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Pedra Furada, Brazil: Paleoindians, Paintings, and Paradoxes

An interview with Drs. Niède Guidon†, Anne-Marie Pessis†*, Fabio Parenti†,Claude Guérin**, Evelyne Peyre~, and Guaciara M. dos Santos‡

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Pedra Furada in northeastern Brazil represents possibly the oldest known human site in the Americas. Since C-14 dates of 48-32,000 BP were reported in a Nature article (Guidon and Delibrias 1986), the site's Paleoindian components have been highly controversial, challenged (though not refuted) by many North American researchers (e.g. Meltzer, Adovasio, and Dillehay 1994). Yet the site has solid evidence of non-Clovis, Paleoindian occupations including human remains, plus a unique rock painting tradition from at least 12,000-6,000 BP. In March, 2002, ***Athena Review*** (***AR***) asked archaeologist Niède Guidon and her colleagues to explain the current status of the findings, including both Paleoindian skeletal and subsistence remains, and the abundant rock paintings at Serra da Capivara National Park, which contains Pedra Furada (figs.1,2). Much of the interview is given here (for full text, see printed issue of ***AR***, V3, no.2)

Fig.1: Sandstone outcrops at Capivara National Park in Brazil, containing the Pedra Furada Rock Shelter (*photo: FUMDHAM*).]

Dating of Pedra Furada:

AR: *Based on your 1986* ***Nature*** *article and several recent web reports, your sites have a wide range of dates, some as early as 48-30,000 years BP with two hearth samples dated at 32,000 BP, and evidence of cave painting (a fragment with two ochre-drawn lines) associated with a 17,000 year old C-14 dated hearth. How are these dates holding up as your work progresses?*

Niède Guidon: These dates are holding well. Once we learned that the Department of Earth Sciences of the Australian National University had developed a new chemical technique to decontaminate small quantities of charcoal to be dated by AMS (accelerator mass spectrometry), we sent samples to Canberra from the same charcoal dated in 1988/91 by the Gif laboratory in France. The results are given here by Dr. Guaciara M.

dos Santos.

Guaciara dos Santos: A comprehensive chronology of human activity at the Boqueirão da Pedra Furada (BPF) site, the oldest archaeological site found at the Capivara National Park (fig.3), has been established by reliable radiocarbon dates on charcoal excavated from different levels. The sub-phase BPF 1, the lowest layer with definite evidence of human activity in the Pedra Furada Rock Shelter, gave radiocarbon results ranging from 35,000 to greater than 48,000 BP (Guidon and Arnaud 1991; Parenti 1996). For the oldest samples, the 48,000 lower limit is imposed by the residuals remaining after conventional acid-wash or acid-base-acid chemical pre-treatments. These pre-treatments are intended to decontaminate samples with traces of extraneous, more modern carbon which may be present, as the result of exposure of charcoal in this layer to the environment.

A new ABOX-SC (acid-base-wet oxidation followed by stepped combustion) procedure, developed by Bird et al. (1999), which has been instrumental in establishing secure radiocarbon dates of greater than 40,000 for the human occupation of Australia (Turney et al. 2001), has now been applied by me to charcoal from the oldest occupation layer of the Pedra Furada site. This more rigorous chemical pre-treatment, which was followed by a stepped combustion (SC) procedure to remove any residual contamination, decontaminates samples from charcoal and wood (Bird et al. 1999; Santos et al. 2001), enabling credible radiocarbon dating to around 55,000 BP.

A total of seven charcoal samples from hearths at site BPF 1 were subjected to the full ABOX-SC procedure and their radiocarbon contents were determined by accelerator mass spectrometry at the Australian National University. Five of the samples proved to be even beyond the limit of this new technique, returning ages of greater than 56,000 BP. Finite ages of 53,000 and 55,000 BP were obtained for the remaining two (Santos et al., in manuscript).

These new results push back the time of human occupation at the Pedra Furada site by at least another 8,000 years relative to the previous results. Hence, it appears that humans were already at this site about 60,000 years ago, and possibly even earlier.

Fabio Parenti: The radiocarbon dates at the site of Pedra Furada, totaling 52 in my final report (Parenti, in press) are fully confirmed by new AMS techniques, especially for the oldest unit, Pedra Furada 1, which is now dated to at least 50,000 years BP.

[**Fig.2:** Paleoindian site locations in east Brazil including Serra da Capivara National Park and Lagoa Santa.]

Early Human and Subsistence Remains from Pedra Furada and Related Sites:

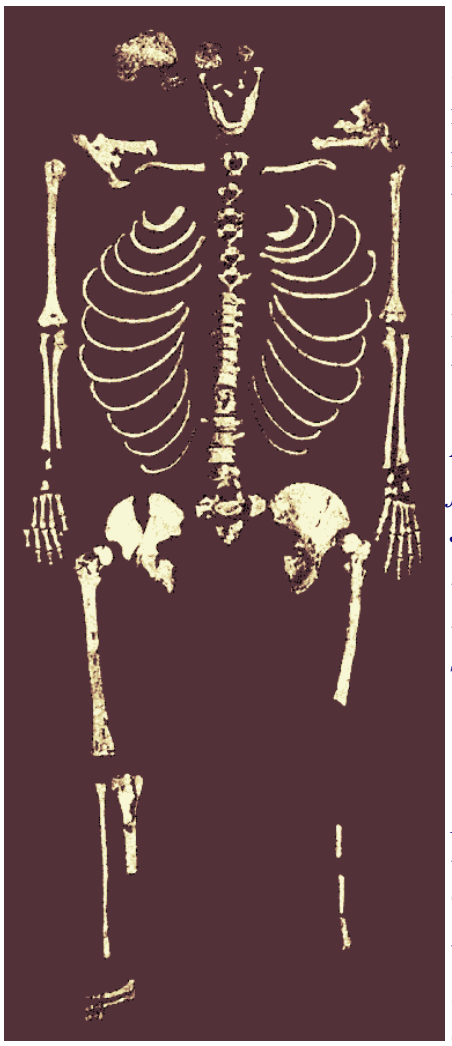
AR: *You reported in a web interview on finding human remains (3 fossilized teeth and a skull fragment) at Garrincho from about 15,000 years old. How were they dated, and did they have any remarkable features?*

Niède Guidon and Evelyne Peyre: The human teeth we dated were found at a limestone site at Garrincho. The measured radiocarbon date (Beta 136204) was 12,210 +/- 40 BP (Peyre et al. 2000; box 1). They are the oldest human remains we have found until now. Presently we are waiting for dates on 5 additional burials we excavated in December, 2001 in the entrance of a limestone cave, underneath a wall with rock art.

The morphological features of these teeth were published in France (Peyre et al. 1998). The most important aspects are as follows:

Incisor I: Based on its generally large shape and its compressed appearance, this incisor can be considered to be archaic. Its wear pattern (index of flattening), intermediate between that of the Neanderthals and those observed in Europe at the end of the Late Pleistocene, or worldwide in the Holocene, is equal to the Near Eastern Qafzeh people at the middle of the Late Pleistocene. Like the latter, the compressed appearance results in a strong buccal-lingual diameter, that has no equivalent since the end of the Late Pleistocene except with the maximum recorded in the Australian series. The large crown of this incisor, which is only surpassed by Wadjack II (from Indonesia, at the beginning of the Holocene), resembles the averages of men from the middle of the Late Pleistocene in Europe and the Near East, and the most recent Australian series. It is, therefore, a type of modern Homo sapiens, like the fossils at Qafzeh.

Molar 1: This molar is archaic, as much by its form which is very slightly flattened, as by its large size. Its crown approaches the maximum observed for most of the human remains since the end of the Late Pleistocene, and is as large as the average of those observed in the middle of the Late Pleistocene among the Neanderthals and modern humans at Qafzeh. Subsequently, any series of equivalent averages are the exception, such as the European series at Predmostí at the end of the Late Pleistocene and the Australian series from the Holocene. The strong buccal-lingual diameter of this tooth is, however, surpassed by certain fossils from the end of the Late Pleistocene in Australia, and at the beginning of the Holocene in Indonesia (Wadjak I). Its slight flattening, on the order of the present day averages of Africa and Asia, recalls that of Predmostí and the Neanderthals. In conclusion, the crown dimensions, both absolute and relative, of the Garrincho molar are close to the averages seen in the middle of the Late Pleistocene.



Claude Guérin: The cranial fragment from Garrincho consists of the anterior-inferior (front lower) section of the left parietal bone. It is remarkable for its thickness - an archaic trait - and for the presence of a rare anomaly, a temporal-parietal, endo-exo cranial fossa (hole in bone through which arteries pass). The teeth, as noted, consist of one I/1 (incisor) which by its size and its compressed appearance render it archaic, and by being remarkably well worn despite its youthful age. An M1 (molar) in a fragment of the maxilla is archaic due to its large size and the fact that it is only slightly flattened. It has an extra mesio-lingual root.

AR: *In a recent (1999) paper by Guérin et al., a 9,700 year old female skeleton (fig.3) was mentioned as being found at Toca da Janela da Barra do Antonião near Serra da Capivara Park. What notable physical features or archaeological associations does she have? Is she in any way comparable to the (roughly contemporary) skeletal remains from the Logoa Santa region (fig.2), including "Luzia" from Lapo Vermelha, or others from Santana do Riacho 1 (Neves 2001; Chatters 2001)?*

Niède Guidon and Evelyne Peyre: These human remains which we call the "Dame d'Antonião" (fig.3) were found near a fire protected by stones. The burial and the skeleton were described in 1993 (Peyre 1993). This woman, who well represents early South American skeletons, has some archaic features. These include certain robust and archaic cranial characteristics, such as the height of the mandibular symphysis (front of the jaw), the rather small gonial angle (at the back of the jaw, between the horizontally and vertically positioned bone), the large teeth, and the average thickness of the cranial wall.

Claude Guérin: The "Dame d'Antonião" does have some archaic characteristics (like the thickness of the cranial wall), but less so than the specimens from Garrincho, which is logical because she is not as old. Like the 3 teeth and skull fragment from Garrincho, she is associated with megafaunal remains (fig.5).

[**Fig.3:** Skeleton of "La Dame d'Antonião," dated at 9,670 + 140 BP and found at Toca da Janela da Barra do Antoniã (*photo: courtesy Evelyne Peyre*).]

AR: *What resources (i.e. plants, animals, raw materials for tools) were available to Paleoindians in northeastern Brazil in the terminal Pleistocene? Are there any new findings on what people were doing here and/or refinements on the environmental reconstruction based on current fieldwork and analysis?*

Niède Guidon: Throughout the Pleistocene and until 9,000 BP, the mountains of this region were covered by rain forest. On the plains were prairies and hundreds of lakes. Herds of American horses and paleo-llamas lived there. The fauna was extremely rich and disappeared only at 6,000 BP.

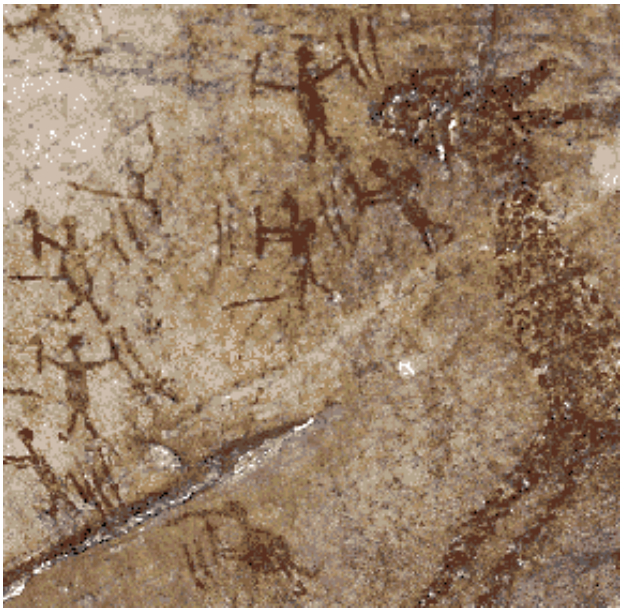
The climate changed more or less after 9,000 BP. During our excavations we found ancient river valleys, which until 9,000 BP were very big. The vegetation also was rich. It is for these reasons that so many Indians lived here for so long of a time. Actually our excavations are looking for detailed information on the climate change and, chiefly, on the paleogeography of the region. We are mapping all the changes the drainage system of the region had during the last 30,000 years BP.

It was this opulence that permited these prehistoric people to develop a very impressive culture, a high culture, not materially but spiritually. We see this in the very elaborate paintings. Raw materials used for the lithic industry were locally available flint, chalcedony, metaquartzite, and quartz.

As for recent environmental changes, until the arrival of the white colonists there were rivers here. In 1970, the first time I came here, the river still flowed, and in the town of São Raimundo Nonato there were big forests and at least 10 lakes full of aquatic birds, with aquatic vegetation. Today we have the caatinga, the dry forest; the river is dry and the lakes have disappeared, covered by garbage so the owners could build houses on top of them. The present-day poverty of northeastern Brazil is the result of 5 centuries of bad agricultural technology and the destruction of the forests to sell the wood.

Fabio Parenti: In the last 15 years, the main source of palaeoclimatic information in São Raimundo Nonato region has been the very rich mammalian faunal assemblages recovered in the caves of Precambrian limestone outcrops. However, several new sources of data are currently under study: charcoal from hearths and campfires of rock shelters, pollen from coprolites and marsh sediments, speleothemes from limestone caves, and, from nearby, Optico-Luminescence (OL) chronology of eolic dune fields in the São Francisco region.

AR: *We are very intrigued about how your work and discoveries have contributed to creating new paradigms about the earliest people in the New World. Now that there are more definite preClovis sites, and there is mounting evidence that some Paleoindians were not specialized big game hunters, but more generalized hunters and gatherers, what kind of evidence for early subsistence is there at Pedra Furada?*



Niède Guidon: It seems, by the paintings, that they used spearthrowers and not bows (fig.4). We think that they used spearthrowers and traps to hunt.

At Pedra Furada we have found a lithic industry (using quartzite, flint, chalcedony, and quartz) very rich in quantity, but the number of tool types is restricted and generally not too elaborated. They had a nearby raw material source and did not conserve it. Only flint was used with parsimony. We also found a piece of horn transformed into a perforator.

[**Fig.4:** Scene from Toca do João Arsena of people with spears and spearthrowers, and large animal at right. This is an example of the middle phase of the Nordeste Tradition of rock painting at Serra da Capivara (*photo: FUMDHAM*).]

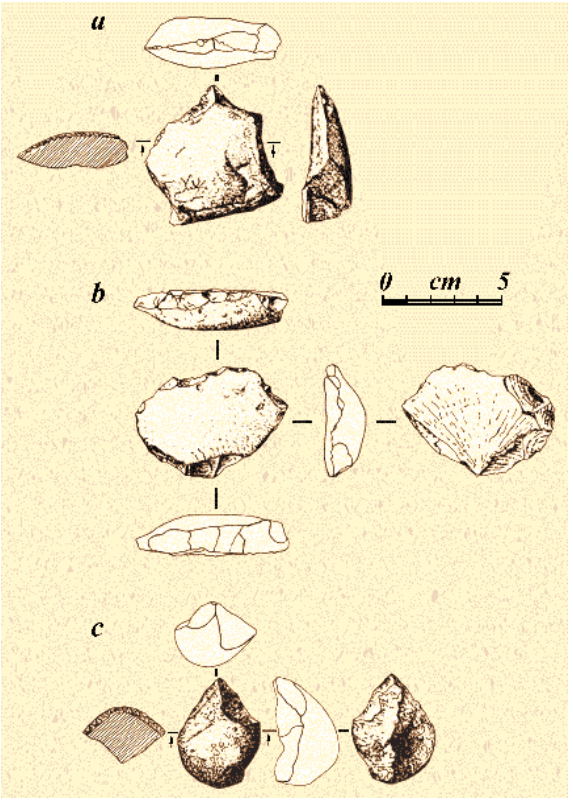
Since the lithic artifacts are very simple, with few pieces elaborated or showing very good technique, Claude Guérin thinks that they were not able to hunt big animals such as the giant sloth, sabertooth cat, and mastodon. But they had lots of horses and paleo-llamas and aquatic birds. As the region is a geological boundary, it presented several different ecosystems and offered very diversified natural goods and raw materials. If Eden existed it was here! By the way, we also have thousands of snakes!

Claude Guérin: At Antonião, some artifacts resembling those from Pedra Furada are associated with megafauna (figs.5). People of that period were certainly not specialists in hunting large game because their weapons were too primitive, and besides, we have never found a butchery site. These were hunter-gatherers who took what they could find byhappenstance, and who must have scavenged a lot of carrion because the animal remains are both very abundant and very varied.

As for "Garrincho Man," he must have been trapped in the site in the same way as the animals because they are closely associated. Moreover, we have not found a single artifact in this deposit.

[**Fig.5:** Fossilized giant sloth skull from Toca da Janela da Barra do Antonião, one of many Pleistocene cave sites in the same karstic area as Pedra Furada (*photos: courtesy Claude Guérin*).]

AR: *Among the tools shown in your (1986)* ***Nature*** *article are those termed "blunt points" (fig.6). What kind of function might these have had? Is this lithic terminology partly derived from Old World usages on Mousterian or other kinds of points? If so, do you think there has been any misunderstanding of the details of your site due to a use of Old World terminology?*



Niède Guidon: We suppose that these points were used to make holes in wood, leather and, as some of them have retouched sides, they were also probably used as scrapers. People had the same needs all over the world and the same genetic heritage so the answers to the different problems they faced were more or less the same. Yes, I always use the same terminology used in France, why not? It does not mean that the technological evolution in America was the same as in Europe. The climate was different so the needs also are different. But two lithic pieces with the same morphology may have the same names, I think.

[**Fig.6:** Three of the 560 artifacts recovered from Pedra Furada 1 up through 1986 in layers dating from before 32,000 to about 25,000 BP: a) retouched, notched point on a quartz flake; b,c) blunt points or scrapers with up to 4 convergent flake scars, with traces of utilization (*from Guidon and Delibrias 1986, p.771; FUMDHAM*).]

AR: *Some have proposed that the earliest Pedra Furada charcoal dates may be from natural fires (cf. Meltzer, Adovasio, and Dillehay 1994). Why do you think your findings, which seem very compelling, have not been fully accepted by some other New World archaeologists who have found preClovis sites?*

Niède Guidon: I cannot understand why. Perhaps because when you are the first to discover something, people want to kill you because you disturbed the placid waters of the lake. The theories on the peopling of

America are only theories, and in prehistory it is not possible to say that something does not exist only because we do not find them. A theory is not a law, but may and must be changed each time new facts are discovered. And I am sure of our discoveries because our team is very good with specialists in different sciences. I have degrees in both Natural History and Prehistory, and decades of fieldwork. I know when I am digging a place where people placed stones in order to make a fire inside the structure, and when I am facing a natural fire. And forest fires were not common events in the rain forest before the arrival of white men.

Fabio Parenti: Essentially for three reasons: a) lack of detailed publications; b) the very peculiarity of such old dates, with poor "undisputable" evidence; c) lack of direct participation in the field effort of an international team (isolation of Brazilian archaeologists).

Rock Paintings at Pedra Furada:

AR: *How old are these rock paintings, and how have they been dated?*

Anne-Marie Pessis: The rock art in Brazil, and in South America in general, is not as old as that in Europe, although in some cases this is challenged. The data available up to now suggest that some paintings in northeast Brazil date to around 12,000 years BP. These have been grouped into the "Nordeste [Northeast] Tradition." Dating for the Nordeste Tradition was established from cliff fragments with rock art discovered in archaeological strata, thereby dating the panel's detachment from the walls of the shelter.

Direct dating of paintings is not common in Brazil. In Europe, by contrast, painters often used pigment containing a high proportion of carbon which can be directly radiocarbon dated, thus producing some old dates. However, by using other methods in the Serra da Capivara National Park, we do have several cases of reliable dating of paintings. One example, dated by associated stratigraphy, was discovered during excavations at Toca do Baixão do Perna shelter.Charcoal from the top of a hearth found in the sediment layer that covered the wall with paintings gave dates of 9,650 +/- 100 BP (Beta 32972), and the charcoal from the bottom of the hearth, 20 cm below the painted figures, was dated 10,530 +/- 110 BP (Beta 32971).

[**Fig.7:** Human and animal figures including deer at Toca da Extrema II (*photo: FUMDHAM*).]

At another site, Toca da Ema do Sítio do Brás, two big blocks with several figures belonging to the Nordeste Tradition spalled from the wall, falling to the ground. Afterwards, sediments covered them until they were discovered during excavation of the site when we just turned them over and found the figures. The charcoal from these sediments was dated from 9,290 to 9,000 BP (calibrated; Beta 148100).

As a third and older example, excavations at shelter Toca do Boqueirão da Pedra Furada yielded a little piece of the wall on which some lines had been drawn with red ink, that lacked any diagnostic traits of the Nordeste Tradition. Charcoal from a hearth found in the same strata gave dates of 29,860 +/- 650 years BP (GIF 6651). So we can affirm that at least 29,000 years BP prehistoric people in this area prepared pigments that could be used for different purposes, and that they used them to make abstract or non-representational designs - signs, geometrical figures. It is possible that at first these drawings were made only for fun, without

any social significance, but what is sure is that they did prepare and use these pigments on them.

[**Fig.8:** Painting of deer from Toca das Figuras do Angical I (*photo: FUMDHAM*).]

Niède Guidon: In 1991 Prof. Baffa from the Physics Department of the University of São Paulo at Ribeirão Preto, dated a layer of calcite that was covering two red anthropomorphic figures at the site Toca da Bastiana (fig.3). The calcite dated to 17,000 years old. In 2000 Prof. Shigueo Watanabe from the Physics Department of the University de São Paulo at São Paulo, dated by TL and ESR the calcium oxalate of the same calcite at 30,000-40,000 BP. Dr. Marvin Rowe from Texas A&M University, however, dated the oxalate crust in 2,540 +/- 60 years BP. So there we have a big problem. We are now excavating the shelter, and we found 2 burials. We are waiting for the dates of these burials. We also have some samples of charcoal pigments from the Pedra Furada rock art at the laboratory of Gif in France waiting to be radiocarbon dated by the AMS method. Until now it has been impossible to directly date the pigments.

AR: *In terms of style, how do the paintings correspond to anything that has been found elsewhere in the world, contemporaneous or not? Do they seem to have a strong psychological dimension such as that in some Amazonian art?*

Anne-Marie Pessis: In the National Park and particularly in the shelter Toca do Boqueirão da Pedra Furada there is a sample of the whole Nordeste Tradition evolution. It begins with the oldest figures, which were the first paintings on the rock walls, through the ones that show the evolution of the techniques, the themes and the scenography, till the figures of the last period after which they disappeared completely, suddenly, silently without any record of a conflict, or genocide or integration with another new cultural group. The main characteristic of the Nordeste Tradition are the narrative figures that represent actions of daily life as well as ceremonial events (figs.7-9). It's possible to find in the world other groups that used the narrative themes in their rock art. The paintings of the Spanish Levant present some stylistic similarities in the human and animal figures with the Nordeste Tradition. But the big difference is the way the components of the message are presented, how the figures are chosen and assembled on the wall, the technical devices they used to represent time and the space and the techniques of perspective.

[**Fig.9:** Detail of rock painting in a niche at Toca do Boqueirão da Pedra Furada, showing people and animals including crocodiles, a puma, deer and llamas (photo: FUMDHAM).]

The non-identified figures are abstract forms with a universal character that may be perceived and used by all the members of the human species, independently of their cultural origins. They may have differences in the drawing techniques, in the morphology, and complexity, but they have similarities all over the world.

AR: *What materials and techniques were used to create the petroglyphs at Pedra Furada? Were any pigments utilized other than charcoal, and the ochre mentioned in the 1986 Nature article?*

Anne-Marie Pessis: The pigments used in the rock art were prepared with ochre and clay of different colors, very common in the rock formations near the shelters. These sources of raw material were used for millennia. The ochre, or iron oxide, was the most used pigment, so the red color is the most frequent in several different tones, from the very faint to deep red. These tonalities were obtained through mixture of different pigments - red, yellow, orange, and brown - and by heating the pigments at different temperatures and humidity.

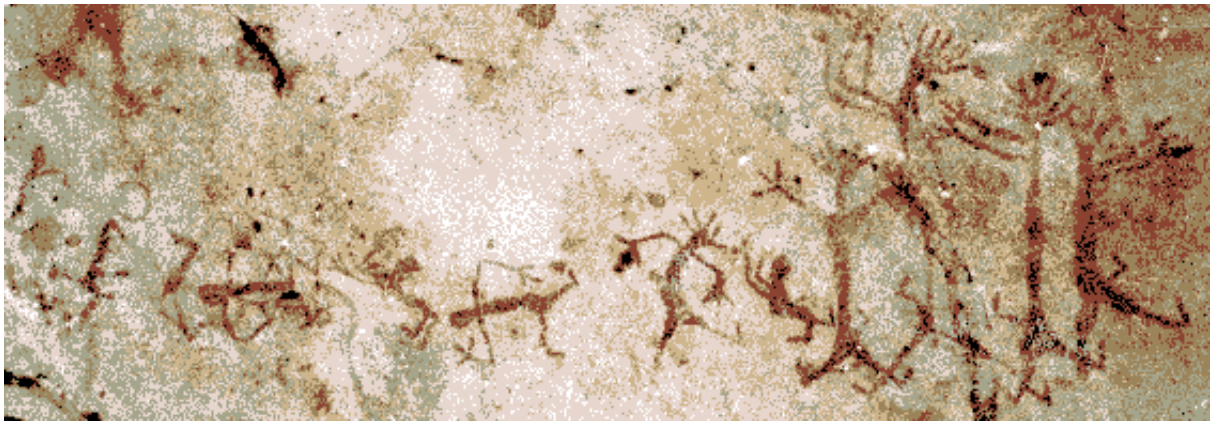
Other colors were also used in the rock art of the Nordeste Tradition, such as yellow, white, black and gray. Chemical analysis has shown that in some cases, burned bones were used to make the black pigment, but there is not enough organic material to date it.

Some very thin lines that were made by the Nordeste Tradition demanded some very skillful drawing techniques. They learned how to prepare the pigment to obtain the exact consistency needed to paint the areas they wanted, without having the colors leach down. The irregularity of the sandstone rock surface didn't help to make very tiny and delicate figures.

They used various techniques to prepare the pigments. The excavations at the shelter Toca do Sítio do Meio uncovered a piece of sandstone with a central concavity where there are water erosion marks and some grooves produced by an instrument. It was a palette covered with red pigment, used as the painter's palettes of today. Associated charcoal was radiocarbon dated to 8,920 +/- 50 years BP (LY 10134).

The first tools used to make marks on the rocks were the fingers. But prehistoric people had to discover instruments that replaced the use of the hands in order to be able to make very delicate drawings. Nature offered fibers, the hairs of animals, and the spines of plants like the cactus (Cactaceae). These were the first instruments people used to make the drawings, looking for a way to translate their mental images into these material images.

AR: *What is the sequence of change over time (in style, preservation, materials used, etc.) in the petroglyphs at Pedra Furada?*



Anne-Marie Pessis: The class of rock art we call the Nordeste Tradition seems to have lasted in this region over a period of 6,000 years in a non-stop process of stylistic evolution. The oldest rock art in the National Park is characterized by the dynamic nature of the figures and represented scenes. Human and animal illustrations show play activity (actions ludiques) with the subjects caught at the maximum point of the action, whose theme can be recognized (fig.10). The variability of the compositions are extreme and create an air of unity to the painted panel.

[Fig.10: Example of "actions ludiques," in a rock painting at Toca do Veado showing dancing figures (*photo:*

FUMDHAM).]

As time passed, coinciding with the growth of the population, it's possible to perceive a diversification of the paintings in the themes as well as in the techniques and rules of graphic presentation. This is a transitional period, where artists attempted many different and more perfect ways to represent time and space. These transformations on the rock art, however, did not change the identity of the original figures.

During this period of graphic transitions, we infer corresponding demographic changes with a multiplication and diversification of groups, and the establishment of new cultural identities. These seem to create circumstances of confrontation and divergences, prior to the appearance of a new social, territorial and ecological equilibrium. Population increase in the territory and resulting cultural differentiation create rivalries and quarrels, reflected in the rock art with the appearance of new themes. Scenes representing violent themes are characteristic of this transition (fig.21). But, at the same time, there are several demonstrations of technical improvements and a more complex scenography.

In the final phase of this transition process, a new system of graphic presentation appears in which the ornamentation appears privileged, and represented with so high a degree of detail and precision that it is possible to perceive individual differences between the figures (fig.11). These figures have different morphologic patterns than earlier in the Nordeste Tradition and are framed on rectangular forms, covered by ornaments, but beside all these changes the original characteristics of the Nordeste Tradition are still present. The most important trait of this final period is a tendency to keep the message hermetic; the figures are more emblematic and different than in earlier phases. Each one of the three moments of the stylistic evolution of this tradition have eponymous sites with a very clear dominance of each one of the graphic profiles.

[**Fig.11:** Example of the final Nordeste Tradition phase depicting rectangular human forms and ornamentation, from Toca do Morcego (*photo: FUMDHAM*).]

Research and Educational Facilities at Parque Serra da Capivara:

AR: *We understand you are working with The Capivara National Park to promote education and tourism of Pedra Furada and its surroundings. Can you explain more about your program, including the museum on early people in South America, and what our readers can expect when they visit?*

Niède Guidon: The Brazilian government commissioned our foundation, FUMDHAM, to prepare the management plan of the National Park Serra da Capivara and to define the policies for its protection. The sites of the Park are on the UNESCO list of the sites of the World Heritage. We understood that it is impossible to preserve culture and nature when people living nearby are poor and ignorant. So we developed a conservation program based on the social and economic development of the region, through education and health. Working in association with the National School of Health, Instituto Oswaldo Cruz, we built 5 schools all around the park. These schools are different from the public schools in Brazil; the kids come at 7 AM and stay in school until 5 PM, and they receive meals and health care. In the morning they have normal official class and in the afternoon they have sports and art (music, theater, movies, dance).

We built all the structures in the National Park - roads, Visitors' Center, paths, rest areas, and 103 shelters with paintings prepared to receive visitors without endangering the paintings or the archaeological strata

(fig.30). We bought 3,000 hectares adjoining the Park and prepared the architectural plans for a Hotel Resort and an Archaeological Park, named Arkeopolis. The international airport Serra da Capivara will be finished in 2002.

We have a huge structure: museum, laboratories, offices, theater, and auditorium in the town of São Raimundo Nonato. At the field nearby the National Park Serra da Capivara we have a Visitors Center, 5 schools and 3 farms where we are breeding wild animals.

AR: *How should potential visitors get in touch with you and with the museum (i.e. email, website address, or fax)?*

Niède Guidon: Anyone interested should write:

Fundação Museu Do Homem Americano (FUMDHAM); Fundação Seridó, Av. Boa Viagem 5212, Ana Nery, 816., Recife 51030-000; Brazil.

Email: fumdham@terra.com.br or trilhascapivara@uol.com.br. *Web address:* www.fumdham.com.br *Fax:* 55 89 582 12 93 *Telephone:* 55 89 582 16 12

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