

DOI: <https://doi.org/10.32653/CH1941056-1073>



Research paper

Lyudmila B. Gmyrya
Dr. Sci., Leading Researcher
Institute of History, Archeology and Ethnography
Dagestan Federal Research of RAS, Makhachkala, Russia
Lgmyrya@mail.ru

ISSUES OF INTERPRETATION OF THE EARLY MEDIEVAL COMPLEX OF ENGINEERING STRUCTURES ON THE RUBAS RIVER (EASTERN CAUCASUS): A FORTIFICATION OR HYDRAULIC STRUCTURE?

Abstract. The article presents new data on the functional purpose of a complex of engineering structures from the Early Middle Ages discovered in the valley of the river Rubas, located 20 km south of the city of Derbent. Excavations revealed six separate architectural objects interconnected by structural links. These objects were erected using large, finely crafted stone blocks and featured unique designs employing various construction techniques. Our initial interpretation of these engineering structures identified them as a military-technical facility with a defensive orientation. Chronologically, it was dated to the mid-6th century, considering the resemblance in construction technology to the Sasanian defensive complex in Derbent. However, additional data were uncovered, suggesting an alternative functional purpose – specifically, a hydraulic structure. Based on written sources, the construction date has been established (790-797), and the object's purpose has been determined. The purpose of this article is to substantiate the new chronology of the discovered object and its functional orientation based on the materials from excavations of this site, incorporating information from written sources. The methodology for establishing a new chronology and functional orientation of the complex of architectural structures situated in the lower reaches of the river Rubas comprises 10 positions. These include an analysis of the design features of several structures, the presence of natural indicators, dating of the object according to written sources, and the identification of remains of structures in the riverbed of Rubas. The distinctive nature of Structure No. 5, in the form of a platform, is also highlighted. Special emphasis is placed on the historical chronicle “Derbent-name,” drawing from the writings of Arab authors from the Early Middle Ages.

Keywords: Early medieval complex of engineering structures on the river Rubas; Eastern Caucasus; hydraulic (irrigation) structures

For citation: Gmyrya L.B. Issues of Interpretation of the Early Medieval Complex of Engineering Structures in the Rubas River (Eastern Caucasus): a Fortification or Hydraulic Structure? *History, Archeology and Ethnography of the Caucasus*. 2023. Vol. 19. N.4. P. 1056-1073. doi.org/10.32653/CH1941056-1073

DOI: <https://doi.org/10.32653/CH1941056-1073>

Исследовательская статья

Гмыря Людмила Борисовна
д.и.н., ведущий научный сотрудник
Институт истории, археологии и этнографии
Дагестанский федеральный исследовательский центр РАН, Махачкала, Россия
Lgmyrya@mail.ru

ПРОБЛЕМЫ ИНТЕРПРЕТАЦИИ РАННЕСРЕДНЕВЕКОВОГО КОМПЛЕКСА ИНЖЕНЕРНЫХ СООРУЖЕНИЙ НА Р. РУБАС (ВОСТОЧНЫЙ КАВКАЗ): ОБОРОНИТЕЛЬНЫЙ ОБЪЕКТ ИЛИ ГИДРОУЗЕЛ?

Аннотация. В статье представлены новые данные о функциональном назначении комплекса инженерных сооружений Раннего Средневековья, открытого в долине р. Рубас, в 20 км к югу от города Дербента. Раскопками были открыты 6 обособленных архитектурных объектов, соединенных конструктивными связками. Они были сооружены из крупных, тщательно обработанных каменных блоков и имели индивидуальную конструкцию с использованием различных строительных технологий. Первичная интерпретация инженерных сооружений на р. Рубас была определена как военно-технический объект оборонительной направленности. Хронологически он был отнесен к середине VI в., учитывая схожесть технологии сооружения с Дербентским оборонительным комплексом сасанидского периода. Был выявлен также ряд данных, содержание которых указывало на иное функциональное назначение этого строительного объекта, а именно, комплекс ирригационных сооружений. По данным письменных источников установлена дата его сооружения (790–797 гг.) и определено назначение этого объекта (гидроузел). Цель данной статьи состоит в обосновании новой хронологии открытого объекта на р. Рубас и его функциональной направленности на материалах раскопок этого памятника с привлечением письменных источников. Методика обоснования новой хронологии и функциональной направленности комплекса архитектурных сооружений, находящегося в низовьях р. Рубас, включает 10 позиций, в которых представлен анализ особенностей конструкций ряда сооружений; наличие показателей природного характера; датировка объекта по данным письменных источников; наличие остатков сооружений в русле р. Рубас. Отмечена также неординарность сооружения №5 в виде платформы. Особое значение придано данным исторической хроники «Дербент-наме», основанной на сочинениях арабских авторов Раннего Средневековья.

Ключевые слова: Раннесредневековый комплекс инженерных сооружений на р. Рубас; Восточный Кавказ; гидротехнические (ирригационные) сооружения

Для цитирования: Гмыря Л.Б. Проблемы интерпретации раннесредневекового комплекса инженерных сооружений на р. Рубас (Восточный Кавказ): оборонительный объект или гидроузел? // История, археология и этнография Кавказа. 2023. Т. 19. No 4. С. 1056-1073. doi.org/10.32653/CH1941056-1073

© Гмыря Л.Б., 2023

© Дагестанский федеральный исследовательский центр РАН, 2023

The official designation of the complex of engineering structures in the river Rubas valley is “Remains of a monumental stone structure of the 5th – mid-6th century on the river Rubas.” In scholarly publications, this archaeological site is commonly referred to as the Rubas fortification, and less frequently as the Rubas defensive complex.

A small section of this structure was accidentally discovered by a local resident of the village of Kommuna while plowing a plot of land in February 2014. Thirty large stone blocks were looted from the site. Subsequently, a pit measuring 9×7 m with a depth of over 3 m, filled with soil and stone fragments, was formed at the site from which the building materials were extracted. Whole stone blocks were transported to the village of Kommuna and stored at the entrance of the land owner’s house. Some blocks underwent sawing. The destruction of this cultural heritage site was interrupted in February 2014 by the agency for the protection of cultural heritage monuments of the Republic of Dagestan, informed by the Rubas village school director, Bairambegov G.-K.D. Rescue excavations of this object to determine its design and dating were conducted in August 2014 as part of the final stage of the RFBR-Dagestan research project “Landscapes of the Western Caspian Sea region in the cultural genesis of ethnic communities of the era of the Great Migration of Peoples” (Project No. 12-06-96500-r_yug_a). In the pit with construction remains and the surrounding area, small sections of four construction projects of different types and designs were identified. These structures were built from massive stone blocks, which characterized them as monumental structures [1, p. 108–111].

A 2.2 m long section of the eastern facade of Wall No. 2 was uncovered, revealing 9 rows of regular masonry arranged in stepped manner, reaching a height of 2.3 m. The orientation of the wall is S–N, perpendicular to the riverbed of Rubas (Fig. 1, 1; 2, 1). The southern limit of the eastern facade of Wall No. 2 was defined by a section of the upper level of Wall No. 3, measuring 3.0 m in length within the pit and oriented in the W–E direction (Fig. 1, 2; 2, 4). West of the pit, exploration of the upper level of the arched structure revealed two massive support bases, designated as Nos. 1–2. The passage between these bases (arch) was 1.5 m wide and covered at the top by three stone slabs measuring 2.3–2.5 m in length. This structure was aligned with its longitudinal side in the W–E direction (Fig. 1, 5; 2, 2). Support Base No. 2, situated west of Support Base No. 1, was adjacent on the north side to a section of Wall No. 1, oriented in the S–N direction (Fig. 1, 6; 2, 3).

The need to ascertain the functional purpose of the discovered construction objects on the River Rubas, exhibiting signs of monumentality such as the utilization of large stone blocks in facade construction, the presence of stone slabs covering passages up to 2.5 m in length, the considerable height of the eastern facade of Wall No. 2 (2.3 m), and the distinctive stepped design at its junction with Wall No. 3, along with several other indicators, necessitated further investigation of this site. Subsequent excavations were conducted as part of grant projects spanning 2016–2018 and 2020. In 2022, excavations of this archaeological site were undertaken at the personal expense of the author, with financial support from colleagues and the partial participation of the administration of the DFRC RAS.

Materials

At the Rubas architectural site, six distinct structures with individual layouts and designs were identified and studied [2, p. 465–466].

1. **Arched Structure** (Fig. 1, 5; 2, 2). Design: two rectangular Support Bases Nos. 1–2 (3.0×1.5 m), with a passage between them (1.5 m), covered by massive slabs (2.4–2.6 m in length). The structure is oriented along its length in the W–E direction. Seven rows of masonry, laid from massive blocks (2.3–2.4 m high), were cleared (Fig. 6).

2. **Wall No. 1** (Fig. 1, 6; 2, 3). Design: emplekton¹ (eastern facade) and rubblework (western facade) with inner backfill (1.9 m in thickness). Attached from the north to Support Base No. 2 of the arched structure. Orientation N–S. Seven rows of rubble masonry were exposed, reaching a height of 2.3 m. The length of Wall No. 1 is 5.3 m. Notably, different technologies were employed in the construction of its eastern and western facades.

3. **Wall No. 2** (Fig. 1, 1; 2, 1). Design: emplekton and inner backfill (3.5 m in thickness). A 28 m section was cleared, with NW–SE orientation. Technology: the western facade exhibits a combination of extended sections of stretcher masonry and *opus quadratum* (Fig. 4). The eastern facade is constructed with stepped stretcher masonry, including a small area with *opus quadratum* (Fig. 3, 1). The western facade was cleared to a height of 2.5 m (11 rows of masonry), while the eastern facade reached a height of 2.6 m (11 rows of masonry) (Fig. 3–4).

Between the western facade of Wall No. 2 and the arched structure there was another passage, equal in width to the former (1.5 m) (Fig. 6).

It is assumed that Arched Passage No. 2 was obstructed by a gate, secured by a block (distinct grooves for installing a gate blocker were identified). An investigation of the passage between the support bases of the arched structure was not possible due to its filling with mudflow deposits (Fig. 6). It is conceivable that these passages might have incorporated protective barriers implemented through an ancient cataract system involving movable barriers. Within the masonry of the western facade of Wall No. 2 and the base of Support No. 1 of the arched structure, vertical recesses (with heights of 1.0 m and 1.9 m) were observed, presumably designed for the movement of protective devices. Additionally, massive slabs at the base of the structures were identified, possibly intended for securing lowered protective devices (Fig. 6).

4. **Wall No. 3** (Fig. 1, 2; 2, 4). Design: combined, featuring a section of stretcher rectilinear masonry with a length of 8.2 m and a stepped structure of a rounded (concave) shape with a length of 4.1 m attached to it from the north. The wall stands at a height of 2.4 m (10 rows of masonry). The orientation of the straight section of the wall is NE–SW, and is attached to the eastern facade of Wall No. 2.

5. **Structure No. 5 (Platform)** (Fig. 1, 3; 2, 6). Design: header-stretcher (Flemish) masonry, with 6 identified levels made of rectangular stone blocks. Over 8.0 m was cleared (Fig. 5). The surface level comprises 15 vertical rows, and the stone blocks are equipped with grooves for installing fastening brackets. The western facade was cleared to a height of 1.94 m (Fig. 5). The platform slopes east at an angle of 22.5°. No link systems with other

1. Translator's note: also known as rubble masonry, ashlar and rubble.

structures have been identified yet.

6. **Structure No. 6** (Fig. 1, 4; 2, 7). Design: stepped stretcher masonry, incorporating a section of *opus quadratum*. Attached from the north to the eastern facade of Wall No. 2. The orientation is NW–SE. The cleared section measures 7.7 m in length (Fig. 3, 2) and includes northern and southern sections with differing parameters and designs (5.0 m and 2.7 m, respectively). The state of preservation of the northern section: height of 1.64 m and 7 levels of masonry. The state of preservation of southern section: height of 2.44 m (Fig. 3, 2). It extends beyond the baseline of the eastern facade of Wall No. 2 of the upper level of the masonry by 2.6 m.

Of the six structures identified in the lower reaches of the river Rubas, four were discovered and investigated between 2014 and 2018 (Wall No. 2, Wall No. 3, Arched Structure, Wall No. 1). All of these structures exhibit signs of monumentality, including the use of massive stone blocks, a variety of masonry systems, notable thickness comparable to the northern wall of Derbent in the case of Wall No. 2 (3.5 m), emplekton technology for laying extended walls (No. 1–2), and an original masonry system for base supports Nos. 1 and 2 (involving massive, narrowly elongated blocks installed using the header-stretcher bond), among other features.

Sections of the facades of Wall No. 2, constructed using *opus quadratum*, bore distinct signs of monumentality. On the western facade of Wall No. 2, a 6.0 m section was crafted using this technology, seamlessly connecting to stretcher bond sections from the south and north (Fig. 4). Similarly, the eastern facade of Wall No. 2 featured a 2.1 m section laid in *opus quadratum* (Fig. 3, 1), displaying thematic carvings on two front slabs (Fig. 7–8). A comparable 2.6 m section with finely processed slabs but lacking carved images was identified on the facade of the stepped Structure No. 6 (Fig. 3, 2).

These findings provided a foundation for interpreting the studied structures as having a military-technical and defensive nature. The remarkable preservation of the objects further underscored their significance: Wall No. 2 with 11 rows of masonry and a preserved height of 2.5–2.6 m; Arched Structure with 7 rows of masonry from massive blocks and a height of 2.3–2.4 m; passage covering slabs measuring 2.4–2.6 m in length; and Wall No. 1, eastern facade, featuring 7 rows of masonry with a height of 2.3 m.

Discussion

In the course of examining this site, alternative information regarding its purpose and construction timeline has been amassed.

1. Arched Structure was initially interpreted as a fortified passage leading to the occupied territory, covered with massive slabs (three of the four slabs have survived) [3, p. 38–44]. The passage has a width of 1.5 m. However, this seems too narrow for a conventional passageway. Moreover, on the inside of the structure (southern facade), a 1.9 m high recess was identified within the masonry of Base Support No. 2. This recess, possibly used to lower a barrier blocking the passage, raises questions about the defensive efficacy of the structure. The passage itself, measuring 2.8 m in length,

remained accessible to potential adversaries (Fig. 6, 1). A similar scenario was observed in the vicinity of another passage located between the western facade of Wall No. 2 and Support Base No. 1 of the Arched Structure. Although the four slabs covering this passage have not survived, their former installation points are indicated. The upper level of the western facade of Wall No. 2 at the location of Passage No. 2 has not been preserved, but a small section of a 1.0 m high gutter for installing a protective device was identified at the bottom of this facade (Fig. 6, 2).

These data may suggest a different functional purpose for these passages, potentially serving as drainage channels to discharge water accumulated in a confined space enclosed on three sides by construction objects (Wall No. 1, Arched Structure, Wall No. 2) (Fig. 1, 1, 5, 6; 2, 1, 2, 3).

2. In 2017–2018, within the northern section of the construction complex, encompassing the Arched Structure and a segment of Wall No. 1, a substantial area of sedimentary rocks was excavated. This area consisted of an accumulation of pebbles of various sizes, stone fragments, and sand, closely abutting the western facade of Wall No. 2 for a distance of 9.0 m (Fig. 1, 7; 2, 5). Its maximum thickness reached 1.5 m in the northern section, while the southern section exhibited a gentle slope measuring 4.4 m in width. The western edge of the pebble accumulation displayed an oval, concave shape, oriented southwestward. The clearly defined outline of this area suggests contact with a rounded structure or the influence of a robust water flow.

Preliminary assessments, considering the width of the pebble deposits equivalent to the distance between the western facade of Wall No. 2 and the eastern facade of Wall No. 1, and fitting into the space where two passages of the Arched Structure are located, propose the possibility that excess water volume was channeled towards the river Rubas through these passages. The initial interpretation of the pebble deposits in this area was considered as mudflows triggered by a seismic event of magnitude 9, as confirmed by seismologists [4, p. 91–103; 5, p. 91–103].

3. It is also conceivable that the space between Wall No. 1 and Wall No. 2 functioned as a water storage tank, akin to a reservoir (Fig. 1–2). In such a scenario, Wall No. 2 would have likely served as a dam, being the longest and most robust structure in this complex with a thickness of 3.5 m. However, it's worth noting that in regions where historical remnants of irrigation structures are observed, such as Southeast Asia, dams typically exhibit greater thickness.

4. In 2020, an unconventional object was identified within the Rubas architectural complex, designated as Structure No. 5 (Platform). It featured a flat surface inclined towards the east at an angle of 22.5°. Subsequent explorations in 2020 and 2022 revealed 8 m length section of this structure (Fig. 1, 3; 2, 6). The western facade was exposed to the level of six rows of masonry composed of massive stone blocks (Fig. 5). Notably, the stone blocks in the two upper rows had a distinctive elongated shape and rectangular recesses for fastening with brackets (Fig. 2, 6). The surface of the upper-level blocks was left untreated, while blocks in all other levels were smoothed. As of now, the functional purpose of Structure No. 5 (Platform) remains undetermined due to incomplete identification of its shape and dimensions. The structure extends southwards towards the riverbed Rubas and eastwards.

There is currently no conclusive reason to categorize the “platform” as part of the irrigation structure, given its flat surface and pronounced slope to one side. The comprehensive shape, dimensions, and design of the structure need to be fully established for a more informed interpretation.

5. The observed stepped design in two structures, namely Structure No. 6, attached from the north to the eastern facade of Wall No. 2, and Wall No. 3 (Fig. 1, 4; 2; 2, 7, 4), raises questions. The northern facade of Wall No. 3 displayed not only a stepped design but also a fan-shaped (radial) arrangement of massive blocks. The functional rationale behind these intricate design techniques for these structures has not been conclusively identified.

E.I. Kozubsky, in his work “History of the City of Derbent,” referenced information from the 9th-century Arab author al-Yaqubi. Yaqubi mentioned the existence of a reservoir near Derbent, equipped with a staircase: “To the side of the city, there is a reservoir known as the ‘Mesruf reservoir’ (in other lists: harsh, rough, igneous). There is a staircase leading into it, along which they descend into the reservoir when there is little water” [6, p. 3]. This account of a reservoir with stairs was reiterated by al-Qazwini in 1283 in the work “The Wonders of Creatures and the Marvels of Creation”: “Near the city, there was a pond with stairs along which they descended into the pond when there was little water in it” [6, p. 40].

In the Rubas architectural complex, two structures feature staircase-like constructions: Structure No. 6 and Wall No. 3. Structure No. 6, characterized by a stepped structure comprising 7 rows of masonry, is uncovered for a length of 7.7 m. It is attached to the northern end of Wall No. 2 and extends further to the north (Fig. 1, 4; 2, 7). The second structure, also exhibiting a stepped design, is the northern extension to the facade of Wall No. 3 (Fig. 1, 2; 2, 4). This extension possesses a round (concave) shape with an uncovered length of 4.1 m. Its western end is integrated into the eastern facade of Wall No. 2, with 10 rows of masonry preserved. It is plausible that within the area bounded by massive stone structures (Structure No. 6 with a stepped design, Wall No. 2, Wall No. 3 with a stepped extension), there could have been a reservoir for accumulating water from the river Rubas (Fig. 1–2).

6. Excavations conducted in 2020 revealed certain indicators suggesting the presence of water accumulation near the facade of Structure No. 6. A layer of pebble deposits was observed at the location of the southern section, constructed in *opus quadratum* (Fig. 1, 4; 2, 7; 3, 2). These pebble deposits overlay the blocks arranged in the *opus quadratum* system and reached the lower level of this site. The presence of pebble deposits adjacent to the facade of Structure 6 was initially interpreted as possibly resulting from a significant mudflow triggered by a magnitude 9 earthquake. However, it is conceivable that the pebble deposits are indicative of the presence of a reservoir in this area. Further specialized research is needed for a more precise determination.

7. One of the primary challenges in studying the Rubas architectural complex revolves around its dating. The site was dated the 6th century [2, p. 463, 481], drawing parallels with the construction techniques of open structures found in the Derbent defensive complex during the period of Sasanian Iran’s rule (utilization of large stone blocks, massive structures, and the presence of *opus quadratum*) [7, p. 31–43; 8, p. 357–390]. The Rubas architectural complex has *opus quadratum* technique in the construction of Wall No. 2 and Structure No. 6 with a stepped structure. On the eastern facade of Wall

No. 2, a segment featuring this type of masonry comprised four blocks. Two of these were positioned with the front surface outward, while the other two had the narrow side facing outward (Fig. 3, 1; 7–8). Carved images, including a depiction of a horse and rider, were present on one block, oriented in the S–N direction (Fig. 7). Another block displayed two parallel curved dotted lines framing an area with small notches, with the second half finely smoothed (Fig. 7-8). A header block separated the blocks with images, and another demarcated the area with *opus quadratum* masonry from the adjacent stretcher masonry to the north.

A similar section of *opus quadratum* masonry was also incorporated at the southern end of Structure No. 6, attached from the north to the eastern facade of Wall No. 2. However, in this case, five blocks were used (two installed on the front side, three on the side). The stretcher blocks of Structure No. 6 were smoothed and lacked any images (Fig. 3, 2). The distance between the sections with *opus quadratum* masonry on the eastern facade of Wall No. 2 and the attached Structure No. 6 is 6.7 m, giving the impression of intentional and demonstrated symmetry in the arrangement of these *opus quadratum* masonry sections.

On the western facade of Wall No. 2, *opus quadratum* was incorporated in its middle section, extending for 5.8 m (Fig. 4). The distinctive feature of the design of this section of the western facade of Wall No. 2 is the utilization of two types of masonry during its construction -stretcher and *opus quadratum*. Stretcher masonry served as interlayers and covers between two rows of *opus quadratum* masonry. Researchers have observed that the masonry of the walls in Sasanian Derbent primarily consists of stone blocks with standard sizes, resembling medium-sized rectangular slabs [7, p. 31–43]. No large blocks similar to those installed in the western facade of Wall No. 2 in the Rubas architectural complex have been identified in Derbent. During the period of Arab Caliphate rule, medium-sized rectangular blocks were employed in the facades of Derbent walls, and these blocks differed from those of the Sasanian period in that they were more finely processed and nearly uniform in size. Considering the presence of very large blocks in the western facade of Wall No. 2 in the Rubas architectural complex (three stretcher blocks with lengths of 1.9 m, 1.9 m, and 1.86 m), which were not utilized in the defensive structures of Derbent, the dating of the complex on the river Rubas has been attributed to an earlier period (mid-6th century) than Derbent.

However, E.M. Kozubsky also pointed out that “...the building techniques brought here by the Arabs are completely different from the one that guided the architects of ancient Persia of the Sasanian era. The latter were looking only for strength, which is why their buildings are more massive. Usually, two large stones are separated by a narrow slab, and the stones themselves, even those lining the front side of the building, are decorated very carelessly, and everything was often laid without cement at all, but held together by own weight. In the Arabic method of masonry, the stones were cut smoother, and their outer surface provides a more or less long rectangle of almost the same size, at least in that row of stones. It is only occasionally visible that two rows of wide stones are separated by one row of narrower ones, and the stones were always cemented” [6, p. 21].

The middle section of the western facade of Wall No. 2 in the Rubas architectural complex, incorporating the *opus quadratum* masonry, was constructed in precisely this

manner. The upper and lower rows of masonry follow the *opus quadratum* technique, separated by a single row of stretcher masonry, where the blocks are laid flat. The same blocks in one row serve as a covering for the upper level of *opus quadratum* masonry. Additionally, these blocks form the base for the second row of *opus quadratum* masonry (Fig. 4).

Considering the characteristic construction methods of monumental structures in Derbent, it is reasonable to acknowledge that Wall No. 2 of the Rubas architectural complex, along with all its structures, was erected during the period of Arab rule in Derbent.

8. If the architectural structures along the river Rubas were constructed during the Arab rule over Derbent, the question arises: to which specific time period do they belong? The local historical chronicle “Derbent-name” contains information about the introduction of river water to Derbent for irrigating the farmlands of the townspeople during the reign of Caliph Harun al-Rashid (786–809). However, variations exist in different editions of this work (with more than 40 lists known to date), with varying levels of detail regarding the canal bringing river water to Derbent. In the Rummyantsev list of “Derbent-name,” it is mentioned: “Harun Rashid, having arrived in Derbent, made significant contributions to the city’s improvement. He brought water ditches to Derbent, built mills, and ordered the creation of numerous gardens and vegetable plots. He gave instructions to allocate funds for the repair of irrigation ditches from the income derived from agriculture and gardens...” [9, p. 39].

In the St. Petersburg list “Derbent-name” the information is almost identical: “Harun Rashid, having himself arrived in Derbent, did a lot for the improvement of [the city]. He brought water ditches to Derbent, built mills, and ordered the creation of a lot of orchards and vegetable gardens. He gave the order to take [funds] for the repair of irrigation ditches from income from agriculture and gardens” [10, p. 324]. These chronicles indicate the fact of running “aryks” with water to Derbent, but do not name the source from which the water came for watering the “orchards and vegetable gardens.”

In the historical work “Asari-Dagestan. Historical information about Dagestan” by Hasan Alkadari (1834–1910), this source is named: “In 173, in the year 790 of the Christian faith, Harun ar-Rashid sent a ruler named Khuzeima ben Khazim to Derbent with a detachment of up to two thousand soldiers. This new ruler of Khuzeim, having forced a ditch to be dug from the Rubas River, brought water to the Derbent lands, ordered orchards, vegetable gardens, arable land to be planted below this ditch and mills to be built” [11, p. 28].

More extensive historical information on the date of irrigation structures from the lower reaches of the River Rubas to Derbent is available in E.I. Kozubsky’s “History of the City of Derbent,” published in 1906. The author extensively used the work “Derbent-name,” often incorporating direct quotes from it. E.I. Kozubsky’s account relayed information about the river Rubas and the irrigation structures conducted to Derbent: “Not content with restoring order in Derbent through the governor, Harun himself came to this city. He had the fortifications erected on the river Rubas, and ordered to dam it and carry its water through the outskirts of Derbent, thereby watering a large expanse of the steppe, turning it into a fertile oasis. Having destroyed part of the fortress walls and repaired the rest, he ordered the planting of orchards, vegetable gardens, and vineyards,

supplying them with water through aqueducts, installing mills in the latter, the income from which he donated to the poor of the city” [6, p. 31]. E.I. Kozubsky noted that he derived this data from “Derbent-name”: “If Derbent-name’s information about Harun’s 7-year stay in Derbent is correct, then, clearly, the city benefited a lot from the presence of the magnificent court of the Caliph” [6, p. 31].

According to Derbent-name, Caliph Harun al-Rashid reigned from 786 to 809. In the year 789–790, he dispatched a formidable army, commanded by Khazim ben Charkhi, to Derbent with the mission of restoring order. Subsequently, the Caliph personally visited Derbent and remained in the city for a duration of seven years, from 790 to 797. Throughout this seven-year period (790–797), he undertook initiatives for the establishment of irrigation structures along the river Rubas.

The endeavors for constructing these irrigation structures comprised the following measures: 1) erecting “fortifications” along the river Rubas; implementing a “dam” on the river Rubas; 3) establishing a mechanism to “draw water through the outskirts of Derbent.”; 4) irrigating an extensive stretch of steppe lands.

According to the “Derbent-name” it is determined: 1) on the river Rubas “fortifications” were built; 2) on the river Rubas a “dam” was erected; 3) on the river Rubas a “reservoir” was created; 4) a canal was dug (Rubas-Darbent) extending for 20 km; 5) a network of canals was created in the southern environs of Derbent.

If the details of Caliph Harun al-Rashid’s activities, specifically in positions No. 2–4, are somewhat discernible from the source text, the interpretation of position No. 1, involving the term “fortifications” on the river Rubas, remains somewhat ambiguous. The term “fortification” could signify a military-technical structure designed to safeguard a crucial facility on the river Rubas. Alternatively, it could be understood as a complex of robust structures constituting a hydraulic system, facilitating the conveyance of water from the river to a water reservoir established by a dam. Subsequently, the water would be directed into a canal excavated from the riverbed, connecting Rubas to Derbent.

E.I. Kozubsky did not specify the particular version of “Derbent-name” from which he extracted information about the irrigation structures on the river Rubas. However, it is evident that the irrigation facility on the river Rubas encompassed a network of robust structures, including a dam, a reservoir, and the Rubas-Derbent canal. The development of this facility on the river Rubas likely spanned a significant period, potentially around 7 years, and such extensive work was not undertaken during the earlier Sasanian domination.

9. As for the construction of a “dam” on the river Rubas to form a water reservoir, there are indications pointing to its possible historical existence. In the riverbed of Rubas, particularly in the southern region relative to the architectural site, an accumulation of large stone blocks was observed. These blocks exhibited signs of processing and shared specific design details. Notably, the shape, size, and processing technique of these stone blocks in the riverbed of Rubas closely resembled those employed in the construction of Walls No. 2-3 and the structure resembling a platform (Fig. 1).

10. Based on the available evidence, it is now recognized that the archaeological site on the river Rubas was constructed in the period between 790 and 797, specifically at the end of the 8th century. This challenges the previous assumption that it was built in the mid-6th

century.

The excavation, covering an area of 403.5 square meters, did not yield artifacts indicating the time of operation of the site. Pottery found in the vicinity suggest a later period of development (10th-12th centuries), and written sources do not provide information about the destruction of the irrigation structures on the river Rubas that served Derbent.

However, the thickness of the section of sedimentary rocks within the Rubas architectural complex (Fig. 1, 7; 2, 5) offers insights into the duration of its accumulation. Assuming an annual sediment accumulation rate of 1.0 cm, the estimated period for the formation of the sedimentary section at the Rubas site (1.5 m thick) spans approximately 150 years. This implies that the operation of the irrigation complex likely continued until around 940. It is plausible that the facility suffered significant damage from a magnitude 9 earthquake, leading to its abandonment.

In 2018, while clearing the western section of the sedimentary rocks, evidence of settlement by the local population was discovered. A round-shaped trench, with a diameter of 0.2 meters and a depth of 0.1 meters, revealed the lower level of a pole used in constructing pillar buildings. Two additional excavations, with diameters of 0.14 meters and 0.2 meters at depths of 0.9 meters and 1.04 meters, were found within the northern side of the main excavation. These features suggest the possibility of a pillar structure erected on the surface of the area with sedimentary rocks. Notably, fragments of two ceramic vessels were uncovered at this site – a piece of a ceramic pot with a handle and a fragment of a ceramic cauldron with a horizontal handle. The presence of these artifacts, along with fragments of other vessels, indicates significant human activity and settlement in the vicinity of the western facade of Wall No. 2 of the architectural complex during the 10th–12th centuries.

Conclusion

Further excavations of this intriguing site on the river Rubas may unravel more of its secrets. The available data from Derbent-name, combined with the distinctive architectural features of the identified structures, such as the Arab system of constructing massive walls, point to the significant influence of Arab engineers and designers in creating such complex technical objects in the 8th century.

The study of this site spanned six field seasons (2014, 2016–2018, 2020, 2022), with additional excavations in 2023. New findings highlighted in the article shed light on previously unknown design features of the structures within this complex, offering insights into its functional orientation.

Curiously, the creators of this unique structure left their mark on the eastern facade of Wall No. 2 in the form of a carved image.

As mentioned, on the surface of one of the slabs there is a relief image of a horse, with its head directed north, towards Derbent, and also, possibly, a rider (Fig. 7). This image could symbolize the collective representation of an Arab warrior who played a role in the conquest of the formidable fortress city. A second slab also features a carved image, reminiscent, in our interpretation, of the layout of the structure erected on the river Rubas. In the upper

corner zone of the slab, a cluster of relief notches of a narrow rectangular shape is intricately arranged. This cluster is enclosed by a double dotted line with an arcuate shape, dividing the surface diagonally from the lower left to the upper right corner. The lower corner area of the slab appears to have been deliberately smoothed (Fig. 7-8).

What did the author of the carving want to say – the direction of the canal leading to Derbent or a symbolic wall protecting the East from the invasions of nomads? Perhaps the thematic images served as a kind of protective talismans for this engineering object.

In the information provided by al-Yakubi and al-Qazwini, as cited by E.I. Kozubsky regarding the location of a “reservoir” or “pond” with stairs near the city of Derbent [6, p. 33, 40], there is a noteworthy mention of sculptural images: “stone lions were positioned on both sides of the stairs, believed to serve as protective talismans for the city walls, and as long as these lion remained, the city would be safeguarded against potential harm from the Turks” [6, p. 40]; “...on the sides of the stairs are two lions made of stone, and above one of them is a stone statue of a man. Above the ruler’s house... an image of two lions, also made of stone, protruding from the wall. The inhabitants of Bab say that this is the talisman of the wall” [6, p. 33].

If our hypothesis regarding the functional purpose of the architectural structure on the river Rubas (an 8th–9th-century hydraulic facility) proves to be accurate and subsequent excavations confirm this, it could be identified as a pivotal project for water transportation from the river Rubas to Derbent. This “life project” would have enabled the residents of Derbent to irrigate the southern outskirts of the city, fostering the cultivation of orchards and vegetable gardens for the well-being of the townspeople. The noteworthy acts associated with this endeavor could contribute to the fame of Caliph Harun al-Rashid, as documented in written sources.



Fig. 1. Monumental architectural structure on river Rubas.
1 – Wall No. 2; 2 – Wall No. 3; 3 – Structure No. 5 (Platform); 4 – Structure No. 6 (Extension); 5 – Arched Structure; 6 – Wall No. 1;
7 – mudflow deposits. View from east. Aerial drone shot, 2022

Рис. 1. Монументальное архитектурное сооружение на р. Рубас.
1 – стена № 2; 2 – стена № 3; 3 – сооружение № 5 (платформа); 4 – сооружение № 6 (пристройка); 5 – сооружение арочной конструкции; 6 – стена № 1;
7 – отложения селя. Вид с востока. Аэрофотосъемка беспилотным летательным аппаратом 2022 г.



Fig. 2. Monumental architectural structure on river Rubas. Plan of the studied structures in 2022.
 1 – Wall No. 1; 2 – Arched Structure; 3 – Wall No. 1; 4 – Wall No. 3; 5 – mudflow deposits; 6 – Structure No. 5 (Platform); 7 – Structure No. 6 (Extension)

Рис. 2. Монументальное архитектурное сооружение на р. Рубас. План исследованных сооружений, 2022 г.
 1 – стена № 2; 2 – сооружение арочной конструкции; 3 – стена № 1; 4 – стена № 3; 5 – отложения селя; 6 – сооружение №5 (платформа); 7 – сооружение №6 (пристройка)

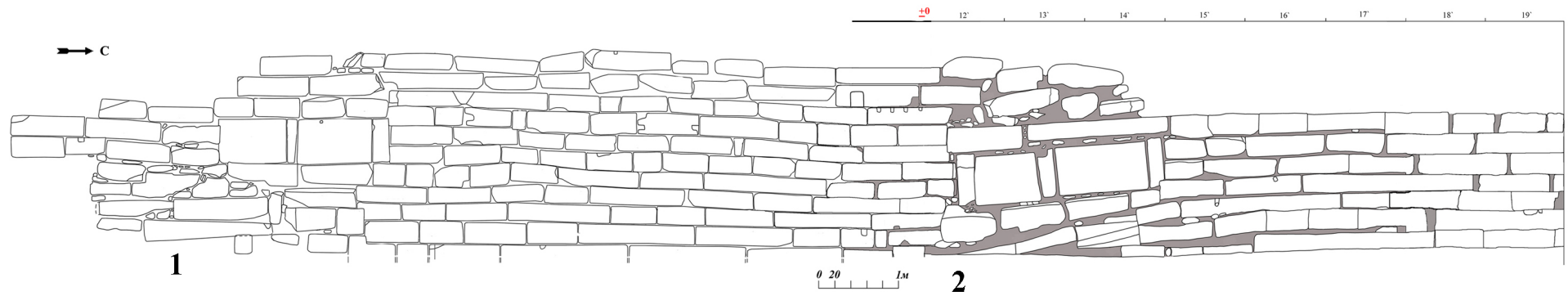


Fig. 3. Monumental architectural structure on river Rubas. 1 – eastern façade of Wall No. 2; 2 – Structure No. 6

Рис. 3. Монументальное архитектурное сооружение на р. Рубас. 1 – восточный фас стены. №2; 2 – сооружение №6

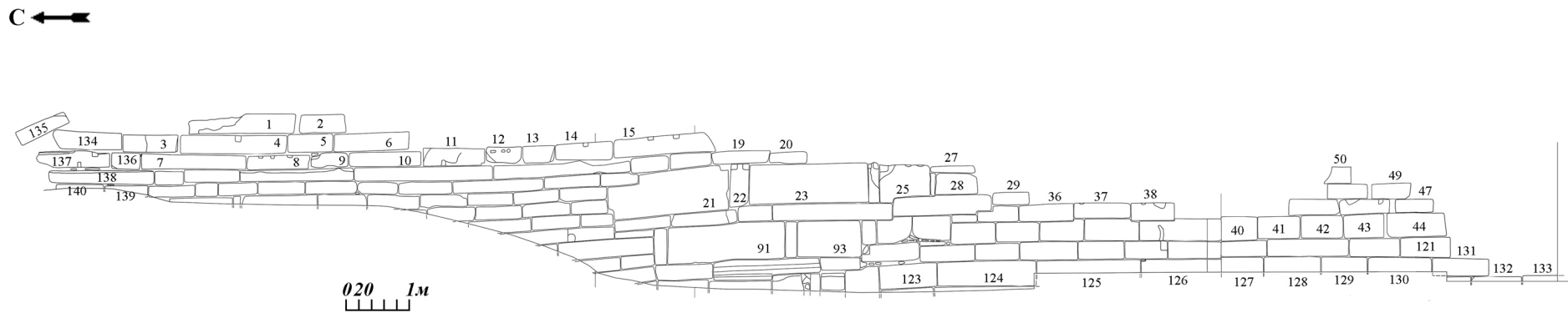


Fig. 4. Monumental architectural structure on river Rubas. Wall No. 2. Western façade. 2018

Рис. 4. Монументальное архитектурное сооружение на р. Рубас. Стена 2. Западный фас. 2018 г.

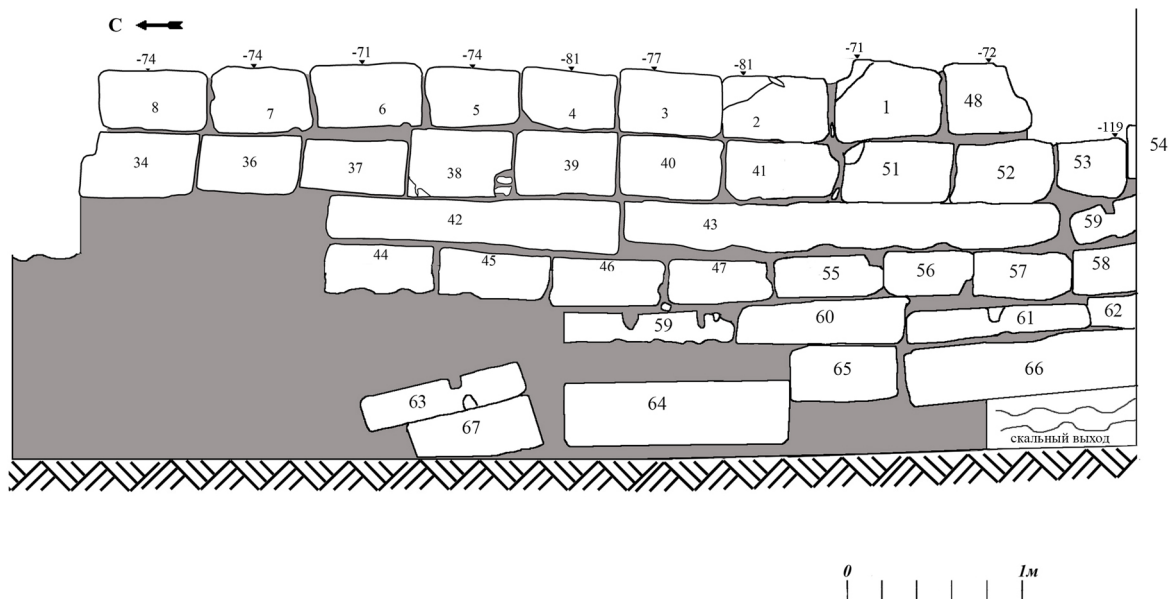


Fig. 5. Monumental architectural structure on river Rubas. Structure No. 5 (Platform). Western façade with indication of Nos. of blocks and sections. 2022

Рис. 5. Монументальное архитектурное сооружение на р. Рубас. Сооружение №5 (платформа). Западный фас с указанием нивелировочных отметок №№ блоков и участка 2022 г.



Fig. 6. Monumental architectural structure on river Rubas. 1 – Arched Structure; 2 – Wall No. 2. View from south. 2020

Рис. 6. Монументальное архитектурное сооружение на р. Рубас. 1 – сооружение арочной конструкции; 2 – стена №2. Вид с юга. Фото 2020 г.



Fig. 7. Monumental architectural structure on river Rubas.
Structure No. 2. Eastern façade. Blocks Nos. 51-53. View from east

Рис. 7. Монументальное архитектурное сооружение на р. Рубас. Сооружение №2. Восточный фасад.
Блоки №№51-53. Вид с востока



Fig. 8. Monumental architectural structure on river Rubas.
Structure No. 2. Eastern façade. Block No. 53. View from east.

Рис. 8. Монументальное архитектурное сооружение на р. Рубас.
Сооружение №2. Восточный фасад. Блоки №53. Вид с востока.

REFERENCES

1. Gmyrya LB. Discovery of a new monumental fortification of Sasanian Iran in the valley of the river Rubas (Southern Dagestan). *The Scientific Heritage*. 2016, 6: 108-111. (In Russ)
2. Gmyrya LB. Technological methods of building military engineering structures of the Rubas fortification of the 6th century (East Caucasus). *History, archeology and ethnography of the Caucasus*. 2022, 18(2): 463-496. (In Russ)
3. Gmyrya LB. An arched structure in the system of a monumental defensive complex of the mid-6th century on the river Rubas in the Western Caspian. *Society: philosophy, history, culture*. 2018, 2: 38-44. (In Russ)
4. Gmyrya LB., Korzhenkov AM., Ovsyuchenko AN., Larkov AS., Rogozhin EA. Probable paleoseismic deformations at the Rubas archaeological site of the mid-6th century, Southern Dagestan. *Geophysical processes and biosphere*. 2019, 18(3): 91-103. (In Russ)
5. Gmyrya LB., Korzhenkov AM., Ovsyuchenko AN., Larkov AS., Rogozhin EA. Probable Paleoseismic Deformations at the Rubas Archeological Site, Mid-6th Century AD, South Dagestan. *Izvestiya, Atmospheric and Oceanic Physics*. 2019, 55(10): 1547-1558.
6. *History of the city of Derbent*. Compiled by E.I. Kozubsky, full member-secretary of the Dagestan Statistical Committee. Temir-Khan-Shura: "Russian Printing House" V.M. Sorokin, 1906. (Reprint 2015). (In Russ)
7. Kudryavtsev AA. "Long walls" in the Eastern Caucasus. *Vorposy istorii*. 1979, 11: 31-43. (In Russ)
8. Gadzhiev MS., Kudryavtsev AA. Steinmetzzeichen des 6. Jahrhunderts N. Chr. in Darband. *Archaologische Mitteilungen aus Iran und Turan*. 2001, 33: 357-390.
9. Derbent-name (Rumyantsev list). Introduction, translation, comments by G.M.-R. Orazava // *Shikhsaidov A.R., Aitberov T.M., Orazav G.M.-R. Dagestan historical works*. Moscow: Nauka. Vostochnaya Literatura, 1993.
10. Derbent-name (St. Petersburg list of 1225 (1810). Translation from Azerbaijani by G.M.-R. Orazav. *Derbent-name in the languages of the peoples of Dagestan: texts and comments*. Makhachkala: Mavraev, 2012.
11. Alkadari G.-E. *Asari Dagestan. Historical information about Dagestan*. A. Hasanov (transl.). Makhachkala, 2009.

СПИСОК ЛИТЕРАТУРЫ

1. Гмыря Л.Б. Открытие новой монументальной фортификации Сасанидского Ирана в долине р. Рубас (Южный Дагестан) // *The Scientific Heritage*. 2016. № 6. P. 108–111.
2. Гмыря Л.Б. Технологические приемы возведения военно-инженерных сооружений Рубасской фортификации VI в. (Восточный Кавказ) // *История, археология и этнография Кавказа*. 2022. Т. 18. № 2. С. 463–496.
3. Гмыря Л.Б. Сооружение арочной конструкции в системе монументального оборонительного комплекса середины VI в. на р. Рубас в Западном Прикаспии // *Общество: философия, история, культура*. 2018. № 2. С. 38–44.
4. Гмыря Л.Б., Корженков А.М., Овсяченко А.Н., Ларьков А.С., Рогожин Е.А. Вероятные палеосейсмические деформации на Рубасском археологическом памятнике середины VI в., Южный Дагестан // *Геофизические процессы и биосфера*. 2019. Т. 18. № 3. С. 91–103.
5. Gmyrya L.B., Korzhenkov A.M., Ovsyuchenko A.N., Larkov A.S., Rogozhin E.A. Probable Paleoseismic Deformations at the Rubas Archeological Site, Mid-6th Century AD, South Dagestan // *Izvestiya, Atmospheric and Oceanic Physics*. 2019. Vol. 55, No. 10. P. 1547–1558.
6. История города Дербента. Составитель Е.И. Козубский, действительный член-секретарь Дагестанского статистического комитета. Темир-Хан-Шура: "Русская типография" В.М. Сорокина, 1906. (Переиздание 2015 г.). 486 с.
7. Кудрявцев А.А. «Длинные стены» на Восточном Кавказе // *Вопросы истории*. 1979. № 11. С. 31–43.
8. Gadzhiev M.S., Kudryavtsev A.A. Steinmetzzeichen des 6. Jahrhunderts N. Chr. in Darband // *Archaologische Mitteilungen aus Iran und Turan*. 2001. Vol. 33. P. 357–390.
9. Дербент-наме (Румянцевский список). Введение, перевод, комментарии Г.М.-Р. Оразаева // *Шихсаидов А.Р., Айтберов Т.М., Оразаев Г.М.-Р. Дагестанские исторические сочинения*. М.: Наука. Издательская фирма «Восточная литература», 1993. 302 с.
10. Дербент-наме (Петербургский список 1225 (1810) года. Перевод с азербайджанского Г.М.-Р. Оразаева // *Дербент-наме на языках народов Дагестана: тексты и комментарии*. Махачкала: МavraевЪ, 2012. 408 с.
11. Алкадары Г.-Э. Асари Дагестан. Исторические сведения о Дагестане / Пер. А. Гасанова. Махачкала, 2009. 240 с.

Received 02.10.2023
Accepted 11.10.2023
Published 15.12.2023

Поступила в редакцию 02.10.2023 г.
Принята в печать 11.10.2023 г.
Опубликована 15.12.2023 г.