**Reassessing the late prehistory of the semiarid north of Chile: Diet, mobility, and chronology of individuals buried at the El Olivar**

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**Appendix 1**

**Funerary patterns and chronology of the Las Ánimas Cultural Complex (LACC) and the Chilean Diaguita Culture (CDC)**

The LACC has been characterised by its unique funerary customs, whereby humans are interred alongside one or more complete and articulated camelids (Castillo 1984). Often, the LACC burials contain polychrome ceramic types (Las Animas I, II and III) which exhibit combinations of two or three colours (red, white, and black; black specularite in type Animas III), incorporating simple geometric designs. These designs are typically found on quadripartite structures, painted on both in the external and/or internal surfaces of vessels with hemispherical and truncated-conical shapes (Montané 1969, Ampuero 1977-78).

The LACC has been recorded between the Copiapó and the Elqui valleys (Ampuero 1977-78). For the Coquimbo Bay area, Ampuero (1972-73) registered a radiocarbon date (900 ± 95 BP, charcoal sample, I-5956) from a shell middens at the Compañía de Teléfonos de La Serena site. Then, another radiocarbon date was obtained from LACC burials at the Plaza de Coquimbo site (740 ± 60 BP, wood instrument) (Castillo 1984). More recently, Larach (2017) reported radiocarbon dates from two camelids and three human samples from the Plaza de Coquimbo site, and from six human samples from the Plaza de Armas de La Serena site, located 15 km northeast of the Plaza de Coquimbo site (see Table 1, below). In summary, the currently available absolute dates of the LACC in the Coquimbo Bay area include only 13 dates, which calibrations with the SHCal20 curve span between 991 and 1396 AD (see Table 1).

The funerary pattern of the CDC has been described without camelids, with some of the human individuals being flected and others being extended in dorsal position, most lying in earth-pits and some being buried in cist graves that may include other individuals or secondary assemblages (Ampuero 1969; González 2023; Rosado and Urízar 2015). In the mortuary contexts of the CDC polychrome ceramic offerings of Diaguita types (Transición, Clásico and Diaguita Inca) are frequently found.

The CDC inhabited between the area between Elqui and Choapa Rivers (Ampuero 1969). With regard to chronology, the radiocarbon date registered at a shell middens from the Compañía de Teléfonos de La Serena site (900 ± 95 BP; charcoal sample I-5956) was considered to mark the initial CDC occupation at the Coquimbo Bay area (Ampuero 1972-73). More recently, Alfonso-Durruty et al. (2017) reported radiocarbon dates from one human sample from the site Puerto Aldea, and one human sample from the site Los Pozos, both located approximately 70 km south of the site Plaza de Armas de La Serena. In summary, the current available absolute datings of the CDC at the coast of the Coquimbo Region include only two dates, which calibrations with the SHCal20 curve span between 1226 and 1297 AD (see Table 1).

**Alimentation, diet[[4]](#footnote-4) and mobility of individuals of the Las Ánimas Cultural Complex (LACC) and the Chilean Diaguita Culture (CDC)**

At the area of study, the early Ceramic (EC) populations inhabited the ravines, and valleys near to the Andes mountains. Their feeding was based on gathering activities, hunting camelids, and incipient agriculture (Niemeyer et al. 1989). Evidences registered from their coastal lower Elqui river settlements indicates that the alimentation of the Ánimas groups (LACC) was also based on gathering (e.g. *algarrobo* and *chañar* fruits), hunting of camelids, and agriculture (e.g. maize), with the incorporation of foods from fishing and gathering marine resources (e.g. molluscs) (Castillo 1989). This assertion has been substantiated by the presence of shell middens and artefacts associated with marine hunting (e.g. harpoons), and fishing (e.g. fishhooks, sea wolf leather barges). The alimentation of the Diaguita communities exhibited notable similarities to that of the Ánimas groups. The Diaguita communities continued to gather wild plants and molluscs, consumed camelids (probably domesticated), and exploited marine resources (the evidence of species as well as the artefacts in the sites, are the same) (Troncoso et al. 2016). The change, according to Cabello (2017), could be related to a more focused agriculture (e.g. maize, quinoa, potatoes, beans, and squash). This is evidenced by the presence of botanical remains (e.g. seeds), and lithic shovels in their settlements.

The available data concerning human diet from stable isotope analysis of LACC and CDC groups inhabiting the coast of the Coquimbo Region is scarce (see Table 1). This includes the carbon and nitrogen values of two individuals from the Plaza de Coquimbo site, six individuals from the Plaza de Armas de La Serena site, three individuals from the Puerto Aldea site, and one individual from the Los Pozos site (Larach 2017, Alfonso-Durruty et al. 2017). To date, no isotopic analysis has been conducted to study the mobility of LACC or CDC individuals inhabited the Coquimbo Bay and La Serena area. The data available only include two δ18O values (-5.0 and -6.4) obtained in human samples from two individuals from the Plaza de Coquimbo site (see Table 1).

Table 1: Radiocarbon dates and stable isotopic data of the Las Ánimas Cultural Complex (LACC) and the Chilean Diaguita Culture (CDC) from the area of study currently available.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultural classification** | **Site** | **Burial/ Context** | **Sample** | **Lab Code** | **C:N** | **δ13Ccol** | **δ15N** | **δ13Cap** | **δ18O** | **14C yr** | **±** | **cal AD (SHCal20) (95.4%)**  | **References** |
| Ánimas/Diaguita | Compañía de Teléfonos de La Serena |  | charcoal | I-5956 |  |  |  |  |  | 900 | 95 | 993 - 1378 | Ampuero 1972-1973 |
| Ánimas | Plaza de Coquimbo |  | wood instrument |  |  |  |  |  |  | 740 | 60 | 1224 - 1395 | Castillo 1984 |
| Ánimas | Plaza de Coquimbo | Sepultura 9 | human, tooth | UGAMS 30137  |  |  |  |  |  | 1050 | 20 | 991 – 1137 | Larach 2017 |
| Ánimas | Plaza de Coquimbo | Sepultura 10 | human, tooth | UGAMS 30138  | 3.26 | -15.4 | 19 | -7.9 | -5.05 | 910 | 25 | 1052 – 1226  | Larach 2017 |
| Ánimas | Plaza de Coquimbo | Sepultura 15 | human, tooth | UGAMS 30139  | 3.65 | -11.7 | 19.6 | -5.6 | -6.37 | 1020 | 25 | 1020 – 1152  | Larach 2017 |
| Ánimas | Plaza de Coquimbo | Sepultura 11\_Cam | camelid, bone | UGAMS 30141  | 3.6 | -10.37 | 17.17 | -4.57 | -8.37 | 890 | 25 | 1155 – 1267 | Larach 2017 |
| Ánimas | Plaza de Coquimbo | Sepultura 19\_Cam | camelid, bone | UGAMS 30140  | 3.75 | -10.96 | 18.34 | -4.6 | -8.52 | 1040 | 20 | 991 - 1145 | Larach 2017 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Diaguita | Plaza de Armas de La Serena | Individuo 1 | human, femur | UGAMS 9376  | 3.22 | -12.47 | 10.8 | -7 |  | 670 | 20 | 1297 - 1396  | Larach 2017 |
| Ánimas | Plaza de Armas de La Serena | Fosa 1 | human, femur | UGAMS 9377 | 3.2 | -8.3 | 12.2 | -5 |  | 900 | 25 | 1054 - 1265 | Larach 2017 |
| Ánimas | Plaza de Armas de La Serena | Fosa 3 | human, femur | UGAMS 9378 | 3.2 | -8.1 | 11.9 | -5.5 |  | 870 | 20 | 1081 - 1270  | Larach 2017 |
| Ánimas | Plaza de Armas de La Serena | Fosa 4 | human, femur | UGAMS 9379 | 3.31 | -8.7 | 14 | -3.5 |  | 970 | 20 | 1033 - 1179 | Larach 2017 |
| Ánimas | Plaza de Armas de La Serena | Fosa 5 | human, femur | UGAMS 9380 | 3.25 | -7.6 | 12.8 | -4.5 |  | 890 | 20 | 1157 - 1262 | Larach 2017 |
| Ánimas | Plaza de Armas de La Serena | Fosa 11 | human, femur | UGAMS 9381 | 3.26 | -11.3 | 8.6 | -7.9 |  | 1000 | 20 | 1027 - 1151 | Larach 2017 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Diaguita | Puerto Aldea |  | human, femur | UGAMS 9639 | 3.28 | -10.2 | 18.3 | -0.3 |  | 800 | 20 | 1226 - 1286 | Alfonso-Durruty et al. 2017 |
| Diaguita | Puerto Aldea |  | human, femur | 11PA5 | 2.88 | -15.57 | 15.79 | -12.11 |  |  |  |  | Alfonso-Durruty et al. 2017 |
| Diaguita | Puerto Aldea |  | human, femur | 17PACDM | 2.78 | -9.73 | 16.77 | -6.03 |  |  |  |  | Alfonso-Durruty et al. 2017 |
| Diaguita | Los Pozos |  | human, femur | UGAMS 9638 | 3.31 | -10.2 | 19.4 | -5.3 |  | 780 | 20 | 1226 - 1297 | Alfonso-Durruty et al. 2017 |

**El Olivar site**

Located in the Coquimbo Bay area and on the northern margin of the Elqui River, El Olivar is the largest Diaguita settlement of the semiarid north of Chile (ca. 40 ha).

The domestic and habitational areas of El Olivar are principally defined by shell middens (Mostny 1941; Garrido 2016) which reflect a long occupational history, starting at least during the Early Ceramic Period (ca. 0 – 1000 AD) (González 2017). Test pits excavated in 2008 (Garrido 2016) revealed the presence of carbonized remains of domesticated plants including *Zea mays* (maize)*, Phaseolus* sp. (beans), *Chenopodium quinoa* (quinoa) and *Geoffrea decorticans* (chañar). Among the terrestrial faunal remains, camelid bones predominated, while those of marine origin included fishes such as *Genypterus chilensis* (congrio colorado), *Thyrsites atun* (sierra) and *Trachurus murphyi* (jurel). In addition to these findings, a variety of malacological species were recorded, with *Mesodesma donacium* (macha) being the most prevalent, followed by others like veneridae (almejas), *Concholepas concholepas* (loco) and fissurellidae (lapas). The most recent studies conducted at the site have corroborated and expanded these findings (González 2023), but these have not yet been published in detail. Noteworthy, among the recent discoveries are wild fruits and plants with medical, psychoactive and nutritional properties, including *Cryptocarya alba* (peumo), *Prosopis chilensis* (algarrobo), *Nicotiana sylvestris* (tabaco silvestre), *Latua pubiflora* (latué), and cacti species. Of particular interest are the osteometrical, genetical and isotopic analyses, which suggest the presence of llamas (*Lama glama*) in funerary contexts and herding practices.

The funerary areas of El Olivar have been the focus of multiple archaeological excavations, since the early 20th century, revealing an occupational sequence that spans from the early Diaguita times until the beginning of the Hispanic conquest (Cornely 1947-49; González 2017; Rosado and Urízar 2015; Slusser 1950). However, the analysis of detailed contextual data and funerary patterns has only recently been subject of study (Cantarutti and González 2021; González 2023; Pacheco et al. 2015), and is still undergoing analysis, especially following the most recent excavations at the site (2015-2017). The mortuary patterns at the site comprise primary and secondary burials. The former category consists of single humans surrounded by one or two camelids; humans buried directly in earth pits; and humans buried in rectangular or trapezoidal cists graves, made of edged limestone slabs.

When present, the main offerings placed in the burials include distinctive ceramic types, such as Las Animas or Diaguita, both decorated and not decorated; bone tubes, spatulas, shell tablets and copper-based tweezers for psychotropic consumption. Other notable artefacts include shell and stone beads, metal adornments, bone and stone spindle whorls, and lithic projectile points. The presence of these objects in the burials is associated with age, sex, and other considerations that are still under study (González 2023).

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4. The term "alimentation" refers to the presence of consumed food remains at archaeological sites, as evidenced by the presence of such remains in either stratigraphy or artefacts such as pottery. The term "diet" refers to the type and quantity of consumed plants (C3 or C4) and animals (terrestrial or marine), as determined by the analysis of stable isotopes of carbon and nitrogen, among others. [↑](#footnote-ref-4)