposite the entrance to the *oda*. Exploiting the depth of the room, stone or wooden benches covered with mats and thick carpets were arranged along the walls in two to three rows of steps, creating a descending topography with the new hearth as the centre. The largest *odaner* were crowned with a roof supported by two rows of columns forming three naves, subsequently reduced to one (Fig.9). The roof structure consisted of tiered wooden beams rising from the longer sides of the room to a flat plank ceiling sloping slightly to the north, thereby streaming light through a south-facing opening. From the outside, the roof of the *gomi oda* merged with that of the cattle shed, contrasting its linear geometry with the appearance of the *glkhatun*, more akin to the undulations of geological features.[32]

Until the beginning of the 20th century, the geographical range of the *glkhatner* spread from the plains of north-eastern Cappadocia, formerly in western Armenia, to the mountains of the South Caucasus. Steep slopes were most often used for settlement, while valleys and other fertile flatlands were devoted to agriculture. The first step in building was to carve out straight horizontal surfaces along hillsides,

Fig.8 Unspecified author, *Darbazovani* house, property of Licheni, in Rabati. Cross-section and plan of covering. Plan: 1. Entrance hall, *derepani*, 2. Large *darbazi*, 3. Small *darbazi*, 4. Living room *oda*, 5. Living room with windows [cropped from original], date unknown. Courtesy of Nodar Sumbadze. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, pl.65: see note 7.)

Fig.9 Unspecified author, Winter dwelling with corbelled vault, *takarebiani oda*, in Kumurdo, Djavakheti. Cross-section, plan with covering and pillar against the wall [cropped from original], 1954–68. Courtesy of Nodar Sumbadze. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, pl.78: see note 7.)





so that the ledge of the lower dwelling would serve as a platform for the upper one. This was practical and saved the builders from digging too deep into the rock, as the ground had to be cut halfway to the limit set by the earthen floor. Once quarrying was completed, a retaining wall – often made of large basalt blocks – served as a buttress. Such retaining walls also helped to prevent erosion, protecting the village and the community from landslides. As pointed out by Lori Khatchadourian in her analysis of the underground dwellings of Tsaghkahovit, which she regards as 'a material apparatus of political evasion', an important factor in choosing the craggier and more inaccessible locations for settlements was the folds of the rock, which afforded concealment from potential enemies.[33] People opted for a subterranean way of living as 'a solution to a collective concern for concealment', allowing them to escape attacks on the one hand, while taking shelter from the 'overbearing contrivances of extractive governments'.[34] The *glkhatun* thus formed a kind of vernacular political technology.

To fully appreciate the symbiotic relationship that inhabitants had with their land, it is worth recalling the evolution of the Armenian habitat prior to the semi-subterranean complexes of which the *glkhatun* is one of the prime examples. As a result of its geographical location, the population of Armenia has been regularly attacked by foreign powers who wanted to exploit this strategic node, and consequently it has sought refuge within the geological formations of its territory. As early as the ninth century BCE, the inhabitants of Urartu[35] were skilled builders who knew how to read and work with the rock, as evidenced by the traces and numerous chambers carved into the Rock of Van.[36] These cave dwellings took advantage of volcanic outcrops – a ceiling was levelled as much as possible, while a *yerdik* was pierced in the middle and stone walls were raised to delineate the living space. Conversely, the rocky relief would act as vertical partitions and an artificial crust of earth was laid over it to form a shelter. The 'natural' caves were supplemented by rooms either cut or built into the soft rock. Some dwellings benefited from the presence of natural pilasters, carved into round columns. In rare cases, people even managed to dig in a *tonir*. Families sculpted the rock over centuries, enlarging the geological chambers, by chipping, chiselling, cutting, displacing and bending the earth according to their needs. Although villagers moved away from the mountains, the semi-subterranean *glkhatun* complexes did not replace but offered an alternative to caves buried in the meandering cliffs (Fig.10). In Armenia, people never really ceased to inhabit the cave dwellings – in Zangezur, for instance, families would have lived in them until the 1950s. After the Sovietisation of Armenia[37] and the subsequent period of industrialisation – which brought equipment and construction materials from Russia – villagers started to build 'modern' houses down in the valley more suited to contemporary comfort and convenience. Nevertheless, they would continue to use the caves as storage facilities, and even as refuges in times of armed conflict.[38] Thus the mountain remained a unique reference in the landscape, offering its protective embrace, while at the same time being a source of deluge and destruction.

The mountain

Four and a half million years ago, a large fissure running northwest to southeast across the Armenian plateau tore through the surface. Vast quantities of magma and semi-molten basaltic rock, moving intermittently through the earth's crust, were expelled and a chain of volcanoes was born. These sub-aerial[39] eruptions produced plumes of ash that rose more than 15km into the atmosphere. The volcanic activity eventually converged around a single hearth. As a result, the eruptions accumulated strata, giving rise to a larger and slightly rounded shape made of hardened lava and tephra.[40] By the end of the eruptions, a conical dome with a steep profile appeared, wrapped in thick layers of ash and towering up to 5,165m.[41] While gradually receding from the summit, the eruptions moving along the fault formed a trail of small lava domes, one of which still rivals the main one for the elegance of its curves.

The twin-peaked mountain, known to the world as *Ararat* – after the Ayrarat province where Armenian kings reigned between the fourth century BCE and the fifth century CE – was called '"Azatn Masis", meaning "holy", "high-born", and "free" in Old Armenian'.[42] Masis was considered a creative force that embodied the hearth in foundation myths. Taboos concerning the ascent of the mountain were foreseen in early Assyrian writings, which understood the horizontal datum formed by a ring of clouds as a boundary between worlds – whose 'edges were as sharp as iron daggers' and 'which even heavenly birds could not reach'.[43] The weather veil enshrouded eternal snow in a mystery. Volcanic domes became the realm of celestial bodies, where dying suns would fall every evening and heroes arise in the morning. If the heights were sacred, the foundations were tied to dragons, whose gases and fumes billowed from the crater mouth just below the summit,[44] further reinforcing the 'inhabited' nature of the mountain, which rattles, roars, erupts and shakes the earth. A third realm of the 'world mountain',[45] running between the holy summits and the dragon-filled base, constituted the inhabited middle ground: undulating slopes with fertile soil, carved by rivers and streams flowing from the eternal snows, allowing the irrigation of fields and the work of agriculture and horticulture. These three worlds, although kept apart, remained symbiotically interdependent, and from them life drew its meaning and history its momentum.[46]

The tripartite structure of the mountain is not dissimilar to the sectional realms of the *glkhatun*, centred around the 'Cosmic Tree' allegory and epitomised by the vertical axis of the smoke column – a parallel that places the *glkhatun* in a temporality and a spatial continuity more akin to that of the volcano than to any other national or political domain. By its empirical and cosmological nature, the *glkhatun* is fundamentally trans-scalar: all the more so if one observes the geographical distribution of the semi-buried vernacular structures identified in Marutyan's 'Historical-ethnographic region: main types of residential houses' map.[47] These make explicit their relationship with the larger volcanic formation that shaped the Caucasian isthmus bridging the Black and Caspian Seas – a land between geographies, which since ancient times has been crossed by infrastructures of movement. In addition to supplying water to the lowland civilisations living at their feet, the mountains also bore an important source of matter. Tuff made of volcanic ash and basalt formed by the rapid cooling of lava has always been the primary basis for human construction and dwellings in Armenia. Because of its relative density and porosity, this igneous rock possessed a thermal capacity in the face of the region's extreme temperature range of up to 30°C: 'As thermally rechargeable materials, the basalt blocks that lined Tsaghkahovit's earthen dugouts were continuously at work, intercepting and storing solar energy and returning that heat to their surroundings at cooler times thanks to their vibrant mineralogies, densities, and emissivities.'[48] Thus, the cosmogonic image proposed by the *glkhatun* and its geological *Doppelgänger* – centred around the hearth and the creative impulse of fire – invites one to consider the poetic and imaginative dimension of landscape as a mythological source of identity, while the material flows between man and the environment, combined with the geological vitality of volcanic land, allow us to consider the Ararat landscape as a 'form of commons'.[49] Despite being sporadically perceived as a potential source of misfortune – involving the occurrence of natural disasters – the mountain is also an element of positive value, which animates the social, cultural and political horizons of the inhabitants (Fig.11).

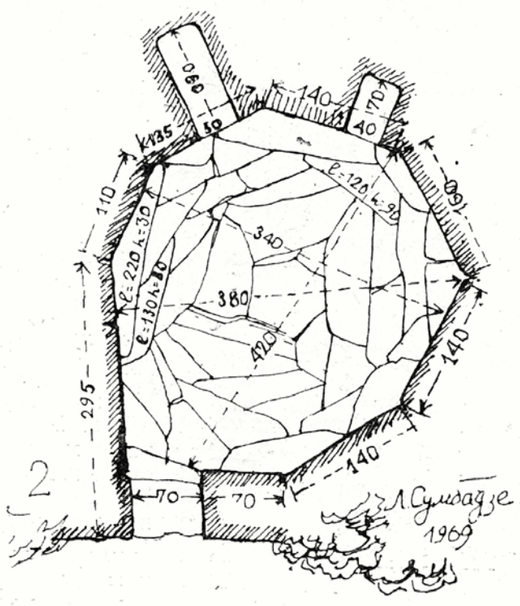
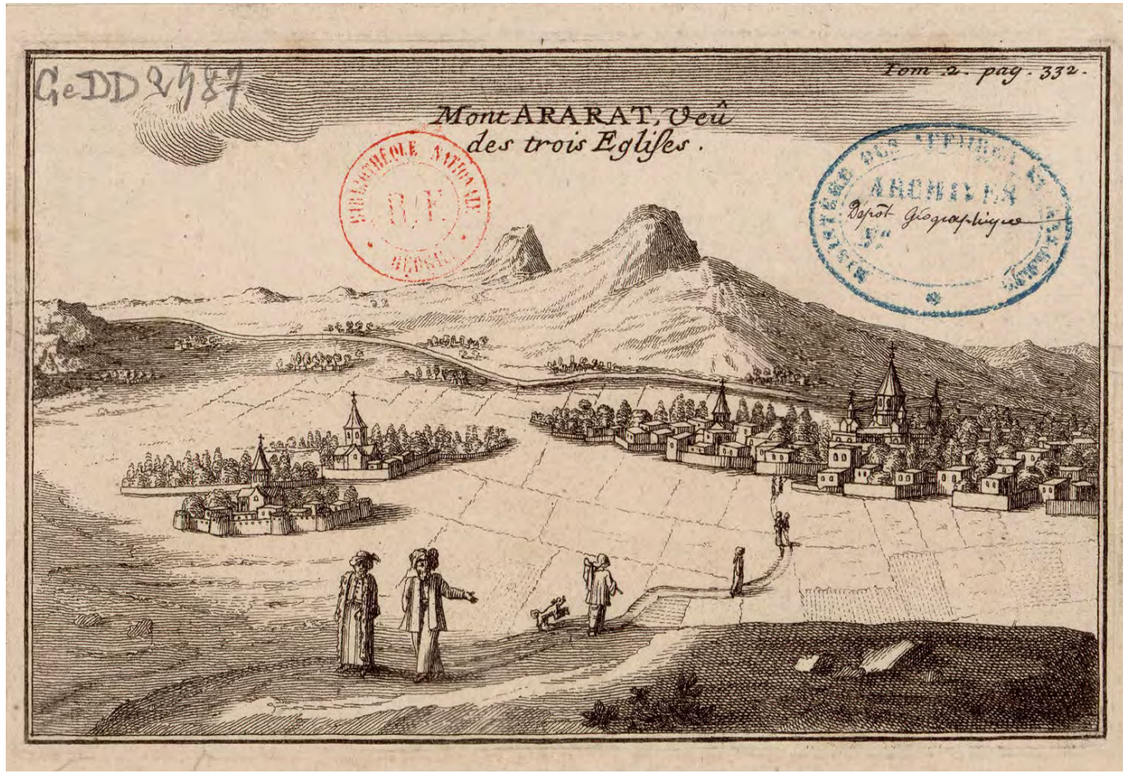


Fig.10 L. Sumbadze, Semi-subterranean dwelling in the village of Rveli, Borjomi Gorge. Section and reflected ceiling plan, date unknown. Courtesy of Georgian National Academy of Sciences. (From: Sumbadze, *The Architecture of the Georgian Folk Dwelling Darbazi*, 132, Fig.72: see note 7.)

Fig.11 Joseph Pitton de Tournefort, *A View of Mount Ararat from the Three Churches* [*Mont Ararat: Veû des trois Eglises*], 1718, Collection d'Anville; 06774. (From: Joseph Pitton de Tournefort, *A Voyage into the Levant*, 1718, 248–49.)



Conclusion

We have seen that different microclimatic conditions, the impact of available materials, economic structure and the social status of inhabitants (including income and family size) have influenced the specificity of the *glkhatun* and contributed to the great variety in the design of the underground inhabited complexes. While it is clear that the understanding of the terrain had a real impact on the choice of location and the nature of the settlements, there is very little trace of what happened 'on the surface' across the nearly 3,000 years of existence of these semi-buried structures, except for the rare photographic archives and travellers' accounts. Of these, my personal favourite is General von Moltke's recollection of his 1851 journey to Armenia – already chronicled by Vardanyan, as well as Marutyan (I use the current translation):

> Often a traveller searching for the village would already be there standing on the roof of a house. Only when the forelegs of his horse became stuck in the chimney [smoke hole] or when, taken unawares, he fell inside the house and found himself settled by the family circle, did he figure out that he had arrived.'[50]

The remaining *glkhatner* that survived the 'dark and cold years' and were not retrofitted are abandoned. Lost, they easily merge with the geomorphology of the volcanic hills that form the Armenian high plateau and, with the passing of winters, sink into oblivion. It is this lack of information that draws my attention to the links and interrelationships between the *glkhatner* and their geological context. Looking at the photographs of the Nerkin Getaschen, in the region of Gegharkunik (Figs 12, 13), one comes to realise that the *glkhatuns* are not scattered across the landscape – they are the landscape.[51] It is here that the 'dwelling perspective' elaborated by Tim Ingold in his essay 'The temporality of the landscape' comes into play. Since the distinction between 'taskscapes' and landscape has been dissolved, the landscape itself is shown to be fundamentally temporal, changed by the perceptions of time and memories that lie hidden beneath.[52] Hence the landscape is not to be regarded as a set condition to be preserved, but rather as a living organism, whose dynamics and movements have always been entangled with both human and non-human activities, as well as the unpredictability of geomorphologies.

Could we then consider the whole of the *glkhatun* structures and the tangle of interior spaces that form these underground settlements as material drawings in their own right? This presupposes an architecture of attuning, one that revealed, as much as rewrote, the geological clues of the undulating terrain – supporting the argument that, alongside wind, water, gravity and volcanic actions, human dwelling is a geomorphological force. The human lineaments, by virtue of their plasticity and agility, blended into the stones, cutting, displacing, shaping the topographical score, and thereby embraced the rock as a source of habitation in itself. The *glkhatun* could therefore be understood as the outcome of a geological imagination that resulted from the material potentials read into the curves, the slopes, the ridges of foothills and rugged mountains that suddenly come into contact with the sky. The complexity of the ground and the underlying structure beneath the earth were reflected in the layout of the dwelling, which grew in accordance with the incremental development of the families. The impulse, the orientation, the conclusions that the inhabitants drew from the rock, would support the development of the settlement and its security, as well as its wealth. A ritual, recalled by Marutyan, comes to mind when I imagine the passage and movement generated by the sprawl of these communities. If the family structure expanded via the son, in the form of aggregates gradually added to the paternal household, it was through the newly married daughter that the communities spread across the land. The bride, as in the Vahagn myth, carried a handful of embers from the *tonir* in her former home, to be scattered in the groom's hearth.[53] *Tonirs* became sole coordinates distributed over the territory, weaving a network between dwellings visible only by the smoke columns rising from the new topography. The sequence of hills built by this domestic igneous process would cover the old land surface with crowned roofs and dome structures – defining the ramifications of blood ties within a constellation of fire, while marking the evolution of several generations in the landscape.

Today, the *tonir* no longer illuminates the room, now invisible, as it is filled with concrete to increase the floor area. The fireplace has ceased to be the compositional core of the inner space. Although far from being neglected, the known and regained *glkhatner* are still used by families, most often converted into storage facilities. The *yerdik* is blinkered by corrugated sheets over it, protecting the original roof while avoiding the maintenance of its surface. The old earthen crust, now sheltered, is transformed into an open-air storeroom where tools and sometimes even fruit for drying are laid out. Windows are cut into the thick basalt walls, allowing the interior habitat to breathe and sunlight to seep in, while the pathways to the underworld and the vault of heaven are sealed shut (Figs 14, 15). Although perforated, the thermal resistance of the semi-buried mineral skin continues to shield the inhabitants from the stifling heat and perpetuates the tradition of using *glkhatner* as summer quarters and open-air kitchens.

When it comes to reinforcing a breach, enlarging the main room, or even building a lateral extension, cement or concrete are typically used. Villagers, when they can afford it, do protect their traditional home, by adapting, repairing, or tinkering, with the ingenuity of the *bricoleur* (Figs 16, 17). However, more often than not, *glkhatner* are destroyed, replaced by new constructions. Indeed, the weakness of their foundations, unable to carry an additional floor, coupled with the lack of cross-ventilation and the complexity of their wooden dome, making any kind of fixing expensive and difficult, are leading to the demise of the subterranean structure.

Although distorted, the unicameral structure of the *glkhatun* and their *hazarashen* has endured for thousands of years. There is a resilience and an agility in their design that compels admiration. The *glkhatner* evolved with the geomorphology of the place – from the hills of central Anatolia to the highlands of Afghanistan[54] – crossing cultures while shaping their landscape. The allegiance of the *glkhatun* is to the land, the mountains and the sky rather than to any form of political division. It is a terrestrial architecture that derived its spatiality and temporality from the entanglement of geomorphologies with taskscapes, drawing its shape and topographic profile in the collective memory across generations. Even during the industrialisation of the Soviet era – which radically altered both urban and rural landscapes, propelling people to the surface – the geometric assemblage of the *hazarashen* could be seen reinterpreted in stone or reinforced concrete, particularly in public commissions, such as the Museum of Ethnography of Armenia designed in 1968 by Rafael Israelyan. But the architectural testimony of this vernacular heritage that touches me the most, thanks to its radical interpretation of the *glkhatun* (which it seems to me to reference), is Tsitsernakaberd, the Armenian Genocide Memorial, inaugurated in 1967 and designed by Arthur Tarkhanyan and Sashur Kalashyan (Figs 18, 19). The architectural ensemble is formed by a 44m-high peak and a dome made up of 12 granite *stelae*, both encircling the sky and framing the eternal flame around which the pilgrims reunite. The two creations, overlooking Yerevan and the Ararat Valley, are reminiscent of the volcanic twins looming in the distance. In the age of the Anthropocene and as Armenia once again finds itself in the grip of armed conflict, the unique architecture of the *glkhatun* is not only a marvel of landscape implementation that takes advantage of the geological reading from which it was born, but is also something that raises political awareness and implies a territorial dimension which, by virtue of its temporality, is transnational.

Fig.12 General view of Nerkin Getaschen (Gegharkunik), 1938. Photograph courtesy of the Photoarchive of the State Museum of Ethnography of Armenia.

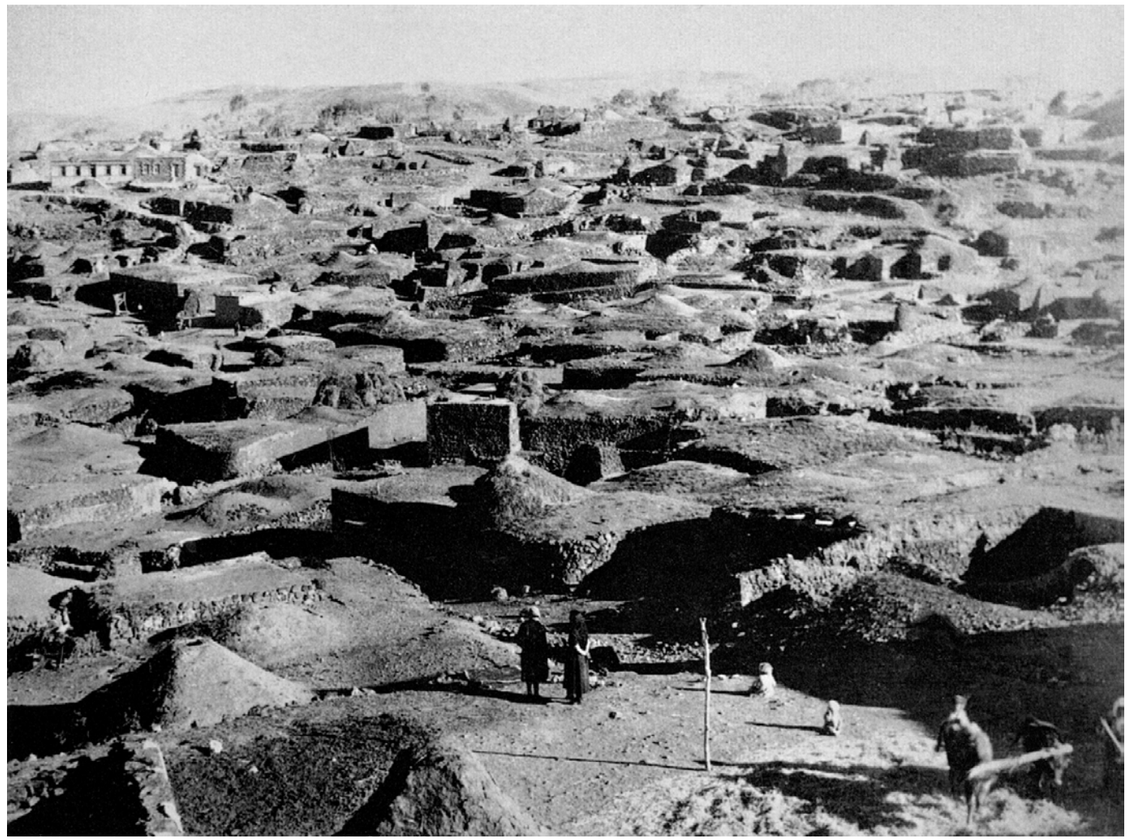


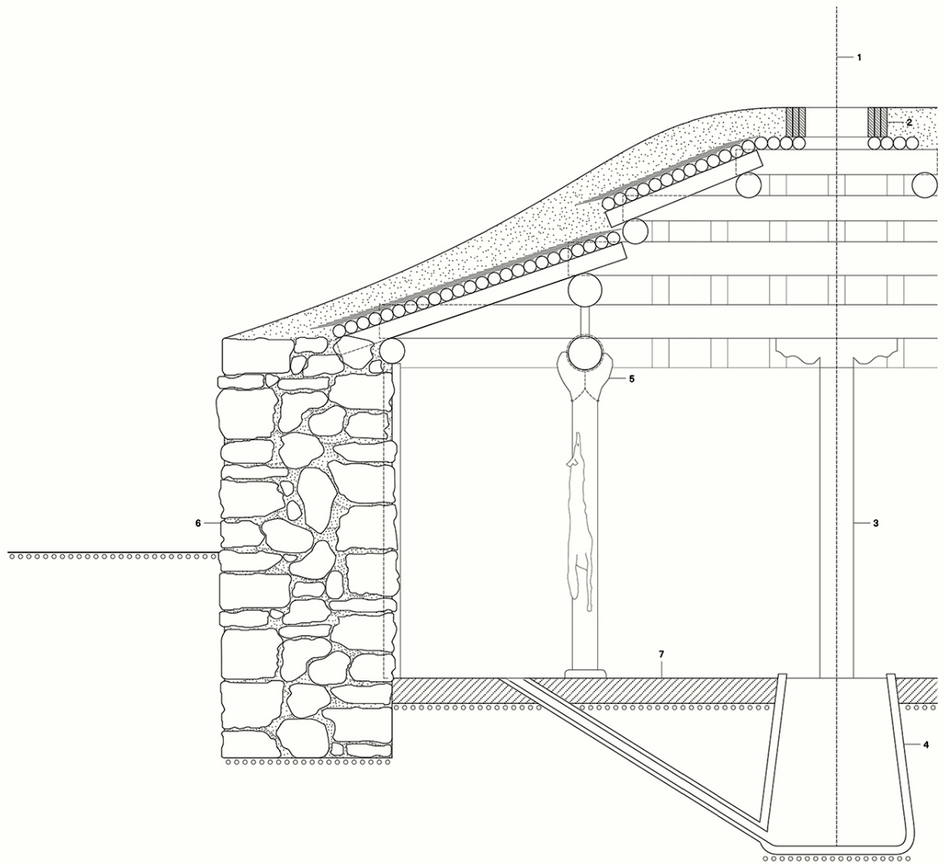
Fig.13 Traditional *glkhatun* ('head house') from the village of Tzak Kar (Gegharkunik), 1938. Photograph courtesy of the Photoarchive of the State Museum of Ethnography of Armenia.

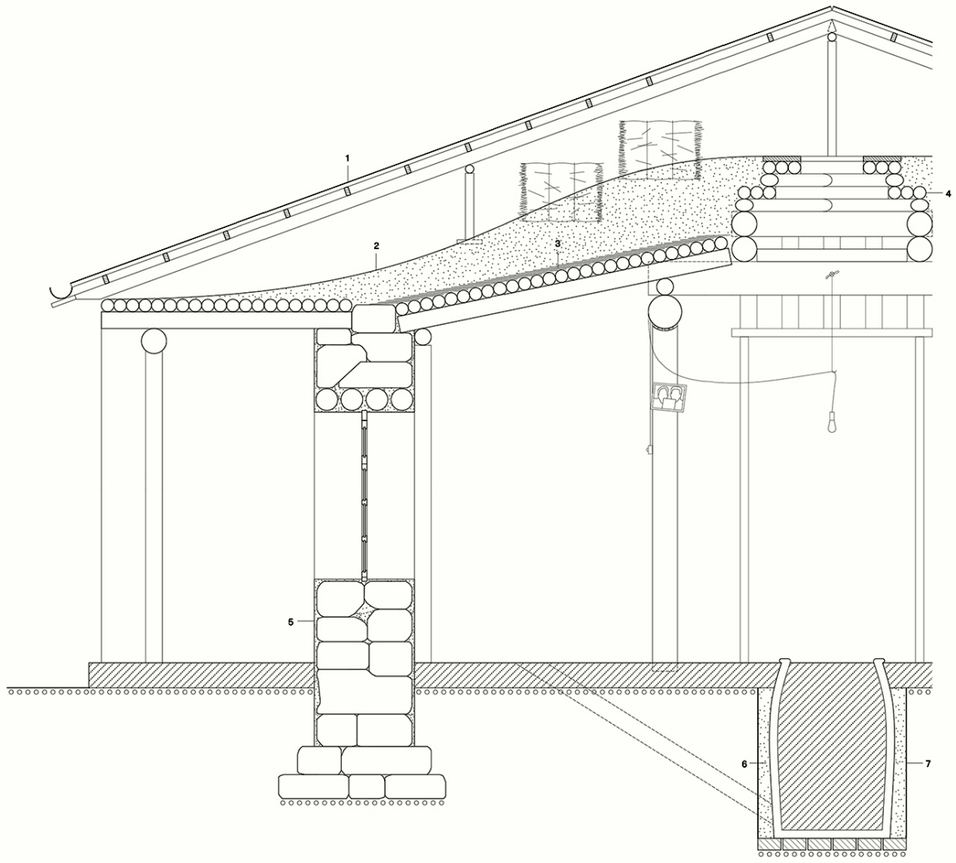
Fig.14 Rhett Zhiyu Lin, Dwelling: *glkhatun* construction, Touch Ground, Studio Othenin-Girard, HKU, 2021.

Fig.15 Rhett Zhiyu Lin, Dwelling: *glkhatun* retrofit, Touch Ground, Studio Othenin-Girard, HKU, 2021.

Fig.16 (Overleaf left) Soghomon Vardanyan, Several types of dwellings with closed entrances, date unknown. Courtesy of Grakan Hayrenik JSC. (From: Soghomon Vardanyan, *The Architecture of the Armenian Traditional House*, 60, Fig.36: see note 27.)

Fig.17 (Overleaf right) Interior of the Soghoyan family traditional house (*elkhaum*) in Martuni (Gegharkunik), date unknown. Photograph by Sam Sweezy, courtesy of the artist.





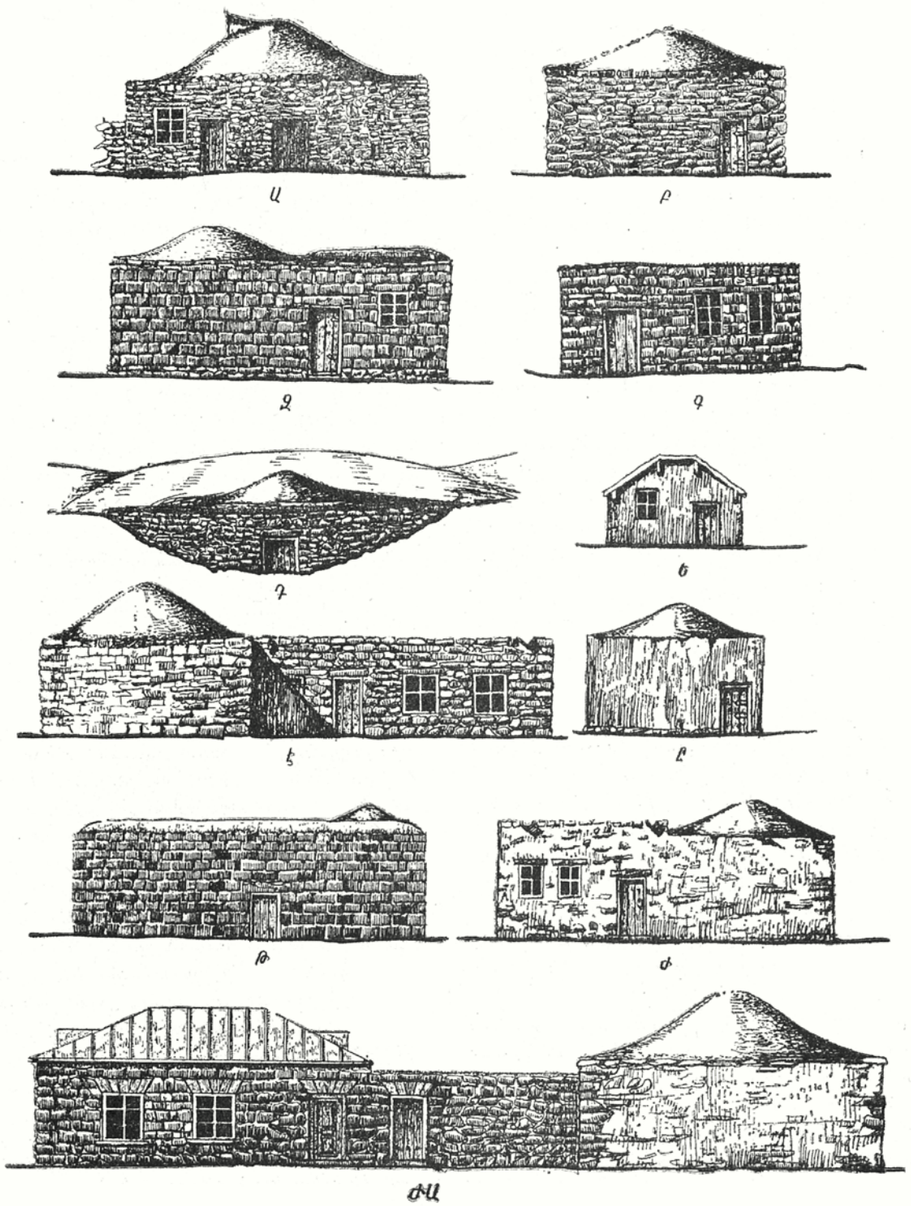

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Fig.18 A. Tarkhanyan and S. Kalashyan, section-elevation, Obelisk in commemoration of the 50th anniversary of 'the Genocide' in the city of Yerevan, date unknown. Drawing scan courtesy of Anahit Tarkhanyan/AGMI collection.

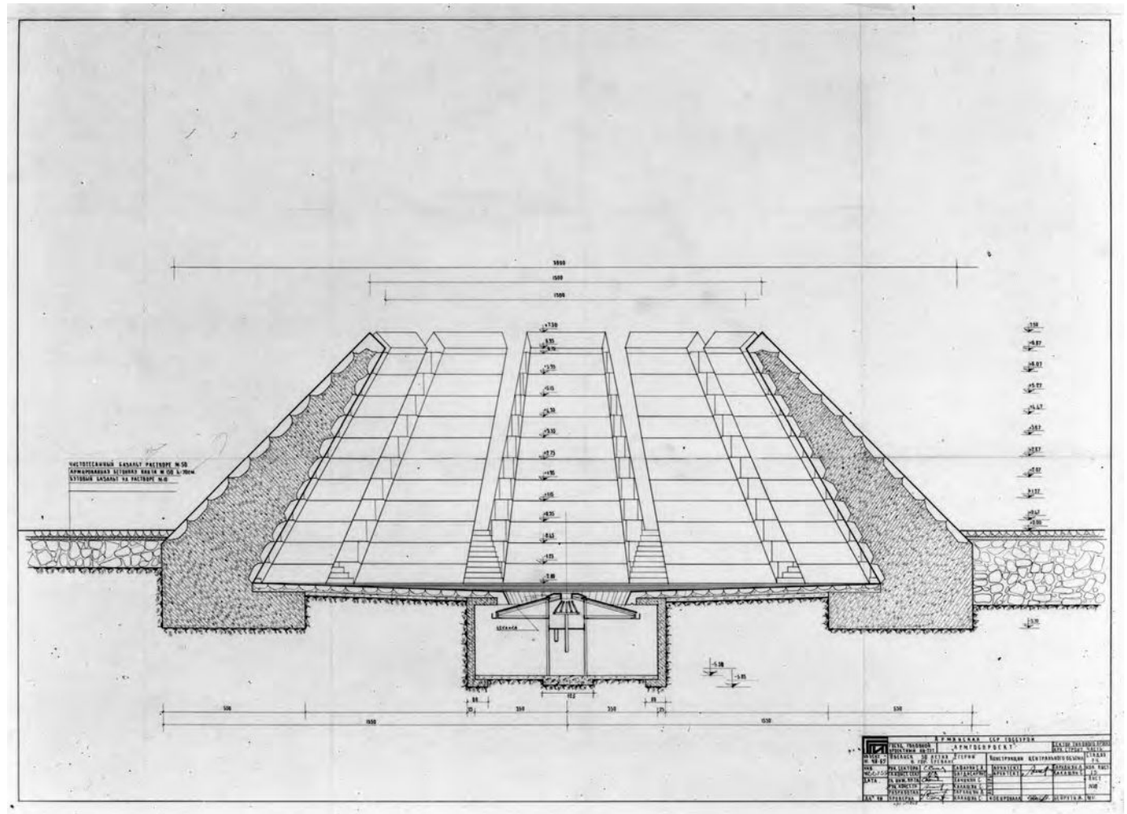
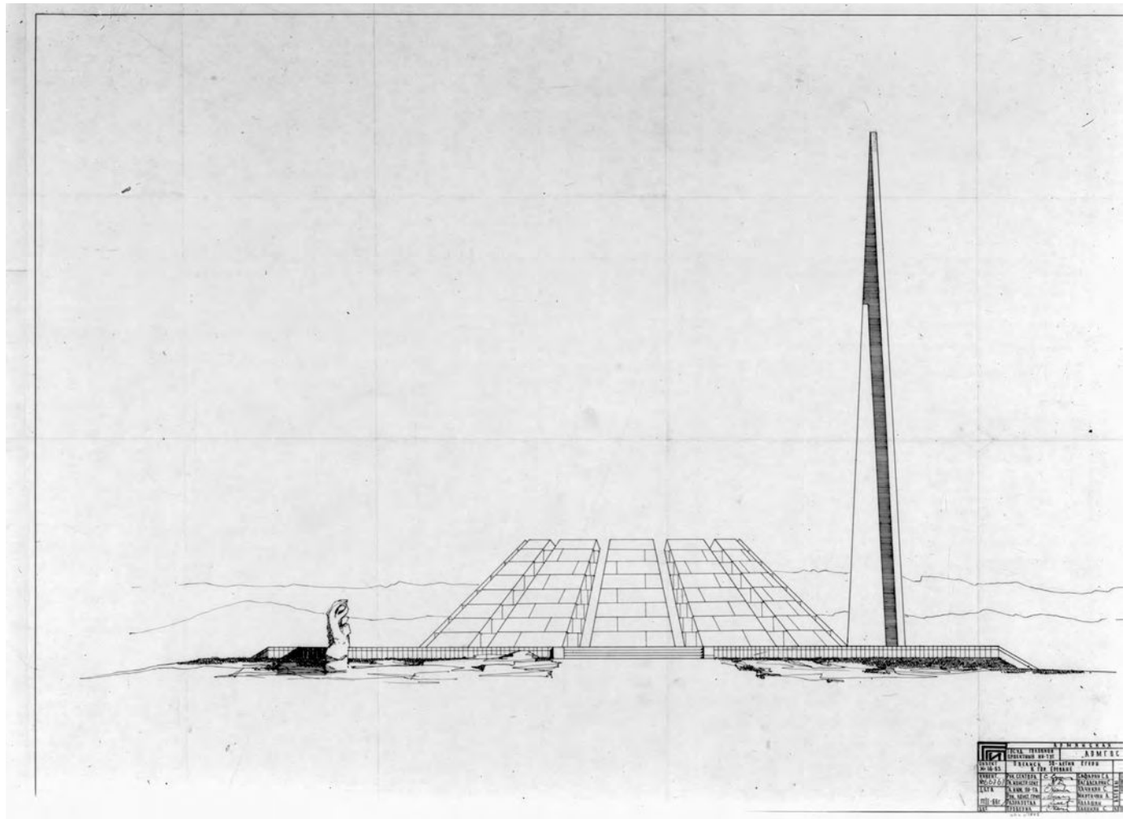


Fig.19 A. Tarkhanyan and S. Kalashyan, elevation, Obelisk in commemoration of the 50th anniversary of 'the Genocide' in the city of Yerevan, date unknown. Drawing scan courtesy of Anahit Tarkhanyan/AGMI collection.



My gratitude goes to Harutun Marutyan for his generous support in sharing his personal archive, and to Hasmik Amiryan and Irene Chaboyan for their diligence and help in translating the primary sources. Although I have had access to the original texts of Lalayan, Demirkhanyan and Frolov, I have chosen to make use of the excerpts already translated and quoted in Petrosyan's and Marutyan's essays.

1 The Vahagnian song is well known to Armenians as one of the founding myths, as it is already taught in the 5th and 9th grades. These lines are adapted from the translation of Sargis Harutyunyan, *Myths and Legends of Ancient Armenia* (Yerevan: Arevik publishing, 1987), 38.

2 The closure of the Turkish-Armenian border in 1994, as a result of the Nagorno-Karabakh conflict between the former Soviet Republic of Armenia and Azerbaijan – an ally of Turkey – severed the right of access to Armenians. However, in July 2022, an agreement seems to have been reached on the process of opening the land borders between Turkey and Armenia, for the nationals of third countries.

3 The economic crisis following the fall of the USSR plunged Armenia into a severe energy crisis, resulting in the systematic harvesting of all timber to provide fuel to survive the harsh winters of the 1990s, until the reactivation of the nuclear power plant.

4 Hamlet Petrosyan and Harutyun Marutyan, 'Clay', in *Armenian Folk Arts, Culture and Identity*, eds Levon Abrahamian and Nancy Sweezy (Bloomington: Indiana University Press, 2001), 120–21.

5 Harutyun Marutyan, 'Home as the world', in Abrahamian and Sweezy, *op.cit.*, 91.

6 Petrosyan and Marutyan, *op. cit.*, 122.

7 Longinoz Sumbadze, Архитектура грузинского народного жилища дарбази (*The Architecture of the Georgian Folk Dwelling Darbazi*) (Tbilisi: Metsniereba, 1984), 67.

8 'Newborn children were often baptized in a large bread-rising bowl placed over the *tonir*, and women gave birth lying in the ashes in order that the "hearth angels" might help in their labor.' Marutyan, *op. cit.*, 93.

9 Ara R. Demirkhanian and Boris A. Frolov, Первобытное символика вертикали ('Primitive symbolism of the vertical'), Պատմա-բանասիրական հանդես (*Historical-Philological Journal*), vol.3 (1985), 83–84.

10 'A newborn child was sometimes also secured by ropes and hoisted up through the *yerdik* to protect it from the evil eye. In a different ritual, the husband of a woman in difficult childbirth would climb onto the roof and throw an egg (evidently symbolizing the birth of the child) through the ceiling opening'. Marutyan, *op. cit.*, 88–89.

11 *Ibid.*, 86.

12 The term 'Western Armenia' refers to the eastern region of present-day Turkey (formerly the Ottoman Empire), which historically formed part of the lands inhabited by the Armenians, along with Eastern Armenia – which covers present-day Armenia.

13 'Among the Colchians in Pontus, where there are forests in plenty, they lay down entire trees flat on the ground to the right and the left, leaving between them a space to suit the length of the trees, and then place above these another pair of trees, resting on the ends of the former and at right angles with them. These four trees enclose the space for the dwelling. Then upon these they place sticks of timber, one after the other on the four sides, crossing each other at the angles, and so, proceeding with their walls of trees laid perpendicularly above the lowest, they build up high towers. The interstices, which are left on account of the thickness of the building material, are stopped up with chips and mud. As for the roofs, by cutting away the ends of the crossbeams and making them converge gradually as they lay them across, they bring them up to the top from the four sides in the shape of a pyramid. They cover it with leaves and mud, and thus construct the roofs of their towers in a rude form of the "tortoise" style.' Vitruvius, *Ten Books on Architecture*, Book II, Chapter I (IV), trans. Morris Hicky Morgan (New York: Dover Publications, Inc., 1960), 39.

14 Sumbadze, *op. cit.*, 43.

15 *Ibid.*, 242.

16 *Hazarashen* structures maintain a high degree of stability in the event of earthquakes. This is due in part to the fact that any displacement of the wooden frame or beam layers in relation to each other is counterbalanced by the load of the roof (which includes its own weight as well as that of any earth and snow) under the effect of horizontal forces. In addition, the corner joints provide a certain tolerance to the structure. The supports of the frames and beams are also mobile, so that an uneven lowering of the construction does not necessarily lead to the structure collapsing. See Ellen Hafner, 'Hinweise zur Hasaraschenkonstruktion im armenisch-georgischen Raum', *Beiträge zur armenischen Baugeschichte*, vol.1, ed. Hartmut Hofrichter (Kaiserslautern: Universität Lehr- und Forschungsgebiet Baugeschichte, Geschichte des Städtebaues Denkmalpflege, 2001), 15. According to the testimony of Fr. Baumhauer, recalled by Longinoz Sumbadze, not a single *darbazi* was damaged in the catastrophic Gori earthquake of 1920 (the shock had a surface wave magnitude of 6.2). In rare instances, walls had collapsed but the ceilings and the crowned roof had remained unshaken. Sumbadze, *op. cit.*, 252.

17 Wooden braces are laid every 0.7 to 1m-high around the perimeter of the building and are connected from the outside and inside by transverse battens.

18 Marutyan, *op. cit.*, 86.

19 *Ibid.*, 93.

20 *Ibid.*

21 *Ibid.*, 87.

22 *Ibid.*, 89.

23 *Ibid.*, 91.

24 Sumbadze, *op. cit.*, 11.

25 Marutyan, *op. cit.*, 87.

26 Soghomon Vardanyan, Հայկական բնակելի տների ճարտարապետություն (*The Architecture of the Armenian Traditional House*) (Yerevan: Haypethrat, 1959), 43.

27 Sumbadze, *op. cit.*, 253–54.

28 *Ibid.*, 88.

29 The term *tun* appeared with the unicameral dwelling which fulfilled almost all the household's functions (Vardanyan, *op. cit.*, 46).

30 *Ibid.*, 48.

31 *Ibid.*, 55.

32 Marutyan, *op. cit.*, 95.

33 Lori Khatchadourian, 'Going underground: affiliates, proxies, and delegates at Tsaghkahovit', in *Imperial Matter: Ancient Persia and the Archaeology of Empires* (Oakland: University of California Press, 2016), 153–93.

34 'The decision to settle permanently in the mountains and submit to the challenges of severe winters and high-altitude agriculture was born, I submit, of an escape from the designs of sovereign states and the attendant institutions of surveillance and rule.' *Ibid.*, 168.

35 The kingdom of Urartu was formed in the Armenian highlands around Lake Van (in present-day eastern Turkey). At its peak in the mid-seventh century BCE, its territory extended from northern Syria and Iraq through northwestern Iran to southern Georgia.

36 Vardanyan, *op. cit.*, 14.

37 The Socialist Soviet Republic of Armenia was founded in 1920.

38 Marutyan, *op. cit.*, 78–80.

39 Eruptions that occurred on the land surface, literally 'under the air'.

40 Solid rock fragment expelled into the air.

41 The altitude is prone to debate; the United States Geological Survey estimates the height at 5,137m. It is likely that the current altitude may be even lower through the melting of its snow-covered ice cap.

42 Hamlet Petrosyan, 'The sacred mountain', in Abrahamian and Sweezy, *op. cit.*, 33.

43 *Ibid.*

44 *Ibid.*, 35.

45 *Ibid.*, 36–37.

46 *Ibid.*

47 Harutyun Marutyan, *Armenian Housing Complexes: 19th-Early 20th Centuries* [map]. Scale 1:3500000. ASME – Armenian State Museum of Ethnography. Unknown date. As part of the *National Atlas of Armenia*, vol. 2, eds. S. Armaghanyan, A. Davtyan and A. Nazaryan (Yerevan: 'Geodesy and Cartography' SNCO of the State Committee of Real Property Cadastre of the Government of the Republic of Armenia, 2017), 173.

48 Khatchadourian, *op. cit.*, 167.

49 Developed by the ALICE and OUVEMA laboratories within the frame of their research *Passage-Paysage*. Landscape as a form of commons structures and sustains the spatiality of more-than-human communities, owing to the symbiosis between shared material practices and their meanings, as well as the inherent dynamism of the land. From Dieter Dietz, Patrick Rérat, Lucia Jalon Oyarzun, Aurèle Pulfer, José Ibarra, Ruben Valdez, Alexandre Barrère, Aurélie Dupuis, Julien Heil, Julien Lafontaine, Zoé Lefevre, Antonin Mack, Malcom Onifadé, Justine Prin, Myriam Treiber, Noémie Zurbriggen, Dimitri Marincek and Aurélie Schmassmann, *Passage Paysage* (Lausanne: ALICE & OUVEMA, 2021), 24–25.

50 Marutyan, 'Home as the world', *op. cit.*, 80.

51 By 'landscape' I refer to the perceptual phenomenon that arises from the notion of embodiment, or 'the world as it is known to those who live in it, who inhabit its places and travel along the paths that connect them'. Tim Ingold, 'The temporality of landscape', *World Archaeology*, vol.25, no.2 (1993), 156.

52 '[T]emporality and historicity are not opposed but rather merge in the experience of those who, in their activities, carry forward the process of social life. Taken together, these activities make up what I shall call the "taskscape".' *Ibid.*, 157.

53 Marutyan, 'Home as the world', *op. cit.*, 86.

54 Hafner, *op. cit.*, 27.