

Edited by
Boris GASPARYAN
Makoto ARIMURA

STONE AGE OF ARMENIA



Kanazawa University

2014

Institute of Archaeology and Ethnography of
the National Academy of Sciences of
the Republic of Armenia

Gfoeller Fund of America Corporation, Armenian Branch

Center for Cultural Resource Studies, Kanazawa University

STONE AGE OF ARMENIA

*A Guide-book to the Stone Age Archaeology in
the Republic of Armenia*

Edited by

Boris GASPARYAN

Makoto ARIMURA

Scientific advisory board:

Pavel AVETISYAN, Sumio FUJII

Monograph of the JSPS-Bilateral Joint Research Project

Center for Cultural Resource Studies,
Kanazawa University

2014

Stone Age of Armenia. A Guide-book to the Stone Age Archaeology in the Republic of Armenia.

Monograph of the JSPS-Bilateral Joint Research Project.

Edited by Boris Gasparyan, Makoto Arimura

Published by Center for Cultural Resource Studies, Kanazawa University, Kanazawa, Japan. 2014.

ISBN 978-4-9908070-0-9

Scientific advisory board:

Pavel Avetisyan (Institute of Archaeology and Ethnography of NAS RA)

Sumio Fujii (Center for Cultural Resource Studies, Kanazawa University)

© 2014 Center for Cultural Resource Studies, Kanazawa University

© 2014 Institute of Archaeology and Ethnography of NAS RA

© 2014 Gfoeller Fund of America Corporation, Armenian Branch

All rights reserved.

Printed in Japan.

ACKNOWLEDGEMENTS

This monograph is the fruit of international cooperations by who have passion to understand the Stone Age in Armenia. We deeply express our thanks to the following people.

We want to acknowledge Charles P. Egeland, Andrew W. Kandel and Dan S. Adler for their incredible help to review and correct the English texts. Also Diana Zardaryan provided English translations for some of the texts written in Russian and Armenian. Arsen Bobokhyan and Kristine Martirosyan-Olshansky contribute to corrections of numerous texts. We thank Benik Yeritsyan for providing the photographs and lithic materials from the Soviet period excavations. The photography of the archaeological materials, map and schematic images are made by Dmitri Arakelyan. Also Andrew W. Kandel, Cyril Montoya, Vram Hakobyan, Kristine Martirosyan-Olshansky, Armine Hayrapetyan, Alexia Smith, Lyssa Stapleton, Diana Zardaryan, Arthur Petrosyan, Aleksandr Yesayan, Anna Khechoyan, Firdus Muradyan contributed to the figures and photography of the archaeological materials. Topographic and architectural plans are drawn by Smbat Davtyan, Hasmik Sargsyan, Hovhannes Sanamyan, Andrew W. Kandel, Armine Hayrapetyan and Tigran Badishyan. Geological drawing for the stratigraphic sections of archaeological sites are provided by Samvel Nahapetyan. Drawings of the artifacts are done by Garik Prveyan, Gauthier Devilder, Elham Ghasidian, Hasmik Sargsyan, Armine Harutyunyan, Narine Mkhitarian, Phil Glauberman, Yanik Henk and Diana Zardaryan. Restoration and cleaning of the textiles, basketry and metal artifacts is done by Yelena Atoyants. Special thanks to Anahit Galstyan for her kind help with the design of the figures. We acknowledge all those mentioned here without of whose contribution the book will come up just as a poor collection of texts.

We should also to acknowledge members of our team not appearing as authors, but have a big organizational input bringing this event to life, who are Suren Kesejyan, Hovhannes Partevyan and Robert Ghukasyan.

And finally, but most importantly, we extend our profound thanks to all the colleagues spending their energies, times and efforts to make this publication a reality.

CONTENTS

7 Introduction

Pavel Avetisyan and Sumio Fujii

13 Study of the Stone Age in the Republic of Armenia. Achievements and Perspectives

Boris Gasparyan and Makoto Arimura

PALEOLITHIC

37 Recently Discovered Lower Paleolithic Sites of Armenia

Boris Gasparyan, Daniel S. Adler, Charles P. Egeland and Karen Azatyan

65 The Middle Paleolithic Occupation of Armenia: Summarizing Old and New Data

*Boris Gasparyan, Charles P. Egeland, Daniel S. Adler, Ron Pinhasi,
Phil Glauberman and Hayk Haydosyan*

107 Living the High Life: The Upper Paleolithic Settlement of the Armenian Highlands

Boris Gasparyan, Andrew W. Kandel and Cyril Montoya

EARLY HOLOCENE / NEOLITHIC

135 Early Holocene Sites of the Republic of Armenia: Questions of Cultural Distribution and Chronology

Arthur Petorsyan, Makoto Arimura, Boris Gasparian and Christine Chataigner

161 Aknashen – the Late Neolithic Settlement of the Ararat Valley: Main Results and Prospects for the Research

Ruben Badalyan and Armine Harutyunyan

177 Preliminary Results of 2012 Excavations at the Late Neolithic Settlement of Masis-Blur

*Armine Hayrapetyan, Kristine Martirosyan-Olshansky, Gregory E. Areshian and
Pavel Avetisyan*

191 On Neolithic Pottery from the Settlement of Aknashen in the Ararat Valley

Armine Harutyunyan

CHALCOLITHIC

- 207 About Some Types of Decorations on the Chalcolithic Pottery of the Southern Caucasus**
Diana Zardaryan
- 219 Weaving the Ancient Past: Chalcolithic Basket and Textile Technology at the Areni-1 Cave, Armenia**
Lyssa Stapleton, Lusine Margaryan, Gregory E. Areshyan, Ron Pinhahi and Boris Gasparyan
- 233 Late Chalcolithic and Medieval Archaeobotanical Remains from Areni-1 (Birds' Cave), Armenia**
Alexia Smith, Tamara Bagoyan, Ivan Gabrielyan, Ron Pinhasi and Boris Gasparyan
- 261 Forest Exploitation during the Holocene in the Aghstev Valley, Northeast Armenia**
Makoto Arimura, Boris Gasparyan, Samvel Nahapetyan and Ron Pinhasi
- 283 Transition to Extractive Metallurgy and Social Transformation in Armenia at the End of the Stone Age**
Arsen Bobokhyan, Khachatur Meliksetian, Boris Gasparyan, Pavel Avetisyan, Christine Chataigner and Ernst Pernicka
- 315 Rock-Painting Phenomenon in the Republic of Armenia**
Anna Khechoyan and Boris Gasparyan
- 339 Discovery of the First Chalcolithic Burial Mounds in the Republic of Armenia**
Firdus Muradyan
(with contributions by Diana Zardaryan, Boris Gasparyan and Levon Aghikyan)
- 365 List of Authors**

INTRODUCTION

Our initial reason for producing this volume was to publish the proceedings of the workshop titled “Stone Age in Armenia”. This workshop was organized by staff at the Institute of Archaeology and Ethnography of the National Academy of Sciences of the Republic of Armenia, and Kanazawa University, Japan, with the support of the Armenian Branch of the Gfoeller fund of America Corporation. The main aim of the workshop was to share and exchange a growing body of knowledge emerging from archaeological investigations by researchers in Armenia. Additionally, organizers – who included the authors of this paper – invited young researchers and graduate students to make presentations at the workshop, since it was thought their involvement would be indispensable to the future development of the field of archaeology. The workshop was held in the library at the Institute of Archaeology and Ethnography, Republic of Armenia, on 5 March 2013 (Figure 1). Fifteen talks were given, introducing the latest results from field studies and scientific analyses dating from the Paleolithic, Neolithic, and Chalcolithic periods. Although the workshop was quite long and tiring, participants filled the room with a palpable sense of excitement (Figures 2-8).

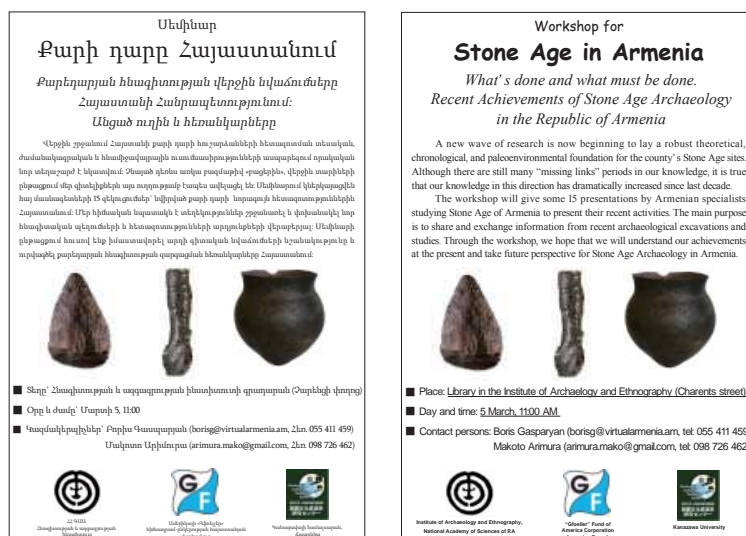


Figure 1
Announcement posters for the workshop in Armenian and English.

Since some authors prepared their papers after the workshop's conclusion, and others not in attendance expressed interest in contributing to the series of papers, we decided to prepare a monograph presenting recent findings of archaeological research conducted on the Stone Age sites in the Republic of Armenia.

By means of this publication, we hope that readers will become aware of our achievements to date, and come to understand the future prospects for Stone Age archaeology in Armenia. In addition, this workshop marks the beginning of cooperative efforts between Armenian and Japanese archaeologists - after all, both countries have unique and long-standing historical-cultural traditions in this field.

Pavel Avetisyan

Director of the Institute of Archaeology and Ethnography, the National Academy of Sciences of the Republic of Armenia

Sumio Fujii

Director of the Center for Cultural Resource Studies, Kanazawa University, Japan



Figure 2
Participants and audience in the workshop.

ROCK-PAINTING PHENOMENON IN THE REPUBLIC OF ARMENIA

Anna Khechoyan and Boris Gasparyan

1. Introduction: The history of the discoveries

The earliest discoveries of rock-painting in the territory of the Republic of Armenia date to the end of the 1970s and involved the description of paintings from a cave in the Khosrov Reserve, itself within the Darband River valley (a tributary of the Azat River) (Arekelyan 1982). According to B. Arakelyan, among the 166 rock-paintings in Darband cave, 164 represented anthropomorphic silhouette style figures (Figure 1: 1, 2) while the remaining two represented zoomorphic figures. Brown, red, and black pigments were used for to construct the paintings. B. Arakelyan, based on the relatively small sizes of the images and their monochromaticism, silhouette style solutions, schematization, and overall stylistic features, referred the paintings to the Neolithic period. He reported further that test excavations within the cave sediments unearthed two lithic tools (Arekelyan 1982, pp. 52-53). Doubts remained about the authenticity of the Khosrov Reserve images, however, with some even attributing them to modern authors. Nevertheless, the Darband Cave works are likely the first reported cave paintings in Armenia, although additional, and more detailed, study of these and other works are required, particularly in light of newly discovered sites with similar finds.

During systematic surveys in 2002 in the Kasakh River gorge, 3.5 km NW of the modern village of Artashavan, a new cave site, Geghamavan-1 (called Red Cave by locals) was discovered near the newly founded village of Geghamavan at the western foot of Mt. Ara. The interior of the cave – ceiling, walls, and facade – and the surfaces of broken rock slabs retain red ochre paintings. The newly discovered site was thoroughly studied in 2002-2003 by a joint Armenian-French expedition (led by B. Gasparyan – Institute of Archaeology and Ethnography and C. Chataigner

– Maison de l’Orient et de la Méditerranée, Lyon). Along with the documentation of the rock-paintings themselves, test excavations were carried out as well (Gasparyan and Sargsyan 2003a; 2003b; Gasparyan *et al.* 2005; Feruglio *et al.* 2005; Khechoyan and Gasparyan 2005; Feruglio and Khechoyan 2007; Khechoyan *et al.* 2007).

In 2009, another group of rock-paintings was discovered in the Kasakh River gorge by A. Asryan, who was the first to notice one of the figures during his survey (Figure 9: 1a). In 2011 an expedition from the Institute of Archaeology and Ethnography headed by A. Khechoyan visited the site and managed to document the whole complex, which consisted of four poorly preserved, and barely perceptible, rock-paintings made with red ochre. This site is located on the NW approaches of the town of Ashtarak, 13 km south of Geghamavan-1 cave, on a hill on the left bank of the Kasakh River – on an imposing rock called Pokaberd by locals (Shahaziz 1987, p. 179) and just in front of the famous caves of Darabavor¹.

And, finally, in 2013 a rare rock-painting was discovered on the southern foothills of Mt. Aragats in the northern outskirts of the village of Kakavadzor at the head of the Kakavadzor River gorge. This drawing, which was initially discovered by a local villager A. Stepanyan, forms part of the Kakavaberd archaeological complex and is represented by a bichrome painting on the surface of a small rock niche. A detailed analysis of the rock-painting was carried out by A. Khechoyan (Institute of Archaeology and Ethnography) that same year.

2. Description of the sites

2.1. Geghamavan-1 cave

Geghamavan-1 cave is situated on the eastern side of Mt. Aragats and on the western foothills of Mt. Ara upon basalt formations of the left 4th terrace of the Kasakh River gorge. The site is located about 70 m above the river at an altitude of 1738 m above sea level (Figure 2). The covered portion of the shelter is relatively large (11 m wide, 4 m high, 8 m deep at its opening) and opens to south-west. The cave’s ceiling is continuously peeling off in decimeter-size slabs that may have formed the backing for paintings. An active spring located at the back of the shelter produces water that runs over the layers of basalt and tuff. The tuff itself, which is laden with iron oxide, is a possible source of pigment. Although all the shelter’s walls are exposed to daylight, only those in the front are affected by direct light.

The paintings were composed out on the smooth surface of the basalt slabs that can be found both inside and outside the shelter. They spread over some twenty meters with smaller panels

1. The rock-paintings of Pokaberd and Kakavadzor are being published here for the first time.

at the center and larger panels placed laterally. They are located at heights ranging from 40 cm to 6.50 m above the floor. The folded basalt layers create a set of vertical slabs cut like a canyon, and inside the shelter the figures are found on the cleavage faces of the slabs, while the panels outside the shelter face the canyon (Figure 3). Frontal anthropomorphic and profiled zoomorphic figures face either towards the south or towards the floor. The panels at the site are morphologically defined by breaks, fissures, or major ruptures on the slope of the rocks. There are over 60 panels that house a total of 112 figures; two examples of Arabic inscriptions and graffiti, which cover the earlier paintings, are also present. Zoomorphic forms dominate (43%), followed by anthropomorphic forms (28%), signs (24%), and undetermined lines (5%). The works are generally small or medium in size, with very few reaching 50-56 cm in maximum dimension.

All the observed paintings were made with a red monochromic solution that was likely obtained from a natural paint extracted from the red volcanic tuff formations inside the cave. Judging from preservational differences in the ochre, the quality and color tones suggest the use of tuff both on its own and as part of a mixture. Various application techniques were also employed. There are, for example, simple lines made with a block of tuff and lines applied by a finger soaked in a coloring liquid. A variety of consistences are also evident, ranging from liquid to paste-like. The authors of the more recent graffiti also made use of the immediately available red tuff. There is, nonetheless, a range of red tones and it is difficult to determine whether this is due to pigment source, the addition of binders, or differential preservation. Based on stylistic peculiarities, one can distinguish three groups of paintings with different approaches:

1. In the first group the figure is isolated with no compositional connection to other figures. Paintings of profiled animals differ from other iconography in correct proportionality, static position, and the usage of volume, solid style, and a more detailed and realistic treatment and greater dimensions (Figures 3 and 4).
2. The second group has two subgroups:
 - a. One subgroup of paintings has simple compositional scenes with partial large-size figures that have both stylistic and static solutions as well as a solid style (Figure 5: 1).
 - b. The paintings of the other subgroup represent schematic and stylized figures of comparatively small sizes.
3. The third group includes two Arabic inscriptions and contemporary graffiti, which covered, and partly destroyed, the rock paintings.

Unfortunately, excavations inside the rock-shelter failed to obtain a cultural attribution for the art: only numerous fragments of a Medieval pottery wheel were identified. Another small

test excavation was made on the slope in front of the shelter, also with no results. In the absence of archaeological evidence, chronological attribution thus must rely on a stylistic and thematic comparison of the designs. The artistic analyses of the paintings show that they have features characteristic of both ancient and later periods and confirm that Geghamavan-1 cave had been visited and used continuously. Compositional stratigraphy (i.e. some superimposition of paintings) is noticeable (Figures 5: 1 and 6). The fundamental subject of the first group of paintings is cognition and representation of the animal's real image, which suggests an ancient age (Figures 3 and 4). In addition, panel N20-1 preserves a drawing of a horse-like animal, most likely a kulan or *Equus hemionus* (Figure 4). The remains of this animal were found during excavations of the prehistoric layer 5 at Apnaghyugh-8/Kmlo-2 cave, which is situated nearly 2 km north along the same canyon and is dated by a set of C14 dates to the 12–8th millennia BC. Kulan were among the main hunting objects of the inhabitants of the cave. Remains of kulan were also recorded at another site of this culture in the vicinity, the open-air locality of Gegharot-1 (see Petrosyan *et al.* this volume). All of this suggests that the earliest paintings of Geghamavan-1 cave belong to the Late Mesolithic/Proto-Neolithic population occupying the Aparan Depression and the Kasakh River valley during the terminal Pleistocene and Early Holocene, and they could date back to the same time period; i.e., the 12th–8th millennia BC. In the second group the interconnected disposition of figures gives the impression of information transfer. Here, the concept of a generalized image of animals can be seen with the consequent importance of rendering an ideological content through a schematic solution. This stylistic variant is common among populations of later time periods, perhaps, as their similarities to Near Eastern art indicate, the Late Neolithic, that is the 7th–6th millennia BC (Figure 5: 1-2). Another subgroup with highly schematic representations – a linear technique and themes similar to petroglyphs known from different parts of Armenia (Gegham Range, Vardenis Range and Syunik) – could date back to the 4th to 1st millennia BC, although it is not inconceivable that some of them (the stylized goats and crosses, for example) were painted in the Middle Ages (Figures 6 and 7). The third group, the two Arabic inscriptions, can be dated to contemporary graffiti from 1680. Natural processes of decay are also responsible for the disappearance of the best parts of the drawings (Feruglio *et al.* 2005; Khechoyan and Gasparyan 2005; 2008; Feruglio 2008; Feruglio and Khechoyan 2007; Khechoyan *et al.* 2007).

2.2. Pokaberd rock-shelter

The rock-paintings of Pokaberd are similarly localized to the smooth surfaces of the basaltic rocks. The cliff recognized today as Pokaberd was, in fact, a cave or rock-shelter in earlier times. Its

roof gradually collapsed, causing damage to the rock-paintings via continuous natural weathering and water erosion (Figure 8: 1-2). This is the main reason for the rarity of paintings, the poor preservation of those still extant, and their difficult discernment (their complete shape is visible only by contrast editing).

There is currently a total of four known preserved images, all of which were composed with a monochrome pigment of red color. The source of the pigment, like that at Geghamavan-1 cave, is located on-site, as reddish tuffs exist under the basalt lava flow. Image 1 is a 20×15 cm vertical figure resembling a scorpion, which is possibly a stylized anthropomorphic drawing (Figure 9: 1a). Image 2 represents an anthropomorphic figure with legs splayed upwards, which probably forms a complete composition with Image 3 (an arc facing upwards) (Figure 9: 1b). Image 4 is only partially preserved as its left and lower parts were flaked off together with the surface of the basalt rock². The image depicts a double incomplete circle with a leaf-like painting in the center (Figure 10: 1-1a). The most interesting and obvious analogy for this occurs on a brown glazed ceramic beaker from Susa, dated back to the 4th millennium BC (Musée du Louvre, Paris)³, where a goat with a girdled foliage between its horns is depicted (Figure 10: 2). This observation could serve as a basis for dating the Image 4 from Pokaberd. In general, the rock-paintings of Pokaberd show a linear and stylized design, among which Image 1 finds a direct parallel with a paintings of the third group from Geghamavan-1 cave (Figure 9: 2). Overall, however, the dearth of rock-paintings at Pokaberd and their poor preservations do not allow the construction of a precise chronological and cultural context. For now, we favor a general date sometime within the 4th millennium BC.

2.3. Kakavadzor rock-shelter

The site is located at an altitude of 1683 m above sea level on a hill on the left bank of the Kakavadzor River. The rock-shelter is a 3.5×4 m niche formed as a result of mechanical weathering in the tuff lava flow formation (Figure 11: 1). The site's single drawing is hidden under the semi-oblique, sloped natural roofing (azimuth 2460, oriented to the SW) and as a result of its constant shading, is relatively well-preserved (Figure 11: 2). A study of the image progressed, it became evident that the image was drawn not on the raw surface but on plaster attached to it. This means that Kakavadzor preserves the earliest appearance of a fresco (Figure 12 and 13: 1). Moreover, two colors were used for drawing – reddish and bluish paints. The latter color is partially preserved on the lower part of the figure (Figures 12 and 13: 2). Closer examination allowed the

2. Unfortunately, this fragment could not be located during the study of the cave.

3. The authors express their gratitude to the Senior Researcher of the IAE, Dr. F. Ter-Martirosov who drew their attention to this similarity.

sequence of the paint use to be established. In this case, the surface of the clay plaster was painted with a blue pigment, over which the reddish ochre zoomorphic image was applied (Figure 13: 2). Study of the technological features shows that the drawings were applied with a brush. A reddish tuff layer located not far from the cave was used as the raw material for the red paint (Figure 14: 2). The fresco of Kakavadzor depicts a 2.3×2.45 m zoomorphic figure enclosed within a stripe of a triple row of circles (Figure 12). Its size it differentiates it from the rock-paintings of other known sites in Armenia and the region. The image was created by a linear technique and is very stylized. The upper part of the stripe surrounding the animal is relatively symmetric and consists of 48 circles. The stripe in the lower part is composed of a randomly placed 10 circles, which are almost washed away and are visible only on the edited photo (Figure 12).

In general, the dating of this image is unclear as it is a one-of-the-kind composition. The archaeological context suggests that the fresco is a part of the Kakavaberd complex. According to the surface material, the earliest traces of occupation date to the Late Chalcolithic – the initial stages of the Early Bronze Age dated back to the second half of the 4th millennium BC.

As mentioned above, the bichrome fresco of Kakavadzor is probably the earliest sample among those discovered in the region. A polychrome fresco was found during the excavations of Lori Berd in 1992-1993. There, on a wall of the burial chamber of Tomb N79 (mid 2nd millennium BC) figures of various kinds of animals (deer, snakes, and birds) were painted with yellow, green, and orange colors (Devejyan 2001, p. 39; 2006, p. 51-67). As for the usage of bluish shades, the earliest samples are known from the sites of the Van Kingdom, such as Erebouni, Teyshebaini – Karmir Blur, Altintepe, etc. (Hovhannisyan 1973).

3. Concluding remarks

Summarizing the general description of the rock-paintings discovered in Armenia, it may be stated that, as a rule, they are located in small caves and rock-shelters formed in basalt and tuff formations within river gorges at altitudes ranging between 1100-1700 m above sea level. Both the internal and external smooth surfaces of these natural caverns were chosen for drawings. These surfaces are characterized by small, vertical and horizontal slabs and separated by fissures. The reddish ochre-like tuff formations that appear in the lower contacts of the basaltic lava flow at or nearby were used as paint for the drawings.

At the cave of Geghamavan-1 these formations are concentrated just inside, and at the bottom of the cave. As for the other sites, the formations occur on the areas surrounding the sites (Figure 14: 1-2). The images were created on the surface of the rock “canvases,” are

monochromatic, and composed most likely by a mixture of organic contents and binders. In the case of Kakavadzor, a bichrome or two-colored drawings was performed with pigments of reddish and bluish color shades applied onto a coating base; that is, it represents a fresco. Figures were drawn by fingers soaked in the pigment, with a “brush” made of animal fur, and the direct application of the raw material to the walls.

By iconography, most of the rock-paintings are zoomorphic, while anthropomorphic and geometric drawings are relatively rare. As for the morphological and stylistic peculiarities of the images, these are: solid, contour, and linear schematized designs. The images also differ by theme, perception of the concept, and the variety of the depiction manner: from the single images of anthropomorphic figures and animals to the complex, multi-figure dynamic compositional systems. These rock-paintings vary greatly size: from 10-20 cm to 2.5 m. This difference makes it possible to divide the drawings into groups and suggest a comparative chronology. Unfortunately, the limited number of such sites and the incomplete archaeological contexts do not currently allow the creation of an absolute chronology for the rock-paintings. Nevertheless, the summarizing of the existing data makes it possible to consider the period of the creation of the rock-paintings in the territory of Armenia as 12th–1st millennia BC and to assume that these are products of Mesolithic, Neolithic-Chalcolithic, and Bronze–Iron Age populations.

The discovery and study of rock-paintings in Armenia is still in its initial stage. Pigment outcrops of tuff origin at the foot of Mt. Aragats exist in many places and a large number of natural cavities in the form of caves, rock-shelters, and niches should be present in the immediate vicinity. Undoubtedly, new sites of rock-art will be discovered if and when these areas are studied.

References

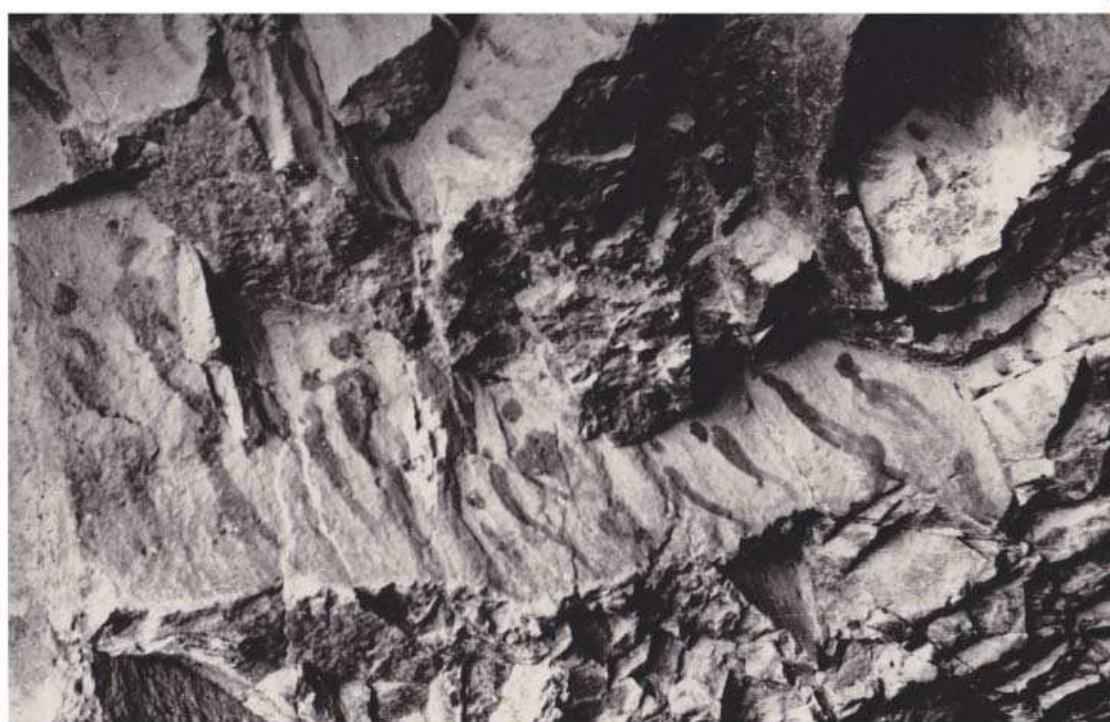
- Arakelyan, B. (1982) Obnaruzhenie peshchernoy zhivopisi v Armenii (predvaritel'noe soobshenie) (Discovery of cave paintings in Armenia [preliminary report]). *Lraber hasarakakan gitutyunneri* (Herald of Social Sciences) N8 (476), pp. 47–54 (in Russian).
- Devejian, S. (2001) Lori Berdi N79 dambarany (Tomb N79 of Lori Berd), Hayastani hnaguyn mshakuyty (Ancient Culture of Armenia). In: Kalantaryan, A. and Harutyunyan, S. (eds.), *Abstracts of the reports of the conference in commemoration of H. Martirosyan*. Yerevan: National Academy of Sciences of the Republic of Armenia Institute of Archaeology and Ethnography Press, p. 39 (in Armenian).
- Devejian, S. (2006) *Lori Berd II* (Mijin Bronz) (Lori Berd II [Middle Bronze Age]). Yerevan: National Academy of Sciences of the Republic of Armenia “Gitutyun” Publishing House (in Armenian, in French and in English with Russian Resume).

- Feruglio, V. (2008) Art rupestre – Méthodes d'étude. In: Sanz, N. (ed.), *L'art rupestre dans les Caraïbes. Vers une inscription transnationale en série sur la Liste du patrimoine mondial de l'UNESCO*. World Heritage Papers 24. Paris : World Heritage Centre UNESCO, pp. 172–178.
- Feruglio, V. and Khechoyan, A. (2007) L'art rupestre d'Arménie. *Les dossiers d'archéologie* 321, pp. 46–49.
- Feruglio, V., Khechoyan, A., Gasparyan, B. and Chataigner, C. (2005) The Geghamavan-1 painted shelter, Aragatsotn Province, Republic of Armenia. *International Newsletter on Rock Art (INORA)* 41, pp. 1–7.
- Gasparyan, B., Khechoyan, A. and Sargsyan, G. (2005) Geghamavan-1 karayri (“Karmir karandzav”) zhayrankarnery (Wall-paintings of Geghamavan-1 cave [“Red Cave”]). In: S. Shahinyan (ed.), *Hayastani karandzavneri* (Caves of Armenia). Book A, Appendix IX. Yerevan, pp 139–142 (in Armenian).
- Gasparyan, B. and Sargsyan, G. (2003) Kasakhi kirchi hnagitakan hushardzanneri usumnasirutyan nakhnakan ardyunknery (Preliminary results of investigation of the archaeological monuments in the Kasakh River Canyon). In: *The Jubilee Conference “Aragatsotn. Spiritual and Cultural Heritage”, dedicated to the 1700th anniversary of the unction of the Mother Temple of Holy Ejmiatsin*. Theses of the Conference. Oshakan, pp. 58–59 (in Armenian).
- Gasparyan, B. and Sargsyan, G. (2003b) Zhayrankarneri norahayt khumb Geghamavani “Karmir karandzavum” (Newly discovered group of rock paintings in Geghamavans’ “Red Cave”). In: Kalantaryan, A. and Badalyan, R. (eds.), *Hayastani hnaguyn mshakuyty 3* (Ancient Culture of Armenia 3). Materials of conference dedicated to 70th anniversary of T. Khachatryan. Yerevan: “Mughni” Publishing House, pp. 5–12 (in Armenian).
- Karakhanyan, G.H. and Safyan, P.G. (1970) *Syuniki zhayrapatkernery* (The Rock-Carvings of Syunik). In: Tiratsyan, G.A. (ed.), *The Archaeological Monuments and Specimens of Armenia, vol. 4, Issue 1*. Yerevan: Armenian SSR Academy of Sciences Press (in Armenian, with Russian and English Resumes).
- Khechoyan, A., Feruglio, V., Gasparyan, B. and Chataigner, C. (2007) The Rock Art of the Mt. Aragats System. In: Papers presented of Rock Art in the Frame of the Cultural Heritage of Humankind, XXII Valcamonica Symposium, 18th–24th May 2007, Centro Congressi Darfo Boario Terme (BS), Italy, pp. 247–252.
- Khechoyan, A. and Gasparyan, B. (2005) Geghamavan-1 karayri zhayrankarneri gegharvestakan verlutsutyan pordz (Artistic analyses attempt of the wall-paintings of the Geghamavan-1 cave). In: Kalantaryan, A.A., Badalyan, R.S. and Avetisyan, P.S. (eds.), *Hin Hayastani mshakuyty XIII* (The Culture of Ancient Armenia XIII). Materials of the Republican Scientific Conference. Yerevan: “Mughni” Publishing House, pp. 28–33 (in Armenian).
- Khechoyan, A. and Gasparyan, B. (2008) Gegharvestapatkerayin mtatselakerpi artahaytman mijotsnery zhayrarvestum (Manner of Expression of Creative and Artistic Thinking in Rock Art). In: Mohammadi, M.-M. (ed.), *The First International Armenology and Iranology Conference, Isfahan, 10–11 November*. Isfahan: University of Isfahan Press, pp. 295–301 (in Armenian).
- Martirosyan, H.A. (1981) *Geghama lerner i zhayrapatkernery* (The Rock-Carvings of the Gegham Mountain Range). In: Harutyunyan, S.B. (ed.), *The Archaeological Monuments and Specimens of Armenia, vol. 11, Issue 3*. Yerevan: Armenian SSR Academy of Sciences Press (in Armenian, with Russian and English Resumes).

- Martirosyan, H.A. and Israelyan, H.R. (1971) *Geghama lernerı zhayrapatkernery* (The Rock-Carved Pictures of the Geghamian Mountains). In: Arakelyan, B.N. (ed.), *The Archaeological Monuments and Specimens of Armenia*, vol. 6, Issue 2. Yerevan: Armenian SSR Academy of Sciences Press (in Armenian, with Russian and English Resumes).
- Hovhannisyan, K.L. (1973) *Erebunu vormnankarnery* (The wall-paintings of Erebouni). Yerevan: Armenian SSR Academy of Sciences Press (in Armenian, in Russian and in English).
- Shahaziz, Y. (1987) *Ashtaraki patmutyuny* (History of Ashtarak). Yerevan: "Hayastan" Publishing House (in Armenian).



1



2

Figure 1
Rock-paintings on the walls of the Darband cave (provided by B. Yeritsyan).

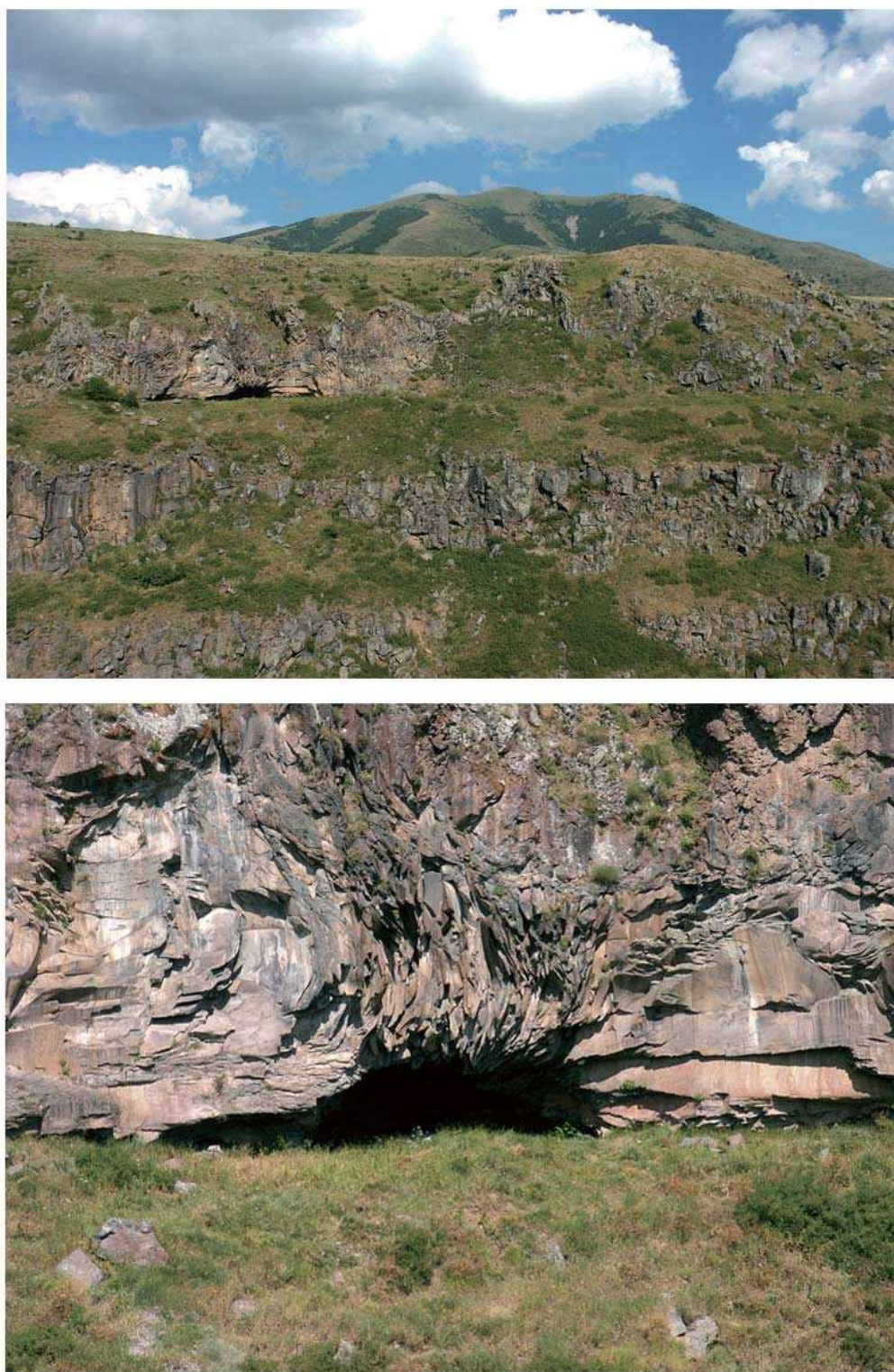


Figure 2
General view of the Ghagamavan-1 cave from the west (the opposite bank of the Kasakh River).



Figure 3

Panel N20-1 outside of the Geghamavan-1 cave, on the left side above the entrance.

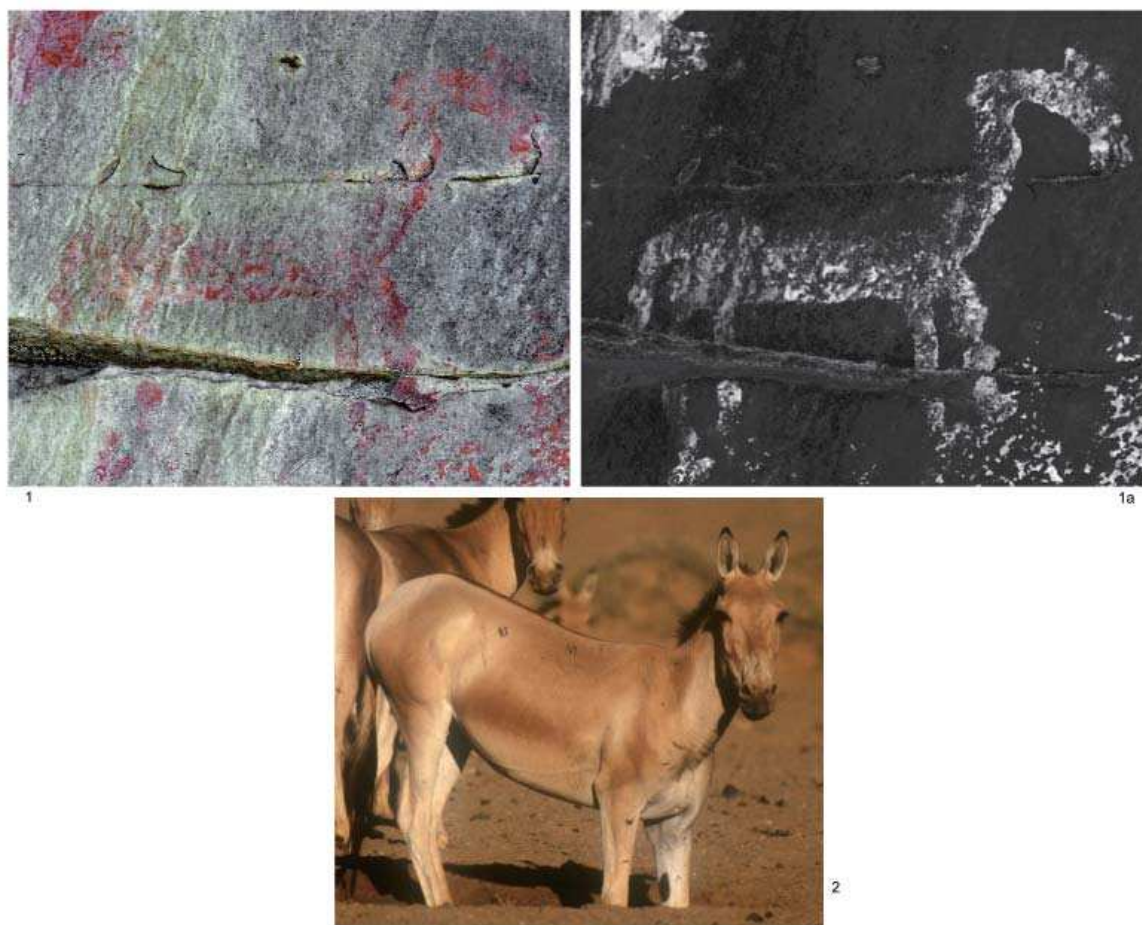


Figure 4
Drawing of a horse-like animal (kulan or *Equus hemionus*) from Panel N20-1 of the Geghamavan-1 cave.



Figure 5
Rock-paintings from Geghamavan-1 cave. 1: Panel N23-2, 2: Panel N20-2 ("Milking scene").

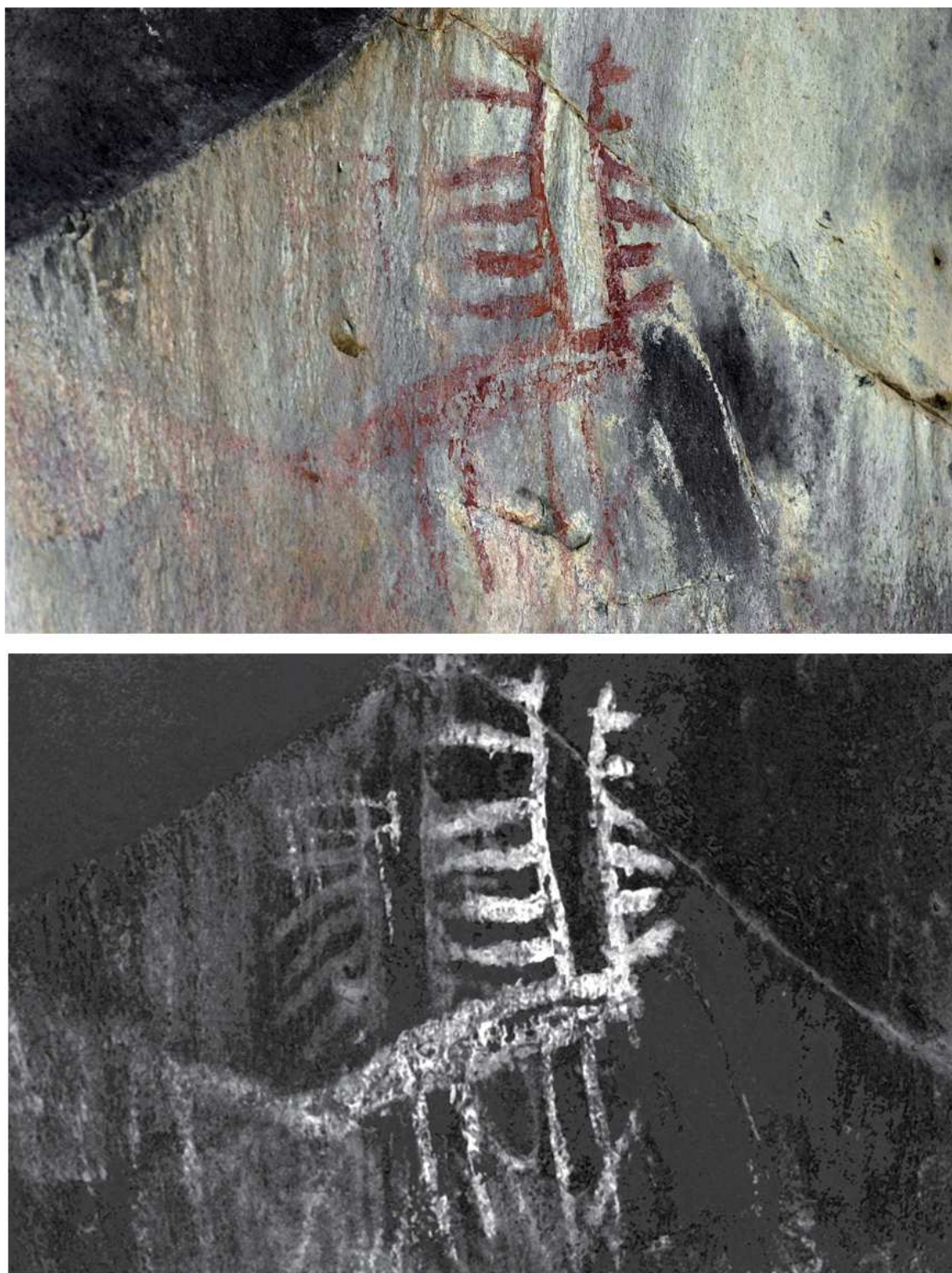


Figure 6
Drawing of a deer from Panel N20-1 of the Geghamavan-1 cave.

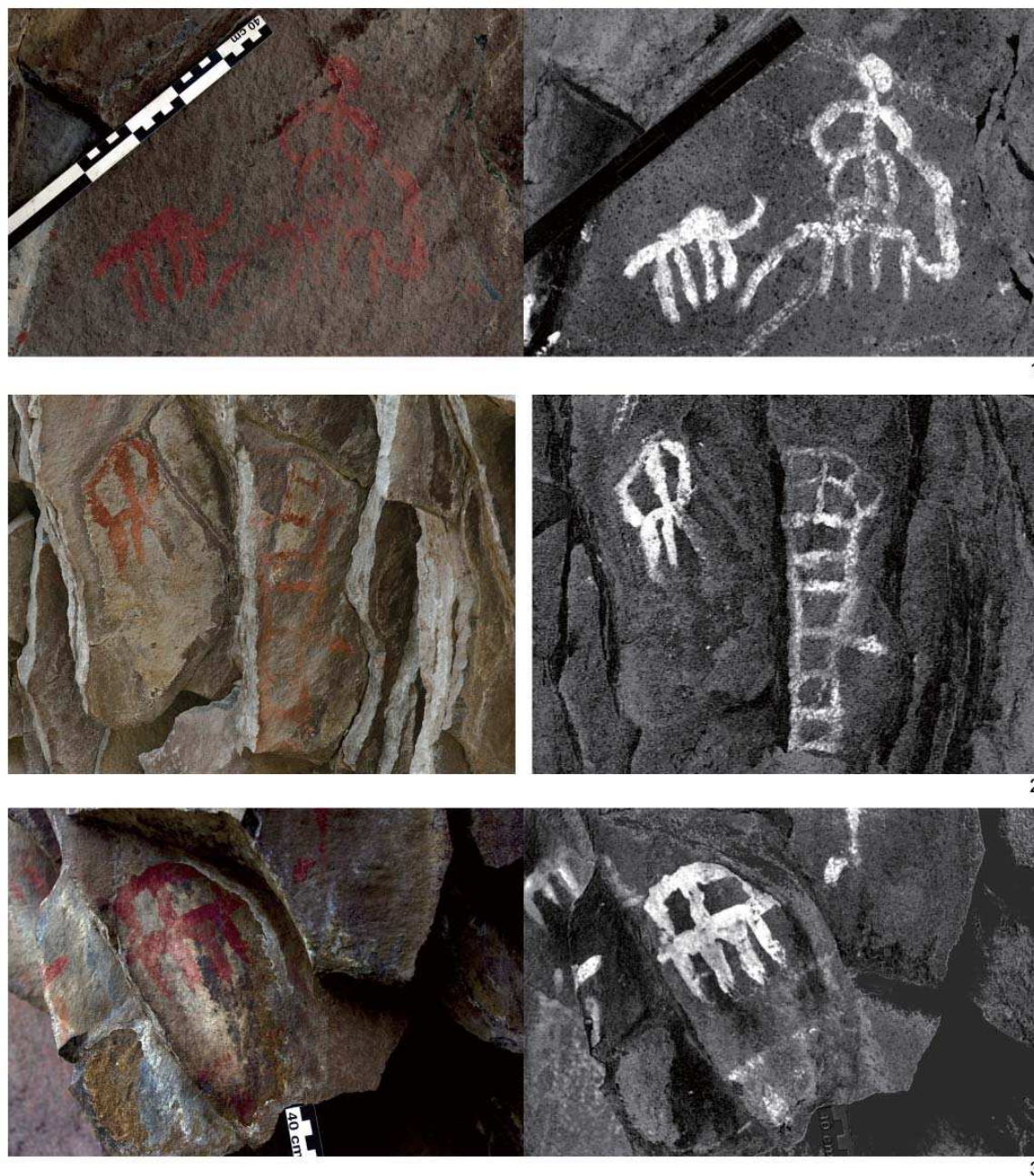


Figure 7
Schematic paintings from the Geghamavan-1 cave. 1. Panel H7-1 (“Domestication scene”); 2. Panels M13-1-2 (“Anthropomorphic and stair-like figures”); 3. Panel L13-2 (“Goat”).



1



2

Figure 8

1. General view of the Pokaberd rock-shelter from the north-west (the opposite bank of the Kasakh River);
2. Facade of the Pokaberd rock-shelter with traces of paintings.

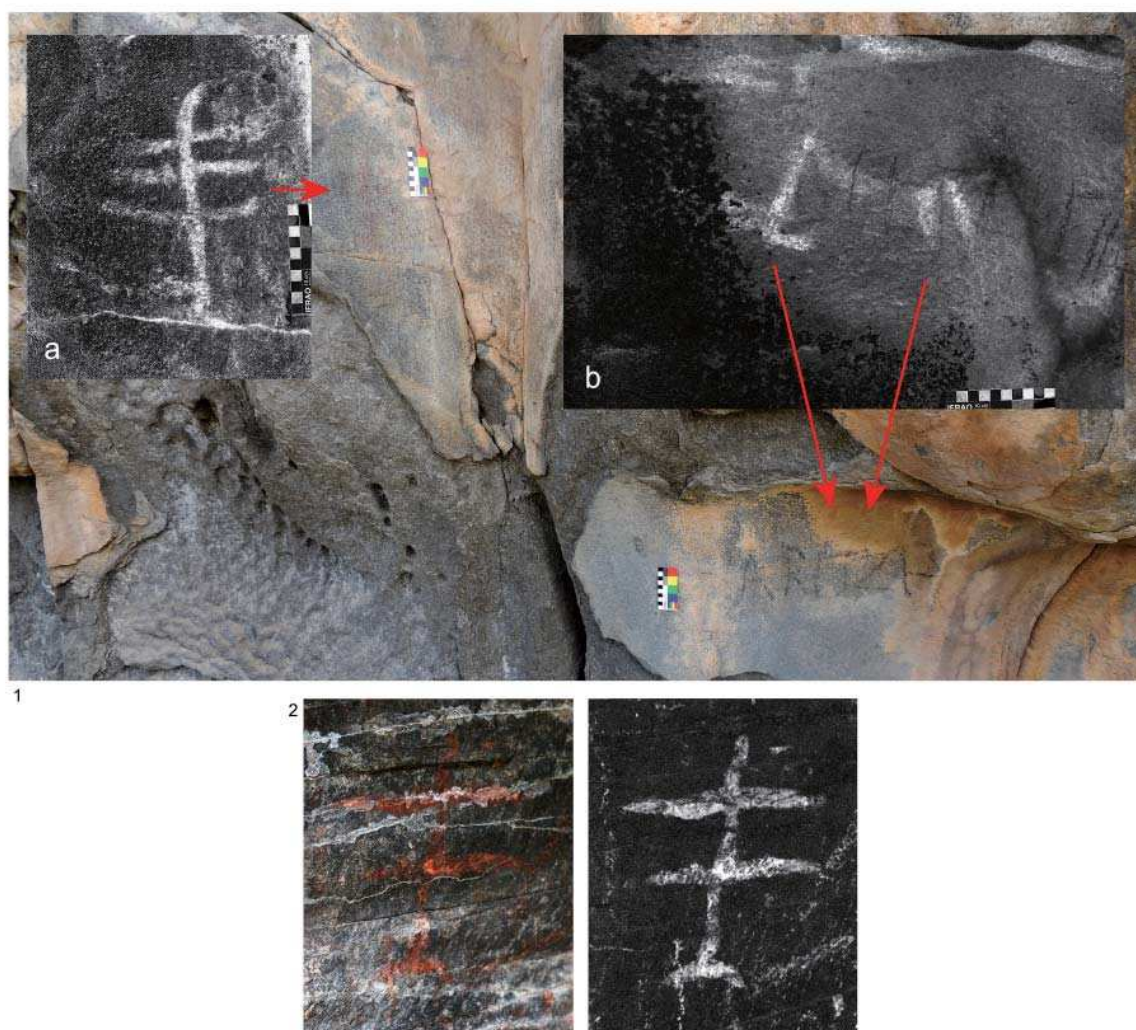


Figure 9

1. Wall-paintings from Pokaberd rock-shelter, 1a: Anthropomorphic stylized figure, 1b: Anthropomorphic stylized figure and arch;
2. Anthropomorphic stylized figure from Panel O16-1 of the Geghamavan-1 cave.



Figure 10

- 1, 1a. Figure 4 from Pokaberd rock-shelter (Foliage enclosed into double circle);
2. Ceramic beaker painted in brown glaze from Susa (Musée du Louvre, Paris), 4th millennium BC.



1



2

Figure 11

1. General view of the Kakavadzor cavity from the north-east; 2. Interior of the Kakavadzor cavity with painting.

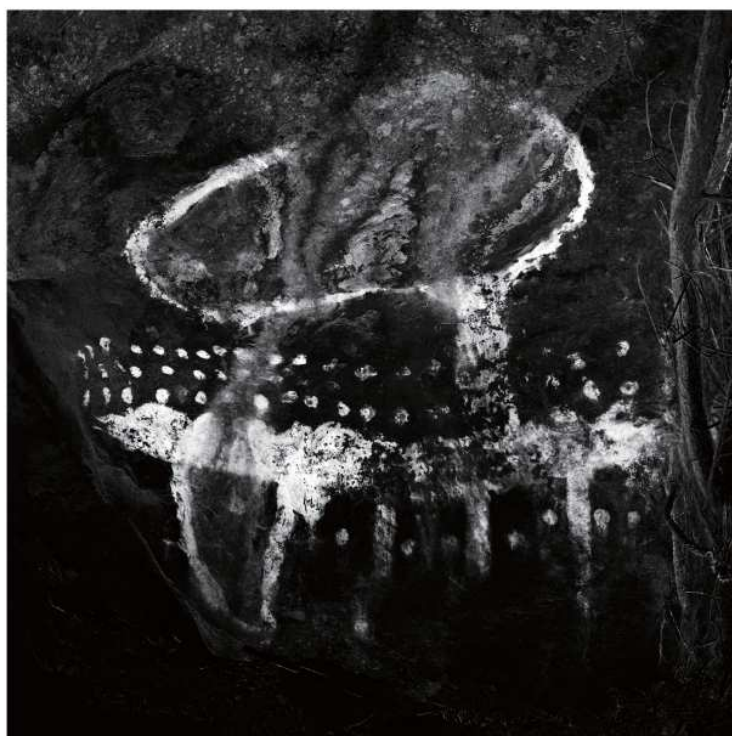


Figure 12
Wall-painting (fresco) of Kakavadzor (general scene).



1



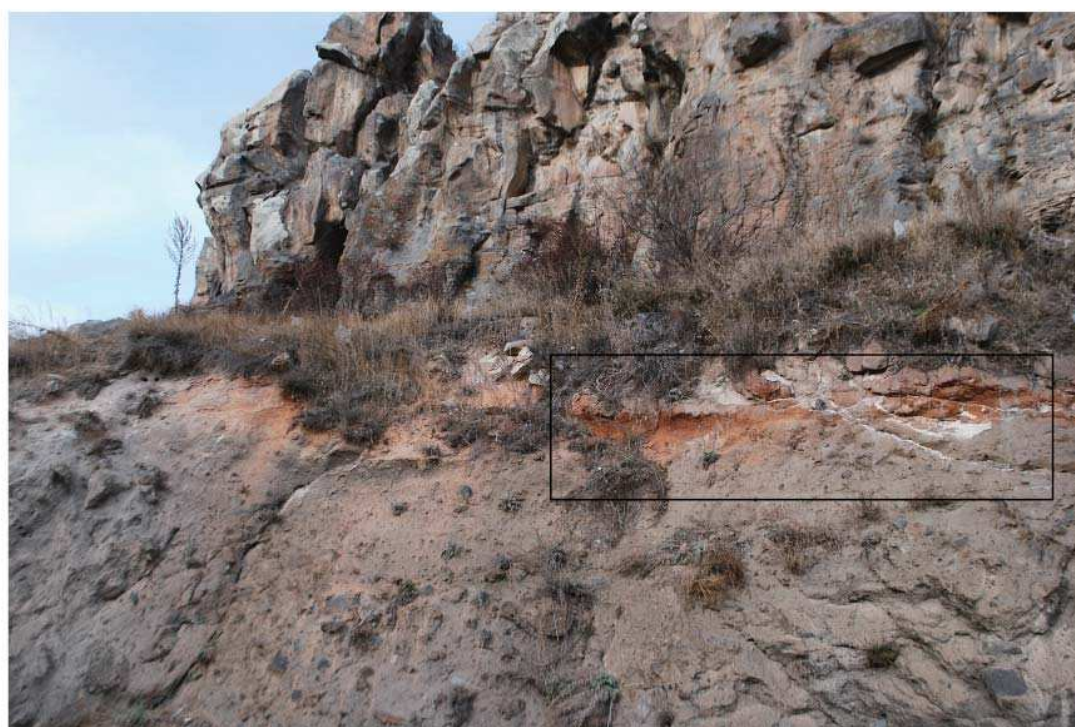
2

Figure 13

Fragments from wall-painting (fresco) of Kakavadzor. 1. Triple circle ornament painted on the plaster base;
2. Bichrome section at the lower part of the painting.



1



2

Figure 14
Pigment sources used for the paintings. 1. Interior of the Geghamavan-1 cave; 2. Kakavadzor river valley near the village of Baysz.

LIST OF AUTHORS

Alphabetical order

Adler, Daniel S. (Mr.)

Department of Anthropology, University of Connecticut, 354 Mansfield Road, Unit 1176, Storrs, CT 06269, United States of America.

e-mail: daniel.adler@uconn.edu

Aghikyan, Levon (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: aghikyan@mail.ru

Areshian, Gregory E. (Mr.)

Cotsen Institute of Archaeology, University of California, Los Angeles, Box 951510, Los Angeles CA 90095-1510, United States of America.

e-mail: gareshia@ucla.edu

Arimura, Makoto (Mr.)

Center for Cultural Resource Studies, Kanazawa University, Kakuma-machi, Kanazawa-shi, Ishikawa, 920-1192, Japan.

e-mail: arimura.mako@gmail.com

Avetisyan, Pavel (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: pavetisyan@sci.am

Azatyan, Karen (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: karenvayk@gmail.com

Badalyan, Ruben (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: r.badalyan@yahoo.com

Bagoyan, Tamara (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: tbagoyan@yahoo.com

Bobokhyan, Arsen (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: arsenbobokhyan@yahoo.com

Chataigner, Christine (Ms.)

Archéorient, UMR 5133, CNRS/Université Lyon 2, 7 rue Raulin, 69007 Lyon, France.

e-mail: christine.chataigner@mom.fr

Egeland, Charles P. (Mr.)

Department of Anthropology, University of North Carolina at Greensboro, 426 Graham Building, Greensboro, North Carolina, 27402, United States of America.

e-mail: cpegelan@uncg.edu

Fujii, Sumio (Mr.)

Center for Cultural Resource Studies, Kanazawa University, Kakuma-machi, Kanazawa-shi, Ishikawa, 920-1192, Japan.

e-mail: fujiiikun@staff.kanazawa-u.ac.jp

Gabrielyan, Ivan (Mr.)

Institute of Botany, National Academy of Sciences of the Republic of Armenia, 1 Acharyan Street, 0063 Yerevan, Republic of Armenia.

e-mail: ivangabrielyan@yahoo.com

Gasparyan, Boris (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: borisg@virtualarmenia.am

Glauberger, Phil (Mr.)

Settlement Archaeology Program, Middle East Technical University, Üniversiteler Mah. Dumlupınar Blv. No.1, Mimarlık Fakültesi, Yeni Bina, No.410, 06800, Çankaya, Ankara, Turkey.

e-mail: phil.glauberger@gmail.com

Harutyunyan, Armine (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: arm.harutyunyan@yahoo.com

Haydosyan, Hayk (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: haykhay@rambler.ru

Hayrapetyan, Armine (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: hnaget@mail.ru

Kandel, Andrew W. (Mr.)

The Role of Culture in Early Expansions of Humans (ROCEEH), Heidelberg Academy of Sciences and Humanities at the University of Tübingen, Rümelinstr. 23, 72070 Tübingen, Germany.

e-mail: a.kandel@uni-tuebingen.de

Khechoyan, Anna (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: annakhechoyan@yahoo.com

Margaryan, Lusine (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: margaryanlusine1989@yahoo.com

Martirosyan-Olshansky, Kristine (Ms.)

Cotsen Institute of Archaeology, University of California, Los Angeles, Box 951510, Los Angeles CA 90095-1510, United States of America.

e-mail: kristineolsh@ucla.edu

Meliksetian, Khachatur (Mr.)

Institute of Geological Sciences, Armenian National Academy of Sciences, 24a Marshal Baghramian Ave.0019, Yerevan, Republic of Armenia.

e-mail: km@geology.am

Montoya, Cyril (Mr.)

Aix Marseille Université, CNRS, Ministère de la Culture et de la Communication, LAMPEA UMR 7269, 13094 Aix-en-Provence, France and DRAC Picardie, 5 rue H. Daussy, 80 000 Amiens, France.

e-mail: cyril.montoya@culture.gouv.fr

Muradyan, Firdus (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

Nahapetyan, Samvel (Mr.)

Department of Cartography and Geomorphology, Yerevan State University, Alek Manukyan 1, 0025 Yerevan, Republic of Armenia.

e-mail: nahapetyan@ysu.am

Pernicka, Ernst (Mr.)

Curt-Engelhorn-Zentrum Archäometrie GmbH an der Universität Heidelberg D5, Museum
Weltkulturen, 68159 Mannheim, Germany.

e-mail: ernst.pernicka@cez-archaeometrie.de

Pinhasi, Ron (Mr.)

School of Archaeology, University College Dublin, Newman Building, Belfield, Dublin 4,
Ireland.

e-mail: ron.pinhasi@ucd.ie

Petrosyan, Arthur (Mr.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of
Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: artur.petrosian@yahoo.com

Smith, Alexia (Ms.)

Department of Anthropology, University of Connecticut, 354 Mansfield Road Unit-1176, Storrs,
Connecticut 06269-1176, United States of America.

e-mail: alexia.smith@uconn.edu

Stapleton, Lyssa C. (Ms.)

Cotsen Institute of Archaeology, University of California, Los Angeles, Box 951510, Los
Angeles CA 90095-1510, United States of America

e-mail: lstapleton@ucla.edu

Zardaryan, Diana (Ms.)

Institute of Archaeology and Ethnography, National Academy of Sciences of the Republic of
Armenia, 15 Charents Street, 0025 Yerevan, Republic of Armenia.

e-mail: dzardaryan@ymail.com

