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A PRELIMINARY REPORT ON EVIDENCE RELATED TO THE INTERPRETATION OF ECONOMIC AND SOCIAL ACTIVITIES OF NEANDERTALS AT THE SITE OF LA QUINA (CHARENTE), FRANCE

by

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INTRODUCTION

The extensive excavations and reports of Dr. Henri-Martin and Miss G. Henri-Martin firmly established the position of the site of La Quina among the most important Middle Paleolithic localities in Western Europe. Their work, which spanned six decades (e.g. H. MARTIN, 1906; G. HENRI-MARTIN, 1966), recovered the partial remains of more than 20 Neandertals in contexts that included the presence of great quantities of animal bones and an impressive lithic industry (*Moustérien perfectionné*, H. MARTIN, *op. cit.*), now recognized as Quina Mousterian. Dr. Henri-Martin carried out extensive studies and experiments related to the interpretation of patterns of fracture and scarring on the animal bones in a pioneering attempt to relate this evidence to practices of butchering and bone utilization by Neandertals.

In 1985 a cooperative international project of the University of Arizona, Université de Bordeaux I, University of Pennsylvania, and the Musée des Antiquités Nationales at St-Germain-en-Laye began a new phase of work at La Quina designed to more accurately place the sequence of deposits remaining at the site in the context of the recently developed paleoclimatic sequence for the region and to further the interpretation of the patterns of human utilization that are in evidence there.

The site of La Quina includes a probably continuous series of deposits that extend for about 1000 m along the southeast edge of the small Voultron Valley in the commune of Gardes-Le Pontaroux, about 5 km northeast of Villebois-Lavalette (Charente). Within these deposits, two important concentrations of material were distinguished by Dr. Henri-Martin; the **station amont**, below a high cliff near the center of the site, and the **station aval** at the southwest end of the site. The **station aval**, which yielded a sequence of Mousterian-Chatelperronian-Aurignacian, will be investigated during a later phase of our project. Our present efforts are concentrated in the **station amont**, where virtually all of the cultural material appears to be Mousterian. Here our primary goal is a detailed study of materials surviving in a large preserved block that encompasses the full depositional sequence in this

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part of the site ('Section C'). During 1986 we also excavated a heavy concentration of large animal bone that was threatened by an unstable overhanging cliff in 'Area G', at the southwest end of the **station amont**.

THE STRATIGRAPHIC SEQUENCE

The basic sequence in the **station amont** (shown schematically in Figure 1) suggests an initial period of erosion of the bedrock at the base of the cliffs (a), followed by a heavy fall of rock and debris weathered from the cliff (b) that shows evidence, at the base of the section, of prolonged alteration in the form of oxidation of ferric minerals and manganese (c). This basal weathered deposit is partially overlain by fluviatile sands and clays (d) that represent a final episode of deposition by the Voultron River in the site area. Above these lowest deposits are the first abundant evidences of cultural activity in the site in the form of accumulations of animal bone and scattered flint artifacts in a matrix of colluvium and weathering products from the cliffs above (e). There are a number of recurring episodes of accumulation of bone concentrations visible through over 2 m in the Section C profile (f). Stratigraphically, it seems likely that the deepest and heaviest concentration in Section C and the heavy bone concentration in Area G represent a single episode of deposition. However, the absence of most of the intervening section (removed by earlier excavation) prevents a definitive demonstration of this contemporaneity. These kinds of deposits continued to accumulate against the remains of the original rock fall in front of the cliff face until the upper surface was about 5 m above the bedrock. At this elevation, in the Section C profile, the top of the deposits consisted of a level surface (g) about 4 m wide in front of a small shelter formed by an overhang at the top of the lowest vertical section of cliff face.

Above this level surface the nature of the deposition is markedly different. Great quantities of small pieces of animal bone are present, as are many very small chips of flint. The combined volume of these materials frequently approaches or exceeds that of the geological sediments. Much of the animal bone shows evidence of burning and calcined fragments are occasionally present. There are at least five major levels of this nature (h), with a total depth of over 1 m. At the top of these deposits, the surface in front of the small shelter was less than 2 m wide (i) and the shelter had been filled to within less than 1 m from the roof. The sequence was terminated with accumulations of rock and colluvium mixed with many large pieces of animal bone and relatively few lithic artifacts (j). This whole depositional sequence was subsequently covered by a superficial layer of colluvium and boulders on a stable sloping surface from the top of the lowest cliff face down to the valley floor (k).

THE NATURE OF THE CULTURAL LEVELS

Our excavations have now exposed portions of the uppermost beds in this sequence in the Section C profile, where we have defined layers 1-8 in the deposits labeled h and j on the diagram. We have also excavated a limited portion of the earliest cultural deposits (equivalent to e on the diagram) in Area G at the southwest end of the **station amont**.

The Area G Bone Concentration

The excavations in Area G recorded over 1500 pieces of animal bone within a total volume of deposits not much in excess of 1 cubic meter. These bones (Fig. 2) were a remnant of a much larger concentration that had been exposed and left in place during excavations in this area by G. Henri-Martin. We had not intended to excavate in this area in 1986, however the collapse of a portion of the cliff face adjacent to this deposit in the late spring influenced our decision to remove the bones before the situation became too dangerous to save them from destruction by falling rock.

While only a very preliminary examination of these materials was possible during the season, some comments can be made relating to the general nature of the bone assemblage. With the exception of a very few pieces, all of the examined identifiable bone is from horse, bison, and reindeer. A wide range of anatomical elements is present, including a strong representation of ribs, vertebrae, and other elements of the axial skeleton. It should be noted, however, that significant numbers of "meat-bearing" bones (e.g. upper limb bones) are also present. Most of the bones have been broken, but it is not yet possible to assess the role of hominids in this breakage since some rocks from the weathering of the cliff were found among the bones. There was little evidence of articulation; rather the concentration consisted of a mixed jumble of disparate elements. Since the concentration directly overlay the last erosional and depositional phase of the Voultron River a question might be raised concerning a possible natural, as opposed to cultural, origin for these materials. The following evidence argues strongly against this:

1) There is no obvious evidence of erosion on the bones to indicate any significant amount of rolling or water transport. It is possible that water action during high levels of the Voultron may have played some role in mixing the bones following excavation, but there is no evidence to suggest that the animals were transported here by water.

2) A considerable number of bones show what appears to be evidence of stone tool cut marks (as opposed to rodent and carnivore damage) and other indications of human utilization similar to those reported by Dr. Henri-Martin (e.g. compare Figure 3 with H. MARTIN, 1907, Pl. VI).

3) Lithic artifacts were present through the bone deposit (8 scrapers, 60 flakes and 2 cores) directly attesting to the presence of cultural activity contemporary with these deposits. G. Henri-Martin is reported to have made significant collections of lithic artifacts from other portions of this layer, including one particularly large bifacial scraper or **hachoir**, but these materials have not yet been examined. Our present evidence suggests that this industry is similar to the Quina Mousterian reported by Dr. Henri-Martin from the lower deposits in other areas at the site.

The Upper Levels of the Section C Profile

Two major kinds of deposition are represented in this portion of the site. The earlier of these (Fig. 1 h) includes horizontally bedded dense concentrations of fragmented animal bone and very small (< 2 cm) flakes. Relatively few large pieces of bone or retouched tools were recovered from these layers in 1986. Those elements that have been identified reflect the same fauna as that found in Area G, i.e. horse, bison, and reindeer. Many of the bone fragments have clearly been exposed to fire and small numbers of calcined fragments are consistently encountered. It appears that these bone fragments have been moved from the place in which they were burned since the intermixed limestone **eboulis** and flint shows little evidence of burning. Occasional distinct lenses of burned fragments suggest coherent loads of discarded material from hearths nearby rather than a random scattering of this kind of material. It is possible that these hearths were located within the shelter (not yet excavated).

The retouched tools from these levels are predominantly notches and denticulates. One level (6D in our provisional sequence) has yielded most of the scrapers recovered to date, as well as a very small biface typical of MTA-B. It is of some technological interest that this level has also produced a significant number of very thin typical biface thinning flakes (virtually absent in other layers) and a small well-finished plano-convex biface tip. This same level appears to contain considerably more micro-vertebrate remains than any of the levels above, suggesting that conditions at this part of the site may have been more favorable

for raptors at the time than they were later. It will be interesting to see whether future palynological and sedimentological analysis can help to explain the reasons for these differences.

The only human bone encountered in the 1986 excavation was found just below the upper surface of these deposits (Fig. 1 i). It is a robust upper medial deciduous incisor whose root has been extensively resorbed. It exhibits a remarkable degree of attrition in the form of flat occlusal wear (without marked anterior rounding) that appears to have reduced the tooth to less than 2/3 of its original height. The wear is reminiscent of that on the La Ferrassie and Shanidar I crania but is particularly remarkable in a child of this age. It implies a persistent use of the anterior dentition from a very early age (c. 2-3 years) in activities similar to (perhaps in imitation of) these of some adults. An important question raised by this find is whether such patterns can be demonstrated for children of *Homo sapiens sapiens* or whether this kind of evidence may provide a clue to fundamental differences in the learning behavior of *Homo sapiens neandertalensis*.

As stated above, the layers of concentrations of heavily fragmented bone accumulated on a horizontal surface (Fig. 1 g) that was initially about 4 m wide in front of the overhang that forms a small shelter near the top of the lowest scarp of the cliffs above the site. By the end of this sequence of deposition the level surface (Fig. 1 i) was reduced by the slope of the accumulated deposits to a width of about 2 m and the shelter was filled to within 1 m of the roof.

The last depositional phase in this part of the site filled the shelter and completed the slope deposits in front of the cliff. The nature of these layers (Fig. 1 j) is quite different from those below. Aside from numerous large and small pieces of animal bone, they contain relatively little cultural material; many large and small rocks weathered from the cliff face are also found in these levels. The identifiable bones here are almost all from horse, bison, and reindeer and appear to be primarily elements of the axial skeleton (vertebrae, ribs, jaws, and teeth), although some fragmentary limb bones and some phalanges are also present. At least one instance of two articulated elements has been observed, indicating that some bones were relatively fresh at the time that they were buried. The few retouched tools thus far recovered from these levels are virtually all notches and denticulates.

A TENTATIVE CULTURAL INTERPRETATION OF THE LA QUINA SEQUENCE

Our preliminary interpretation of the sequence outlined above is that the archaeological layers provide strong evidence for the killing and butchering of significant numbers of large animals at several intervals during the accumulation of deposits in La Quina. The fact that all of the heavy concentrations of animal bone lie directly below the highest scarp of cliffs is also considered significant, as is the fact that bison, horse, and reindeer, which account for virtually all of the large animal bone, are all to some extent gregarious herd animals. The topography above the cliff is identical to the landscape of gently rolling hills that characterizes this region of the Charente. A long wide flat ridgetop is abruptly truncated by the cliff, which is a virtually unique feature in this region. We propose that these aspects of La Quina, when considered together, strongly suggest that the Neandertals that made use of the site deliberately drove game over the cliff and butchered the animals thus killed or injured at the base of the cliff. This pattern would probably require a significant level of organization and a band larger than just a few nuclear families.

It appears that domestic camps were made near the kill site in the shelter of the cliff when a favorable habitat was present. This type of activity included utilization of the abundant supply of bone as fuel, expedited by pounding the heavier bones into small fragments to maximize the surface area for more effective ignition of the fat in the bone.

Thus it seems likely that La Quina contains evidence of both the hunting behavior of Neandertals and special domestic habitation layers whose composition is strongly influenced by their proximity to kill and primary butchering stations. The verification and clarification of these patterns will be a primary focus of our future work in the site.

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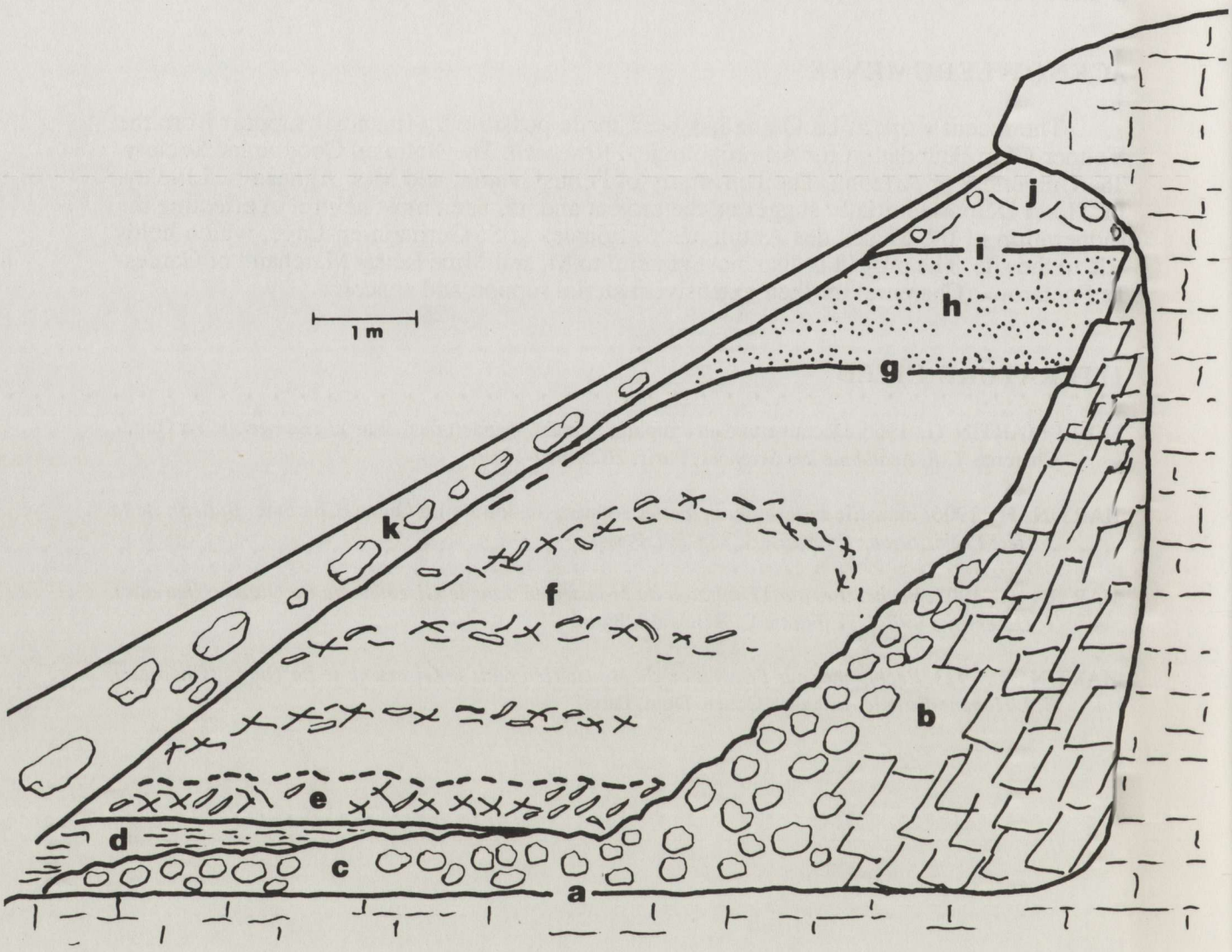

FIGURE 1

A schematic diagram of the depositional sequence in Section C of the ***station amont*** *at La Quina (see text)*

FIGURE 2

A portion of the accumulation of large animal bone in Area G of the station amont, La Quina as left exposed by the earlier excavation

FIGURE 3

The distal end of a humerus of Equus *from the bone concentration in Figure 2. The scarring is similar to that reported by Dr. Henri-Martin on similar bones from the lower levels at La Quina and is probably the result of use of the bone in retouching large flint implements*