Archaeological evidences are still missing: a comment on Farinà et al. Arroyo del Vizcaíno site, Uruguay

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Fariña et al. [1] suggest the possibility of human presence ca 30 ka in the Arroyo del Vizcaíno site (AVS) (southern Uruguay). This is based mainly on the record of cutmarks made by human artefacts on Pleistocene animal bones. They also inform of the finding of a single tiny stone tool and few other possible lithic artefacts. Nevertheless, their research has serious methodological problems and important interpretative errors.

The context is a hydraulic bone concentration on muddy sediments, which is a physical association in the sense that its behavioural significance is not evident [2]. In a site like AVS, secondary, averaged deposits, are to be expected. Fluvial processes such as traction, friction, mixing, deposition and redeposition of different particles, including bones and lithics, should be considered.

It happens that ‘Time intervals represented by fossils are not necessarily the same as those represented by sedimentary events in fluvial systems’ [3, p. 211], and particles continue accumulating for long periods. This is why this kind of bone assemblage is normally averaged. It is true that ‘... many, if not most, multi-individual concentrations of disarticulated vertebrate skeletal elements preserved in ancient fluvial channels were derived from a preexisting concentrated source’ [2, p. 25], but this does not equal single events. Despite the efforts by Fariña et al. to reduce AVS to a single event, it is difficult to escape the conclusion that it is an averaged sample. The selection of four Lestodon ribs for dating is not helpful in assuring that they produce independent dates. Under those conditions, it is not safe to pool the results. Fariña et al. accept that more than one taphonomic history is written in those bones, which is an honest way to admit its averaged nature. Indeed, they point out the little evidence for major hydraulic transport deduced from the fossil assemblage, but in the electronic supplementary material, they specify ‘The presence of coarse grains must have been due to high-energy events... Those pebbles must have transported as bed load together with the transported bones, perhaps in more than one event’. It is very difficult to make compatible ‘little evidence of major fluvial transport’ with several events of ‘high energy’. The authors include a significant taxonomic list, but from the way the taxonomic data are presented, they cannot be tested in any way because it is not possible to know what material was found in each level (bed 2a, 2b), and this precludes the identification of materials used for dating [1, table S1], besides preventing the taxonomy from being checked.

In the end, AVS is a time-averaged bonebed, resulting from a variety of events and processes. The presence of more than 1000 bones and 27 individuals does not fit models of differential transport of vertebrate bones by humans [4], despite the fact that selection by humans is supposed to be the cause of the accumulation. It is not true that San hunter–gatherers ‘schlep entire carcasses with masses in excess of several hundred kilograms to more permanent camps’ [1, p. 4]. This is supported with reference to the work of Bunn, whose claims were never substantiated with data [5, p. 172]. The bone collection...
from AVS, including many from one species and few from
many others, makes absolutely no sense in terms of human
hunting activities. Either most of the Lestodon bones were
transported to the site, which is unreasonable, or most of
the other two species of ground sloths, and other large ani-
mals represented by few bones, were transported to other
places, which is also implausible.

A ‘gourmet’ curve for Lestodon? ‘Curves marked gourmet
represent strategies that select for high frequencies of parts of
the very highest value and abandon parts of moderate and
low value’ [6, p. 81]. From a monitoring perspective what
needs to be known is if the bone assemblage is transported
or ‘abandoned’ [7]. Transported bone assemblages generally
are represented at sites away from kills, particularly storage
sites [6, p. 110]. If it is an abandoned kill site, then there are
no expectations of a gourmet curve. There is inconsistency
either way.

What is AVS, a processing or a kill site? If it is a ‘proces-
sing’ site, then there is little evidence of processing. A
mortality profile dominated by prime adults is to be expected
at a kill site [8, p. 164] and this is what the authors claim to
have found. However, mortality profiles are constructed
using tooth eruption-wear of dominant species [8], while
Fariña et al. use bone fusion. This makes their results not com-
parable with data from Stiner or other specialists. Also, the
basic problem with adult-dominated assemblages is the bad
preservation of the young.

On the other hand, it is difficult to accept that ‘long distance
weaponry’ was implicated, given the fact that their evi-
dence for the presence of lithics is dramatically thin and the
number (and size) of the presumed hunted animals so impres-
sive. Apparently, this is the basis on which the prime adult
mortality profile stands and is normally associated with hunt-
ing [8]. Also, in a previous publication it was suggested that
the marks on bones were made with silex points, ‘which had also a
secondary function as scrapers’ [9, p. 234]. This makes no sense
in terms of the limests claimed to be associated, which in no way
resemble such a tool kit and which are useless for processing 17
individuals of between 4000 and 1000 kg (Lestodon sp.), plus
eight individuals of more than 1000 kg (other animals).

Fariña et al. [1, p. 5] point out that lithic artefacts at AVS are
scarce ‘as is usual in South American Pleistocene archaeological
sites’. First, one of their examples is the Campo Laborde site,
which in fact is not a Pleistocene but a Holocene site [10].
Secondly, the number of artefacts within a site is not related
with time, but with function. Thirdly, at other sites like
Monte Alegre (Brazil) dated during the Late Pleistocene
more than 30 000 flakes and 24 formal tools were found [11]. In
fact, abundant rocks (cobbles and pebbles) are available at AVS
(bed 2a), as can be seen in [1, figure S5], suggesting that some
background noise exists. How many pebbles and cobbles
were removed during the excavations? What were their shape,
size and material? What were the criteria applied to collect
and select the so-called artefacts within the ‘natural’ lithic
assemblage? This important information becomes crucial
when only very few artefacts—whose cultural character is not
obvious—are recovered along with dozens of alleged butchered
animals. Even though the authors recognize that no systematic
effort was made to collect lithic materials during fieldwork
[1, p. 6], their claim concerning AVS archaeological character
calls for a thorough associational, technological and taphonomic
analysis of lithics that is absent.

There is little information concerning marks not attributed to
humans. In their electronic supplementary material, the authors
mention few trampling marks. However, in a previous publica-
tion many fractures were attributed to trampling and one
Lestodon clavicle presented 22 trampling marks at its middle
part. Another 65 marks were identified in the bone, including
‘sixteen chop marks, sawing marks and scraping marks’ [9, p. 234]. The presence of all these marks on a single bone
speaks of a complicated taphonomic history, one in which it is
difficult to substantiate the identification of some of them as
anthropic. There is reference to the ‘observed extent of the tram-
ping’ and to a ‘trampled surface’. Since Behrensmeyer et al.
[12, p. 768] clearly remarked ‘microscopic features alone are not
sufficient evidence to distinguish human-generated cutmarks
from the results of trampling’, cutmarks at AVS are suspect.

There is no need to squeeze sites in order to find a human
imprint; when there is evidence it shows, and none has been
found so far at AVS.

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