

1 **MOIETIES AND MORTUARY MOUNDS: DUALISM AT A MOUND AND ENCLOSURE**
2 **COMPLEX IN THE SOUTHERN BRAZILIAN HIGHLANDS**

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5 Mark Robinson, José Iriarte, Jonas Gregorio De Souza, Rafael Corteletti, Priscilla Ulguim, Michael
6 Fradley, Macarena Cárdenas, Paulo De Blasis, Francis Mayle, and Deisi Scunderlick

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8
9 Mark Robinson, José Iriarte, and Jonas Gregorio De Souza, Department of Archaeology, University
10 of Exeter, Devon, EX4 4QE, UK. (markrobinson.uk@gmail.com)

11
12 Rafael Corteletti, Instituto de Ciências Humanas, Departamento de Antropologia e Arqueologia,
13 Universidade Federal de Pelotas, Rua Cel. Alberto Rosa, 154, RS, Brasil.

14
15 Priscilla Ulguim, School of Science and Engineering, Teeside University, Middlesbrough, Tees
16 Valley, TS1 3BX, UK.

17
18 Michael Fradley, School of Archaeology, University of Oxford, Hayes House, 75 George Street, 1st
19 Floor, Oxford, OX1 2BQ, UK .

20
21 Macarena Cárdenas, and Francis Mayle, Centre for Past Climate Change and Department of
22 Geography & Environmental Science, University of Reading, Berkshire, RG6 6DW, UK.

23
24 Paulo De Blasis, Laboratório de Arqueologia Regional, Museu de Arqueologia e Etnologia,
25 Universidade de São Paulo , Brasil.

26
27 Deisi Scunderlick, Universidade do Sul de Santa Catarina, Av. José Acácio Moreira 787, Bairro
28 Dehon, 88.704-900 - Tubarão, Santa Catarina, Brasil.

29 Excavations at Abreu Garcia provide a detailed case study of a mound and enclosure mortuary
30 complex utilised by the southern proto-Jê in the southern Brazilian highlands. The recovery of 16
31 secondary cremation deposits within a single mound allows an in-depth discussion of spatial aspects
32 of mortuary practice. A spatial division in the placement of the interments adds another level of
33 duality to the mortuary landscape, which comprises: i) paired mound and enclosures; ii) twin mounds
34 within a mound and enclosure; and iii) the dual division in the mound interior. The multiple levels of
35 nested asymmetric dualism evoke similarities to the moiety system that characterizes modern southern
36 Jê groups, highlighting both the opposition and the complementarity of the social system.

37

38 The findings offer a deeper insight into fundamental aspects of southern proto-Jê social organization,
39 including the dual nature of the community, the manifestation of social structure on the landscape and
40 its incorporation into mortuary ritual. The results have implications for research design and
41 developing appropriate methodologies to answer culture specific questions. Furthermore, the parallels
42 among archaeology, ethnohistory and ethnography enable an understanding of the foundation of
43 modern descendent groups and an assessment of the continuity in indigenous culture beyond
44 European contact.

45

46 As escavações no sítio Abreu Garcia oferecem um caso de estudo detalhado de um conjunto de
47 recintos e montículos funerários utilizado pelos grupos proto-Jê do Sul nas terras altas do sul do
48 Brasil. A descoberta de dezesseis depósitos cremados secundários dentro de um único montículo
49 permite uma discussão aprofundada dos aspectos espaciais das práticas mortuárias. Uma divisão
50 espacial na disposição dos enterramentos acrescenta outro nível de dualidade à paisagem mortuária,
51 que compreende: i) recintos e montículos dispostos em pares; ii) montículos duplos no interior de um
52 único recinto; e iii) a divisão dual no interior do montículo. Os múltiplos níveis de dualismo
53 assimétrico evocam similaridades com o sistema de metades que caracteriza os grupos Jê meridionais
54 modernos, ressaltando tanto a oposição quanto a complementaridade no sistema social.

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56 As descobertas propiciam uma compreensão mais profunda dos aspectos fundamentais da organização
57 social proto-Jê meridional, incluindo a natureza dual da comunidade, as manifestações da estrutura
58 social na paisagem e a sua incorporação no rito mortuário. Os resultados têm implicações para o
59 planejamento das pesquisas e desenvolvimento de metodologias apropriadas para responder questões
60 culturais específicas. Além disso, os paralelos entre arqueologia, etno-história e etnografia permitem
61 uma compreensão da fundação dos grupos descendentes modernos e avaliação da continuidade nas
62 culturas indígenas além do contato com os europeus.

63

64 The dead offer a window into the history of the individual and the community by encoding
65 fundamental social institutions in mortuary practice. The patterns and variability of mortuary
66 treatments not only reflect a community's socio-religious beliefs that define conceptions of the dead,
67 but may also reflect an individual's social identity as defined by the divisions that characterize the
68 form and organization of social systems (Binford 1971; Dillehay 1995; O'Shea 1984; Pearson 1999;
69 Tainter 1978; Tarlow and Stutz 2013).

70

71 In southern Brazil, modern southern Jê groups are characterized by a dual social organization,
72 revolving around exogamous, asymmetrical, patrilineal moieties. All people, objects, and natural
73 phenomena are divided between the two moieties as dual oppositions. Public events overtly
74 emphasize moiety membership through visual symbols and the performance of specific tasks.
75 Funerary ritual is particularly defined by this system, with burials conscripted as community wide
76 integrative events that reinforce the dual organization of the group, social hierarchy, and the
77 individual's social identity (Baldus 1937; Crepeau 1994; Métraux 1946; Nimuendajú 1993; Veiga
78 2006).

79

80 Although we need to be aware of the potential differences between the earlier archaeological contexts
81 and those reported during the seventeenth–twentieth centuries, especially in the face of European
82 colonisation of the region, there are general ideological and structural arrangements that appear to be
83 constant over time. As the work of Iriarte and colleagues (2013) has shown, it is possible to interpret
84 the highly structured archaeological patterns of southern proto-Jê mound and enclosure complexes
85 (from here on MEC) through reasoned analogies with the ethnohistoric and ethnographic record,
86 drawing on the historical continuity that exists in the organization of ritual space.

87

88 The southern proto-Jê, employed MEC as funerary monuments to bury the cremated remains of select
89 members of the community, circa A.D. 1000 – 1700. Recent excavations at Abreu Garcia, a MEC
90 near Campo Belo do Sul, Santa Catarina state, Brazil, in use from the mid-fifteenth to late seventeenth
91 century (Table 1; Figure1), suggests that dual social organization was well established and an integral

92 feature of the funerary landscape, manifesting across multiple spatial levels of, i) the paired MEC; ii)
93 the twin mounds within MEC1; and iii) the internal division of the mounds.

94

95 The following section provides a brief synthesis of southern Jê dualism and funerary rites, which
96 serves as a point of departure for our interpretations. This is followed by an overview of the
97 archaeology of mortuary structures in the southern Brazilian highlands before an examination of
98 excavations at Abreu Garcia. We conclude with a discussion of the features of the cremation deposits
99 and of the dualism in site plan, materials and internal mound space in light of the new data from
100 Abreu Garcia.

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103 **Modern Jê Organization and Mortuary Practice**

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105

106 Dual social organization is prevalent throughout South America, documented ethnographically, and
107 with increasing examples from archaeological contexts (Lévi-Strauss 1944; Hornborg 1988; Moore
108 1995; Nimuendajú and Lowie 1937; Turner 1996; Zuidema 1964). The best studied modern southern
109 Jê groups, the Kaingang and the Xokleng, exhibit dual organization. That the moiety system is ancient
110 among the southern branch of the Jê family is attested by the fact that it is found in virtually all
111 northern Jê societies in central Brazil and some of their Macro-Jê neighbors (Maybury-Lewis 1979).
112 The moiety system of the Kaingang is rooted in the lineages originating from two mythological twin
113 brothers, *Kamé* and *Kairu* (Veiga 1994). In the Kaingang origin myth, after a cataclysmic flood,
114 Kamé and Kairu independently created all beings of nature, setting the stage for a dual divided world
115 in which everything is assigned to one brother or the other in an all-encompassing classificatory
116 system (Borba 1908; Nimuendajú 1993). Before the brothers ascended into the heavens as the Sun
117 (Kamé) and Moon (Kairu), they dictated the order by which society should be structured, establishing
118 the division into complementary moieties, as well as the rules for moiety recruitment through
119 patrilineal descent and exogamous marriage. The brothers lend their names and their associated traits

120 to the two moieties. Kamé is associated with the Sun, west, day, thick body, high, persistence and
121 permanence, while Kairu is associated with east, Moon, night, slim body, low, less persistent and
122 transformation (Silva 2002). The mythology points toward an asymmetrical relationship, with the
123 successes of Kamé contrasting with the imperfect and unfinished attempts of Kairu. Possessing
124 stronger souls, Kamé can demand more lavish ritual and privileged locations, such as higher
125 elevations (Crépeau 1994, 2002; Veiga 2006).

126

127 The Xokleng (more recently self-identified as the Laklãñõ), were divided into three exogamic
128 patrilineal clans called *Mê-vidn*, *Mê-calêbn* and *Mê-kúi-ken*. However, as shown by Métraux (1946),
129 this system was originally dual, with the first clan (*Mê-vidn*) corresponding to the Kairu moiety of the
130 Kaingang and the second clan (*Mê-kúi-ken*) being equivalent to the Kamé moiety. The third clan's
131 function is predominantly ceremonial, and membership is not necessarily inherited (Veiga 1994; Silva
132 2001).

133

134 Modern anthropological studies document a Xokleng culture that has undergone radical social
135 transformation in the face of near ethnocide in the early twentieth century (e.g. Cruz Conceição 2015;
136 Henry 1964; Hoffman 2010; Santos 1973; Urban 1978, 1985; Wiik and Mota 2014). Dispossession of
137 land forced previously sedentary communities into smaller, mobile groups (Henry 1964; Loch 2004;
138 Noelli 2000), with a resulting adaptation of social, economic, subsistence, political, and ritual
139 practices to the new way of life. Modern accounts of the Xokleng are therefore particularly
140 problematic for analogical application to archaeological contexts (Noelli 2000), requiring a reliance
141 on data from the Kaingang.

142

143 Mortuary rituals associated with mound building by the southern Jê have been recorded by European
144 accounts since the seventeenth Century (Balduis 1937; Becker 1976; Crépeau 1994; Henry 1964;
145 Maniser 1930; Métraux 1946; Nimuendajú 1993; Paula 1924; Veiga 2000, 2006), with the practice of
146 interring in mounds continuing into the twentieth century. Ceremonies at mounds were the most
147 important for the community, and were public events that specifically emphasized the dual

148 organization of the group (Baldus 1937; Crépeau 1994; Métraux 1946; Nimuendajú 1993; Veiga
149 2006).

150

151 Both halves have integral roles to play in the structure of public ceremony. Moiety affiliation is
152 marked, with members of the Kamé moiety painting their bodies with black stripes, lines, and open
153 shapes using burnt pine chips (*Araucaria angustifolia* (Bertol.) Kuntze), whereas Kairu members
154 paint red circles and closed shapes using *Symplocos parvifolia* (Da Silva 2011). During the *kiki*
155 funerary ritual, ceremony in the cemetery adheres to an organised spatial and conceptual east-west
156 division (Crépeau 1994; Veiga 2000). For example, two fires are lit, one in the east for Kairu, and one
157 in the west for Kamé. However, the events also demonstrate the complementarity of the moiety system
158 and each fire and the accompanying prayers may only be performed by members of the opposite
159 moiety (Da Silva 2011; Veiga 2006).

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162 **Archaeology of the Southern Proto-Jê**

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165 The southern proto-Jê covered a vast area (more than 600 km north/south) encompassing diverse
166 environments across the southern highlands and Atlantic forest of the modern Brazilian states of
167 southern São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul, and Misiones, Argentina. The
168 highland plateau (700-1850 m above sea level) is dominated by mixed *Araucaria* forest and high-
169 altitude grasslands (*Campos de cima da Serra*) (Klein 1975).

170

171 Ancestral to the modern speakers of the southern branch of the Jê language family, and sharing a
172 broadly defined material culture, known as the Taquara/Itararé Tradition, the southern proto-Jê are
173 characterized by the use of diagnostic small, thin walled ceramic vessels, pithouses, MECs, and rock
174 art (e.g., Araújo 2007; Beber 2005; De Masi 2009; Iriarte et al. 2013; Noelli 2005; Riris and Corteletti
175 2015). The territorial extent of the Taquara/Itararé Tradition – covering most of the southern Brazilian

176 highlands and adjacent escarpment, as well as parts of the Atlantic coast – coincides with the
177 historical distribution of the Kaingang and Xokleng (Da Silva 2001; Noelli 2005; Jolkesky 2010).
178 Beyond the spatial overlap, the dates of occupation of many Taquara/Itararé sites continue into the
179 early colonial period, and there is continuity in material culture (ceramics), burial practices (earthen
180 mounds), and decorative motifs in rock art and ceramics between the pre-colonial Taquara/Itararé
181 Tradition and the historical Kaingang and Xokleng (Da Silva 2001). For those reasons, most
182 archaeologists agree on attributing the Taquara/Itararé material culture to the direct ancestors of
183 modern Kaingang and Xokleng, as well as the extinct Kimdá and Ingáin (Jolkesky 2010). Following
184 that reasoning, and to emphasise the continuity, we refer in this paper to the Taquara/Itararé groups as
185 the southern proto-Jê. These communities practiced a mixed economy, combining harvesting the
186 Paraná pine nut (*A. angustifolia*), hunting, gathering and fishing, with the cultivation of domestic
187 crops. From a pithouse context, recent microbotanical studies have documented the consumption of
188 manioc (*Manihot esculenta Crantz*), beans (*Phaseolus sp.*), maize (*Zea mays L.*), and squash
189 (*Cucurbita sp.*), implying a degree of sedentary farming (Corteletti et al. 2015).

190

191 The Taquara/Itararé Tradition began to spread after A.D. 0, reaching new levels of regional
192 organization and political complexity around A.D. 1000. The first major earthworks, in the form of
193 domestic pithouses, begin to appear circa A.D. 400. Pithouses range in size from 2 – 20 m diameter
194 and occur as solitary pits through to clustered “villages” containing more than 100 structures. Around
195 A.D. 1000, over-sized pithouses and MECs begin to appear on the landscape (Copé 2006; Corteletti
196 2012; Iriarte et al. 2013; Schmitz et al. 2013). Interestingly, pollen records (Behling 1995, 1998;
197 Bitencourt and Krauspenhar 2006; Iriarte and Behling 2007) document an expansion of *Araucaria*
198 forest, coinciding with these innovations.

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Mound and Enclosure Complexes

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204 MEC are funerary monuments, concentrated along the Pelotas and Canoas river basins, occurring in
205 isolation and in groups, typically occupying the most prominent hilltops with wide view sheds
206 (Corteletti 2012; Corteletti et al. 2015; De Masi 2009). Just over 50 MEC have been documented,
207 although few have been excavated (Beber 2005; Chmyz 1968; Copé et al. 2002; Corteletti 2012; De
208 Masi 2005; De Souza and Copé 2010; De Souza et al. 2016; Herberts and Muller 2007; Iriarte et al.
209 2008, 2010; 2013; Muller 2008; Naue et al. 1989; Reis 2007; Ribeiro and Ribeiro 1985; Rohr 1971;
210 Schmitz et al. 2010). Published dates of MEC are limited, with the earliest dating to circa A.D. 1000
211 (Posto Fiscal and SC-AG-75) with a proliferation of dates in the fifteenth – seventeenth centuries (see
212 Iriarte et al. 2013; Iriarte et al. 2016).

213

214 The complexes are characterized by circular, elliptical, rectangular and key-hole shaped earthworks
215 surrounding one or more earthen mounds. Both raised rings and ditches were used as encircling
216 earthworks. The significance of the different forms is at present unknown, with both associated with
217 cremated remains. Ditches are typically shallow and narrow. Raised rings are up to 1 m high, 6 m
218 wide, and 10-180 m in diameter. More complex features, including entry avenues and attached
219 ringlets, such as at ElDorado, Misiones, Argentina (Iriarte et al. 2008, 2010) and SC-CL-37 in Santa
220 Catarina (Reis 2007), are occasionally present. Iriarte et al. (2013) argue for a high level of spatial
221 organization, whereby paired complexes of distinctly different sizes represent a dual ranked social
222 structure.

223

224 The mounds themselves are predominantly circular, although there are rectangular examples (e.g.,
225 SC-AG-12; De Masi 2009). When a single mound is present, it occupies the center of the enclosure.
226 Two mounds typically follow a dual architecture pattern of distinctly different sizes, following a
227 southwest-northeast alignment, with the larger structure in a higher elevation to the northeast (see
228 Iriarte et al. 2013).

229

230 The mounds are funerary, containing single and multiple, cremated burials. In a few instances,
231 excavation has determined that a mound was erected on top of the cremation pyre

232 (De Masi 2009; De Souza and Copé 2010); however, in most instances the cremation was transported
233 from an offsite funeral pyre (Copé and Saldanha 2002; De Masi 2009; De Souza and Copé 2010;
234 Müller 2008; Müller and Mendonça de Souza 2011). The most common grave goods, when present,
235 are small ceramic vessels (rim diameter no larger than 15 cm), possibly representing food and drink
236 offerings. As with modern funerary practice, MECs likely functioned as integrative facilities that
237 reinforced community structure through collective ceremony (De Souza and Copé 2010; Iriarte et al.
238 2008).

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Abreu Garcia Site Description

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244 The Abreu Garcia site is located on an elongated basaltic plateau with commanding views across the
245 surrounding landscape (Figure 1 **Error! Reference source not found.**). The archaeological site is
246 focused on the north-western edge of the plateau, consisting of two MECs and a solitary pithouse
247 (Figure 2). MEC1 is the larger of the two and incorporates a primary central mound and a secondary
248 small mound to the northwest. MEC2 is much smaller consisting of a single mound within an
249 enclosing ditch. The pithouse, measuring 5 m in diameter, is located 200 m along the plateau to the
250 north. Each structure is in alignment, positioned close to the plateau's edge. A stone chapel is a recent
251 addition to the landscape. No further structures have been found on the plateau.

252

253 The two mounds of MEC1 are within a 50 m diameter, 4 m wide, low (.4 m) circular enclosing
254 earthwork. The central mound measures 10 m in diameter and .8 m in height. The smaller mound to
255 the northwest, measures 4 m in diameter and .2 m in height. MEC2, 60 m to the southeast, is far
256 smaller, with the encircling ditch and small bank measuring 10 m in diameter. A single central
257 mound, .4 m in height and 5 m in diameter is present.

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Excavations at Abreu Garcia

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In 2014 a 2x5 m unit running parallel to the plateau's edge was excavated on the north-eastern half of the central mound of MEC1 (Mound A). The recovery of cremated deposits prompted a second excavation in 2015. Excavations were also undertaken in Mound B of MEC1 and the central mound (Mound C) of MEC2. Test pitting was carried out on the enclosure rings, the inter-mound areas and the internal off-mound space.

Osteological analysis of the cremated remains is in its preliminary stages. As such, this paper focuses on spatial aspects of the mortuary context. In-field observation of MNI, age, and faunal inclusions shows variability across contexts that does not appear to reflect prescribed practices of the social system and therefore does not affect the interpretations presented here.

MEC1 –Mound A

Excavation revealed two construction phases (Figure 3). A subtle change in soil texture and color 20-30 cm above the bedrock marks the old ground surface when the mound was first constructed. The initial mound construction consisting of a largely sterile clay matrix (Munsell 5YR 3/4) was capped by a layer of degraded yellow basalt. Similar basalt caps frequently define construction phases in both mound and pithouse architecture in the surrounding area. A second construction phase expanded the mound with the addition of a coarser red sandy clay matrix from a distinctly different source (Munsell 2.5YR 3/6).

Sixteen secondary cremation deposits were encountered across the two excavations with a spatial separation between the north-eastern and south-western halves, paralleling the direction of the plateau's edge (Figure 4). Nine cremation deposits were recovered in the southwest and seven in the northeast. The segregation is highlighted by the absence of deposits along the central axis and a

288 distinct difference in the burial contexts between the two sides, with those in the southwest subject to
289 more formal interment. The basalt cap also remains largely intact along the central axis, but is broken
290 or absent above all cremation deposits except Cluster 16. The broken cap suggests these deposits were
291 later additions, re-entering the mound after the cap's construction, with Cluster 16 potentially
292 representing an early (or initial) burial as part of the original mound construction.

293

294 The seven cremation deposits in the north-eastern half are located throughout the body of the mound,
295 below the level of the basalt cap. The interments include both well-defined and scattered deposits.
296 Bio-turbation alone does not appear to account for the difference in the concentration of the deposits.
297 There is limited bio-turbation, with major root disturbance primarily located above the basalt cap. The
298 more scattered cremation deposits do not show clear evidence of dispersal from an original
299 concentration, with the material from the deposits evenly spread and the surrounding matrix showing
300 no evidence of disturbance that would cause the spread. Three of the deposits, Clusters 12, 15, and 16,
301 were well-defined. Cluster 16 (370 ± 30 B.P.; Figure 5a) was placed directly on top of the bedrock and
302 is one of only two deposits to include human teeth (the other being Cluster 1). Cluster 15, a
303 concentrated deposit in the lower stratum (Figure 5b) contained charred seeds and several pieces of
304 burnt bamboo, alongside more typical wood charcoal. A rectangular basalt stone covered Cluster 12
305 (230 ± 30 B.P.), likely functioning as grave architecture.

306

307 Clusters 13 and 14, toward the northern corner of the excavation (Cluster 14, 400 ± 30 B.P.; Figure
308 5c), and Clusters 10 (Figure 5d) and 11 (Cluster 11, 270 ± 30 B.P.) in the east, lacked demarcated
309 shape or a distinctive core, suggesting they were more scattered during interment. A concentration of
310 pebbles immediately to the east of Cluster 10 may have served as grave architecture or offerings.

311

312 In comparison to the interments of the northeast, the nine cremation deposits in the south-western half
313 are spatially distinct and decidedly more formal. Eight of the deposits are located in four bedrock cut
314 pits, while the ninth is placed above the basalt cap, associated with stone grave architecture. The four
315 pits are in a linear arrangement (Figure 6a), paralleling the edge of the plateau to the northeast and

316 emphasising the internal mound division. The basalt layer above the pits was fragmentary, suggesting
317 some, if not all, of the pits were entered after the second construction phase of the mound. Pits B, C,
318 and D all contained single cremated deposits, whereas five separate cremated contexts were placed in
319 Pit A (Figure 6b), alongside a single complete incised ceramic vessel.,

320

321 Overlapping material between all contexts in Pit A (Clusters 2, 6, 7, 8, and 9) suggests the five
322 deposits are from a single interment event, and the pit was sealed with a cap that prevented sediment
323 penetration, allowing time for the cremation containers to disintegrate and the contained material to
324 spread. The ceramic vessel, a thin walled cup with zigzag incised decoration (Figure 6c), appears to
325 be deposited as a separate event, sometime after the interment of the cremation deposits. The vessel
326 sits on 2 cm of sediment build-up above the collapsed spread of Cluster 9 and the edge of the spill
327 from Cluster 7, implying enough time had passed for the cremation containers to disintegrate before
328 the ceramic was deposited. Each of the five cremated deposits in Pit A showed distinct characteristics
329 enabling separation of the contexts. The red color on the bones and the surrounding matrix and
330 absence of charcoal distinguished Cluster 7, suggesting the bones were treated with ochre after
331 collection from the cremation pyre.

332

333 Pits B, C, and D, each contained a single cremation deposit, Clusters 5, 4, and 3, respectively. Field
334 observations suggest faunal (including bird) bone is present alongside human skeletal material in
335 Cluster 5 and both adult and sub-adult bones are present in Cluster 3. Sixteen large ceramic fragments
336 were encountered above Pit B to the southeast. Many of the fragments refit and are all likely from a
337 single vessel that is similar in form to the cup found in Pit A, albeit without decoration. A constructed
338 wall separates Pit C from Pit D (Figure 6d), with skeletal material from Pit C spread beneath the wall.
339 As such, the wall postdates the interment of Cluster 4 and was most likely a feature added at the same
340 time as Cluster 3 to maintain spatial separation after Pit C was cut.

341

342 Just as the bedrock cut pits mark a distinct interment choice from the location of the cremation
343 deposits in the main body of the mound in the northeast, Cluster 1 also differs as the only interment

344 placed above the basalt cap. Cluster 1 also contains formal stone architecture (Figure 7), and along
345 with Cluster 16, is the only other context to include dentition.

346

347 A deposit of charcoal was present in the southern half of the excavation unit. The deposit was fully
348 contained within the excavation unit and does not continue into any profile. No human skeletal
349 material was associated with the feature. Preliminary analysis of the charcoal identifies the presence
350 of multiple wood species, confirming that the deposit was not a single tree/post etc. AMS dating of
351 charcoal from the context provided a date of 300 ± 30 B.P. The late date and absence of the basalt cap
352 above the feature confirm it was added after the second construction phase. The nature of the deposit
353 remains ambiguous, possibly representing a self-contained fire based ceremony, or a ritual attached to
354 one of the pit interments. Current dates and stratigraphy do not allow direct association between the
355 burnt feature and an interment.

356

357 Including the complete vessel in Pit A and the fragments of the vessel above Pit B (counted as one),
358 the mound excavation contained only 18 ceramics, seven sherds from the north-eastern side (density =
359 $.78 /m^3$) and nine from the south-western half (density = $1.22 /m^3$). Nine of these sherds were
360 recovered from above the basalt cap, nine from below.

361

362 *Mound B*

363

364 Mound B was also constructed in two phases, with a basalt cap defining the first phase. A 2x1 m
365 excavation was opened across the center of the mound. A well-defined circular concentration of
366 cremated bone and charcoal (360 ± 30 B.P.) sat within a small depression cut into the underlying
367 basalt bedrock in the west of the excavation. Seven ceramic sherds were recovered from the mound
368 fill (density = $5.83 /m^3$). The contemporary date of a second less defined deposit in the northwest (330
369 ± 20 B.P.), confirm the concurrent use of Mound A and Mound B.

370

371 *MEC1 – Enclosure rim*

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373 A 1x10 m trench excavation crossed the outer rim with the aim of understanding form and
374 construction history. The continuous circular rim showed a single construction phase, unlike the
375 mounds. A total of 13 ceramic sherds were found between 10-40 cm depth, located in the bank or
376 immediately on the outer side. The excavated area between the mounds and the rim was devoid of
377 artifacts. This positioning suggests that at least some of the material represents the remains of
378 activities performed atop the mound and discarded off the back, perhaps with deliberate clearance of
379 the inner enclosure. A separate 4x1 m trench inside MEC1 enclosure recovered zero artifacts, further
380 suggesting that the internal enclosure was kept clean of debris.

381

382 *MEC2*

383

384 Mound C of the smaller MEC2 revealed a single construction phase. A 2x2 m unit was established
385 over the center of the mound, with an 8x1 m trench extending off the northwest side, across the
386 interior of the enclosure and through the encircling ditch/terrace, toward MEC1. A low density
387 scattering of bone fragments was present in the eastern corner of the excavation between 20 and 30
388 cm below the modern ground surface; however, no distinct clustering or concentration was present.
389 Two ceramic sherds were present within the mound (density = 1.67 /m³). Eight ceramic sherds found
390 in the trench within the enclosure (density = 7.92 /m³) lack distinct contextual information, but may
391 be vestiges of activities performed within the enclosure, or swept from atop the mound. Although still
392 in small numbers, the presence of material within the enclosure contrasts with MEC1, which was kept
393 perfectly clean.

394

395 *External area*

396

397 A 3x2 m excavation was established to test the area between MEC1 and MEC2 and 30 1x1 m test
398 units (not shown on map) were dug in the southern sector outside of MEC1 to sample a total area of
399 180m². Interestingly, the highest density of ceramic material across the site was encountered within

400 these areas (density = 10.83 /m³). The quantity of ceramics is distinct from the limited material in the
401 internal area of MEC1 and hint at less controlled activity outside of the enclosure. No other material
402 or features were recorded.

403

404 *Summary*

405

406 Excavations at Abreu Garcia confirm that both MEC and all mounds were mortuary in nature,
407 although they are distinct in terms of form, interments and associated activities. Mound A of MEC1 is
408 particularly interesting, revealing two construction phases and a history of re-entry, with the interment
409 of 16 cremation deposits. Most startling is the distinct difference between the two sides of the mound
410 interior, aligned to the plateau's edge, adding yet another level of dualism to the paired MEC and twin
411 mounds of MEC1.

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413

414 **Discussion**

415

416

417 In the discussion that follows we draw parallels between the archaeology of the southern proto-Jê and
418 the socio-political organization of the southern Jê Kaingang groups. The comparison serves as a point
419 of departure to explore the historical continuity of general underlying ideological and structural
420 arrangements that have survived over time; however, we are aware of the pitfalls associated with the
421 direct transposition of the ethnographic present into the archaeological record. From here on we refer
422 to Alpha and Beta moieties, rather than the Kamé and Kairu moieties, to facilitate discussion and
423 avoid implying direct association through the use of Kaingang terminology, Alpha representing the
424 more dominant moiety.

425

426 *Dualism in Site Plan*

427

428 Iriarte et al. (2013) argue for a pattern of dual social organization in the southern proto-Jê funerary
429 landscape, noting the common occurrence of paired MECs. Paired complexes are asymmetric with the
430 larger complex almost always occupying a slightly higher topographic position, typically to the
431 southwest, in a southwest-northeast alignment. The complex at Abreu Garcia follows this pattern.
432 These characteristics correlate with associations attached to the dominant Kamé moiety of the
433 Kaingang (Iriarte et al. 2013; Silva 2002; Crépeau 1994, 2002, 2005; Veiga 1994, 2000).

434

435 The southwest-northeast arrangement is particularly apparent in Pinhal da Serra where five of six
436 paired structures follow the pattern (Iriarte et al. 2013). The architectural placement corresponds to
437 the shadow alignment of sunrise during the winter solstice, and sunset during the summer solstice,
438 which could represent an early referencing to the Sun and the Moon as embodied by Kamé and Kairu
439 in Kaingang. It is perhaps of significance that a nineteenth century account mentions that the shadow
440 of an upright arrow was used by the Kaingang to align the body of the deceased (Mabilde 1983).

441

442 Deviations from the southwest-northeast pattern can be explained by other landscape features, such as
443 plateau orientation and topography superseding the directional layout. The distinct plateau of Abreu
444 Garcia is one such deviation, with the Alpha MEC occupying a higher position to the northeast;
445 however both MECs and the pithouse follow the edge of the plateau. It is important to note that the
446 opposition between high and low places is more important in modern Kaingang cemeteries than the
447 east-west division (Crépeau 1994, 2002). SC-CL-94 (Schmitz et al. 2010), another paired MEC over
448 50 km from Pinhal da Serra, also deviates from the southwest-northeast pattern, raising the possibility
449 that the feature may be more of a localised tradition for the Pinhal da Serra region.

450

451 Whether the paired structures were reserved for, or controlled by, the relevant moiety, or if the
452 structures were a representation of cosmological structure and utilised by the whole community is
453 difficult to discern with the limited excavated samples. In a paired complex at SC-AG-12, De Masi
454 (2005, 2006, 2009) documented the cremated burial of an adult and infant, accompanied by a well-
455 preserved complete ceramic plate and cup in the central mound of the larger enclosure. Six collective

456 cremated burials were recovered in the smaller MEC. Based on this evidence, De Masi (2009) posited
457 that the two individuals in the larger enclosure had a higher status than the multiple burials in the
458 smaller enclosure, with the funerary landscape reflecting societal divisions. At Abreu Garcia, MEC2
459 contrasts with MEC1 in terms of form, interments and artifact distribution. The smaller and
460 topographically lower MEC2 contains only a scattering of bone in the mound but a higher density of
461 ceramics within the enclosure, suggesting at least differences in ritual practice. The difference
462 between the enclosing ditch of MEC2 and the ring of MEC1 is a further example of disparity and may
463 reflect moiety specific architectural styles.

464

465 *Dualism in materials*

466

467 There is a consistency in the ceramics found throughout southern proto-Jê ceremonial contexts, from
468 MEC to funerary rock shelters. These small, thin ceramic dishes, vases and cups have dimensions and
469 forms appropriate for individual consumption rather than for food processing (cf. De Masi 2005;
470 Saldanha 2005; Iriarte et al. 2008, 2013; Müller 2008). Ceramics from pithouse assemblages are
471 dominated by large inflected vases with charred residues, abrasion and other use wear more associated
472 with food preparation (Schmitz et al. 2002; Saldanha 2005; Copé 2006; Corteletti et al. 2015; De
473 Souza et al. 2016).

474

475 Although a greater density of ceramic material was recovered from MEC2 than MEC1, the only
476 distinctly interred offerings were the ceramic cups recovered from the south-western half of MEC1.
477 These vessels are strikingly similar to the ceramic cups retrieved from other MECs (De Masi 2005;
478 Muller 2008; Rohr 1971; Saldanha 2005). The band of zigzag decoration on the cup from Pit A is
479 particularly comparable to the ceramic cup from the mound of the larger enclosure at SC-AG-12 (De
480 Masi 2009; Figure 8). The similar form and decoration of the vessel to those at the larger enclosure at
481 SC-AG-12 is intriguing. Here again, it is enlightening to compare the archaeological data with the
482 ethnographic record. Among the historical Kaingang the same design style was used in the body
483 painting of the Kamé moiety (Da Silva 2001), and the equivalent Xokleng clan used similar linear

484 decorations (Métraux 1946). These designs were in opposition to the dots and circles worn by the
485 other Kaingang moiety and Xokleng clan.

486

487 Modern southern Jê mortuary practice emphasizes the personal attachments of the deceased within
488 strictly structured ritual underscored by the moiety system. Possessions of the deceased are broken
489 and included in the burial and pets may even be sacrificed so that the dead do not return, seeking what
490 is theirs (Veiga 2000). This last point is particularly pertinent considering the presence of animal
491 bones mixed with human in at least some of the cremation deposits as observed in the field.

492

493 *Dualism in Internal Mound Space*

494

495 Perhaps the most intriguing feature at Abreu Garcia is the distinct disparity between the north-eastern
496 and south-western halves of Mound A. The division is epitomised by the absence of cremated
497 deposits along the centerline of the mound and the stark contrast between the formal bedrock cut pits
498 of the south-western half and the dispersed interments in the northeast. Likewise, the location of
499 Cluster 1 above the basalt cap contrasts with the seven dispersed interments in the main body of the
500 mound below the cap in the northeast.

501

502 The spatial division (and the alignment of the bedrock pits) parallels the alignment of the three
503 structures at Abreu Garcia, which in turn parallels the edge of the plateau. Interestingly, the split into
504 a southwest and northeast half is analogous to the arrangement of paired MEC elsewhere, with the
505 more extravagant offerings and the more formal interments in the western portion, equating to the
506 Alpha moiety (De Masi 2009).

507

508 The smaller mound (Mound B) of MEC1 similarly does not contain any central interments. with the
509 two cremation deposits both located in the western half of the mound. The whole complex of Abreu
510 Garcia may thus represent three levels of integrated dual organization, manifesting in (i) the paired
511 MEC, (ii) the twin mounds within MEC1, and (iii) the internal division of the mounds. The multiple

512 levels of dualism are both overt and subtle, perhaps symbolising the cohesive and mutually dependent
513 nature of the moiety system. Alternatively the apparent dualism may reflect sub-divisions within
514 moieties enmeshing multiple levels of hierarchy and social division within spatial aspects of mortuary
515 practice.

516

517 Despite limited excavations, other MECs in the southern Brazilian highlands also exhibit internal
518 dualism. The smaller enclosure of SC-AG-12 encircles two mounds, and the burial mound in the
519 larger circle is in fact peripheral in relation to a central rectangular platform that seems to have
520 performed a non-mortuary function (De Masi 2005, 2009). The main structure of site PM-01 in
521 Misiones also contained two mounds with marked disparities in size, the largest of which was located
522 to the west (Iriarte et al. 2008).

523

524 *Grave Architecture*

525 Architecture is limited to three stone associations and the bedrock pits. The four pits dug into bedrock
526 in the south-western half of Mound A clearly show a distinct pattern in comparison to the other
527 interments, requiring the concerted decision to excavate into the hard basalt, rather than stop and place
528 the burial atop as in the case of Cluster 16. This marked distinction, located in the west, correlates
529 with the associations of the Alpha moiety.

530

531 The stone additions to Clusters 1, 10, and 12 take different forms. The stone slabs of Cluster 1
532 contrasts with the single rectangular cap of the well-defined Cluster 12, and the loose pebble
533 accumulation associated with the spread of Cluster 10. In these three cases the type of stone
534 association mimics the dispersal of the cremation deposit, although there are not enough examples to
535 confirm a pattern. Stone architecture accompanying mound interments has been documented
536 elsewhere, including both large slabs (cop 1908) and smaller rock concentrations (Müller 2008). The
537 reasoning behind the presence or absence of architecture in these cases is also ambiguous. The more
538 formal architecture of all the interments of the south-western half does offer further support that this
539 side and the more elaborate burial rites were reserved for the Alpha moiety.

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Hierarchy

Ethnographic accounts of Kaingang funerary mounds refer to the burial of chiefs and the accompanying ceremonies passing chiefly office to their successor, although interment of other high status individuals and actors with specific social roles is also noted (Da Silva 2001; Maniser 1930; Métraux 1946; Veiga 2006). Larger Xokleng mounds were also reserved for high-status individuals (Vasconcellos 1912). Among the Kaingang, only the death of a paramount chief required the construction of a new mound (Mabilde 1983). Interestingly, collective burials in mounds for warriors who died in battle were reported in the nineteenth century (Mabilde 1983). These mounds were built side-by-side with individual mounds reserved for deceased chiefs.

MEC certainly did not accommodate the remains of the whole community, and the prestige associated with commanding ceremonies at a prominent public landmark, such as Abreu Garcia, were likely reserved for higher status individuals or those associated with specific social function. Although multiple individuals are sometimes present within a single cremation deposit, the core of each deposit appears to have been conspicuously independent. This is made apparent by the distinctly different material of each deposit in Pit A, and the reconstruction of the wall separating Pit C and Pit D. While the treatment of each context as a distinct entity is perhaps not surprising, it does reveal conceptualisations of the sacred and profane, and an inherent respect for the remains of the deceased.

The dual organization existent among many lowland South American societies has been hypothesised to favor the development of inequality, with the moieties becoming asymmetrical over time (Spencer and Redmond 2015). In fact, as the classical work of Lévi-Strauss (1963) first pointed out, dualistic ideologies usually mask a subjacent asymmetrical structure. This is manifest in the Kaingang moiety system: Kamé burial grounds are placed in higher positions, and they are considered ritually “stronger” (Crépeau 1994, 2002).

568 *Bone Removal*

569

570 The absence of dentition in all but two contexts at the complex suggests a practice of selective bone
571 collection from the pyre, with some material either separated for use or curation elsewhere, or
572 abandoned at the pyre site. So far, a pyre location has not been discovered to assess whether teeth
573 were left at the cremation site, and skeletal material has not been encountered in other contexts to
574 confirm a separate caching practice. Archaeological and ethnographic data regarding practices of bone
575 removal for the southern Jê is scant. Ethnographically Borba (1908) notes the removal of the cranium
576 for burial within cemeteries/mounds in Paran . Archaeologically, De Masi (2005) reports teeth
577 present for the two cremated individuals in a mound at SC-AG-12, dating to the fifteenth century.
578 Teeth were also reported from a cremated burial at SC-AG-108 by M ller (2008). Cranial fragments,
579 including mandible and maxilla fragments, were present in the deposits at Abreu Garcia, confirming
580 that crania were not removed. Teeth will often pop out during the cremation fire and the small size of
581 the individual teeth may explain why some were not collected with the rest of the bone; however, the
582 durability of teeth and their distinctiveness would suggest their absence was a behavioural choice.

583

584 Without the absence of teeth reported at other sites, their omission in 14 of 16 interments in Mound A
585 may represent a localised tradition. Perhaps of relevance, Henry (1964) explicitly notes the bad
586 dentition of the modern southern Jê he studied, further recording that in their mythology many
587 malevolent supernaturals were explicitly characterized with good teeth as a sign of their corrupt
588 power. Whether the removal of teeth from the burial contexts is an early concept of profanity
589 associated with dentition is yet to be determined. Ongoing osteological analysis is assessing whether
590 certain bones, or types of bone, were preferentially collected or avoided, and whether any patterning
591 exists correlated with social organization.

592

593 *Variability in Cremation Deposits*

594

595 Despite the spatial division within the mound, a degree of variability in the characteristics of each
596 cremated deposit precludes the identification of further mortuary rites specific to moiety attachment or
597 social role. Variation in grave architecture, number of individuals, presence of faunal bones, and
598 absence of specific bones lacks distinct spatial patterning. Although the location of the interment
599 within the mound and, to a certain extent, the degree of formality in the burial may be indicative of
600 the Alpha and Beta moieties, the variability and overlap in the characteristics of the individual
601 cremation deposits appears to reveal either: i) a non-standardised cremation practice that does not
602 represent community structure; ii) rites were in flux, lacking codification for an any extended period;
603 or iii) personal associations supplant generalised social categories, with the deceased's more nuanced
604 identity reflected in mortuary rites. A combination of these factors is perhaps more likely with certain
605 aspects of mortuary ritual mandatory, while other aspects were optional or non-codified.

606

607 *Chronology*

608

609 Chronological change in ritual over the 170 year span of radiocarbon dates from Mound A (Table 1),
610 may account for some of the variability. The chronological relationships amongst the bedrock pits are
611 particularly interesting. The post-depositional stratigraphic relationship of container collapse in Pit A
612 confirms they were deposited in a single event within the sealed pit; however, did the individuals die
613 at the same time? Were they cremated at the same time (albeit in different pyres)? Or were they
614 curated until the burial event? Also, despite the similarity in the four pits, the stratigraphic relationship
615 between Pit C, Pit D, and the constructed wall, implies a chronological separation between the two
616 interment events. More refined dating may help tease out the relationships amongst the cremated
617 deposits, although the error ranges within radiometric dating, old wood issues, and problems with
618 dating cremated bone, could easily obscure and conflate separate interment events over the relatively
619 short span of occupation.

620

621

622

Summary and Conclusions

623

624

625 Abreu Garcia provides a detailed case study of a mound and enclosure mortuary complex utilised by
626 the proto-southern Jê. The discovery of 16 cremation deposits within Mound A allows an in-depth
627 discussion of mortuary practice within a single monument. MEC1 was built in two phases. The initial
628 construction included the enclosure rim and the two basalt capped mounds. After the second
629 construction phase, multiple re-entries, depositing cremations, continued the active use of the mound.
630 Throughout its history, a distinct separation between two halves of the mound was respected; a
631 division that paralleled the direction of the plateau's edge. The smaller mound of MEC1, Mound B,
632 also lacked any central deposits, potentially also following a dual separation. Contrasting practices at
633 the single phase MEC2 from MEC1 may be a monumental reflection of the asymmetric dual social
634 structure.

635

636 Although there is a distinct difference in the formality of the cremation deposits between the north-
637 eastern and south-western halves of Mound A, with the bedrock cut pits in the southwest in stark
638 contrast to the deposits of the northeast, there is a level of variability amongst the cremation deposits
639 that lacks distinct patterning. Cremation deposits across the complex show variability in the presence
640 of grave architecture, faunal remains, number of individuals, and post-cremation treatment. A lack of
641 patterning and replication of the interment characteristics prohibits the identification of funerary rites
642 attached to distinct social identities. The absence of standardised practice amongst the cremation
643 deposits is made more acute when contrasted with the high level of structured spatial division both on
644 the landscape and in the internal mound division, which suggests a high level of regulation. Mortuary
645 rites may therefore reflect a combination of non-standardised and mandated practices, with certain
646 ceremonies and elements deemed essential, whilst other rites are optional or in flux as the codified
647 norms of funerary ritual develop and evolve.

648

649 The Abreu Garcia complex provides another southern proto-Jê example of site planning revolving
650 around spatial alignments as well as the use of distinct size differences in structures within paired

651 arrangements. However, excavation at the site adds another level of dualism to the mortuary
652 landscape, extending spatial organization into the interior of Mound A. The presence of paired MEC
653 on the plateau, paired mounds within MEC1, and a spatial division within Mound A reveals multiple
654 levels of nested dualism. The nested nature of the dualism highlights both the opposition and the
655 complementarity of the moiety system. Although exactly how the complex was utilised by society and
656 the specific moieties remains ambiguous, the incorporation of asymmetry at three nested levels
657 demonstrates the necessity for both moieties to be represented as part of a complimentary whole, just
658 as the Kaingang *kiki* ritual requires the participation of both moieties, while also maintaining spatial
659 and practical divisions.

660

661 The findings at Abreu Garcia offer a deeper insight into fundamental aspects of southern proto-Jê
662 social organization, including the dual nature of the community, the manifestation of social structure
663 on the landscape and its incorporation into mortuary ritual. The identification of multiple levels of
664 dualism, down to an internal mound division, raises important considerations for the excavation and
665 interpretation of archaeological contexts. The findings have implications for research design and
666 developing appropriate methodologies to answer culture specific questions. Future research can be
667 designed through an emic lens, specifically testing for dualism within archaeological contexts.
668 Furthermore, the parallels among the archaeological record and ethnohistoric and ethnographic
669 examples enable an understanding of the foundation of modern descendent groups and an assessment
670 of the continuity in indigenous culture beyond European contact.

671

672

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682 with José Iriarte (j.iriarte@exeter.ac.uk).
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