LAPA DO SANTO
The Mortuary Rituals of the First Americans

Skullcap used as funerary urn for choped bones of the same individuals (85000 BP)
Lagoa Santa region (1833–2000)

More than 100 sites

East-Central Brazil

Peter W. Lund (1801-1880)
Danish naturalist

Karstic region
The project “Origins” (2000–2009)


São Paulo University and FAPESP

- Generate a absolut chronology for Lagoa Santa (439 – C14, 53 OSL, U–Series)
- Re–evalutation of old sites (geoarchaeology)
- Excavations of new sites
- “Internationalization”
Mortuary Rituals of First Americans

Hundreds of well preserved Early Holocene skeletons ("skeletal Pompeii").

What we learned concerning the mortuary rituals of First Americans?

NOTHING!
Mortuary Rituals of First Americans

• Very simple and straightforward
  ➢ Primary interments
  ➢ Flexed corpses
  ➢ Covered by limestone slabs (fragmenting bones)

Primitive Hunter-gatherers: “They go beyond, but not very far beyond, the directly practical requirements for getting rid of a rotting corpse” (Woodburn, 1982:202)
Mortuary Rituals of First Americans

Lapa do Santo: new archaeological site

- Translation: Saint Rockshelter

Rockshelter formed under ca. 40 m high limestone outcrop.

Excavated from 2001 to 2009 (coordinated by Renato Kipnis).

Map indicating the location of the sites in the Lagoa Santa region where human bones were found. Source: LEEH-USP.

Lapa do Santo aerial view. Source: Ataliba
The project “Origins” (2000–2009)

Lapa do Santo: new archaeological site

Map of Lapa do Santo. Source: LEEH-USP.

Lapa do Santo. Source: LEEH-USP.
Lapa do Santo: chronology

Finer chronology (O’Shea, 1984; Chapman, 2005)

- 57 radiocarbon dates on charcoal
  - 3 distinct phases of occupation
    - Early Holocene
    - Middle Holocene
    - Late Holocene
  - Vertically and Horizontally delimited

Distribution of the 57 ¹⁴C dates obtained from charcoal samples. Non calibrated conventional ages in years Before Present (BP).
Source: Strauss (2010)
Santo rockshelter profile with all dated charcoals projected. The two more recent periods of occupations are clearly restricted to the south part of the site.

Source: Strauss (2010)
### Santo rockshelter: 26 human burials

51 bone samples were processed for collagen

- Only ten provided collagen
- 4 burials dated to between 8200–8700 RCYBP

Ages obtained from Lapa do Santo human bone samples.

<table>
<thead>
<tr>
<th>Sep Nº</th>
<th>BETA #</th>
<th>13C/12C</th>
<th>Measured Age (RCYBP)</th>
<th>Conventional Age (RCYBP)</th>
<th>Calibrated 2 sigma (RCYBP)</th>
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<tbody>
<tr>
<td>Burial 1</td>
<td>271249</td>
<td>-18.1 o/oo</td>
<td>8730±60</td>
<td><strong>8840±60</strong></td>
<td>8230 to 7730, 10180 to 9680</td>
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<tr>
<td>Burial 2</td>
<td>253497</td>
<td>-19.2 o/oo</td>
<td>690±40</td>
<td>790±40</td>
<td>780 to 670</td>
</tr>
<tr>
<td>Burial 7</td>
<td>215194</td>
<td>-18.9 o/oo</td>
<td>7300±40</td>
<td>7400±40</td>
<td>8330 to 8160</td>
</tr>
<tr>
<td>Burial 11</td>
<td>215195</td>
<td>-20.6 o/oo</td>
<td>5920±40</td>
<td>5990±40</td>
<td>6900 to 6730</td>
</tr>
<tr>
<td>Burial 14</td>
<td>215196</td>
<td>-19.6 o/oo</td>
<td>8190±40</td>
<td><strong>8230±40</strong></td>
<td>9380 to 9370, 9300 to 9040</td>
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<tr>
<td>Burial 14</td>
<td>253505</td>
<td>-22.4 o/oo</td>
<td>8640±50</td>
<td><strong>8730±50</strong></td>
<td>9900 to 9550</td>
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<td>Burial 17</td>
<td>253507</td>
<td>-19.0 o/oo</td>
<td>8560±50</td>
<td><strong>8660±50</strong></td>
<td>9710 to 9540</td>
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<td>Burial 17</td>
<td>265182</td>
<td>-19.0 o/oo</td>
<td>8480±50</td>
<td><strong>8580±50</strong></td>
<td>9590 to 9490</td>
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<tr>
<td>Burial 19</td>
<td>215200</td>
<td>-18.6 o/oo</td>
<td>7600±40</td>
<td>7700±40</td>
<td>8560 to 8400</td>
</tr>
<tr>
<td>Burial 26</td>
<td>253511</td>
<td>-19.8 o/oo</td>
<td>8450±50</td>
<td><strong>8540±50</strong></td>
<td>9550 to 9480</td>
</tr>
</tbody>
</table>
LAPA DO SANTO
The Mortuary Rituals of the First Americans

1. Oldest case of decapitation of America.
2. From bones to ancient cosmologies: the disarticulated burials from Lapa do Santo.
The project “Origins” (2000–2009)

Lapa do Santo: new archaeological site

Brand’s self portrait of himself documenting rock paintings. Author: Brandt.

Little Horny Man from Lapa do Santo. Source: LEEH-USP
New World`s earliest decapitation

Exhumed in July of 2007

Directly dated: 8540±50 RCYBP ($^{12}$C/$^{13}$C = -19.8; Beta# 253511)

Fully articulated: decapitated head (C6) + amputated hands

Right hand laid over the left side of the face pointing down, while the left one was laid over the right side of the face pointing up. Source: Strauss (2010).

Detail of the inferior part of the head. The last vertebra is C6. Source: Strauss (2010).
New World`s earliest decapitation

General “lack” of cut-marks.

- Among vertebrae only C6 present incisions
- On posterior and inferior part of the mandible`s ramus
  - Incisions were originally covered by carbonate layer.

Source: Strauss (2010).
New World`s earliest decapitation

• Atlas and axis were rotated 42º degrees.
• Absence of hyoid bone.

After exposition of cervical vertebrae final beheading was achieved by means of the use of force.

Atlas and axis were found cemented together in this position. The neural arch was broken and was found close by. Source: Strauss (2010)

Goat beheaded with similar procedure. Source: Strauss (2010)
New World`s earliest decapitation

IMPLICATIONS:

Chronology: more than double the known temporal depth of the practice of decapitation in the New World.

- South America: Asia 1, Peru. 6000 BP
- North America: Windover pond, Florida. 8120-6990 BP

Geography: extend this practice to South America lowlands

- The origin of decapitation in South America is associated with the Andean region can no longer be sustained (eg. Cordy-Collins, 1992)
New World`s earliest decapitation

Defeated enemy (trophy) or Venerated Ancestral?

- Strontium analysis (Domingo Salazar Garcia)
- Radiocarbon dating (Sahra Talamo)

Jivaros shrinken head (tsantsa)
Source: Sauvageau (2009)

Nasca trophy-head. Source: Proulx (2001)
New World`s earliest decapitation

Collaboration with Professor Caroline Wilkinson (Dundee University) for facial reconstitution.

- CT-Scan
- 3D Printer
- Reconstitution

From bones to ancient cosmologies

**Burial 14** (directly dated: 8230 BP and 8730 BP)

- Individualized adult cranium
- Bundle of bones deposited next to it.
- The bundle of bones was composed of post-cranial bones of two infants (1 and 3 years old).
- Long bones were roughly parallel to each other.
- The extremities of the bundle were delineated by two iliac bones.

*Pictures of Burial 14 during exhumation. Source: Strauss (2010)*
From bones to ancient cosmologies

**Burial 14** (directly dated: 8230 BP and 8730 BP)

- Long bone diaphysis.
- Two different infants were represented within the bundle of bones.
- The bone extremities were removed and incisions are abundant.

![Long bone diaphysis whose extremities have in many cases being removed. Source: Strauss (2010)](image1.png)

![Cut extremity of left femur. Detail for the sem. Source: Strauss (2010)](image2.png)
From bones to ancient cosmologies

**Burial 17** (directly dated: 8580 BP and 8660 BP)

- Individualized skull of adult individual
- Bundle of post-cranial bones of one infant.
- Cut post-cranial bones of the same individual.
From bones to ancient cosmologies

Burial 17 (directly dated: 8580 BP and 8660 BP)

- Bundle of sub-adult post-cranial bones
- Long bones and scapula
- Located next to the adult skull; cemented in limestone concrete.

- Extremities of both femora and humerus were intentionally removed.
From bones to ancient cosmologies

**Burial 17** (directly dated: 8580 BP and 8660 BP)

- Within the skull “manipulated bones” were found
- Some of them were fragments of skull
- Others were long bones, scapula, clavicle and hand bones
Burial 17 (directly dated: 8580 BP and 8660 BP)

- All teeth were intentionally removed.
- Burned region in the alveolus, indicating soft tissue was still present.
- Absence of cut-marks in the cranium or mandible.
From bones to ancient cosmologies

**Burial 17** (directly dated: 8580 BP and 8660 BP)

- Hand bones, elbow, scapula were found within the cranium and also show signs of cutting.
From bones to ancient cosmologies

**Burial 18** (stratigraphically dated: 8500 BP)

- A bundle of adult long bones were “fitted” into the mandible of a six year old child.
From bones to ancient cosmologies

**Burial 18** (stratigraphically dated: 8500 BP)

- Long bone`s extremities have being removed.
- Chopp-marks are present, but cut-marks are not.

Left and right humerus, right radius and fragments of femur diaphysis. Source: Strauss (2010).
From bones to ancient cosmologies

**Burial 18** (stratigraphically dated: 8500 BP)

- All teeth were absent from the mandible and were not found nearby.
- Each coronoid process presented a small circular drill around 3 mm in diameter.
- One possible interpretation is that this mandible worked as a “ring” to keep the bundle of bones together.

*Burial 18’s mandible. Detail for the drills present on each of the coronoid process. Source: Strauss (2010).*
From bones to ancient cosmologies

**Burial 23** (stratigraphically dated: 8500 BP)

- 78 teeth were found below a sub-adult calotte
  - 48 permanent
  - 30 deciduous
- 2 adults and 3 sub-adults were represented.

CAUTION: THIS BURIAL WAS DISTURBED BY BURIAL 21’s GRAVE

- 78 teeth were found below a sub-adult calotte
  - 48 permanent
  - 30 deciduous
- 2 adults and 3 sub-adults were represented.

REFIT WITH BURIAL 17!
“Burial” 2253 (stratigraphically dated: 8500 BP)

- “Assemblage” found near Burial 9.
- But was 20 cm above.
- Probably NOT directly associated to Burial 9.
- Composed of 7 cut segments of diaphysis and teeth of one single infant individual (5 years old).

Pictures in different views of assemblage PN-2253. Source: Strauss (2010)
From bones to ancient cosmologies

• Bones in secondary context were not randomly organized.

• Seen to have followed specific rules and guidelines based on a “dichotomistic logic”. 
From bones to ancient cosmologies

The Double **Opposition** between “**Cranial x Post-Cranial**” and “**Adult x Sub-adult**”
From bones to ancient cosmologies

The Single “Opposition” between “Individualized teeth” and “Cranium with empty alveolus”
From bones to ancient cosmologies

The **Opposition** between amputated “Diaphysis” and “Epiphysis”.

![Bone images](image-url)
From bones to ancient cosmologies

Dichotomous pattern is also observed in Burial 26

“Conceptions about the cosmos commonly influence the burial display of human bones.
By that I mean that the deployment of secondary human interments into conceptual designs replays key features of how the universe is organized, how it originated, and the plotline contained in myths that charter access to spiritual power”.
Lapa do Santo: Mortuary rituals

In the absence of sophisticated architecture or wealthy goods, the funerary rituals were elaborated through the use of the human body.

- Body reduction (cutting and selection of anatomical parts)
- Spatial reorganization of bones into secondary contexts following specific rules
- Manipulation of fresh corpses were part of mortuary rituals.
Lapa do Santo: Mortuary rituals

- Lower mobility in Lagoa Santa – more circular shape of the femur.
- Population aggregation – presence of localized and systemic bone infections.
- Diet and oral health – more caries (mostly in females) and more abscess (both sexes)
- Cariogenic diet based on fruits and tubercles

NOT COMPATIBLE WITH HUNTER-GATHERER

Courtesy of Pedro Da_Gloria (Ohio State University)
Lapa do Santo: Mortuary rituals

Diachronic perspective:

• First Interments of the site coincides with the abandonment of exogenous raw material for lithic production (9000BP)

• Strontium analysis will help to identify changes on mobility patterns.

Lapa do Santo: Mortuary rituals

Continental regional perspective:

Intense manipulation of the body

• Early Holocene mortuary practices in the Andean region dominated by the manipulation of the body, particularly its reduction. After the Santo Rockshelter this pattern is clearly extended to South America lowlands.

• Similarities with other South American sites on what concern the emphasis in the “dichotomy” of epiphysis versus diaphysis. Specially Aguazuque, but see CA0928 (Rossen and Dillehay, 2007). Not the only case: OGSE-80 and Cerro Mangote are also “impressively” similar (McGimsey III, 1956,1958; Stothert, 1983).

• Not present in North America during Early Holocene (Walthall, 1999)
Objectives of Excavation:

1 – Increase sample of Early Holocene burials.

2 – Reach Pleistocene levels of the site.

* Site is being eroded!
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
2011 MPI excavations
Acknowledgments
Thank you!
The manipulation of fresh corpses

First Americans Funerary Rituals: Intense manipulation of the “body” (Santoro et al., 2004)
BUT! Evidence scarce and fragmentary.

• Chinchorro mummies.

• The “mutilated interment” from Lauricocha.

• Cutting and breaking bones in Nanchoc tradition in Peru.

• Calcination in Nemocon was assumed to be peri-mortem. However, the only evidence to sustain that conclusion is the absence of ash in the site.
The manipulation of fresh corpses

**Burial 21** (stratigraphically dated: 8500 BP)

- Fully articulated skeleton.
- Lower leg diaphysis missing.
- Bones of the feet, tibia and fibula were not anatomically associated with the rest of the body.

Four views of the distal cut extremity of right tibia.

Four views of the proximal cut extremity of right tibia.
The manipulation of fresh corpses

Burial 21 (stratigraphically dated: 8500 BP)

- Partial anatomical association among the bones of the manipulated part of the body.
The manipulation of fresh corpses

**Burial 21** (stratigraphically dated: 8500 BP)

- Distribution of chop-marks highly consistent with presence of soft tissues.

Distal extremity of left tibia. Pattern of cutting leaves no doubt this was accomplished on a non-decomposed corpse. Source: Strauss (2010)
The manipulation of fresh corpses

Conclusion: Burial 21 presents one of the oldest case to show undisputably that the manipulation of fresh corpses was part of Early American Mortuary Rituals.

What is the relationship of Burial 21 and 26 to the disarticulated burials I`ve shown before?

Hypothesis 1#: They are all part of the same mortuary “chain operatoire”. I.e. Burial 21 is a intermediate stage in the funerary ritual, that would eventually end up in the disarticulated burials

Hypothesis 2#: They are part of different mortuary patterns (not-related), most probably sequential in time (disarticulated burials pre-dating Burial 21 and 16).

Cut extremities of tibia from non-contextualized museum collections. Source: Da_Gloria et al. (2011).