Lithic Technology at Campo Laborde, an Early-Holocene Megamammal Hunting Site in the Pampean Region (Argentina)

Pablo G. Messineo[1]

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PART 2

Kill/scavenge sites of megamammals in different parts of the world have provided extensive information on subsistence strategies, hunting techniques, and technologies used. These kinds of sites often contain the remains of one or a few animals associated with a small number of artifacts (e.g., Surovell and Waguespack 2008). In the Pampean region, information about lithic technologies associated with killing and butchering megamammals during the late Pleistocene and early Holocene has been gathered at only two archaeological sites, La Moderna and Paso Otero 5 (Armentano et al. 2007; Martínez 2001; Palanca et al. 1973; Politis and Gutiérrez 1998).

Recent investigations carried out at Campo Laborde (Figure 1), an archaeological site related to the hunting and primary processing of a giant ground sloth (*Megatherium americanum*), provide new evidence to understand the lithic technology linked to these specific activities. This paper presents the results of the techno-morphological analysis of the lithic assemblage from Campo Laborde. The main objectives of this research are to identify the manufacturing stages for each of the lithic raw materials and to infer the technological organization employed by hunter-gatherers who butchered this megamammal species.

The Campo Laborde Site

Campo Laborde is located along a tributary stream in the upper basin of Tapalqué Creek (Buenos Aires Province, Argentina). This single-component site is related to hunting and butchering a giant ground sloth along the edge of a paleoswamp (Politis and Messineo 2008).

[1] INCUAPA – CONICET, Facultad de Ciencias Sociales (UNCPBA). Av. Del Valle 5737, Olavarría (CP 7400), Buenos Aires, Argentina; e-mail: pmessine@soc.unicen.edu.ar

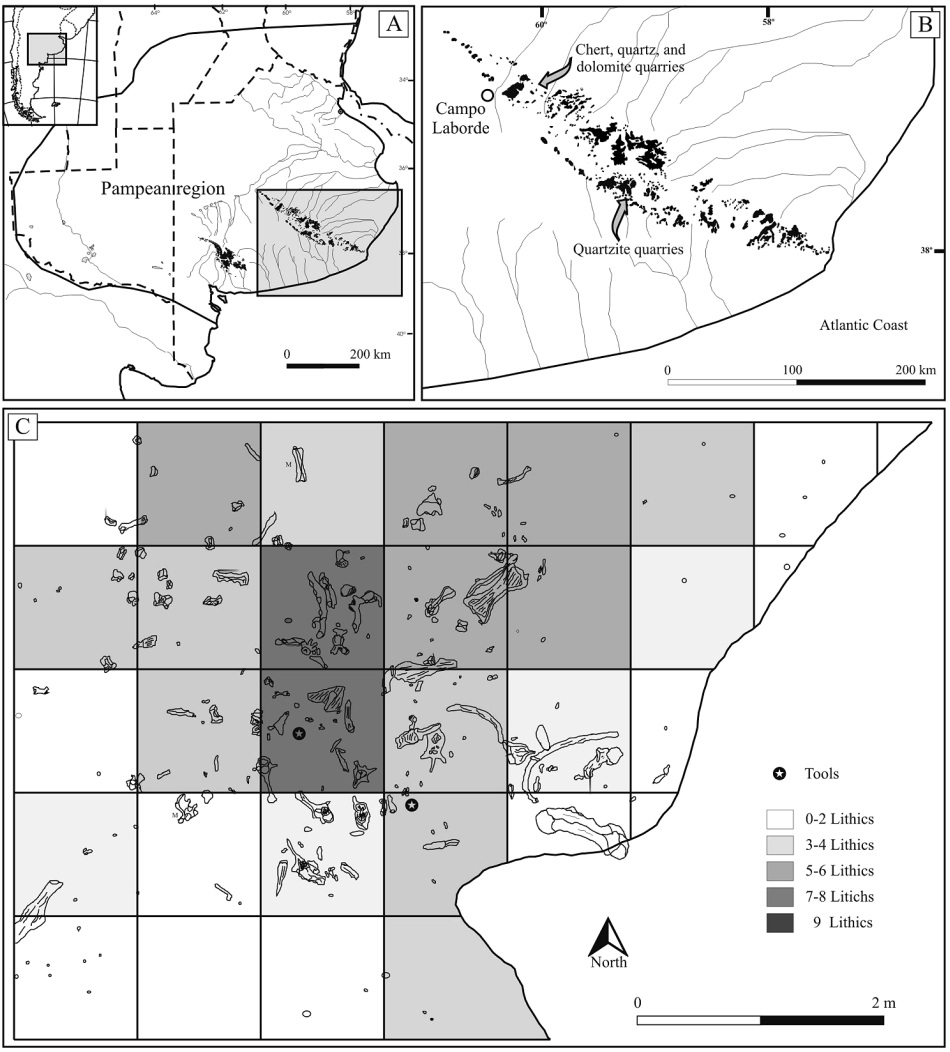

Figure 1. The Campo Laborde site. **A–B,** the location of Campo Laborde and quarries in the Pampean region; **C,** excavation map for Campo Laborde, showing the distribution of megamammal bones and lithic materials.

Both axial and appendicular elements from this species are present (e.g., ribs, vertebrae, tibiae, metapodials, carpals, tarsals, and phalanges), and two ribs were used as tools. The two rib-bone tools each exhibit a rounded and polished fracture edge; they likely were used as expedient tools in butchering tasks (Messineo and Pal 2011). Additional faunal remains at the site include a humerus and femur from two extinct glyptodonts (*Neosclerocalyptus* sp. and *Doedicurus* sp.), and bones from other extant species (*e.g.*, *Dolichotis patagonum*, *Lagostomus maximus*, *Tayassu* sp., *Chaetophractus villosus*, *Zaedius pichiy*, among others) were also identified.

Geologic studies carried out at Campo Laborde show that the archaeological component was recovered from a paleoswamp and a paleosol (4Ab) located in the lower section of the Rio Salado Member, a fluvial deposit representing an aggrading floodplain. Six bone samples were processed and yielded ages between 9730 ± 290 and 6740 ± 480 RCYBP. Moreover, two samples of soil organic matter obtained from paleosol 4Ab and the paleoswamp yielded dates of 7960 ± 100 and 8090 ± 190 RCYBP, respectively (Messineo and Politis 2009: Figure 1).

Lithic Analysis

The lithic assemblage from Campo Laborde includes 105 flakes, 24 angular debris fragments, and 2 tools. The main lithic raw material is fine-grained orthoquartzite of the Sierras Bayas Group (49.62%), followed by chert (25.95%), silicified dolomite (17.56%), and other lithic raw materials in lower percentages (Table 1). A cursory examination of the horizontal spatial distribution of archaeological materials shows a non-homogeneous assemblage. Most lithic artifacts were recovered within the concentration of giant ground-sloth bones, which suggests that hunters knapped directly around the carcass (Figure 1C).

Table 1. The debitage assemblage from Campo Laborde, by lithic raw material.

	Flakes		Angular debris		Tools		Total	
Lithic raw material	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Orthoquartzite	49	75.39	14	21.54	2	3.08	65	49.62
Chert	30	88.24	4	11.76	–	–	34	25.95
Silicified dolomite	21	91.30	2	8.7	–	–	23	17.56
Quartz	2	40	3	60	–	–	5	3.82
Undetermined	3	75	1	25	–	–	4	3.05
Total	**104**	**80.15**	**24**	**18.32**	**2**	**1.53**	**131**	**100**

The assemblage has an intermediate percentage of complete flakes (37.14%), with relatively more flake fragments including proximal (40.95%) and distal (21.91%) sections. With the exception of an orthoquartzite flake larger than 20 mm, the rest of the debitage is small (< 10 mm). Flakes of chert range between 1.6 and 6.6 mm, silicified dolomite between 1.8 and 7.2 mm, and orthoquartzite between 1.8 and 8.7 mm. Different kinds of flakes recognized in the assemblage show evidence of diverse reduction sequences and chipping techniques conducted at the site. In the case of orthoquartzite, there are only interior flakes, predominantly angular, unifacial retouch (*sensu* Root 2004) and plain flakes (mainly with single, linear, and dihedral platforms). Likewise, chert registers the highest percentage in the similar kind of interior flakes and platforms, but low frequencies of exterior flakes and cortical platforms. In the case of silicified dolomite, most artifacts in the assemblage are unifacial retouch and angular flakes; unifacial and bifacial resharpening flakes were also found.

Two lithic tools were found. One, an orthoquartzite sidescraper made from a large and thick flake without cortex, has two working edges with unifacial and marginal retouch. The second tool is interpreted as the base of a broken lanceolate bifacial projectile point (Politis and Messineo 2008). Use-wear analysis suggests that the projectile point was probably hafted (Messineo and Pal 2011: Figure 1).

Discussion and Conclusions

Although most of the lithic raw materials identified in Campo Laborde come from the Tandilia Hills system, the orthoquartzite is non-local and outcrops are located more than 100 km from the site (Colombo 2011; Flegenheimer et al. 1996). The remaining rocks are considered local owing to the fact that the quarries identified in the Sierras Bayas and Cerro Negro Hills (Barros and Messineo 2006; Messineo 2008) lie less than 30 km from the site (Figure 1B). It is noteworthy that some flakes found in the site were too small and lacked macroscopic characteristic to identify the parent rock.

The scarcity of cortex indicates that the initial decortication stage of reduction did not occur at Campo Laborde. The techno-morphological analysis points out that the flakes represent the final stages of tool production and the resharpening of different types of cutting tools, which were used in processing the giant ground sloth. The final stages of the lithic reduction sequence were detected on non-local orthoquartzite and on local toolstones such as chert and silicified dolomite (Messineo 2008; Politis and Messineo 2008). Some tools chipped on the site, such as formal and multipurpose tools, probably were carried to other sites (e.g., camp sites) for further use, and only broken tools (sidescrapers and projectile points) were abandoned where the giant ground sloth was killed and initially butchered. These tools were curated items associated with individual toolkits (individual provisioning *sensu* Kuhn 1995) accompanied the hunters during a foraging trip where at least one megamammal species was hunted and butchered around a water resource. In conclusion, the high mobility of early hunter-gatherers groups in the Pampean region (Politis and Messineo 2008) and the great distance separating quarries from the site motivated hunters to employ this technological strategy.

PART 2

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PART 2