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An historic sign, possible Mesolithic menhir, DStretch, and problems in dating rock art to the Sauveterrian in the Massif de Fontainebleau

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ABSTRACT

This paper uses typological analyses and image-enhancement software called DStretch to eliminate an engraved and pigmented monolith as a chronological marker for dating the largest concentration of supposed Mesolithic rock art in the world – the "classic" schematic engravings of the Massif de Fontainebleau. It shows that part of the block, which was thought to have lain undisturbed for over 7000 years and has been referred to as a "Rosetta Stone" for dating the area's art, actually bears historic letters. The orientation of these painted letters, whose tops all point towards the block's narrow end, and absence of both the letters and apparent medieval engravings around the other end indicate that the monolith's broader end was planted in the soil and more tapered one was exposed when the markings were made. This means that the monolith was upright. The only candidate we could find for keeping it vertical for long on a sandy floor was an oval cluster of small rounded boulders in the Mesolithic layer underneath. If these stones were used to brace the block, its exposed section could have been marked at any time between the monolith's erection and collapse up to 7 millennia later. But they also indicate that the monolith may be one of the oldest known menhirs in France.

1. Introduction

The engravings on one side of a monolith (Fig. 1) in the "Grotte à la Peinture" (Larchant, Seine-et-Marne) have been repeatedly used as a chronological marker for ascribing much of the rock art in the Massif de Fontainebleau to the Mesolithic. This article will show how a reconsideration of the site's stratigraphy, typological analyses of motifs, and the use of image-enhancement software led to alternative explanations, which suggest that earlier interpretations should be regarded with doubt. In doing so, it will confirm the sense of concern about the original excavation report expressed by two authors (Bénard, 1993: 44–49; Beaux, 1995: 25–36) who have noted some of its inconsistencies. We will see that two of the block's faces, including one (A1) (Fig. 2), which was thought to have lain undisturbed for over 7000 years, bear historic letters that were probably painted through an inverted commercial stencil. Both the red letters and engraved lozenges, which match the iconography of medieval vulvas, indicate that the monolith was at least partly exposed and repeatedly adulterated until recently and that none of its surfaces can be used, for the moment, as chronological markers.

But the elimination of the block in the Grotte à la Peinture (Fig. 3 and map in on-line appendix) as a marker for the largest concentration of supposed Mesolithic petroglyphs in Europe has a silver lining. The good news is that the positions of the letters and lozenges suggest that the monolith was standing when they were created. This means that it was probably braced by an oval cluster of stones, which lies under it in the Sauveterrian layer. If this reading is correct, the fallen monolith may be one of the oldest known menhirs in western Europe.

2. Materials and methods

Three methodological approaches were used in our re-examination of the monolith and its context in the Grotte à la Peinture. These include a typological analysis of the cave's imagery, a reconsideration of its stratigraphy, and the use of an image-enhancing program called DStretch to clarify pigmented areas.

The software, which was written by Jon Harman, is a plugin to another application called ImageJ and uses a technique called decorrelation stretch, which was developed by the Jet Propulsion Laboratory. Although the technique was first used to enhance remote multispectral images such as those taken by the Mars Rover, Dr. Harman modified the technique by creating options that are useful in rock art research. His software, which he has made freely available to researchers for personal use, has revolutionized the

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Fig. 1. The monolith was found buried about 4 m away from an engraved section of the wall, which we will call the "main panel". These engravings on a promontory appear here directly behind the boulder in the trench. Hinout hypothesized that the cave's last Mesolithic inhabitants moved the monolith from the ledge to the left of the main panel to its present position.

Fig. 2. Two views of face A1 of the monolith. In the top rendering from Bénard's dissertation (2010:94, fig. 70), he shows four red lines (which are shown here either in pink, for the internet version, or grey, for the printed version) on the bottom left edge of an oval hollow (stippled) near the juncture with face A3. The black motifs represent engravings.

study of such art ever since Dr. Harman unveiled its capacities at the annual meeting of the American Rock Art Research Association on May 28, 2005 (Harman, 2005).

Since then, it has been widely used around the world. One of its early users outside the USA was Bernard Fouilleux (2007), who showed Saharan prehistorians how much they had been missing on panels like the famous *lotori* scene at Tin Tazarift in the Tassili n'Ajjer, Algeria. One of the first people to use it to enhance imagery from French caves was Romain Pigeaud (2012) and his team, which used it in the Grotte Margot (Monnier and Pigeaud, 2008) and even discovered that a red motif in that cave was actually lettering in 2008 (Florian Berrouet, personal communication 2013).

Although DStretch can be customized, we simply applied a variety of its pre-set filters (IDS, IRE, YRD, YRE, YYE), whose results were so consistent in making red zones on the monolith readable as historic letters that we were not obliged to make any further adjustments.

3. Background

3.1. How the monolith became a chronological key

Although we will re-examine all the developed motifs that were supposedly found in or on the cave's Mesolithic layer, we will begin with those on the "monolith".

The first person to describe it, Jacques Hinout, hypothesized that the boulder once sat on a ledge (between squares L 35/36 and N 35/36) (Hinout, 1993: 29, Fig. 5bis) to the left of an engraved promontory of the wall (O 35/36 to Q 36) (Hinout, 1993: 45, fig. 28 B) (Figs. 1, 3 and 4) on the left side of the cave, when one is looking in, and that it was moved to its present position (Fig 1) between

Fig. 3. The Grotte à la Peinture or Grotte de la Peinture, as it is also called, is on the north side of a low ridge near Larchant, in the Seine-et-Marne (See the map in the online appendix), called the "la Roche au Diable". The main panel is visible at the centre, while the ledge where Hinout thought the monolith had once lain is visible on its left. Water drips sporadically just in front of it.