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# Stress markers on Pre-Columbian skeletons from San Lorenzo island: A Weavers' Cemetery?



**Location**  
San Lorenzo island is located five kilometers off the coast of Lima; being the nearest mainland spot the peninsula of La Punta. San Lorenzo altogether with El Frontón, Cabinzas, Palominos, and Peña Horadada make up the Callao Islands group. San Lorenzo is also the largest island in Peru, with an approximate area of 17 square kilometers. Besides its unique location, this island is remarkable for its historical presence along all of Peruvian history.

## The pre-Columbian occupation of the island

During San Lorenzo's prehispanic occupation, the main settlement concentrated on the southern tip of the island, at *Caleta de la Cruz*. There, a temporary fisher's camp – and/or guano collectors – and a cemetery were found. Chronologically, this occupation dates from the end of the Late Intermediate Period through the whole Late Horizon (15 – 16th Centuries A.D.).

The cemetery presents two sectors not only differentiated geographically but for their burial practices. The first one, named *Cementerio Grande*, presents deep burials of individuals in strongly flexed position and with presence of rich funerary paraphernalia. The second one, named *Cementerio Pequeño*, presents shallower interments of individuals in extended position and with simpler paraphernalia.

During the 2004 season, the San Lorenzo Island Archaeological Project (SLIAP) excavated 10 funerary contexts in both areas, seven in the larger cemetery (*Cementerio Grande*) and three in the smaller one (*Cementerio Pequeño*). All surveyed contexts had been disturbed. Context Burial VIII, excavated in the larger cemetery is, we argue, the tomb of a weaver woman of elite textiles, probably used during ceremonies and rituals. The hypothesis is that this cemetery corresponds to an area of ritual burials for persons directly related to the island as their *pacarina* or ancestral place of origin. One of these groups could be the weaver women, probably proceeding from the Archaeological Complex of *Armatambo* on the nearby Lima's coast. The temporary settlement is near the *Cementerio Grande* and due to its extensive destruction due to looting, only surface clearing was practiced as well as exposing the strata profile *in situ*. The remnants of beach cobble's terraces were recorded, along with the evidence of ancient cane walls. Besides, the remains of a ceramic vessels originally used as liquid containers (*chicha* or water) were demonstrated. The



Caleta de la Cruz

refuse deposited on different levels of occupation shows a rich marine diet (mollusks, seabirds, and fish). The hypothesis of a temporary settlement relates to its function as a wharf and main port of the prehispanic local peoples who exploited hydrobiological resources from the island. The ceramic remains associated to the area correspond to the Ichma utilitarian vessels associated to the Late Horizon Period.

Another evidence of prehispanic human presence registered at *Caleta de la Cruz*, are the remains of camps and extensive shell refuse area. In fact, there is a large area linked to the exploitation of *macha* shells (*Mesodesma sp.*) Although the absence of ceramic fragments and other diagnostic material in this area would argue for a preceramic period, absolute dating for this area is still lacking.

Finally, the project also recorded in other parts of the island, isolated stone structures, where evidences of probable rituals related to a cult to the sea and the islands were found.



Beach cobble's terraces and the temporary settlement



The refuse deposited shows a rich marine diet

## The Funerary Context of Burial VIII: The Weaver Woman

Burial VIII is a multiple funerary context encompassing four individuals. Their bodies were laid in a circular pit with a diameter of 1.65 meters and a depth of 2.72 meters excavated in the geological sand levels of the site.

When the project excavated the upper levels of the matrix, it recorded very disturbed and incomplete remains (only the bones of the feet were found), after removing these remains, it was observed that the matrix continued and, luckily, did not present any evidence of looting activity, allowing to find the principal individual of the funerary context intact. This one corresponded to an individual accompanied by two children (six and eight years old, respectively) and complemented with its corresponding funerary paraphernalia composed of two vegetable fiber baskets containing several weaving instruments, three pots, one pitcher, and many *Lagenaria sp.* gourds (some as vessel's lids and others containing corn). Regarding the weaving instruments contained in the baskets, these are composed of ground loom stakes, swords, shuttles, spindles, cotton balls, and *Lagenaria sp.* gourds. One of the baskets contained 83 objects and the other 113. Almost the totality of these tools that are finely decorated (carved and/or pyroengraved), especially the spindles heavily ornamented with religious motifs and post-baking paint.

Regarding the children, the youngest was found aside the bundle, while the oldest was found in front. Both of them were found in a hyperflexed sitting position, covered each one with poorly preserved cotton dresses. Their physical anthropology appraisal revealed that the younger child had suffered from chronic disease, evidenced by the extensive presence of periostitis, particularly on the skull, which indicates their state of health must have been critical at death.

The funerary bundle, with a cubical form slightly broader at its base, was mainly composed of cotton fabrics and shaped as an anthropomorphic seated character. It also had a false head placed on top which was irregularly covered with a red pigment, probably hematite-based, simulating facial painting. The false head sported a wooden false nose also painted in red which was held in place by a vegetable fiber head band.

Burial VIII funerary context was excavated and kept in a deposit provided by the Peruvian Army on the island until December 2008. Before its opening, the bundle was CT-scanned at the Javier Prado Clinic. The opening was accomplished in February 2009 at the palinology and paleobotany laboratory at Cayetano Heredia University (UPCH).

CT-Scan



Funerary bundle

## Musculoskeletal stress markers of the Burial VIII

The skeleton of this elderly woman show degenerative lesions compatible with overuse of her upper limbs over a long period of time. This is supported by the presence of robust muscle insertions in the distal aspects of both forearms and in the bones of both hands.

The studies (CT-Scan and macroscopic analysis) showed several lesions which include symmetrical osteoarthritis of the elbows with adjoining enthesopathies and nodular bone overgrowth in both *fossa olecrani*. Among other findings, the skeleton presents osteoarthritis of the lower spine.

These findings have been interpreted as musculoskeletal stress markers representative of an occupational pathology of a person who performed a repetitive and symmetrical hyperextension and rotation of both upper limbs. These findings support the data collected from both tomb paraphernalia and ethnohistory suggesting that this woman had been indeed a weaver during her lifetime.



Symmetrical osteoarthritis of the elbows with adjoining enthesopathies



Osteoarthritis of the lower spine



Weaving instruments



Shell bracelet



Feather unku blouse

## Epilogue

San Lorenzo island keeps a legacy of incalculable scientific value. Despite its relative isolation and the fact that it was actively looted over the last two centuries (particularly *Caleta de la Cruz* and *Caleta Panteón* cemeteries), it still holds a matchless cultural, historical, biological, and geological value that keenly represents all these aspects of the central coast of Peru.

Thanks to the impulse of the Miguel Grau Foundation and the Peruvian Army, to the collaboration of independent researchers, and the support of scientific institutions, the SLIAP has been contributing to the knowledge of cultural and natural history of the island. *San Lorenzo* island has been well-known because it shelters the remains of an ill-fated 17-century Dutch conquest expedition led by Jacques Clerk a.k.a. *L'Hermite* and whose remains until the moment have not been discovered. To the present, the investigations of the SLIAP are demonstrating that the island is much more than a cemetery of "pirates" and that its real history is just beginning to reveal itself. Its natural feats as well as the remains of prehispanic and immigrants populations buried in it represent a great opportunity for modern scientific research, favored by the fact that the island is removed from the immediate coast. All in all, *San Lorenzo* island is indeed a bioanthropological sanctuary.

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