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Questions and contributions on rock art developed through the study of Tagus Valley ideomorphs

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Abstract

This article synthesizes the questions and approaches emphasized in a study of idiomorphic motifs or pure graphisms that are part of the group of rupestrian engravings located at Tagus Valley (Portugal). The repetition of idiomorphic motifs was analyzed through a cognitive point of view that was enhanced with contributions from areas such as Neuroscience, Cognitive Psychology and Anthropology.

Cet article présente la synthèse des questions et des approches remarquées à partir d'une étude des motifs ideomorphes ou graphismes purs. Ils intègrent le groupe des gravures rupestres du Vale du Tage (Portugal). La répétition des motifs ideomorphes a été analysée pour une optique sócio-cognitiva et par les contributions de secteurs comme la Neuroscience, la Psychologie Cognitive et l'Anthropologie.

Keywords: Ideomorphs, pure graphisms, Rock Art, Neuropsychology, symbolism.

Along the Tagus valley, specifically around the place characterized by the geological feature called "Gates of Ródão" – "Portas do Ródão", in Portuguese –, built by the impulse of water in contact with structures of quartz , a major complex of rupestrian engravings was found back in the 1970's. The role of the raw material that served as a basis for the engraved motifs is played by rolled blocks of schist placed on the river shores.

The Tagus Valley is a rupestrian complex that has a great potential for a study about the phenomenon of ideomorphs repetition, since it exhibits a considerable amount of this kind of motifs in comparison with zoomorphic and anthropomorphic engravings. Because of the large number of idiomorphic motifs, which reveal a symbology whose thematic typically arises in the expression forms of Rock Art, and associated with the landscape in which the engravings are inserted, the region seems appropriate for a detailed study about idiomorphic signs that are a relevant part of the relief. In order to elucidate the object that was studied we should take into consideration that, although ideomorphs are the motifs that do not represent figuratively something, they may represent a concrete or an abstract concept. Their forms do not reflect in a clear way the possible object that is intended to be expressed; however they are able to condensate complex ideas.

The methodology used for the development of research is divided into three phases: collecting data and information, the analysis of collected information and the interpretation stage. The collection of information started from a wide literature review of books and articles published on the Tagus Valley rock art and researches about the occupations in this territory along Prehistory and Protohistory, as well as the survey of specific data about the valley rupestrian complex engravings.

Proper methods for the collection of support groups' specific data were stipulated according to the conditions of accessibility. Some regions of the Valley are submersed by the water of dikes built in the 1970's; others have their access restricted by legal impediments; the rest of the groups that do not fit the categories previously mentioned had their data collect on field.

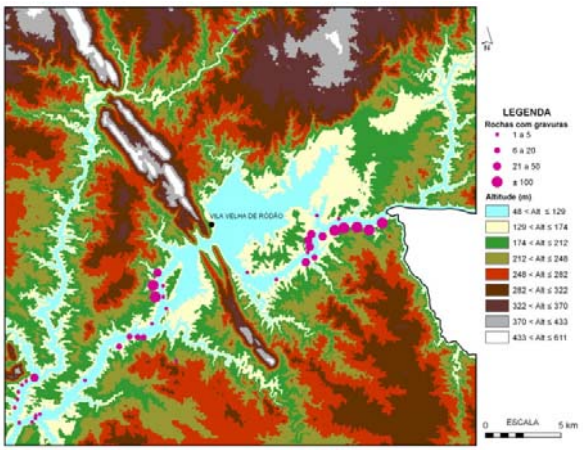

Fig. 1. 2D view of the region that comprehends Tagus Valley and its set of engravings.

By taking into consideration four decorated supports – two of them currently submersed: the rocks 175-F and 155-F, both in Fratel –, a sample was defined. The study of those two submersed supports is justified by the iconographical and technical variety that corresponds to several periods of the engraving phases of Tagus Valley rupestrian complex. The rock 11-G, located in Gardete, belongs to the group of rocks that are not submersed, but whose systematic survey of data on field is, according to the current law, restricted. In order to compose a set of samples that better bases the conclusions we have jumped into in the Masters degree in Quaternary and Prehistory Erasmus Mundus program dissertation "Grafismos puros ou ideomorfos repetidos na Arte Rupestre do Vale do Tejo: uma perspectiva sócio-cognitiva" (Carvalho, 2007), we chose this support because of its high number of figures – a total of 212 –, in which 62% are ideomorphs, as demonstrated Gomes (2004).

The fourth support that composes the studied sample set is the rock 15-OCR, located in Ocreza Valley, in Portugal). This rock presents only an engraving, a spiral, that takes almost all the room of its surface. The selection of this rock is attributed to the motif found on it, which, while kept isolated on the surface of a rock, reflects the motif importance, classified as an idiomorph. The choice of this rock was also justified since the present study was pursued in the framework of the research programme about the rock art of Tagus and Ocreza, supervised by one of the authors (L.O.).

The fieldwork, aimed precisely at the survey of data of rock 15-OCR, was divided into two stages: the first one concerned the recognition of the place, observance of the conservation state of engravings and observance of the engraving already identified, besides the classification of the landscape. That stage took place on April 20 and 21, 2007. The second stage happened from July 24 to 30, 2007, a period when an expedition composed by Rock Art researchers and students went to the Ocreza Valley in order to catalogue e collect data on field that would be analyzed afterwards in laboratory. The fieldwork and the laboratory work were executed following the orientation of Abreu and Jaffe (1996). Cataloguing premises and extraction of vestiges on field were also activities realized during that period. The procedures of survey begins with the rock surface cleaning – in order not to jeopardize its conservation state –, and goes on with the rock orientation, the rock number and code identification, engravings tracing and the field-form fulfilment.

3D and 2D images of maps were used in order to give a detailed imagery description of the landscape. In the map, it is possible to visualize the territory altitude and the area the region comprehends, as well as the establishment of points that indicates the concentration of groups of decorated rocks. In order to do so, we made a confrontation among M888 series military maps – 1:25.000 scale – and the map that limits the Tagus Valley complex presented in Gomes's work (1987, 1989). In order to obtain the georeferenciation of that area, we compared points that had been already georeferenced, offering the possibility of establishing the portions of entire clipping. Thus, the georeference was absolute, but relative, which means there could be a more or less considerable error margin. In 3D images, in order to make the relief more visible, the original proportions of the geological phenomenon vulgarly called "Gates of Rodao" were enlarged five times.

Tagus Valley rock art was produced technically by direct or indirect percussion, we mean, by the direct contact of a lithic or metallic instrument with the rock, or by the assistance of a percusor that produces more precise results. The tearing off technique was used in the drawing of most of the engravings, although there were some

examples of philiphorms, usually associated with the first periods engraving in the Valley. The motifs present in that art are motifs of idiomorphic, zoomorphic and anthropomorphic character. According to Cunha Serrão (1978), the Tagus Valley rock art is constituted by zoomorphs, anthropomorphs, geometrics, astrals, footprints and little holes. In this article, little holes, footprints, astrals and all those figurations that have nothing to do with zoomorphs and anthropomorphs are considered as part of the ideomorphs category.

Developed through data collected along the years of 1972 and 1974, the analysis made in the following years to the salvation campaigns – conducted by researchers such as António Baptista et al (1978) before the construction of dikes – made it possible to establish three main phases, which one comprehending identical characteristics of thematic or style. However even the researchers emphasized the division of engraving phases was superficial and merely functional. In order to obtain a concrete analysis about the Tagus Valley rock art engraving phases, we decided to undertake a comparative exam between two of the most representative proposals of chrono-stylistic division: the one proposed by Martinho Baptista (1981), and the other, by Mário Varela Gomes (1987, 1989). This analytical parallel was effectuated in such a way it could reveal the existing differences between the proposals, making it possible to verify the results of both studies. That method of analysis, whose intention was to confront those two proposals of chronology about the same object – the engravings of the complex –, made it possible to check out carefully the incidence of ideomorphs in the Valley along several engraving phases.

Although there are disagreements concerning the origins of some ideomorphs, like the spiral case, both studies confirm there is larger concentration of these iconographical category in the production of communities whose socio-economic activity was based upon agriculture and animal husbandry. The percentage of ideomorphs becomes higher according to the implementation of metallurgist activities, typical of Chalcolithic and Bronze Age. This point is confirmed by making an analysis of Collado Giraldo's (2006a, 2006b) study about Guadiana rock art, in which it is possible to verify also a higher concentration of ideograms at a period that goes from the Neolithic to the Bronze Age. This author indicates parallels between the Guadiana rock art and the Tagus rock art. The own geographical location of the studied rupestrian complex area allows us to say that probably the communities that settled down in that place contacted Tagus communities, influencing each other.

By studying this territory, such as Tagus Valley, and observing that there are motifs in different stations that are from the same engraving stage, we mean, of a concomitant origin, we face the following question: or these signs were expressed because of the contact between these groups that inhabited the region at the same period or some motifs could have been engraved without an appropriation of forms drawn by communities.

This second hypothesis may be sustained by an exam about the formation of symbols e and mental productions of certain forms preferred by human being instead of other forms. Simple forms, that however may have properties which Neuroscience identified as stimulators of certain human senses. Representing signs in a wider way than others brings a trail, a clue, about the operation of our mental productions linked to sensations. The own exercise of learning, acquiring and fitting certain motifs instead of others may be based upon the elements that induce the human being in the choice of how to represent graphically some objects or, in the case of ideomorphs, more abstract concepts.

The socio-biologist Wilson (1999) attributes one link among certain epigenetic components and art and aesthetics. It is not the case of considering art a direct result of natural specific needs, but the genesis of artistic productions would organized by aesthetical patterns inserted in our neurocognitive system. This North American author demonstrates motifs that indicate a higher stimulation contain big likenesses with those ones, produced by Man.

The human brain, however, does not get excited only when it recognizes one image of 20% of redundancy, as indicates Smets. As it is capable of creating images, this excitation is possibly revealed in a concrete production of images that respect this pattern. It is necessary to stand out that when we mention "mental images" we are talking about the reproduction of a seen object, but about the elaboration of an image or scene expressed by mind. The capacity of creating images is confirmed in Eric R. Kandel's et al (1995) book "Cognitive Neural Science".

The ideomorphs, as elements of social groups' cultural product, got integrated on

demands of the social organization and got fitted to the socioeconomic elements that directly influenced the cultural expressions. Thus, searching for the meaning of these signs requires

Fig. 2. Tracing of rock 15-OCR, which is located on river Ocreza right shore, that contains a spiral.

a deeper research about the motifs classified in each group that has produced it. Besides, we should take into consideration that one symbol has a certain flexibility even been inserted in a social context. However the question of frequency of certain motifs repetitions may be answered through the advances of Neuroscience, that make possible an analysis of brain stimulation when individuals face certain geometrical forms. Wilson (1999) pointed to results of psychologist Gerda Smets's study results, who verified brain modifications in volunteers who observed "abstract drawings", by using alpha waves desynchronization – much used technique by Neuroscience. The results showed a high degree of excitation when individuals observed geometrical images with 20% of redundancy. This characteristic may be seen in images like a logarithmical spiral, one snake-shaped with, for instance, two or three undulations, concentric circles etc. These images are the ones that, inside a group of ideomorphs, regard the highest repetition in Tagus Valley rock art, and in larger scale we can see bunches of these motifs spread world widely as product of art of different social groups, from the most different geographical locations.

By studying the occurrence of one sign, we should also be aware of its meaning inside a socioeconomic context. When we study graphical productions, we may face some psychological structures that intermediates the production not only in its steps of execution but also in its primary effort or the unconscious efforts that may contribute for the production as well. Jung's theory, in this case, contributes for the studies of Rock Art when it comes to the premise that Rock Art, as well as arts in general and myths, is a set of cultural constructions and, therefore, a human set. The advances that the psychological point of view proposes through the Jungians basis do not point to a conception of art images as directly associated with a meaning, since meaning is constructed by the specific cultural sphere of each social group. What the Jungians concepts propose is the existence of tendency full of symbolic value in an collective unconscious that would stimulate human being to represent certain images.

In Felipe Criado Boado's (1993 apud Berrocal, 2004) theory, reality is constituted through the human work that is based upon the material and also upon the ideal that stimulates the existence of the material. However, by analyzing cultural manifestations, we mean, human productions, it is possible to achieve structural levels that put on evidence dynamics that may be seen in distinct productions. The study of rock art of a given place, therefore, contributes for the analysis of this phenomenon in general, catching up in a deeper way the dynamics that surround them.

Rock Art is a phenomenon that marks the way Man has related, in some periods, with its space and it is an important evidence about existing cultural practices. In some cyclic communities that are still alive, Rock Art still intermediates the relation Man-ambience.

The landscape is "the expression of social practices of material basis and imaginary" (Criado Boado, 1993:42 e 1993:11 apud Berrocal, 2004:41). From the material identification, we mean, the engraved motifs, we developed, based upon some scientific points of view that actually are becoming part of Rock Art study, a view toward Tagus Valley idiomorphic signs, ranging their cognitive character, that is placed on the imaginary aspect emphasized by Criado Boado (1993 apud Berrocal, 2004).

Therefore, the more elevated frequency with which idiomorphic engraves appear in stages that may be related to Megalithism should be interpreted like a local communities tendency integrated in the social organization of them. The socioeconomic variable is presented, when it comes to the thematic of ideomorphs, as a directional element of an existing capacity in individuals, in their cognitive apparatus. The graphic expression of motifs that contain forms categorized as ideomorphs was started by a social organization that structured, expressing a higher level of stratification and enlarging the social network that, in the vertical structure of social stratification, became more and more complex.

Baptista's (1981) considerations about the spiral origin at Tagus Valley rupestrian complex offered data that suggests that, even in the Late Palaeolithic, when societies were essentially depended on hunting and gathering, one may record graphical expressions that did not express a primary representation of an object, but that probably contained a complex concept through a sign. This cognitive procedure, that seems simple, showed up inefficient if what one would intend to represent was not understood by rest of the group. In order to understand these graphical expressions of conceptual representations, there should be a solid organization among members, with focused *locus*. This settlement in the territory allows a more intense integration among members, a higher development of social stratification levels and, therefore, it requires a relation among cultural elements and landscape different from the hunter-recollector societies.

It was not intended to propose a social-evolutionist view in order to explain the attribution of a higher number of ideomorphs at periods when agriculture and animal husbandry communities dominated the landscape. On the contrary, taking into consideration the different positions of socioeconomically distinct societies facing the landscape and their needs of cultural manifestation that were characterized according to the different social organizations, we intended to spotlight the elements that, in a certain way, stimulated certain graphical manifestations.

The results offered from the previously mentioned work lets us conclude that, starting from a multidisciplinary view, sustained by theories from Cognitive Psychology, Neuroscience and Social Anthropology in association with Archaeology and Rock Art, we are able to achieve wide results, taking as study objects compounds that overtake themselves and are responsible for the origin of a given expression in front of a cultural manifestation. There is still a lot to be studied when it comes Tagus Valley rupestrian complex, that offers an huge variety of human graphical productions related to several periods e originated in different social groups, and also when it comes to the World Rock Art, considering it as an evidence of cultural expressions from several periods and peoples. Much of us, cultural beings, can be found in the analysis of execution procedures of what has characterized the human specie: the art.

The approach to the ideomorphs from this perspective precludes the attempts to use them as a chronological indicator (Baptista, 1981; Gomes, 1987), which they in fact cannot be. Yet, it also provides an insight to the function of the rock art complex, which may be perceived as the *locus* of representational structuring of the agro-pastoralist expansion into the western regions of the Iberian Peninsula, as it has been suggested (Oosterbeek, 2001).

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