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Spatial, Geoarchaeological and Paleoenviromental Analysis of the Archaeological Site "Furna do Estrago" – Brazil

The archaeological site "Furna a do Estrago", situated in the municipality of Brejo da Madre de Deus, Pernambuco State, represents an important parameter in the reconstitution of the prehistoric landscape in the semi-arid environment of Northeast Brazil during last the 11,000 years BP.

Based on the systematic study of this site, analysing the cut 7A of the "Furna do Estrago" – constituted of seven archaeological layers –, a reasonable contexture of past occupations resident in the Furna was possible, evidenced respectively between 11,060 ± 90 BP (layer seven); 9,150 ± 90 (layer six); 8,495 ± 70 BP (layer five) and 1.040 ± 50 years BP (layer two).

Starting from general ideas about the Quaternary, situating the "Furna do Estrago" in this period, specific methodologies have been applied that come for other areas of the scientific knowledge (grain-size analyses, morphoscopy and X-ray diffraction), palinology, zoo and the phytoarchaeology graphic resources met in informatics, for the space reconstitution of the site and areas of bigger human activity in the resulting archaeological layers.

The ordination of the related aspects in the analysed stratigraphic section, differentiated well by the resultant layers, with a depth reaching 1.40 m in an area of 7 sqm, allowed a direct correlation between the expressive amount of identified archaeological records, associating them with the responsible sedimentary dynamics for the formative process of the stratigraphic profile.

In this relation it was observed, from the grain-size analysis, homogeneous sedimentary process in the stratigraphic sequence between the milleniums, where the degree of selection and the proper grain-size are characterized by a small difference between the layers, with the predominance of an average sandy material in a sedimentary regime of low energy.

Such assertion, associated to the mineralogical results (X-ray diffraction), especially represented for the clay minerals: kaolinite and illite; and to the zoo and phytoarchaeological aspects, allowed to indicate for the datings mentioned above, a warm period with high temperature in the Pleistocene/Holocene limit (11,060 ± 90 years BP), following by a warm and dry period for 9,150 ± 90 years BP, again a dry period at 8,495 ± 90 years BP, suffering later a climatic mild, probably between 6,500 and 4,000 years BP (layer four – without dating, but with intense zoo-archaeological and palynological indicators characterizing humid periods – probably the "Optimum Climatic One"), reaching contemporary climatic trends to the semi-arid of Northeast Brazil, only near 1,040 ± 50 years BP.

The zoo and phytoarchaeological characterizations confirm the sedimentological and mineralogical perspectives for the prehistoric environment in the Furna, by the expressive or scarce features in confrontation with the already argued parameters.

From the botanical point of view, all identified species with characters of typical Caatinga plants, have their bigger concentrations in the form of archaeological material dispersed among the layers.

From the faunistic point of view, the expressive presence of the categories Mammalia, Reptilia, Amphibia and Molusca, predominantly between layers 5, 4 and 3, permit to infer that the best phase of adaptability to the environment, for the past groups, is given between 8,495 ± 70 BP and 2,000 years BP, attributing for the previous periods not so favourable environmental conditions, responsible for the scarcity of the food resources.

This information, coherently organized in the stratigraphic section and reconstituted by operation of computer science, made possible the indivudualization of strategic considerations about the prehistoric occupations, classifying, from the distribution of the archaeological records in the profile, the areas of bigger anthropic activities and availability of the resources.

At last, as presented in this work, a sequence of the environmental periods which would have crossed the prehistoric groups of the Agreste of Pernambuco, characterizing the landscape of the last 11,000 years BP and indicating the most favorable periods for the development of the occupations situated in this time span are shown.