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A STELLAR REPRESENTATION IN THE PALEOLITHIC?

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Introduction

In the early 70's, an extended archaeological campaign was carried out in Maremma, Tuscany, by researchers of the University of Florence. There, to the south of the Colline Metallifere, it lies a vast region, which is very rich in prehistoric remains and extends as far as the Tyrrhenian coast, westward, and Grosseto city, southward. Most archaeological finds date back to Iron Age, some thousand years b. C., and are due to the Villanovan culture and to the Etrurian civilization. The names of some among such sites are very well known, like Baratti, Vetulonia or Roselle. In the present case, the place of interest is almost unknown and it is situated in a country featured by Karst formations. At the mentioned time, one of the authors (FM), as a member of archaeological team, was exploring the territory around a spot called Vado all'Arancio and discovered a natural cavity which turned out to have been inhabited in prehistoric times. Luckily, the small cave has remained sealed until then because of a landslide and therefore a large stone was, and still is, almost completely blocking the entrance. The survey work could be performed only by slithering along the ground. The following excavations conducted by FM revealed very interesting findings. First of all, there were two human burials, one adult male and one child, with the skeleton well preserved and almost complete. The graves were at different depths, not far below ground level, however. It is important to stress this aspect, because the skeletons were still composed and therefore, very probably, there had been no intrusions in the inner part of the cave ever since. Moreover they were also found various worked items, mainly stone tools and several animal bones dressed with wildlife engravings. Among these are the typical depictions of symbolic male and female, namely horse and bison, respectively. It is believed that all the worked stuff in the cave was intended to represent something observed in nature.

A pretty odd stone

In fact, some of the stones, taken from the site at the time, were recently examined again, more carefully. In particular, it was noticed a clear nice pebble having a rather regular geometry: thin, with axial symmetry and an elliptical profile. Quite flat on one side, whereas the other surface is slightly convex. Of course, all this is very probably just a result of natural phenomena, but close to the border there is a small area with a few tiny holes in it, close each other. They are seven or maybe eight. Just to give some figures, dimensions of the pebble are 6x8.3x0.6 cm and that particular area is only 1.2x2 cm. On the average the wideness of the holes is about one millimetre, or less, and the depth a few tenths of millimetre. The hypothesis that they were produced by some

animal like the so-called stone-eater molluscs, actually there are hundreds of species, does not seem justified: those holes are much wider and then the rock should be completely covered by them. So, we strongly suppose those holes to be made on purpose by a man, who might have chosen that stone thanks to its regular shape. Of course, now an open question is understanding what tool was used to realize those holes. Although a work of limited extension, their not random layout suggested the possibility that they have a meaning and may display a stellar configuration even. Or maybe it could be just the beginning of a job, because all the holes occupy only a lateral area on the surface of the pebble. We decided to investigate the astronomical interpretation, looking for a first possible interpretation of these signs. One has to bear in mind, however, that it is not to be expected an accurate agreement like in cartography. In addition, it has to be considered that the starry sky observed on Earth is not immutable, as centuries go by.

Estimates, obtained on the basis of radiocarbon dating of organic material found in the burials, indicate that it dates back to the end of the Palaeolithic, specifically the age of about 11,500 years by our times. Actually, this was the shift applied while taking into account the precession of the equinoxes, when calculating the early position of stars. The corresponding configuration of constellations was then compared with marks on stone.

A first guess

Attempts based on 'easy' constellations like the Great Bear did not succeed: simply, they do not match. Now it is here suggested a possible interpretation of that work based on the constellation of the Southern Cross, standing next to two main stars of the Centaur, i.e. Alpha and Beta. These two constellations nowadays are visible only in the austral sky, but, as is well known, in the past they were visible from our hemisphere as well, at the latitude of the site. However it is in progress a more extensive verification of correspondences to other stellar identifications alternatives: surely, the Pleiades are worth to be considered next. Moreover, the effect of stellar proper motions has to be taken into account with a grater accuracy.

It has to be pointed out that, regardless of association with some specific constellation, if this work is really a representation of stars, it is one of the oldest such artefacts: indeed, thousands of years older than any other known prehistoric sky representation.

Key Words: Constellations – Stellar map – Palaeolithic – Maremma