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Caves and Cave Art

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Abstract

This paper aims to discuss the impact and importance of the karstic caves, which are effective on the emergence and development of cave art and the rocks that generate them. The origin of cave traces to 40 thousand years and the creation of many more works of art and the importance of the rocks to the present day is very important. In particular, carbonate rocks such as limestone and marble became important spaces and raw materials in terms of art history and development. Carbonate deposits placed in the large ocean bowls during geological periods have been elevated and altered land during orogenesis periods. The fact that the carbonate rocks are soluble due to environmental conditions has led to the formation of a large number of caves depending on the size and distribution of the masses forming them. These karstic caves, which constitute a significant part of the caves in the world, have been the habitat of old people for almost 1-1.5 million years. The caves have been very important shelters for life, which became difficult due to the cold climatic conditions during the glacial periods, which were effective during the last 2 million years (Pleistocene). Under the challenging conditions of the Paleolithic period, human societies have tried to survive on the one hand and, on the other hand, achieved their symbolic thinking skills with their developing brain capacities 100,000 years ago. In the following period, the human communities that continued to develop have left very important ruins, which dates back to 40-10 thousand years ago and are regarded as works of art. Structural features of the caves and the rocks forming them are of great importance in the emergence of these works, which are interesting in their techniques as well as their thought style. Karst caves are very suitable for processing in terms of scraping, embossing and various painting techniques depending on the mineral structure of limestone. Besides, since these caves are difficult to access and are prevented from external dangers and risks, they are of great importance for the emergence of this art and reaching to the present day.

Keywords: Cave, Karstic rock, Cave art

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1. Cave Types

The caves are cavities of different sizes that emerged because of various factors in the earth's crust. To accept such a cavity that emerged as a result of natural influences, it should generally be wide enough for a human to pass through and evidently from the entrance into the interior. As this definition shows, caves can start from a few meters and have a length of kilometers. Karst caves, lava tube caves, sandstone caves, and glacier caves can be regarded the most common caves according to the formation conditions. The cave types can be briefly defined;

Lava tube caves; The upper part of the high temperature flowing lava from the magma as a result of volcanic activities cools and solidifies and forms a crust (Photo:1).

Sandstone Caves; they are usually formed in the deserts and arid climate areas, where sandstone sedimentary masses are common. Due to the evaporation of the water molecules in the sandstone layers and the effect of wind erosion, the cavities grown into caves (Photo:2).



Photo1:Lava River Cave. Oregon USA.



Photo 2: Pilliga Sandstone Caves

Glacier caves; these are the gaps created by the melting glacier waters under the glaciers on the rocks forming the ground by the climatic conditions and seasonal effects. Although these caves, which may sometimes occur due to the geothermal conditions of the ground, frozen throughout the year, their shape and size vary greatly between seasons and years (Photo:3).

Karstic Caves: Rain and snow waters (atmospheric waters) falling on carbonated rocks such as dolomite and marble, especially limestone (atmospheric waters), are enriched by carbonic acid (H_2CO_3) as they pass through rock cracks., Karstic caves begin to form as these waters dissolve the places they pass through. The caves develop horizontally and vertically depending on the geographical location and conditions of the region, karstic rocks and impermeable rocks that are not suitable for dissolution and the surrounding rivers, lakes or sea levels. The limestone, where

karstic caves are most common, is a structurally abundant rock. 1 cm of a capillary crack on these rocks. Expansion up to 3,000-10,000 years. However, after the width reaches 1 cm, the dissolution proceeds much faster. At this stage, the gap reaches 1-3 m; it lasts between 10,000 and 100,000 years (Photo:4).



Photo3: Vatnajökull Glacier Ice Cave (Iceland)



Photo4: Postojna Cave, Slovenia

Among the cave types mentioned briefly above, karstic caves are the most common ones. The fact that the Orogenic belts that make up the largest mountain ranges on earth consist mostly of carbonated rocks, causing millions of caves to form. Lava tube and glacier caves are not used for this purpose because they do not create favorable conditions for cave art. Sandstone caves have various examples, especially in Africa and Australia, but are not comparable to karstic caves.

2. Cave Art

The cave art is mostly observed in karstic caves, as the others are not suitable for art craft. The unlike and processable structure of the carbonate rocks, the formation of different surface forms depending on the mineral properties, suitable for scraping and painting are important factors that make possible to create art.

The most important characteristic of the Pleistocene period, which started about 2 million years ago, is the cold climatic conditions and glacial periods. Along with nutritional problems and the risks of predators, caves gained vital importance for 1-1.5 million years ago under 'human' communities under heavy pressure from climatic conditions.

Due to their sheltering structures, the caves are of great importance in terms of anthropological records and chronology. While many factors are preventing the protection and fossilization of the remains in open spaces, caves have been very suitable areas in this respect.

The cave of Sima del Elefante in Spain built by people; 1.1-1.2 million years ago provides some remains that show it was used as a habitat. In this cave, bone remains of various animals and many stone tools were found, with traces of a human jawbone and traces of human beings (Carbonell et al., 2008).

Cave arts: It can be defined as the drawings that engraved on the walls, ceilings or floors of the caves during the prehistoric period and represent the first works of art history. Although such works were created in different places, the best examples could be found in dark, deep and deserted caves. This period that is called as the art of the Upper Paleolithic Stone Age is dated between 40,000 and 10,000 years (Uysal, 2011).

It is still controversial who created the cave art why they created? The general belief is that it was created by modern human beings (*Homo sapiens sapiens*), known to begin to come to Europe from Africa about 40,000 years ago.

Although most of the cave art information was obtained from caves in France and Spain, important findings were obtained in India, Indonesia, Siberia, Australia and elsewhere. Most of the paintings engraved on the walls of the caves consist of handprints, some geometric symbols, and animals depicted in various forms.

The earliest evidence of when symbolic thinking is acquired comes from Africa. The discoveries in the "omb omb Blombos" cave in South Africa show that people may have acquired this ability more than 73,000 years ago. It is believed that the remains of earth paint found in the cave were used for drawing and this carried the symbolic thinking ability up to 100,000 years ago (Henshilwood et al., 2011).

Discovered in Spain's La Pasiega cave and new high-tech analysis of the staircase-shaped cave paintings, which are understood to be at least 64 thousand 800 years, *Homo sapiens* came to Europe approximately 20 thousand years ago. This proves that Neanderthals made the paintings. The cave arts in La Pasiega, Maltravieso and Ardales has various lines, dots, rounds and hand stencils. The special skills required to create these works reveal that the Neanderthals have attained the capacity to think symbolically (<https://www.aktuelarkeoloji.com.tr/>).

Marcelino Sanz de Sautuola, who was amateur archaeologist and geologist, announced that he had encountered some pictures of the Magdalenian period (17000-11000 GÖ) in the Altamira cave in Spain, in 1879 but scientists accused him being a fraud for a long time. However, with the discovery of several similar cave paintings in the near surroundings, these works were found to be original after about 20 years and the art and symbolism of the Upper Paleolithic people were met with great interest (Photo:5).

Three tools such as tone, horn, teeth, hard objects were generally used for cave paintings like scraping pictures, engraved part or engraved by the light relief paintings created and painted paintings. Various minerals, which can easily be found in nature, were used for coloring the pictures and animal oils were generally used for fixing the paint. Mostly black and red used in these pictures are related to the easy access to raw materials containing these colors. In the monochrome or multicolored paintings, black is used for carbon from burned wood, while red color is obtained from minerals such as hematite.

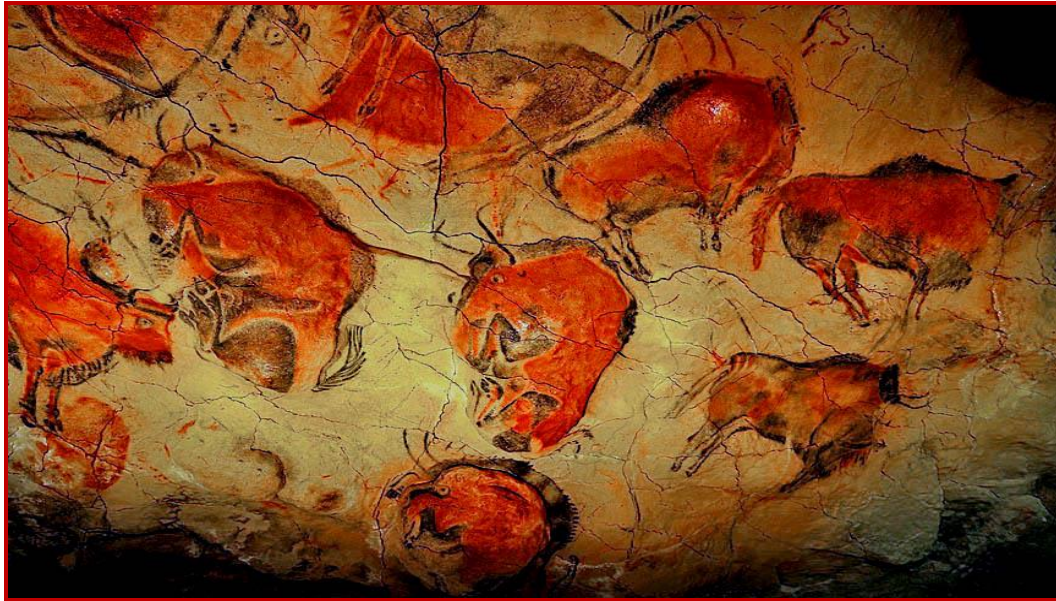


Photo 5: Altamira cave, Spain

https://rosamtristan.files.wordpress.com/2015/03/nomada_altamira1_20g.jpg

After the first discovery in Altamira, only 400 caves with similar characteristics were found in Europe. The red spheres and handprints in the Cueva de El Castillo cave in Spain are believed to date back 40,800 years and are among the oldest ever discovered.

Before the paintings were made in the Chauvet cave in France, the debris on the wall was cleared and the sides of some figures were scraped to give the paintings a three-dimensional appearance. Discovered by Jean-Marie Chauvet in 1994, the drawings in the Chauvet Cave date back to 32,000 years. The cave, considered one of the most important centers of prehistoric art, was included in the UNESCO Cultural Heritage List in 2014 (Photo:6).

A group of diver's archaeologists discovered the cave that submerged 36 meter currently in 1991. There are no other examples of Cosquer engravings depicting some marine animals such as penguins on the walls of the cave, where about 180 animals of 11 different species are depicted. Most of the artifacts dating back 27,000 years have disappeared as they submerged.



Photo 6: Chauvet-Pont d'Arc cave

<http://www.rupestre.net/tracce/wp-content/uploads/2015/02/great-fresco1200.jpg>

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Photo 1: http://res.cloudinary.com/getaroundhq/image/upload/v1537400782/lava_river_as0rvk.jpg

Photo 2: <http://www.geomaps.com.au/images/pilligasandstonecaves3.jpg>

Photo 3: <https://guidetoiceland.is/image/367949/x/0/each-cave-is-different-and-the-ice-caves-in-vatnajokull-are-ever-changing-3>

Photo 4:

http://www.bled.si/en/imagelib/magnify/default/slike/kajvideti/Postojna%20Cave%20Slovenia%20sk-02_025_orig.jpg