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# Capturing the Seen and Unseen in the Beldibi Rock Art

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**Abstract**

This article examines the engravings of the Beldibi Rock Shelter using digital techniques. The engravings, which consist of a jumping deer and an ox with its head turned back, were first discovered by E. Bostancı in 1959. Both Bostancı and Anati compared them to Western European Upper Palaeolithic figures. If the engravings of Beldibi really exist, they would exhibit the earliest rock art in Anatolia.

**Keywords:** Antalya, Beldibi, rock art, engraving

**Öz**

Bu makalede, Beldibi Kaya Sığınağı'nın gravürleri dijital tekniklerle incelenmektedir. Zıplayan bir geyik ve başını geri çeviren bir öküzden oluşan çizgi/kazımalar ilk olarak 1959'da E. Bostancı tarafından keşfedilmiştir. Hem Bostancı hem de Anati, onları Batı Avrupa'nın Üst Paleolitik Dönem figürleriyle karşılaştırmıştır. Beldibi'nin gravürleri gerçekten varsa, Anadolu'daki en eski kaya sanatını sergilemektedirler.

**Anahtar Kelimeler:** Antalya, Beldibi, kaya sanatı, gravür

## Introduction

The Beldibi Rock Shelter first gained importance with its rock art excavated by E. Bostancı between 1959-1960 and 1966-1967.[1] The rock art consists of paintings that feature stylized animal and human figures as well as crosses executed with red paint. Bostancı[2] suggests that the oldest rock art consists of engravings created by completing natural depressions and protrusions with deep lines. These engravings were lines under the painted figures at the bottom of the rock shelter and consist of a jumping deer and an ox with its head turned back (fig. 1). According to Bostancı,[3] the animal figures show typical Upper Palaeolithic stylistic patterns. E. Anati, who investigated the rock art of Beldibi in the 1960s, recognized only the ox figure and compared it to Western European Upper Palaeolithic examples.[4] According to him, the figure was probably made by using a flint tool. The figures were rather small, approximately 5x4 cm in size (fig. 2).

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1 Bostancı 1959, 1967.

2 Bostancı 1959, 140, pl. II.

3 Bostancı 1959.

4 Anati 1968, 28.

Although their existence has not been questioned so far, researchers have always looked at them with suspicion so have not much paid attention. On the other hand, the ox was probably a symbolically important animal in the pre-Neolithic Antalya region. For instance, the engraving of an ox, alongside figurative depictions of humans, was recorded at the Öküzini Cave (now completely vanished, but its copy can be seen in the Antalya Archaeology Museum). It was created by two incised pebbles.[5] If engravings at Beldibi really do exist, they would be considered one of the possible earliest examples of rock art in Anatolia. This article investigates the engravings of the Beldibi Rock Shelter using digital techniques.

## Beldibi Rock Shelter and Methodologies Implemented for the Engravings

The Beldibi Rock Shelter is located 2 km north of the Beldibi Village, Antalya, on the eastern part of the Mount Çamdağ limestone cliffs, which stretch towards the sea. It consists of a semicircular terrace, with a length of approximately 3 m. Jurassic-Cretaceous limestone covers a large area while Plio-Quaternary rocks that petrified with carbonated water from faults are formed with travertine breccias in the region.[6] The significance of the Beldibi Rock Shelter with its rock art has remained undisputed since its first discovery. A 6.2 m archaeological deposit and four cultural phases have been revealed during the excavations.[7] The first layer (A) is dated to the Modern and Roman/Greek Age. Layer B is divided into two sub-phases and dated to the Neolithic period. Epi-palaeolithic layer C follows the Neolithic layer which is also divided into two sub-phases. The two layers are separated by a 20 cm thick reddish soil. The lowest layers D-G are dated to the Upper Palaeolithic. No radiocarbon dates available.

Macro and microscopic analyses were applied to identify and characterize the engravings. Macrophotography allows detailed digital imaging of very small subjects and provides a method for detailed digital imaging for the study of details in rock art.[8] With the help of macrophotography, we were able to more closely examine the edges of lines, grooves, depressions, and protrusions. Custom and YRD filters were also used to reveal an internal structure and a differentiated utilization of lines not visible to the naked eye. In addition, a USB digital microscope was used to observe the microscopic characteristics of fractured surfaces.

## Results

Filters used to emphasize contrast between the rock surface and the engravings show that the lines of the ox figure are partially seen (fig. 3). The lines are not man-made, but instead fossilized tracks with natural depressions and protrusions (fig. 4). These fossilized marks, natural depressions, and protrusions were not shaped by combining them with flint tools, as suggested earlier. The USB digital microscope did not show any traces of completions made by sharp instruments such as flint tools on rock surfaces. In addition, the deer motif cannot be seen on the surface. Old photographs show that the depressions on the rock surface resemble a deer head, and probably this naturalness has caused the misinterpretation. Over the time, natural destruction has erased the image.

5 Kökten 1962, pl. XXXVII, fig. 2; Otte et al. 1995; Kartal 2009, 111.

6 Kalafatçıoğlu 1973.

7 Bostancı 1959.

8 For example, Robert et al. 2016, 852-53.

Trace fossils (or ichnofossils) are impressions made on the substrate by an organism.[9] The traces in Beldibi belong to soft-bodied organisms. Trace fossils can be seen on rock surfaces and may create different figures that deceive the viewer. How the natural depressions, protrusions, and fossilized traces can form shapes in the mind may be explained by the Gestalt principles of visual perception.[10] When you see an image that has missing parts, your brain fills in the blanks and makes a complete image so you can recognize the whole pattern. This sometimes lets us see what we want to see.

## Concluding Remarks

The important site of Beldibi has the potential to further understanding of cultural complexity regarding hunter-gatherers in the region and their transition to the Neolithic way of life. Although there is no dating, the formation of rock art associated with the excavation increases its importance. We understand that rock art does not belong to a single period and the surface of the rock was used for paintings in various periods - Byzantine, Neolithic, or perhaps even earlier. Although it is said to be the oldest rock art consisting of the engravings, natural rounded-shaped protrusions and depressions along with trace fossils on the rock surface seem to have misled previous researchers. Thus, according to these latest digitally derived results, the engravings of Beldibi can be considered to be nothing more than a cognitive illusion.

9 Frey 1975, 13.

10 Koffka 1935.

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FIG. 1
Engravings of Beldibi (Bostancı 1959, pl. II).

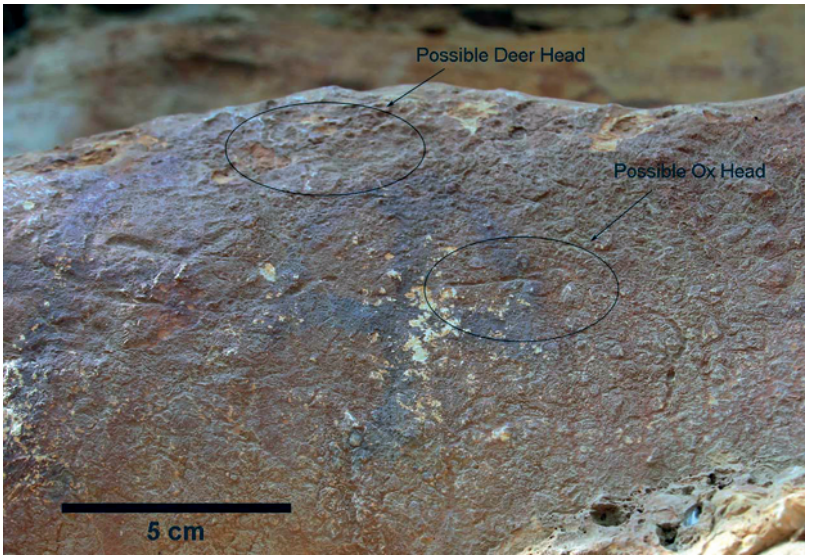



FIG. 2
Possible location of deer and ox figures.

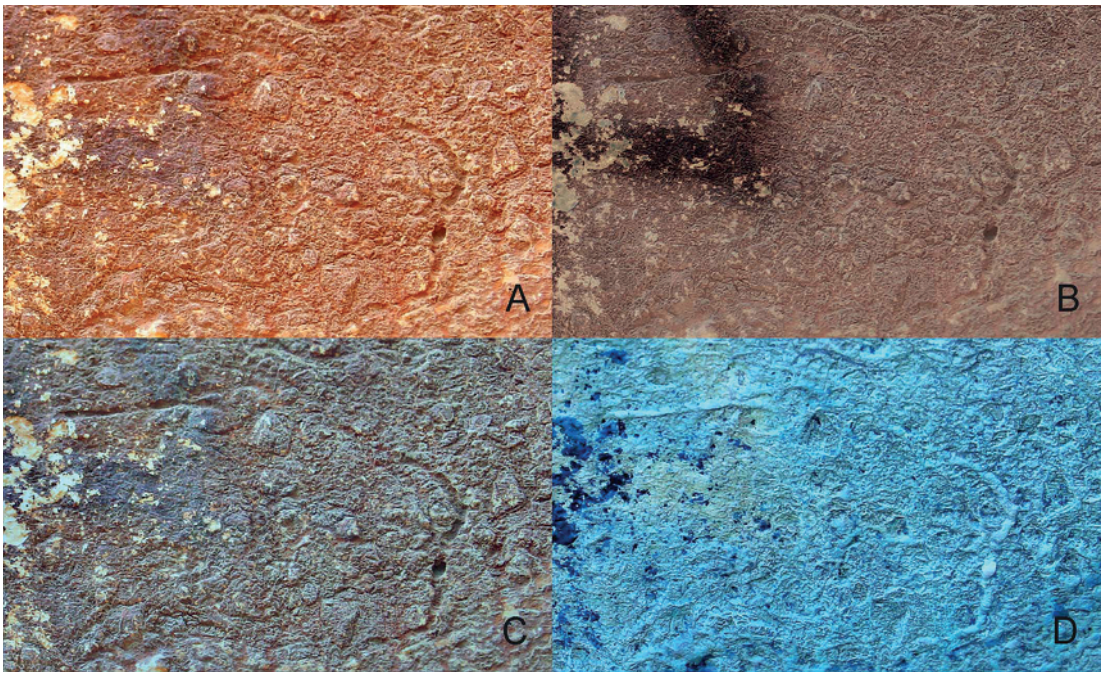



FIG. 3 Declination of different filters on the ox figure (A. Original; B. YRE Filter; C. Custom Filter High Pass; D. Custom Filter Photonegative).

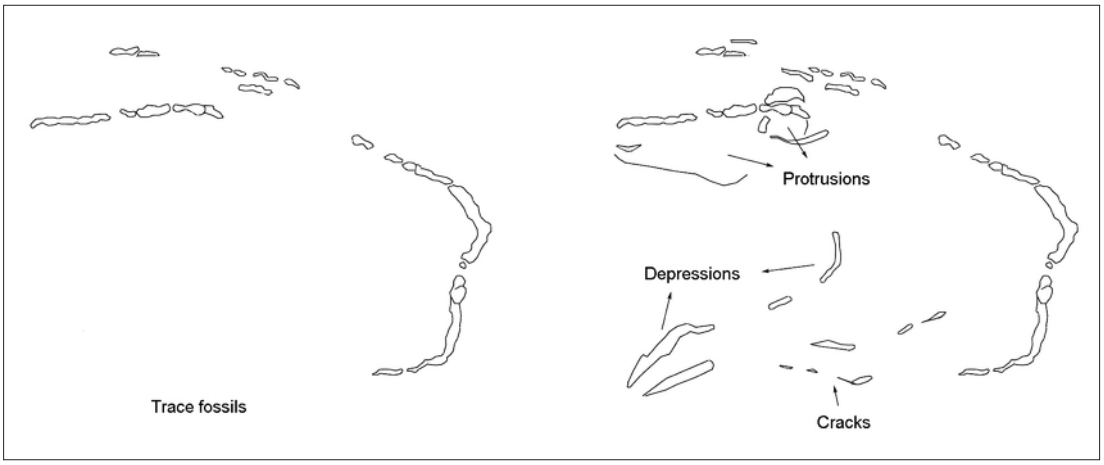



FIG. 4 Interpretation of the ox figure: Trace fossils (left); depressions and protrusions (right) on the rock surface.