

## Abhandlung

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# Ushkiani-Project: Preliminary archaeological investigations in the Lake Sevan Region/Armenia

<https://doi.org/10.1515/pz-2021-0012>

**Zusammenfassung:** Der klar begrenzte Naturraum um die Artanish-Halbinsel (Sevan-See/Armenien) kann aufgrund des bisherigen Fehlens an archäologischen Untersuchungen bis heute als eine wissenschaftliche *terra incognita* der Prähistorie eingestuft werden. Von der Gerda-Henkel-Stiftung im Jahre 2019 unterstützte erste Untersuchungen der Landschaft konnten bereits ein prähistorisches Siedlungsmuster skizzieren, das in direktem Zusammenhang mit dem Goldabbau bei Sotk steht und Teil eines überregionalen Kommunikations- und Handelsnetzes gewesen zu sein scheint. Ziel des Folgeprojekts ist es, eine intensive ganzheitlich-archäologische Untersuchung des Siedlungsnetzwerks in der Umgebung des Goldabbaugebiets durchzuführen und einen interdisziplinären Ansatz zu verfolgen, um diese Strukturen in ein größeres ökologisches und anthropogenes Umfeld einzubetten.

**Schlüsselworte:** Südkaukasus; Armenien; Sevan See; Sotk Bergbau; Artanish Halbinsel

**Abstract:** The enclosed landscape around the Artanish Peninsula (Lake Sevan/Armenia) can be seen as a prehistoric *terra incognita* due to the wholesale lack of archaeological investigations to date. Initial approaches in 2019 – funded by the Gerda-Henkel-Foundation – revealed outlines of the prehistoric settlement patterns which could be placed in relation to gold mining in a clearly delineated natural corridor along this line of superregional communication and trade routes. The intention of the following project is to implement an intensive, holistic-archaeological investigation of the settlement network in the surroundings of the gold mining area and an interdisciplinary

attempt to embed these structures within the larger ecological and anthropogenic environment.

**Keywords:** South Caucasus; Armenia; Lake Sevan; Sotk mining area; Artanish Peninsula

**Ամփոփում:** Արտանիշ թերակղզու (Սևանա լիճ/Հայաստան) ներփակ գոտին հնագիտական ուսումնասիրությունների բացակայության պատճառով կարելի է դիտել որպես նախապատմական *terra incognita*: Գերդա-Հենկել-Հիմնադրամի կողմից ֆինանսավորվող նախնական հետազոտությունները բացահայտում են տարածքի հնագույն բնակեցման առանձնահատկությունները և հնարավորություն են ընձեռում դրանք քննել ոսկու վաղ արտադրությանն առնչվող գործընթացների, ինչպես նաև միջոցառումալ հաղորդակցության ու առևտրական ճանապարհների զարգացման համատեքստում: Ծրագրի նպատակն է իրականացնել ոսկու արդյունահանման տարածքում գտնվող բնակավայրային ցանցի մանրամասն և ամբողջական հնագիտական-միջմասնագիտական հետազոտություն՝ համապատասխան տվյալները շրջանառելով ավելի լայն էկոլոգիական և մարդածին միջավայրում:

**Բանալի բառեր:** Հարավային Կովկաս; Հայաստան; Սևանա լիճ; Սոթքի հանքարդյունաբերական շրջան; Արտանիշի թերակղզի

## Introduction

The Artanish Peninsula and adjacent regions form the eastern scenic part of the Sevan basin, extending to the southeastern slopes of the Areguni Range and to the eastern slopes of the Sevan Range at an altitude of 1900–2300 m a.s.l. The Peninsula currently covers an area of 25 km<sup>2</sup>, the highest point of which is Mount Artanish with an elevation of 2461 m a.s.l.<sup>1</sup> The region is rich in both pre-

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<sup>1</sup> Nazaryan 1976, 134; Hakobyan *et al.* 1986, 491.

historic and historic archaeological sites. However, these sites have not been thoroughly investigated, and the excavations were almost not carried out here, which is why the area until recently was regarded as kind of a scientific *terra incognita*. This, among other reasons, is also due to the “difficult access” and the marginal/island nature of the area.

The area under consideration comprised the Areguni sub-region of the historical province Sotk<sup>2</sup>. It has been mentioned in historical sources from the Urartian period to the late Middle Ages<sup>3</sup> and is described later also in travellers’ accounts<sup>4</sup>. The toponym Artanish/Artanuch/Artanij appears as Arpunj/Arpunchn in the list of the settlements of Sotk province by the medieval Armenian geographer S. Orbelyan<sup>5</sup>.

During the 2015–2016 as well as 2019 seasons, the second part of the Ushkiani-Project conducted surveys in the mentioned area with a main objective of mapping sites that previously were partly investigated and registered in the Lists of State Protected Monuments as well as the discovery of new ones.

## Retrospection to Sotk expedition 2010–2014

The above-mentioned first step of our investigation describes the southeastern part of Lake Sevan around Sotk within the Gegharkunik province (Fig. 1). The region is unique in the South Caucasus due to the intense interaction of prehistoric settlement and early gold mining. The mine at Sotk, still in operation, exploits the largest gold deposit in the Caucasus and has been in use since antiquity<sup>6</sup>.

The mine is situated near the modern village of Sotk, 2100–2500 m a.s.l., on the bank of the Sotk (Mazra) River 18 km northeast of the town of Vardenis. It is mentioned in Urartian (the golden mountain *Ushkiani* in the Hazine kapısı inscription of Sarduri II on the Van rock)<sup>7</sup> and Medieval<sup>8</sup> sources. It is generally thought that the mine was exploited during the 2<sup>nd</sup> millennium BC and remained in use with interruptions until the 14<sup>th</sup> century AD and was

then rediscovered in the 20<sup>th</sup> century AD. The antiquity of the mine is testified by early records of traces of ancient mining such as many pits and funnels covered by grass, underground workings, wooden parts of working devices, stone mortars for working the ores, stone washing pots, large and small hills of slags and pits<sup>9</sup>. Evidence of Bronze Age occupation, in particular traces of settlements, cemeteries, materials (weapons, cultic and everyday objects, etc.), were found all around the mine. The strategic importance of this mining site for the Metal Age cultural makeup of the entire region not only derives from the mine’s vast potential, but also from its position in the Sotk pass, which serves as a direct connection between the southern and eastern Caucasus.

Investigations recording the prehistoric settlement structures within this clearly defined landscape stretching along an important supra-regional communication and trade route in relation to possible sites of prehistoric gold extraction were undertaken as part of an Armenian-German cooperation project<sup>10</sup>. The circumstances of the local geology and the natural mineral deposits of the native gold from Sotk as well as Tsarasar to the south, together with the quantity and spatial distribution of placer gold with the river sediments confirmed the possibility of a prehistoric extraction of primary and secondary gold in the region<sup>11</sup>.

The ancient sites around Sotk should be considered as part of the settlement system in the Sevan Lake basin, or Gegharkunik province of Armenia, where centres like Lchashen played a leading role by controlling the whole region.

The aim of the Armenian-German expedition between 2010–2014 was to reconsider already known sites and to look for new ones, thereby enlarging the knowledge of the settlement system of the Sotk mining region<sup>12</sup>. With this purpose, we visited and surveyed 41 sites altogether, 29 of which were surveyed for the first time.

The majority of these sites can be classified as fortified settlements on natural hills with flat tops and steep slopes, fortresses on natural rocks with huge, “cyclopean” masonry and cemeteries. The analysis of the ceramic finds shows that the investigated region was inhabited during the Early, Middle, and Late Bronze/Early Iron Ages<sup>13</sup>.

During the 2011–2014 seasons, test excavations took place at the sites Sotk 2 and Norabak 1. The Sotk 2 settle-

<sup>2</sup> Alishan 1855, 79; 1893, 76.

<sup>3</sup> Arakel Davrizhetsi 1990, 106; 114.

<sup>4</sup> Alishan 1893, 65; 76 f.; Smbatyants 1895, 634 ff.

<sup>5</sup> Orbelyan 1910, 514 f.; cf. Alishan 1893, 76.

<sup>6</sup> Kunze *et al.* 2011; Wolf/Kunze 2014.

<sup>7</sup> Cf. Kunze *et al.* 2013.

<sup>8</sup> Eremyan 1963, 80.

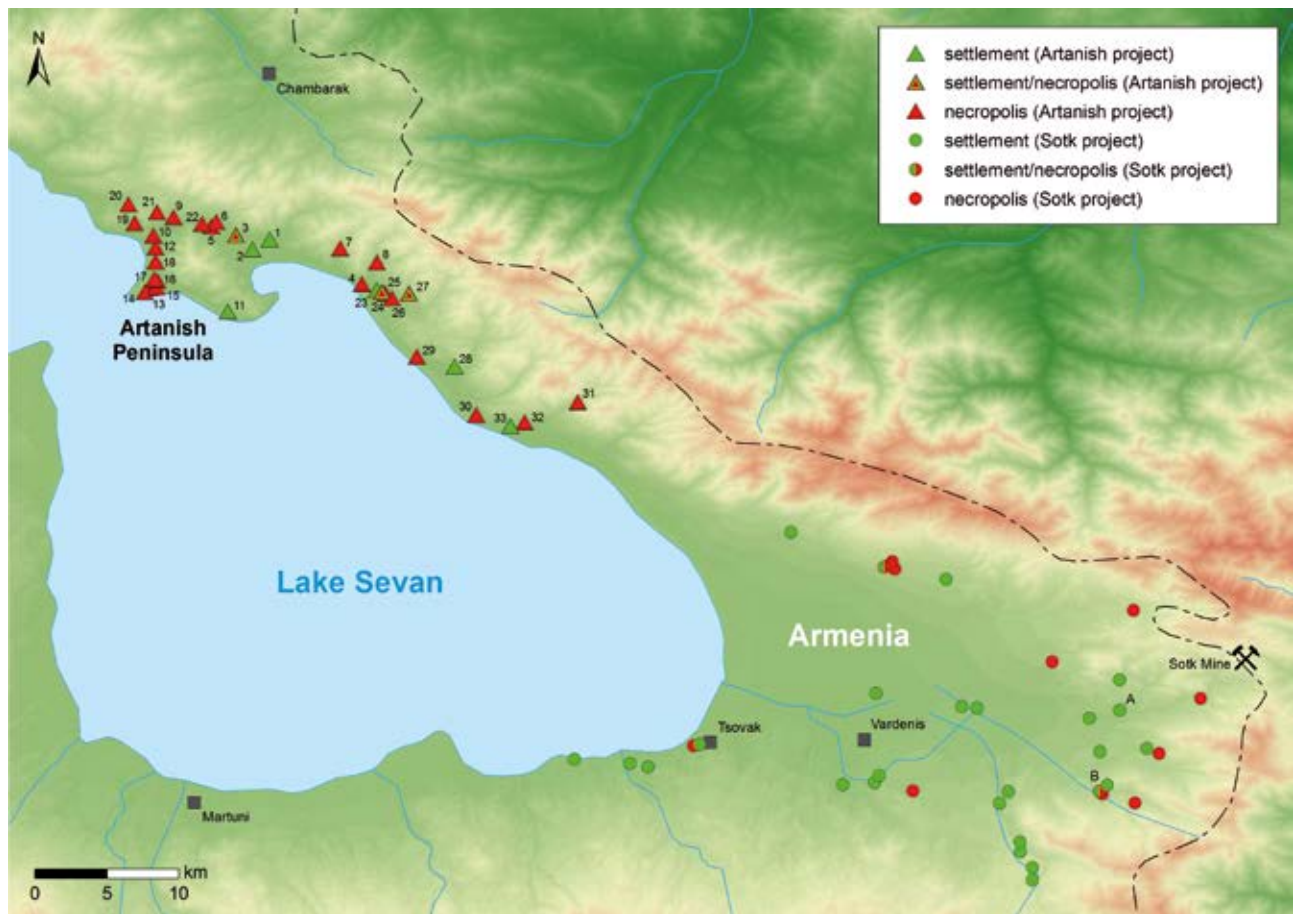
<sup>9</sup> Wolf/Kunze 2014.

<sup>10</sup> The final publication to it is currently in progress.

<sup>11</sup> Wolf/Kunze 2014.

<sup>12</sup> Cf. Kunze *et al.* 2011; 2013.

<sup>13</sup> Bobokhyan *et al.* 2017.



**Fig. 1:** Archaeological sites around the districts of Sotk gold mining and Artanish Peninsula. Base map: SRTM version 3.0 global 1 arc second data, by courtesy of the U.S. Geological Survey (USGS) and the National Aeronautics and Space Administration (NASA), public domain (© A. Swieder, Halle [Saale]).

ment (cf. Fig. 1, site A) is located within the village of Sotk; it is an oval hill measuring 6500m<sup>2</sup>. This settlement may have played a special role in the settlement system of the region, since it is situated immediately north of the road leading to the gold mine. Excavations indicate the following periods of habitation: Early Bronze Age, Middle Bronze Age, Late Bronze Age, Early Iron Age, Middle Iron Age, and medieval<sup>14</sup>. Among those, only the Early, Middle, and Late Bronze Ages are represented by deposits, whereas the others are known only through scattered finds. This type of multi-layer stratigraphy can be considered in the context of the location of the site by an important road. The excavations at Sotk 2 proved that the Early Bronze Age settlement was built on terraces and the Middle and Late Bronze Age settlements were located in the centre within fortification walls. One of the most interesting features is the presence of an intramural Late Bronze Age pit-grave

located just at the centre of the settlement. The grave belonged to an important person, as indicated by the rich finds such as a bronze dagger and nine rings, hundreds of carnelian beads and glass beads, etc<sup>15</sup>. It is noteworthy that the grave is contemporary with the Late Bronze Age layer, which is an extraordinary case.

The site of Norabak 1 is located near the village of Norabak on the strategic route to the Sotk mine and consists of a settlement and a cemetery (cf. Fig. 1, site B). The fortified settlement yielded Early Bronze and Early Iron Age as well as medieval layers. The cemetery consists of 21 large and small cromlechs, mainly barrows. During the 2012 season, Kurgan 1 was excavated; this is a tomb whose cromlech has a diameter of 9 m, while the overall diameter of the structure, consisting of a stone cover inside and outside of the cromlech, amounts to 12 m. Two pits and two cist graves covered with large slabs (symmetrically

<sup>14</sup> Kunze *et al.* 2013, 57 ff.

<sup>15</sup> *Ibid.* 60 ff.



**Fig. 2:** Middle Bronze Age painted Urmia Ware sherd (1) in combination with local ceramic sherds (2,3) from the Sotk 2 settlement (trench E, unit 11) (© A. Bobokhyan, Ushkiani-Project).

placed in a north-south direction) were excavated within the cromlech. They yielded rich grave-goods (more than 40 bronze objects – mainly ornaments and insignia of power, complete vessels, hundreds of carnelian, and some glass beads) belonging to 5–6 different individuals, all dating to the Late Bronze and Early Iron Ages<sup>16</sup>.

The chronology of the aforementioned sites in the Sotk mining district is based on dozens of <sup>14</sup>C analyses.<sup>17</sup> Further analyses of unearthened metal and obsidian will help to understand the peculiarities of regional interaction in the area<sup>18</sup>. Long distance contacts are attested, e. g. by the presence of late Middle Bronze Age painted Urmia Ware sherds from the site of Sotk 2 (Fig. 2)<sup>19</sup>.

With the aim of further investigating the surroundings of the gold-rich area, the project participants decided to devote their inquiries to the region surrounding the area of the Artanish Peninsula after completion of the investigations in Sotk, as the Artanish Peninsula is very likely to be directly related to the current research questions.

## New research at the Artanish Peninsula

### Natural and Historic Environment

The historical and cultural developments in the Artanish region cannot be understood without examining the natural conditions. In particular, being located on the shores of Lake Sevan, the population of the area has always been dependent on fluctuations of the lake level. Lake Sevan is the largest lake in the Caucasus and the

second largest in the world by its relative elevation and resources of freshwater (after Titicaca). It has a volcano-tectonic origin. The Shorzha mound and promontories of Artanish and Noratus divide the lake into Big Sevan and Small Sevan. The Big Sevan basin was formed during the Miocene, while the Small Sevan is a relatively young formation. Modern Sevan emerged as a result of volcanic eruptions during the Upper Quaternary and the formation of lava dams on the floodplain of the paleo-Hrazdan. There was a sharp fluctuation of the level during the historical period caused by tectonic movements (in the 3<sup>rd</sup> millennium BC, the water level of the lake decreased to the present level)<sup>20</sup>.

Investigations of the archaeological sites and the related historical environment of the Sevan basin was directly dependent upon the fluctuations of the lake level. The fluctuations in ancient times are evidenced by the fact that, after artificially lowering the horizon by 8–10 m, settlements and tombs were discovered at the bottom of the lake<sup>21</sup>. Two photographs have been preserved, dated to the second half of the 1920s, in which the Armenian archaeologist A. Kalantar is copying the Urartian inscription at Odzaberd/Tsovinar<sup>22</sup>. These photographs indicate that, in the 1920s, the level of water was quite high in Sevan, which means that the coastal zones of the Artanish Peninsula were also covered with water. The lake level began to drop by the end of the 1920s, paralleling the economic rise of Armenia<sup>23</sup>.

## Communication system

At first glance, the Artanish region, having occupied a narrow strip between the Lake Sevan and the Areguni Range, appears isolated. However, the historical and archaeological data indicate that this initial impression is inaccurate. In the Middle Ages, one of the directions of the Dvin-Partav trade route passed through this region, reaching the Kura basin and Partav City<sup>24</sup>. It can be assumed that the ancient road passed through the eastern shore of the lake as it does today. It started from Avazan/Geghamasar and reached Shorzha-Aghberk/Drakhtik. In the Pambak/Daranak, Areguni/Geghamasar and Shorzha/Aghberk sec-

<sup>16</sup> Ibid. 61 ff.

<sup>17</sup> Ibid. 60; 70.

<sup>18</sup> Kunze *et al.* 2011; 2013.

<sup>19</sup> Cf. Rubinson 1976, 235; Piller 2004.

<sup>20</sup> Gabrielyan 1980.

<sup>21</sup> Baghranyan 1971, 12 f.

<sup>22</sup> Kalantar 1994, 49; 2007, 242; cf. Karakhanyan 2003, ill. XXII.

<sup>23</sup> Baghranyan 1971, 8 f.

<sup>24</sup> Barkhudaryan 1973, 7.





**Fig. 3:** Fortress Artanish 19. View facing Lake Sevan and Gegham Mountains (© L. Mkrtchyan, Ushkiani-Project).

tions of the road, it turned to the east through mountain passes<sup>25</sup>.

The first level of connections within the Artanish zone was certainly the Sevan Lake basin, the historical monuments of which show primary affinity to the monuments of Artanish<sup>26</sup>. For the second level of connections, the northern (towards Ayrarat) and southern (towards Karvachar) directions are noteworthy. The Areguni and Sevan Mountains have acted as cultural boundaries for eastern connections. As for the western direction, the Artanish zone could also be connected with the outside world through the lake road. In addition to the basalt anchors discovered in Shorzha and Lchashen<sup>27</sup>, this is evidenced by the presence of the Artanish 19 fortification system, which could

have served as a harbour (Fig. 3). From this perspective, Movses Khorenatsi's note on the lake navigation during the reign of King Artashes<sup>28</sup> is remarkable, which could certainly concern the Sevan Lake. Creation of regular communication and control over the lake by Artashes is also evidenced by the fact that the overwhelming majority of Artasheside border-stones have been discovered in the Sevan Lake basin, which indicates that the area was in line with the reforms and overall activity of the king<sup>29</sup>.

## Previous studies

The prehistoric archaeological sites of the Artanish region were first mentioned at the end of the 19<sup>th</sup> and at

<sup>25</sup> Gh. Alishan mentions the ruins of a coastal caravanserai, located on the road (Alishan 1893, 76; cf. Barkhudaryan 1982, 9).

<sup>26</sup> For comparison of fortress systems cf. Mikaelyan/Esayan 1968, 290.

<sup>27</sup> Petrosyan 2015, 17 pl. III–IV.

<sup>28</sup> History of Armenia II, LIX.

<sup>29</sup> Cf. Hmayakyan 2002, 72 ff.

the beginning of the 20<sup>th</sup> centuries. A cyclopean fortress on the Artanish (Adatapa) Peninsula is mentioned by A. Ivanovsky<sup>30</sup>. E. Lalayan also names some fortresses<sup>31</sup> and, in the vicinity of Nadezhdino/Shorzha village between the village and the Artanish (Adatapa) Peninsula on the northern shore of the lake, he conducted excavations in the necropolis: a small tomb was excavated here surrounded by groups of other tombs. Almost all types of tombs were present at the site<sup>32</sup>.

From 1926 to 1928, when the investigation of Lake Sevan itself was launched<sup>33</sup>, the Committee for the Preservation of Antiquities in Armenia, under the direction of A. Kalantar, undertook works around the lake and, in particular, in the Artanish Peninsula<sup>34</sup>. A. Tamanyan and A. Kalantar in a letter addressed to the Minister of Education A. Mravyan, put the emphasis on archaeological investigations to be conducted in the Sevan basin<sup>35</sup>. In a letter to S. Ter-Hakobyan, A. Tamanyan asks his opinion on the “hieroglyphic inscriptions” found in the Sevan region, i. e. the petroglyphs. In the letter, he emphasizes “[...] the importance of examination of the Sevan basin by the expedition of the Committee and particularly the hieroglyphic inscriptions and materials collected in that context, after which the Committee will consider it necessary to publish them”<sup>36</sup>.

In the 1920s, the Armenian writer and traveller Atrpet describes monuments in the discussed region. He talks about the antiquities of Sotk, Vardanabak, Basargechar, Mazra, Shorzha, and Artanish (fortresses, tombs, dolmens). He describes robbed tombs in Vardanabak (Kirkbullagh) and, as a parallel to the discovered pottery references the *Ceramique cappadocienne* by Genoulliac, suggests that it concerns a Middle Bronze Age tomb<sup>37</sup>. The writer compares these landscapes to other regions known by “vishap/dragon stones”, reminisces about the local saints/ziarets, tells a legend about the dragon coming out of the lake, and assumes that there was a “dragon temple” on this side<sup>38</sup>.

In the 1960s, separate surveys were carried out by G. Mikayelyan and S. Yesayan, who mention the fortresses of

Dashti-ler and Artanish, for the first time presenting a corresponding topographical map<sup>39</sup>.

From 2004 to 2005 in the vicinity of the Artanish Peninsula, surveys were conducted by the joint Armenian-Italian archaeological expedition. From the obtained results, a preliminary report on the fortresses of the Artanish Peninsula and Shorzha was published<sup>40</sup>.

From 1990 to 2000, registration of the archaeological sites was conducted by the organizations related to the preservation of monuments. The results (monuments of all periods) are reflected in the relevant state lists of archaeological monuments<sup>41</sup>.

Systematic excavations have not been carried out in the region. The only testimony to this is the above-mentioned tomb, excavated by E. Lalayan in the vicinity of the village of Nadezhdino/Shorzha, and nothing is known about its contents or dating. Occasionally in the scientific literature, random finds are mentioned: cf. materials related to the Kura-Araxes Culture of the Early Bronze Age<sup>42</sup> and the Trialeti-Vanadzor Culture of the Middle Bronze Age<sup>43</sup> or the above-mentioned basalt anchor/weight-stone found at Shorzha<sup>44</sup>.

## The results of recent investigations

During the 2015–2016 and 2019 initial field surveys as a part of the new Ushkiani-Project, we were able to map and document 53 new sites, of which 39 were previously unknown (Tab. 1). The main ones were necropolises, but also some directly connected settlements. Based on the photographs, the initial positions of five vishaps (dragon stones) have been located and a topographical map has been created as well as a mapping of visible connections of the vishaps (by the landscape profile).

As a result of the analysis of discovered pottery material (among others), the archaeological sites of the Artanish Peninsula are dated to the periods from the Early Bronze Age (ca. 3500–2400 BC) to the Classical Period and Middle Ages (300 BC–AD 1200) with a special focus on the late Middle Bronze to Middle Iron Ages (ca. 1600–600 BC).

The region is associated with the Kura-Araxes Culture during the Early Bronze Age. In the Middle Bronze Age,

<sup>30</sup> Ivanovski 1911, 28.

<sup>31</sup> Lalayan 1910, 31 ff.

<sup>32</sup> Lalayan 1931, 67; Tumyan 1937, 25.

<sup>33</sup> Petrosyan 2015, 57 f. 153.

<sup>34</sup> Kalantar 1994, 6; 47; 49; 2007, 21; 242; cf. Karakhanyan 2003, ill. XXII.

<sup>35</sup> Tamanyan 2002, 288 f.

<sup>36</sup> Tamanyan 2000, 387.

<sup>37</sup> Atrpet 1924, 32; 45 ff.; 1927a, 16 ff.

<sup>38</sup> Atrpet 1927b, 42; cf. Gilibert *et al.* 2012.

<sup>39</sup> Mikayelyan/Esayan 1968, 293 f.; Mikayelyan 1968, 45 f. topomap f.

<sup>40</sup> Hmayakyan *et al.* 2008, 155 f.

<sup>41</sup> SLM 2002, Gegharkunik province, Artanish 4.18; Shorzha 4.74, etc.

<sup>42</sup> Petrosyan 2018, 13.

<sup>43</sup> Piliposyan/Mkrtchyan 2001, 5.

<sup>44</sup> Petrosyan 2015, 17 pl. III–IV.

**Tab. 1:** Selected Bronze and Iron Age as well Classical and Middle Age period archaeological sites of the Artanish Peninsula. EB – Early Bronze, MB – Middle Bronze, LB – Late Bronze, EI – Early Iron, MI – Middle Iron, LI – Late Iron, HL – Hellenistic, MA – Middle Age.

No	Site	Fortress- Settlement	Settle- ment	Necropolis	Dating
1	Artanish-6	x			LB-LI
2	Artanish-8	x			MB-MI
3	Artanish-9		x	x	EB
4	Artanish-12			x	MB-MI
5	Artanish-13			x	MB-MI
6	Artanish-14			x	MB-MI
7	Artanish-15			x	MB-MI
8	Artanish-16			x	MB-MI
9	Artanish-17			x	MB
10	Artanish-18			x	MB-MI
11	Artanish-19	x			MB-HL
12	Artanish-23			x	MB-MI
13	Artanish-24			x	MB-MI
14	Artanish-25			x	MB-MI
15	Artanish-26			x	MB-MI
16	Artanish-27			x	MB-MI
17	Artanish-28			x	MB-MI
18	Artanish-29			x	MB-MI
19	Artanish-30			x	HL
20	Artanish-31			x	MB-MI
21	Artanish-32			x	MB-MI
22	Artanish-33			x	MB-MI
23	Artanish 35	x			LB-MI
24	Artanish-36		x	x	LB-MI
25	Artanish-37			x	MB-MI
26	Artanish-38			x	MB-MI
27	Artanish-39		x	x	MB-MI
28	Tsapatagh-1	x		x	MB-MI
29	Tsapatagh-3			x	MB-MI
30	Tsapatagh-4			x	MB-MI
31	Pambak-1			x	MB-MI
32	Pambak-2			x	MB-MI
33	Pambak-3	x			LI, HL, MA

materials typical of the Trialeti-Vanadzor and Sevan-Uzerlik Cultures were identified. In the Late Bronze and Iron Ages, the existence of Lchashen-Metsamor Culture is evident and, finally, during the Classical Period and the Middle Ages, the area was included in the area of Armenian Culture.

In 2019, the survey was enriched by accompanying magnetometer surveys, a method of geophysical prospection applied in archaeology. J. Fassbinder's team from the Ludwig-Maximilian-University of Munich prospected a settlement (Artanish 9) and two necropolises (Artanish 23 and 29). Each area was magnetically scanned by a sampling interval of 50 cm and a sampling rate of 0.1 s concluding in a traverse interval of 25 cm. Two different

types of magnetometers were applied, a Caesium Scintrex Smartmag SM4G-special magnetometer and a caesium Geometrics G-585 magnetometer<sup>45</sup>.

The geological background of the prospecting location is dominated by the sea sediments of Lake Sevan as well as mountain-forest brown soils. Locally-occurring Jurassic-Cretaceous ophiolite complexes like Gabbro-pyroxenite and periodite as well as late Cretaceous sedimentary rocks, especially carbonate and terrigenous deposited limestone, can also be found in the archaeological sites.

In Artanish 9, a recently discovered flat hill was prospected and surveyed encompassing an area of approx. 0.5 ha (Fig. 4). Numerous ceramic sherds belonging to Kura-Araxes tradition indicate a settlement of the Early Bronze Age. In the area of Artanish 23 (Fig. 5), an area of 1.5 ha has been covered. Four larger and at least 32 smaller rock enclosures (cromlechs) are recognizable in the aerial image and magnetogram (Fig. 6; 7). At least four of the larger ones are burial mounds (kurgans), as their grave chambers are visible in the magnetogram. During the preliminary field investigation, one burial mound with a cist grave was excavated. A male person of 30–35 years was buried in the tomb with ceramic, bone and bronze objects inside. One bone of the interred individual was tested by means of radiocarbon dating. With a calibrated value of  $2837 \pm 22$  BP (MAMS 43487: 1051–921 BC at 95,4 %), this date falls in the Early Iron Age.

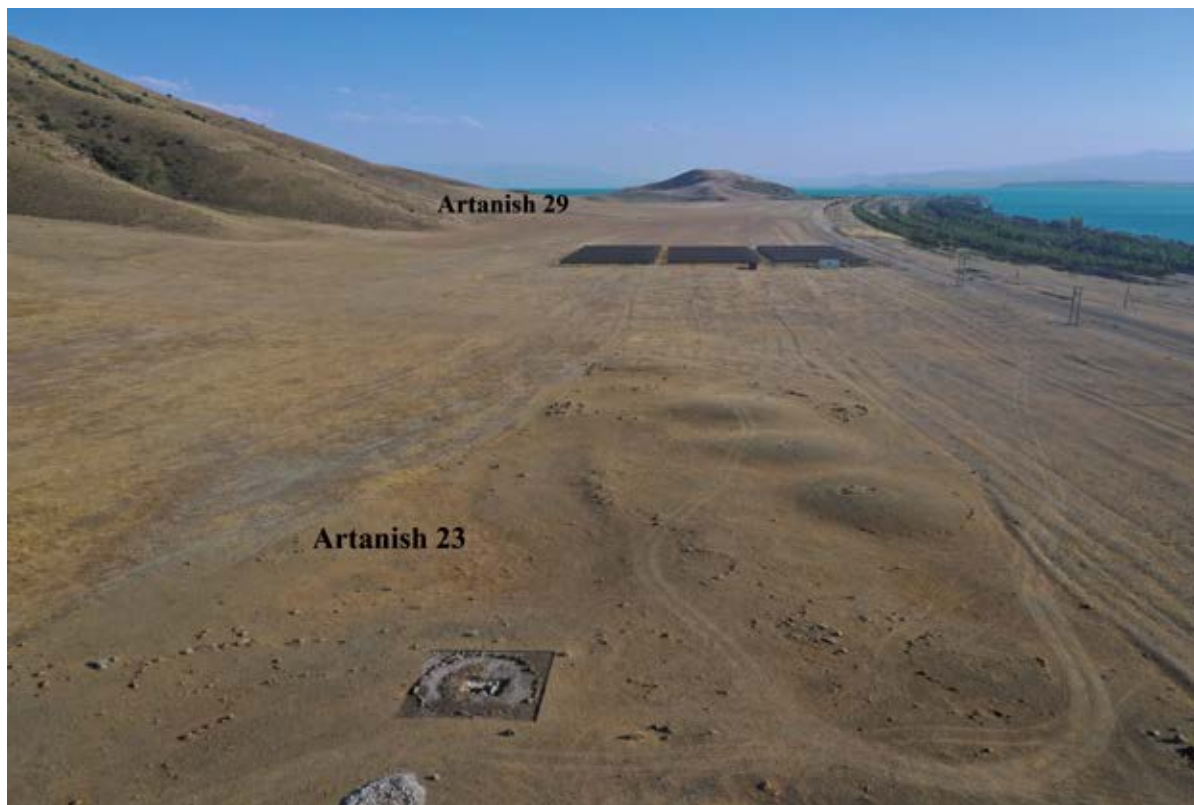
In Artanish 29 (Fig. 5) – ca. 1 km away from Artanish 23 – the aerial image and magnetogram show smaller stone circles with an area of approx. 1 ha (Fig. 8; 9). A grave chamber is visible in at least three. The northern grids were full of likely misplaced, highly magnetic ophiolites, recognizable on the anomalies. During the same season, another burial mound was excavated here. The cist grave was full of human bones belonging to 17 males, 4 females, and 6 adults with unknown sex, as well as animal bones, ceramic sherds, beads, bronze and iron objects. With a calibrated value of  $2493 \pm 21$  (MAMS 43488: 770–541 BC at 95,4 %), this grave dates to the Late Iron Age (MAMS 43488)<sup>46</sup>.

<sup>45</sup> The geophysical prospection 2019 was funded by the Gerda-Henkel-Foundation. We would like to express our deepest gratitude to the foundation as well as J. Fassbinder and his team, namely S. Ostner and M. Parsi.

<sup>46</sup> The publication of both burial mound results are in preparation.



**Fig. 4:** Area of the settlement Artanish 9. View to southeast (© J. Abele, Tübingen).

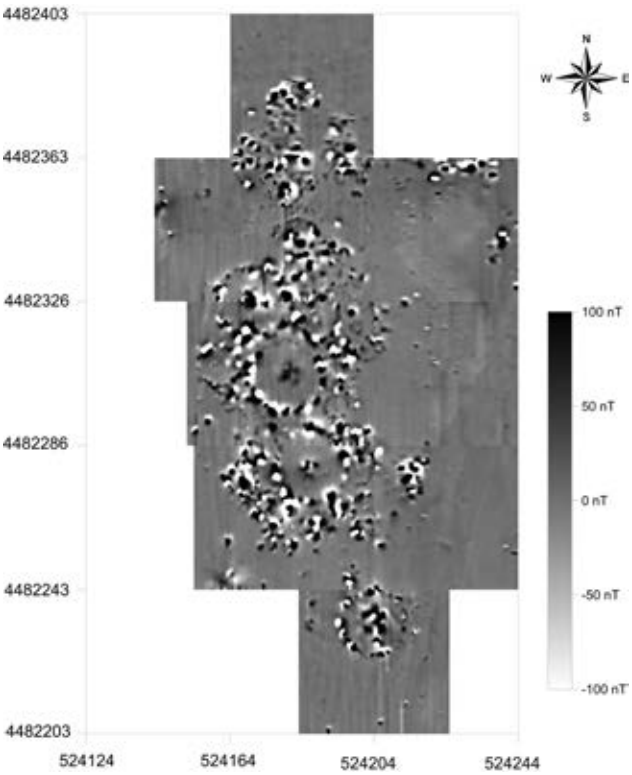


**Fig. 5:** Area of the cemeteries Artanish 23 and Artanish 29 in the background. View to south (© J. Abele, Tübingen).





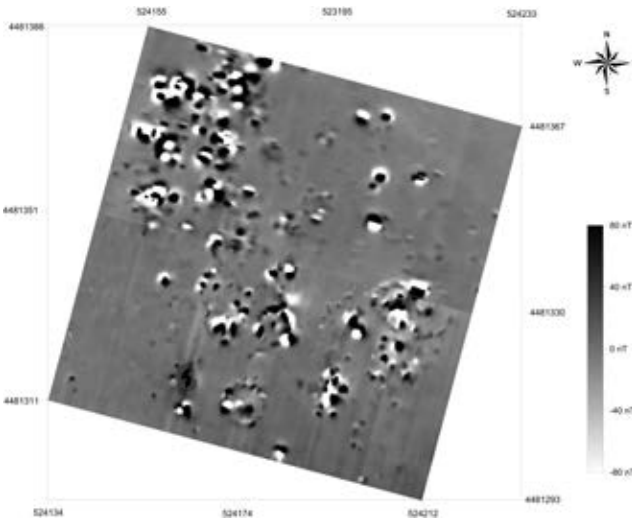
**Fig. 6:** Cemetery of Artanish 23. Ortho Image with re-drawings of kurgans (© J. Abele, Tübingen).



**Fig. 7:** Cemetery of Artanish 23. Magnetometer measurements (© S. Ostner, Munich).



**Fig. 8:** Cemetery of Artanish 29. Ortho image (© J. Abele, Tübingen/R. Kunze, Halle [Saale]).



**Fig. 9:** Cemetery of Artanish 29. Magnetometer measurements (© S. Ostner, Munich).

## Conclusions

The Artanish region is an exceptional sub-region that enables the exploration of the process of landscape transformation in an “island” environment. At first glance, being a tiny part surrounding the east shores of the Lake Sevan, Artanish became isolated, playing a marginal role in the historical and cultural developments of the Armenian Highland. However, detailed historical studies and especially new archaeological data indicate the opposite: the region was involved primarily in regional (the Sevan Lake basin) and, eventually, in interregional (Ayrarat, North Artsakh) developments. Certain natural isolation has given the area a type of “island” society and protected it from external danger, which also served as a background for some independence and autonomy, as well as the development of appropriate communications.

Intensive archaeological field work will start in 2020. Initially, sites mentioned in this article like the settlement of Artanish 9 as well as burial grounds Artanish 23 and 29 will be investigated on a large scale. The aim of this multidisciplinary project, which is funded by the German Research Foundation (DFG), will hopefully show a clear connection between the prehistoric settlements and the extraction and processing of gold.

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