

Shanidar Cave - An Interesting Archaeological Site in the Kurdistan Region, Iraq

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ABSTRACT

The Shanidar cave is one of the most well-known caves in the Kurdistan Region, Iraq. It is an archaeological site located within the Bradost mountain, north of Erbil city. A total of 11 skeletons of Neanderthals have been found within the cave dating back to 65,000-35,000 years; they are called Shanidar (1-11). The cave also contains two later "Proto-Neolithic" cemeteries. It was formed by the dissolution of limestone beds of the Qamchuqa Formation that forms the carapace of the Bradost mountain's anticline.

Keywords: Neanderthal, Shanidar cave, Proto-Neolithic cemetery, Bradost mountain

1. INTRODUCTION

The Shanidar cave is an archaeological site located within the Bradost mountain in the Kurdistan Region, Iraq, as shown in Figure 1. The cave is one of the most well-known caves in the region owing to its archaeological importance. It can be reached by a paved road from Erbil city which leads to the foothills of Bradost mountain.

Previous studies concerning the cave apart from the archaeological investigations are very rare. However, Al-Ameri et al., 2011, mentioned the cave in a report dealing with the Middle

Paleolithic to Neolithic cultural history of North Iraq. Mohammad et al., 2017, mentioned the cave in a general report that deals with the cave animals in the Kurdistan Region, Iraq.

The Shanidar cave is located in the Bradost anticline within the Imbricate Zone of the Outer Platform that belongs to the Zagros Thrust - Fold Belt. It is a double plunging NW - SE anticline where Jurassic rocks are exposed in the core, whereas massive carbonate rocks of the Qamchuqa Formation (Lower Cretaceous) form the carapace of the mountain. Parts of the northeastern limbs are thrust over the southwestern limb, giving a very complex geological and morphological form to the whole anticline (mountain) in the form of very steep cliffs and high ridges (Sissakian and Fouad, 2014).

The aim of this study is to shed light on the Shanidar cave and on its significance in the living conditions and age of Neanderthals from the 11 skeletons found in the cave.

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Figure 1. Location map of the Shanidar cave

2. MATERIALS AND METHODS

To perform this study, tens of published articles were reviewed. A field visit was carried out in 2012 to check some acquired data; unfortunately, it was not possible to descend into the solution hole in which the Neanderthal remains were found owing to a lack of necessary logistics.

3. SHANIDAR CAVE

The Shanidar cave was developed among massive carbonate rocks of the Qamchuqa Formation (Lower Cretaceous) as shown in Figure 2. Geologically, the cave is located within the Imbricate Zone of Zagros Fold - Thrust Belt (Fouad, 2012). The rocks of the Qamchuqa Formation are limestone and dolomite (Sissakian and Saeed, 2012). They are very hard and massive, forming very rough and steep ridges (Sissakian and Fouad, 2014).

The entrance to the cave is at an elevation of 737 m (a.s.l.), capped by very rugged cliffs about 400 m in height (Figure 3, Left), whereas the slope along which the entrance is located has a gradient of 44% (Figure 3, Right). These topographic

characters served as an excellent defense site for the people who were living in the cave. The maximum height of the entrance of the cave is about 12 m as shown in Figure 4, with one large chamber almost of a dome shape as seen in Figure 5. In the floor of the cave, which is about 1070 m² (Solecki, 1975), the excavation debris of archaeological studies can be seen.

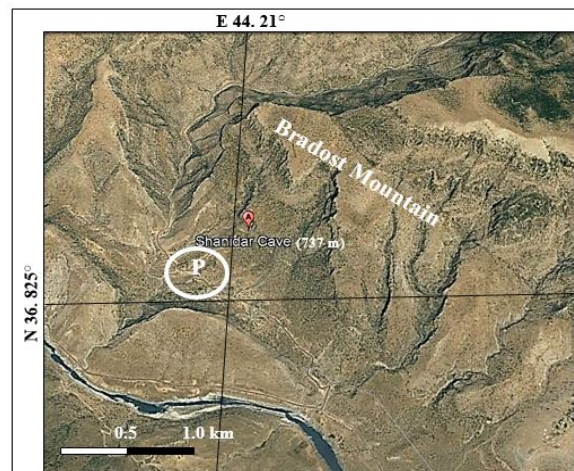


Figure 2. Satellite image showing the Shanidar cave within the Bradost mountain. (P) is the location of the car park



Figure 3. (Left) A photograph taken from the cave entrance of the car park area; the size of the car indicates a very steep slope. **(Right)** Steep cliffs surrounding the cave

The cave can be reached via an artificial ladder constructed from carbonate blocks of the Qamchuqa Formation with many rest stations constructed from woods of local trees as shown in Figure 6. The height difference between the car park (Figure 2) and the cave's entrance is 450 m (Figure 6). Two big holes and one small hole can be seen in the ceiling of the cave (Figure 7, Left); they might be artificial, created for ventilation and/or lighting by sun rays. A deep solution hole (sinkhole) exists in the floor of the cave with many steps (Figure 7, Right). The hole was used during

the archaeological excavation of the cave.

Solecki, 1975, described the Shanidar cave as follows, "Shanidar Cave is in a mountain called Bradost, overlooking Shanidar Valley. From the cave mouth one can see the Greater Zab River, a tributary of the Tigris. The cave is about 760 m above sea level, was dissolved out of the mountain's limestone rock, originally laid down by an ancient sea. It has a flat earthen floor, about 1070 m² in area, and a high ceiling about 13.5 m blackened with a centuries-old deposit of soot."



Figure 4. The entrance of the Shanidar cave. **(Left)** From the outer reach. **(Right)** From inside the cave



Figure 5. The main chamber of the Shanidar cave. **(Left)** Note the archaeological excavation debris at the left side. **(Right)** Black stains (old soot) on the ceiling and side walls



Figure 6. Outer view of the Shanidar cave. Note the rocky ladder and wooden rest areas (encircled in red color)

4. ARCHAEOLOGICAL FINDINGS

Many archaeological excavations were carried out in the Shanidar cave from 1956 to 1961 (Solecki, 1961; Erik, 1983) (Figure 7, Right). The remains of 11 Neanderthals, dating back 35,000

to 65,000 years, have been found. The first nine skeletons (Shanidar 1-9) were unearthed during 1956 to 1961 by Ralph Solecki and a team from Colombia University. The skeleton of Shanidar 3 is held in the Smithsonian Institution.



Figure 7. **(Left)** Three holes in the ceiling of the Shanidar cave. **(Right)** The archaeological excavations in the Shanidar cave. Note that the solution cave was used as the main living chamber by the Neanderthals, and it was discovered during the excavations

The cave also contains two later "Proto-Neolithic" cemeteries, one of which dates back about 10,600 years and contains 35 individuals (Solecki et al., 2004). The best known of all the Neanderthals is Shanidar 1, who survived several injuries during his life, possibly with care from other members of his band, and Shanidar 4, whose body lay beside a flower that can be explained as evidence of burial rituals. For many years, Shanidar 4 was thought to provide strong

evidence of a Neanderthal burial ritual. Soil samples from around the body have been collected for pollen analyses in an attempt to reconstruct the paleoclimate and vegetation history of the site. In two of the soil samples, whole clumps of pollen were discovered in addition to the usual pollen found throughout the site suggesting that entire flowering plants have entered the grave deposit as shown in Figure 8 (Lietava, 1992; Pettitt, 2002).



Figure 8. Spectacular drawing of a burial ceremony in the Shanidar cave. Note the flowers and other plants around the grave. (photo from Edward, 2010)

In 2018, British and Kurdish archaeologists uncovered the fossilized remains of two Neanderthals in the Shanidar cave including two complete skulls as can be seen in Figure 9. Neanderthals are a species of humanoid thought to have gone extinct 40,000 years ago. Scientists believe that the Middle East region was a

migratory meeting point where Neanderthals from present-day central Europe crossed paths with modern humans. People were starting to use this cave, probably Neanderthal people, about 120,000 years ago, maybe more, and they came back again many times, over time (Edward, 2010).

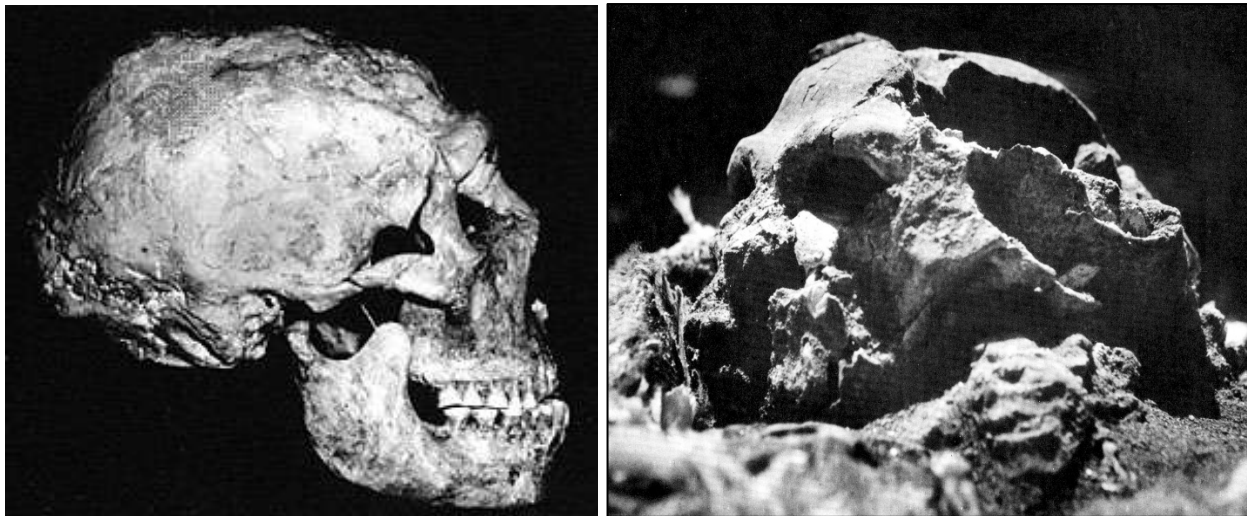


Figure 9. Two skeletons excavated from the Shanidar cave (After Edward, 2010)

The archaeologists believe that Neanderthals were in the cave during the warmest times of the last Ice Age and in the warm period before that

Ice Age. They also think that Neanderthals came to the region to hunt ibex (Figure 10), but they also ate other kinds of animals such as tortoises.

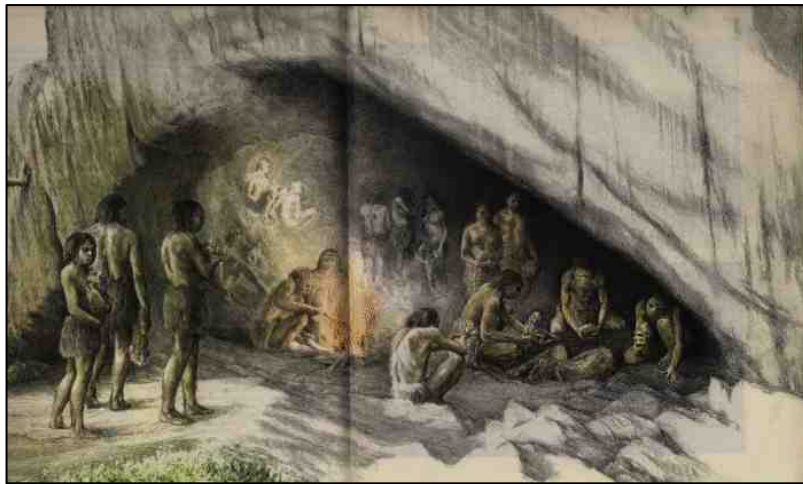


Figure 10. Artistic drawings showing the life of Neanderthals (After Edward, 2010)

On the basis of the skeletons, bones, and other remains discovered (Figure 11), Edward, 2010, mentioned that Shanidar 3's own story, however,

is grounded not in large evolutionary forces but in particular circumstances. "There is quite a severe and deep cut to a rib on Shanidar 3's left

side, this cut would have been deep enough to collapse his lung, so Shanidar 3 is the oldest known individual who could have been murdered.”

The more recent remains of Neanderthals found in the Shanidar cave are those of three older adult males (Shanidar 1, 3, and 5). They exhibit most

of the characteristics of the European Neanderthals such as having stocky bodies, projecting midfaces, and details of the ear region that closely resemble those of their European relatives. These similarities serve to extend the geographic range of the Neanderthals across Europe and into southwestern Asia.



Figure 11. Remains of Neanderthals discovered in the Shanidar cave by archaeologists (After Edward, 2010)

The remains consist of one younger and one older male (Shanidar 2 and 4), two adult females (Shanidar 6 and 8), and two infants (Shanidar 7 and 9). Most of these individuals were intentionally buried between rocks in the cave deposits. Shanidar 4, 6, 8, and 9 were found in the same location on top of each other. Shanidar 2, 3, and 5 appear to have been killed by rock falls that had happened inside the cave which suffers from solution activity (karstification). Shanidar 2 and 4 are generally similar to the later Shanidar Neanderthals, but they exhibit faces that are more

archaic and strongly built, thereby documenting the emergence of the Neanderthals from earlier forms of humans in the Middle East. All of them have the typical massive bodies of archaic humans.

The Shanidar cave itself is located in a tectonically active area (Sissakian and Fouad, 2012), and the stratigraphic evidence discovered suggests successive rock falls from the interior and ceiling of the cave which makes it difficult to properly assess the depositional context of many

of the skeletons (Gargett, 1999). Up to 15 m of sediment had built up in the Shanidar cave since the lowest Mousterian level. All of the Neanderthal skeletons in the cave were discovered beneath collapsed bedrock or in natural niches, and accepted thought suggests that, with the exception of Shanidar 4 and possibly 3, skeletons 1, 2, and 5-9 lie in situ from where they were struck down by falling cave roof and are therefore not representative of burial.

The multiple burials found at the cave from a long period of interrupted use suggest that Neanderthals were burying their dead, perhaps not with grave goods, but with purposeful intent of interment. From the evidence at Shanidar, however, it is known that Neanderthals had the ability and the desire to bury their dead and that they cared for the injured, sick, and elderly of their social group, and from this it can be speculated as to how they hunted and what their early childhood health was like.

5. NATIONAL PARK

Many attempts have been made to construct a geo-park at the Shanidar cave site and in the near surroundings. It is already surrounded by a metal mesh-like fence with a clear description board that gives an explanation of the cave and the findings, emphasizing on the discovered Neanderthal remains, which the archaeologists called Shanidar with numbers. The given explanation is in Kurdish and English languages.

Among the attempts for constructing a national park, one is that of the Kurdistan Institution for Strategic Studies and Scientific Researches located in Sulaimaniyah city (Personal communication with Prof. Dr. Polla A. Khanqa, president of the institution, 2013). Another attempt is that of the Natural History Research Center and Museum (University of Baghdad), located in Baghdad (Personal Communication with Dr. Aqeel A. Al-Zubaidi, Geologist, Natural History Research Center and Museum, Baghdad, 2015). Recently, another attempt was carried on to obtain a UNESCO Code for the cave as a national park according to the significant findings as the Neanderthal life and characters were

discovered (Personal communication with Mr. Msb Barzany, 22 April 2019).

6. CONCLUSION

From this study, the following conclusions can be made:

The Shanidar cave is not only home to Neanderthal skeletons, but also to over 30 other "Proto-Neolithic" skeletons that have been roughly dated to 10,000 years BC. The discovered remains of Neanderthals were called Shanidars and were given a unique serial number. The lifestyle, body characteristics, and burial habits were also well studied and known from the discovered remains. The cave was used as a shelter for Neanderthals in different age intervals (65,000 to 35,000 to 10,000 years). This means that the cave was a relevant shelter; therefore, Neanderthals (Shanidars) returned to the same cave at different time intervals to escape from successive glaciations.

7. RECOMMENDATIONS

This study has the following recommendations:

- To facilitate and accelerate the consideration of the Shanidar cave as a national park by UNESCO along with assigning an official serial number.
- Cleaning of the cave by a specialized company of the remains of cattle caused because of using the cave as a shelter by shepherds.
- Supplying the cave with electricity, ventilation, and indication signs for tourists.
- Cleaning the solution hole and arranging a comfortable ladder to help the tourists descend the hole.
- Supplying the site with necessary logistics for it to be used as a tourist site.

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