The Ring Villages of Central Brazil: A Challenge for Amazonian Archaeology
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This article offers a challenge to previous interpretations of the ring villages of Central Brazil. Specifically, these large villages that were occupied by ceramic-making agriculturalists have been characterized as marginal and anomalous developments resulting from late population movements triggered by the European conquest. New data presented here show that the ring villages have a much greater time depth. Their sudden appearance around A.D. 800 is explained as a local response to both regional and external pressures. Information on settlement pattern variables such as village layout and size, differences in cultural inventory, and comparison of archaeological and ethnographic data illustrate sociopolitical and demographic changes through time that have critical implications for Amazonian archaeology.

Este artigo faz uma revisão da arqueologia das aldeias anulares do Brasil Central, ocupadas por grupos ceramistas-agricultores a partir de ao menos 800 A.D. As evidências arqueológicas contradizem claramente caracterizações etnográficas previas destas aldeias como desenvolvimentos tardios, marginais e anômalos, que teriam crescido em tamanho e complexidade apenas como uma consequência de difusões culturais provocadas pela colonização europeia. Aqui, o rápido surgimento destas aldeias é explicado como uma resposta local a pressões regionais e externas. Dados de padrão de assentamento tais como morfologia e tamanho de sítios, variação da cultura material, e a comparação de dados arqueológicos com etnográficos, proporcionam uma primeira discussão de varios aspectos da organização demográfica e sociopolítica ao longo do tempo, com implicações críticas para a arqueologia amazônica.

Este artículo ofrece un reto a las interpretaciones previas sobre las aldeas anulares de Brasil central. Especificamente, estas grandes aldeas, ocupadas por grupos ceramistas-agricultores, han sido caracterizadas como un desarrollo tardío, marginal y anómalo causado por la colonización europea. Los nuevos datos arqueológicos que presentamos aquí demuestran que las aldeas anulares tienen mucho más profundidad temporal, originándose en el período prehispánico (alrededor de 800 d.C.) como una respuesta local a presiones internas y externas. Utilizamos datos sobre patrones de asentamiento, las formas de las aldeas, y las diferencias en la cultura material a través del tiempo para ilustrar cambios sociopolíticos y demográficos, los cuales tienen implicaciones importantes para la arqueología amazónica.

In Central Brazil, most sites from the ceramic period are villages with residential units arranged in circular, elliptical, or semicircular rings. Their layout of one or more rings of houses, always enclosing a central plaza, contrasts sharply with other smaller and circular sites that have a continuous distribution of refuse. Archaeologically, ring villages are easily identified by the typical concentrations of ceramic material, sometimes also marked by darker soils that surround a large, empty area.

Ring villages appeared in Central Brazil by at least A.D. 800 and have been classified into two main ceramic traditions: Aratu and Uru. Ring villages of other ceramic traditions also are known, including some ethnohistoric Bororo (Wüst 1990), Kayapó (Posey 1979), and Upper Xingu villages (Bequelin 1993; Heckenberger 1996; Simões 1967). Today, the ring village layout is found among most Gê and Bororo groups of Central Brazil. Although there are questions about whether we can establish continuity between archaeological traditions and ethnographic groups, there is no doubt that this type of village layout has been maintained in Central Brazil for centuries and reflects a particular pattern of social
organization. Although each society has its own peculiar set of institutional arrangements, they all share the traditional village layout, reflecting their view of the world and of themselves. They make a sharp distinction between the forum, or central ceremonial sphere (which is conceptually a male place), and the houses, or the peripheral, domestic space (which is conceptually female) (Maybury-Lewis 1979a:9).

This article reviews archaeological information available on the ring villages of Central Brazil and contrasts it with ethnographic data in order to present and interpret some of their variability. A central argument is that these settlements represent a local solution to circumstantial, historical factors in Central Brazil, such as sudden demographic changes and defense needs. From this perspective, these villages are neither anomalous, marginal cultural developments, as argued by some ethnographers in the past, nor are they derived from other areas as archaeologists often suggest.

The Ring Villages of Central Brazil: Some Misconceived Ideas

For a long time, the ring villages of Central Brazil have been viewed as marginal to other tropical lowland cultures. More specifically, Central Brazilian native groups have been persistently characterized as essentially hunter-gatherers, organized into small, egalitarian, seminomadic groups (Cooper 1942; Haeckel 1952; Lowie 1949; Steward 1946; Steward and Faron 1959; Wissler 1917).

Because the drier lands of Central Brazil seemed to offer significantly lower potential for agriculture than the nutrient-rich lands of riverine Amazonia, this area has been portrayed by ethnographers and archaeologists as a passive receptacle of time-lagged cultural influences (Carneiro 1995; Lathrap 1970; Meggers 1972:162; Roosevelt 1991a, 1991c:1624). Accordingly, the establishment of large, permanent villages and more elaborate social organization could only have occurred late in time, as an “import” brought to Central Brazil through migrations and population rearrangements promoted by the European conquest (Gross 1979; Steward and Faron 1959:362). Because of this depiction of Central Brazilian native groups as a marginal culture, any indication of larger communities and a more complex social organization was taken as either a paradox or an anomaly. Indeed, since Nimuendajú documented their highly intricate social structures and numerous social institutions (Nimuendajú 1939, 1942, 1946), Central Brazilian groups became the focus of many ethnographic studies that endeavored to explain the paradox of such social complexity coupled with a simple subsistence system and “low levels of material culture” (Lévi-Strauss 1973:263).

Despite efforts by the Harvard Central Brazil project to document the complexity of Gê and Bororo social institutions and counter the traditional view of these societies as marginal and anomalous (Maybury-Lewis 1979a), a lack of historical (and prehistoric) data led these scholars to characterize Central Brazilian groups as subsisting mainly on hunting, fishing, and gathering, perfectly well adapted to a varied and bountiful environment (Bamberger 1967, 1971, 1979b:302). Transforming previous paradoxes into apparent consistency, they emphasized not real ecological requirements, but such integrative and harmonizing social strategies as high residential mobility and seasonal trekking in dispersed groups (Flowers 1983; Gross 1979, 1983; Maybury-Lewis 1967; Turner 1979:150; Werner 1983).

Following the lead of Harvard’s Central Brazil project, we also argue that marginality and anomaly are concepts that can no longer explain cultural development in the area. The archaeological data presented here provide a new diachronic view of ring village emergence and development. This new perspective not only clarifies previous ethnographic puzzles and paradoxes but also unmasks the apparent consistency suggested by the Harvard school. We argue that the view of Central Brazilian groups as eternally simple, seminomadic hunter-gatherers is but an ethnographic caricature built on data obtained in situations where contact with Brazilian society had already promoted intense demographic reduction, village dispersion, and territory loss.1

A review of the archaeological data reveals that, first of all, precontact ring villages were far more numerous, populous, and diverse than the ones described in the ethnographic literature. Second, site locations in diverse ecological settings show that these settlements should not be seen exclusively as an adaptation to the drier environments of Central Brazil. Since agriculture was introduced in the area relatively early (apparently preceding ring villages), it cannot be seen as the decisive factor that promoted the emergence of these relatively large settlements. Third, and most contrary to the idea of marginality,
the evidence suggests that these villages may have emerged as a local solution to particular historical circumstances in Central Brazil. Specifically, it appears that demographic pressures, interaction with neighboring groups, and needs for defense generated the unique organizational and cosmological structures still observable among Gê- and Bororo-speaking groups today. Fourth, these settlements seem to have experienced increasing complexity in their organization, both within and among villages, that was different from that recently described for the riverine Amazonian chiefdoms (Porro 1994; Roosevelt 1991a, 1993, 1994; Whitehead 1992, 1994). Finally, the decline of some Central Brazilian societies appears to have started well before the European conquest and was not necessarily caused by it.

We believe that analyzing the ring villages of Central Brazil as a local development within their own trajectory—as opposed to an “import” from more advanced areas—can provide new insights for theoretical debates and social models of evolution in the South American lowlands. Such analysis should help unravel current controversies concerning long-term change and cultural development in the Amazon basin (Carneiro 1995; Meggers 1992b, 1992c, 1995; Roosevelt 1991a, 1991b).

This article presents a broad, regional interpretation of both the emergence and development of Central Brazilian ring villages. After a brief description of the available archaeological data, settlement pattern variables are examined to discuss aspects of social and political organization through time and the implications of these villages for Amazonian archaeology.

The Emergence and Continuity of Ring Villages in Central Brazil

The emergence of ring villages seems to have occurred suddenly and late in the lengthy history of human occupation in Central Brazil. We know that generalized hunter-gatherers from the Itaparica lithic tradition were already present by ca. 9,000 B.C. The preceramic period is punctuated by major technological shifts at around 6,500 B.C., probably reflecting changes to a more humid environment (Schmitz 1987:71). In the late preceramic period, still before 500 B.C., a settlement relocation occurred from poorly drained cerrado to the richer soils of forest ecotones, indicating that some kind of horticulture was already underway before the acquisition of ceramics (Wüst 1992).

The first ceramics of Central Brazil appeared around 500 B.C. and, despite great regional and chronological variability, have been described under one large ceramic tradition, named Una. In the states of Goiás and Mato Grosso, the Una tradition ranges from 500 B.C. to A.D. 1200 (Barbosa et al. 1982; Schmitz 1976-1977; Simonsen et al. 1983-1984:122; Wüst 1990). Una ceramics appear almost exclusively in rockshelters, consisting mainly of undecorated, small vessels with thin walls and dark (sometimes also polished) surface treatments. Site location and meager ceramic densities seem to indicate a fairly nomadic settlement pattern. However, irrefutable botanical evidence for domesticated species dated at 850 B.C. (including Zea mays) is associated with this ceramic tradition in the state of Minas Gerais, indicating a degree of reliance on agricultural products (Resende and Prous 1991:94). This evidence refutes previous hypotheses that attributed the emergence of large villages in Central Brazil to a late introduction of agricultural practices, fostered by postconquest migrations.

The Una tradition not only immediately precedes the large ring villages of Central Brazil but also seems to have temporally overlapped them. Beginning at A.D. 800, ring villages began to spread rapidly throughout Central Brazil’s heartland, on the plateaus between the Tocantins and the Paraguai Rivers. Meanwhile, the small groups associated with the Una tradition seem to have remained on the borders of plateaus for another 400 years. It is still unclear to what degree these relatively pristine local populations took part in the new social formations represented by the ring villages. Some might have remained in marginal positions along the borders of plateaus; others might have been incorporated into the large ring villages. In any event, both settlement patterns and cultural materials seem to indicate that the ring villages did not emerge solely from the small groups of the Una tradition; incoming populations may have had an important role in the initial formation of ring villages.

Further research is underway to clarify the key factors that promoted the emergence of ring villages in Central Brazil (Barreto 1996). Yet, given the relatively sparse occupation of the landscape in preceding periods, it is clear that the appearance of numerous large villages represented a major and sudden change. There is no evidence of a gradual transformation from the previous settlement pattern into the ring villages (Wüst 1990).
Most explanations for the emergence of ring villages depend on migratory movements emanating from the Amazon basin (González 1996a, 1996b; Schmitz and Barbosa 1985). As knowledge about dense and relatively complex Amazonian societies increases (Roosevelt 1993), models of competition over riverine lands and population pressure are compatible with ideas that weaker and smaller units were pushed upstream to less desirable terra firme areas, or even to the drier lands of Central Brazil (Brochado 1984; Carneiro 1995; Lathrap 1970, 1972). However, two factors contradict simplistic views of Central Brazilian ring villages as settlements of migrant Amazonian populations. First, we lack direct evidence for migrations (as confirmation of any migration model usually requires), and there is no indication that population pressure at the tributaries of the Amazon prompted demographic movements into Central Brazil. Further research in the intermediate areas between the Amazonian floodplains and Central Brazil will be crucial to evaluate this question.

Secondly, and perhaps even more problematic for those who argue for Amazonian origins, is the fact that Central Brazilian ring villages display a very distinct pattern of village organization. This distinct pattern, in addition to language, social systems, and mythology, has allowed scholars to describe a unique Central Brazilian "cosmos" and to treat the Gê and Bororo as a single universe (Gross 1979; Lévi-Strauss 1973 [1952]; Maybury-Lewis 1965, 1979b; Steward 1946; Turner 1979). Furthermore, with the exception of isolated similarities with select Marajó Island sites (Roosevelt 1991a:37, 192), Central Brazilian villages are quite different from most Amazonian settlements. The latter usually display oval-shaped, continuous black earth refuse areas as a result of a few dispersed long houses (Corrêa 1987; Myers 1973). In sum, if we are to consider the ring villages of Central Brazil as an Amazonian import, why would they differ so much from Amazonian settlements?

Instead, archaeological evidence points to the emergence of ring villages as a largely local development. Their rapid and sudden onset, their large size, and the concentric ring layout suggests that other pressures in the area promoted a rapid organization of population into larger and more structured communities. These new settlement arrangements could have ensured both protection and the distribution of resources to larger groups. The nature of pressures promoting these changes are still unclear, but they do seem related to some in-migration, interaction with neighboring groups (especially Tupians), and warfare. Both the presence of Tupian materials throughout the area and the defensive structures found at sites located in bordering areas such as the Upper Xingu also point in this direction.

During the initial period of establishment, Uru and Aratu ring villages were contemporary, but from the twelfth century onward, the expansion of Uru settlements from Mato Grosso eastwards seems to have contributed to the collapse of Aratu villages. The latest reliable date for an Aratu village is A.D. 1470 and therefore prior to the conquest (Mello 1996:268, Figure 57).

Because we lack convincing evidence of continuity between the archaeological, ethnographic, and ethnohistoric records, we cannot advocate the simplistic projection of ceramic phases to ethnographically known groups as has been suggested by some scholars (Schmitz et al. 1982; for instance). Some sites from the Uru tradition in Goiás and Upper Xingu do continue into historic times. However, there seems to be no direct correlation between these ceramic traditions and specific ethnic groups, as has been suggested for the Xingu area where different linguistic and ethnic groups still obtain their ceramics through exchange with just one particular group, the Waurá (Heckenberger 1996). Furthermore, at least some of the ethnographically known native groups have formed only recently, through complex processes of ethnic and cultural fusion (Urban 1992; Wüst 1994).

Nature of Empirical Data

Although 24 years of archaeological research in Central Brazil (states of Goiás, Tocantins, and Mato Grosso; see Figure 1) has provided a considerable amount of information about precolonial agricultural societies, interpretation of cultural development and the dynamics of these societies is still hampered by the lack of appropriate data. Information about village plans, settlement pattern, and intersite variation of material culture is particularly meager. Furthermore, large areas still remain unsurveyed, such as the intermediate zones between Amazonian drainages and the plateaus of Central Brazil that are so crucial to verify hypotheses of cultural exchange, diffusion, and migration. Research has focused pre-
dominantly on the establishment of chronological sequences and the assignment of ceramic traditions and phases, which often are unreliable due to a lack of sampling strategies at both the regional and site level (Barbosa et al. 1982; Chmyz 1975; Mendonça de Sousa 1981 Schmitz et al. 1982; Simonsen et al. 1983–1984).

Nearly 600 open-air ceramic sites are known across the broad region. Of these, 158 sites can be securely classified as ring villages, but dates are avail-
Table 1. Dates Reported for the Ring Villages of Central Brazil

<table>
<thead>
<tr>
<th>Site</th>
<th>Ceramic Traditions</th>
<th>Date (uncalibrated)</th>
<th>Laboratory Number</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO-CA-01</td>
<td>Aratu (Tupigurani)</td>
<td>895 ± 90 BP</td>
<td>SI-2195</td>
<td>Schmitz 1976-1977:8</td>
</tr>
<tr>
<td>GO-CA-11</td>
<td>Aratu</td>
<td>480 ± 50 BP</td>
<td>BETA-92530</td>
<td>Mello 1996:268</td>
</tr>
<tr>
<td>GO-CP-02</td>
<td>Aratu</td>
<td>1070 ± 105 BP</td>
<td>SI-2771</td>
<td>Schmitz 1976-1977:8</td>
</tr>
<tr>
<td>GO-JU-04</td>
<td>Aratu</td>
<td>960 ± 75 BP</td>
<td>SI-2768</td>
<td>Schmitz 1976-1977:8</td>
</tr>
<tr>
<td>GO-RV-02</td>
<td>Aratu</td>
<td>980 ± 110 BP</td>
<td>GAK-7265</td>
<td>Andreatta 1988:155</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1090 ± 100 BP</td>
<td>GAK-7266</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1120 ± 90 BP</td>
<td>GAK-7264</td>
<td></td>
</tr>
<tr>
<td>GO-RV-13</td>
<td>Aratu</td>
<td>775 ± 60 BP</td>
<td>TL-USP</td>
<td>Andreatta 1988:155</td>
</tr>
<tr>
<td>MT-SL-03</td>
<td>Uru (Tupiguarani)</td>
<td>1090 ± 60 BP</td>
<td>N-5113</td>
<td>Wüst 1990:374,528</td>
</tr>
<tr>
<td>MT-SL-04b</td>
<td>Uru</td>
<td>700 ± 70 BP</td>
<td>BETA-27426</td>
<td>Wüst 1990:374,529</td>
</tr>
<tr>
<td>MT-SL-11</td>
<td>Uru and Bororo</td>
<td>230 ± 70 BP</td>
<td>BETA-27427</td>
<td>Wüst 1990:374,528</td>
</tr>
<tr>
<td>MT-SL-29</td>
<td>Uru</td>
<td>1150 ± 65 BP</td>
<td>N-5114</td>
<td>Wüst 1990:374,529</td>
</tr>
<tr>
<td>MT-SL-43</td>
<td>Uru</td>
<td>950 ± 60 BP</td>
<td>BETA-27429</td>
<td>Wüst 1990:374</td>
</tr>
<tr>
<td>MT-SL-51</td>
<td>Uru</td>
<td>590 ± 60 BP</td>
<td>BETA-27432</td>
<td>Wüst 1990:374,529</td>
</tr>
<tr>
<td>MT-SL-61</td>
<td>Uru</td>
<td>780 ± 70 BP</td>
<td>BETA-31030</td>
<td>Wüst 1990:374</td>
</tr>
<tr>
<td>MT-AX-01</td>
<td>Upper Xingu</td>
<td>830 ± 90 BP</td>
<td>SI-716</td>
<td>Simões 1972:30</td>
</tr>
<tr>
<td>MT-AX-02</td>
<td>Upper Xingu</td>
<td>830 ± 75 BP</td>
<td>SI-713</td>
<td>Simões 1972:30</td>
</tr>
<tr>
<td>MT-AX-08</td>
<td>Upper Xingu</td>
<td>920 ± 90 BP</td>
<td>GIF-3308</td>
<td>Becquelin 1993:228</td>
</tr>
<tr>
<td>MT-FX-06</td>
<td>Upper Xingu</td>
<td>180 ± 60 BP</td>
<td>BETA-72260</td>
<td>Heckenberger 1996:32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>360 ± 70 BP</td>
<td>BETA-81301</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>700 ± 70 BP</td>
<td>BETA-78979</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000 ± 70 BP</td>
<td>BETA-72261</td>
<td></td>
</tr>
<tr>
<td>MT-FX-07</td>
<td>Upper Xingu</td>
<td>680 ± 70 BP</td>
<td>GIF-5365</td>
<td>Becquelin 1993:226-228</td>
</tr>
<tr>
<td>MT-FX-11</td>
<td>Upper Xingu</td>
<td>440 ± 70 BP</td>
<td>BETA-72263</td>
<td>Heckenberger 1996:32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>900 ± 60 BP</td>
<td>BETA-72262</td>
<td></td>
</tr>
<tr>
<td>MT-FX-12</td>
<td>Upper Xingu</td>
<td>190 ± 60 BP</td>
<td>BETA-72264</td>
<td>Heckenberger 1996:32</td>
</tr>
</tbody>
</table>

Note: Traditions listed in parenthesis indicate intrusive ceramics.

able for only 22 sites (listed in Table 1), and details of site morphology are known for only 48 sites (listed in Table 2). Another 16 villages along the Paraguai and Araguaia Rivers display a linear layout and may be related to the ring-village culture, especially those along the Araguaia River (Aruana phase and Uru tradition) that appear ca. A.D. 1200 (as pointed out by Petesh [1993])7. In addition to the villages, we know of 34 limited activity sites and 81 rock shelters that were occupied by these ceramic groups.8 Figures 1, 2, and 3 show the location of ring villages for which either the chronology or detailed plans are available (listed in Tables 1 and 2).

According to their geographic distribution and associated ceramics, the ring villages of Central Brazil have been assigned to two main ceramic traditions, Aratu and Uru, which include 70 percent of all known ceramic sites between the Tocantins and the Paraguai Rivers. Whereas the Aratu tradition supposedly originates from northeastern Brazil (the heartland of Macro-Gê), the Uru and Upper Xingu complexes are believed to have an Amazonian genesis (González 1996a; Heckenberger 1996; Schmitz and Barbosa 1985; Schmitz et al. 1982).

Aratu villages range from ca. A.D.800 to1500 (Table 1) and occur predominantly along the headwaters and smaller tributaries of the Tocantins and Paranaiba Rivers. In addition to hunting and gathering, and to a lesser degree fishing, the main agricultural products included corn and perhaps several kinds of potatoes.

The characteristic vessels of the Aratu tradition are large conical containers (sometimes used for secondary urn burial) and globular and semiglobular pots with direct and everted rims. Small double bowls and castellation also occur, but are less frequent. Decoration is employed selectively and is restricted to a few small nubbins (lumps), modeled handles, simple- and double-line incisions above the rim, and fingernail imprints. Red or black slip also is rare. Some
Table 2. Reported Sizes of Archaeological Ring Villages of Central Brazil.

<table>
<thead>
<tr>
<th>Site</th>
<th>Ceramic Tradition</th>
<th>Minimum Diameter (in meters)</th>
<th>Maximum Diameter (in meters)</th>
<th>Site Area (in square meters)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO-CA-01</td>
<td>Aratu</td>
<td>80</td>
<td>16,800</td>
<td></td>
<td>Chmyz 1975:50-53</td>
</tr>
<tr>
<td>GO-CA-11</td>
<td>Aratu</td>
<td>100</td>
<td>6,283</td>
<td></td>
<td>Mello 1996: Fig. 57</td>
</tr>
<tr>
<td>GO-CA-20</td>
<td>Aratu</td>
<td>500+</td>
<td>235,000</td>
<td></td>
<td>Mello 1996: Table 5, Fig. 35</td>
</tr>
<tr>
<td>GO-CP-11</td>
<td>Aratu</td>
<td>235</td>
<td>49,834</td>
<td></td>
<td>Schmitz et al. 1986:83</td>
</tr>
<tr>
<td>GO-CP-12</td>
<td>Aratu</td>
<td>222</td>
<td>52,308</td>
<td></td>
<td>Schmitz et al. 1986:85</td>
</tr>
<tr>
<td>GO-CP-59</td>
<td>Aratu</td>
<td>150</td>
<td>17,761</td>
<td></td>
<td>Schmitz et al. 1986:85</td>
</tr>
<tr>
<td>GO-JU-07</td>
<td>Uru</td>
<td>145</td>
<td>20,499</td>
<td></td>
<td>Schmitz et al. 1982:142</td>
</tr>
<tr>
<td>GO-JU-16</td>
<td>Uru</td>
<td>320</td>
<td>115,611</td>
<td></td>
<td>Schmitz et al. 1982:142</td>
</tr>
<tr>
<td>GO-JU-27</td>
<td>Uru</td>
<td>160</td>
<td>35,186</td>
<td></td>
<td>Schmitz et al. 1982:200</td>
</tr>
<tr>
<td>GO-JU-35</td>
<td>Aratu (Tupiguaran)</td>
<td>150</td>
<td>35,343</td>
<td></td>
<td>Schmitz et al. 1982:68</td>
</tr>
<tr>
<td>GO-JU-36</td>
<td>Aratu (Tupiguaran)</td>
<td>150</td>
<td>35,343</td>
<td></td>
<td>Schmitz et al. 1982:68</td>
</tr>
<tr>
<td>GO-JU-42</td>
<td>Uru</td>
<td>160</td>
<td>23,876</td>
<td></td>
<td>Schmitz et al. 1982:200</td>
</tr>
<tr>
<td>GO-NI-24</td>
<td>Aratu</td>
<td>120</td>
<td>13,195</td>
<td></td>
<td>Schmitz et al. 1982:68</td>
</tr>
<tr>
<td>GO-NI-80</td>
<td>Aratu (Tupiguaran)</td>
<td>70</td>
<td>8,796</td>
<td></td>
<td>Robrahn 1990:50</td>
</tr>
<tr>
<td>GO-NI-83</td>
<td>Uru</td>
<td>187</td>
<td>27,465</td>
<td></td>
<td>Robrahn 1990: Fig. 8</td>
</tr>
<tr>
<td>GO-NI-100</td>
<td>Uru</td>
<td>200</td>
<td>37,699</td>
<td></td>
<td>Wüst and Carvalho 1996:51</td>
</tr>
<tr>
<td>GO-PA-21</td>
<td>Uru</td>
<td>264</td>
<td>74,644</td>
<td></td>
<td>Mendonça de Souza 1981</td>
</tr>
<tr>
<td>GO-RV-02</td>
<td>Aratu</td>
<td>360</td>
<td>113,097</td>
<td></td>
<td>Andreatta 1982:11</td>
</tr>
<tr>
<td>GO-RV-06</td>
<td>Aratu (Uru)</td>
<td>360</td>
<td>113,097</td>
<td></td>
<td>Schmitz et al. 1982:68</td>
</tr>
<tr>
<td>GO-RV-13</td>
<td>Aratu</td>
<td>200</td>
<td>47,124</td>
<td></td>
<td>SPHAN 1980</td>
</tr>
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<td>GO-RV-17</td>
<td>Aratu</td>
<td>218</td>
<td>44,858</td>
<td></td>
<td>Wüst 1983 Vol II:19</td>
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<tr>
<td>GO-RV-21</td>
<td>Aratu</td>
<td>210</td>
<td>35,790</td>
<td></td>
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<tr>
<td>GO-RV-31</td>
<td>Aratu</td>
<td>136</td>
<td>16,566</td>
<td></td>
<td>Wüst 1983 Vol II:54</td>
</tr>
<tr>
<td>GO-RV-33</td>
<td>Aratu (Uru)</td>
<td>196</td>
<td>36,637</td>
<td></td>
<td>Wüst 1983 Vol II:61</td>
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<tr>
<td>GO-RV-35</td>
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<td>240</td>
<td>54,098</td>
<td></td>
<td>Wüst 1983 Vol II:69</td>
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<tr>
<td>GO-RV-41</td>
<td>Aratu</td>
<td>273</td>
<td>78,074</td>
<td></td>
<td>Wüst 1983 Vol II:84</td>
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<tr>
<td>GO-RV-43</td>
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<td>385</td>
<td>171,449</td>
<td></td>
<td>Wüst 1983 Vol II:89</td>
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<tr>
<td>GO-RV-60</td>
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<td>329</td>
<td>97,674</td>
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<td>Wüst 1983 Vol II:138</td>
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<td>GO-RV-61</td>
<td>Aratu</td>
<td>420</td>
<td>184,726</td>
<td></td>
<td>Wüst 1983 Vol II:143</td>
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<td>GO-RV-62</td>
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<td>364</td>
<td>124,074</td>
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<td>Wüst 1983 Vol II:146</td>
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<td>325</td>
<td>103,123</td>
<td></td>
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<tr>
<td>GO-RV-78</td>
<td>Aratu</td>
<td>263</td>
<td>67,958</td>
<td></td>
<td>Wüst 1983 Vol II:194</td>
</tr>
<tr>
<td>MT-GA-32</td>
<td>Uru</td>
<td>160</td>
<td>20,106</td>
<td></td>
<td>González 1996a: Appendix 2</td>
</tr>
<tr>
<td>MT-GA-46</td>
<td>Uru</td>
<td>200</td>
<td>47,124</td>
<td></td>
<td>González 1996a: Appendix 2</td>
</tr>
<tr>
<td>MT-RN-20</td>
<td>Uru</td>
<td>230</td>
<td>59,611</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-RN-26</td>
<td>Uru</td>
<td>157</td>
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<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-RN-32</td>
<td>Uru</td>
<td>320</td>
<td>95,504</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-RN-46</td>
<td>Uru</td>
<td>170</td>
<td>32,044</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-RN-48</td>
<td>Uru</td>
<td>270</td>
<td>65,738</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-SL-23</td>
<td>Uru</td>
<td>145</td>
<td>18,791</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-SL-24</td>
<td>Uru</td>
<td>210</td>
<td>41,233</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-SL-36</td>
<td>Uru</td>
<td>105</td>
<td>9,896</td>
<td></td>
<td>Wüst 1990:529</td>
</tr>
<tr>
<td>MT-SL-51</td>
<td>Uru</td>
<td>95</td>
<td>8,207</td>
<td></td>
<td>Wüst 1990:374, 529</td>
</tr>
<tr>
<td>MT-FX-06</td>
<td>Upper Xingu</td>
<td>800</td>
<td>942,000</td>
<td></td>
<td>Heckenberger 1996:32</td>
</tr>
<tr>
<td>MT-FX-11</td>
<td>Upper Xingu</td>
<td>800</td>
<td>800,700</td>
<td></td>
<td>Heckenberger 1996:32</td>
</tr>
</tbody>
</table>

Note: Traditions in parenthesis indicate intrusive ceramics. Site areas in bold are reported in the literature; others were calculated according to different measurements reported.

of the round bases show leaf imprints and sievelike perforations. Whereas mineral temper is predominant and ceramic wall thickness varies between .5 cm to 1.5 cm at older sites, in the later sites cariapé temper (ashes of a siliceous wood) is more popular and wall thickness can reach up to 3 cm (Schmitz et
al. 1982). Tubular clay pipes and a variety of undecorated spindle whorls also are associated with this ceramic tradition.

Villages of the Uru tradition (from ca. A.D. 800 to 1700, see Table 1) and the Upper Xingu ceramic complexes (from ca. A.D. 950 until present) are situated more to the west, where manioc seems to have been the basic staple food, as suggested by the presence of large griddles. Other typical vessels are large-necked jars and shallow flat-bottomed bowls with everted and thickened rims. Cylindrical stamps, conical supports, and spindle whorls also are common. The most frequent clay temper is a kind of *cariapê* (ashes of *Physocalymma lthracea*) (Wüst 1975), and wall thickness varies between 1 cm and 2.5 cm. Plastic decoration is relatively rare and limited to different kinds of handles and lugs, in addition to punctuated circular or elliptical incisions on the rims (Schmitz et al. 1986; Wüst and Carvalho 1996).

A third group of villages is represented in Central Brazil by the relatively few sites of the polychrome Tupiguarani ceramic tradition, which appeared in the fourteenth century (Fensterseifer and Schmitz 1975). Unlike the ring villages, these settlements consist mainly of multifamily residential units (long houses). While sites of this ceramic tradition are quite abun-
Figure 3. Survey area No. 2 (Rio Vermelho, Mato Grosso).

Exploring Settlement Pattern Variables: Implications for Reconstructing Sociopolitical Organization

Although most Central Brazilian villages share a circular community plan, there is considerable variation in other aspects of the settlement pattern. Exploratory analysis of this variation has contributed to our understanding of how these societies evolved and functioned, especially when we compare and contrast ethnographic and archaeological sources. The following sections briefly review village location and permanence, village layout and cultural traditions, village size and population estimates, village layout and social organization, and village hierarchy and social complexity.

Village Location and Permanence

Central Brazil is frequently associated with a phytogeography of cerrados and open grasslands, some-
times criss-crossed by gallery forests. However, a closer look at the vegetation shows that there are considerable extensions of semideciduous forests where soils are richer and moister. Our data indicate clear preferences for the establishment of villages in more vegetated and forested areas. Yet, whereas nearly 80 percent of the Aratu villages (thought to rely on corn) are found in forested zones, about 50 percent of the Uru villages (thought to rely on manioc) are in cerrado or ecotone zones between cerrado and forest. This contrast most likely reflects basic differences in staple foods, since corn requires greater soil fertility than manioc. However, in the Rio Vermelho basin in Mato Grosso, the oldest Uru sites are established in cerrado, whereas the later ones show preference for gallery forest. This change may reflect the need to increase protein resources (corn and fish) in response to demographic growth and circumscription (Wüst 1990:418-419).

Although refuse at most sites does not exceed a depth of 30 cm, indicating relatively short village durations, a higher site density in forested areas (up to 1 village per 14 km²) might indicate a higher rate of site relocation in this zone (Wüst 1983). In general, relocation of villages appears to occur over short distances, sometimes not exceeding more than 1 km (resulting in frequent overlapping of sites). However, site catchment analysis has shown (Wüst 1983) that even for large communities frequent site relocation does not seem related to soil depletion (as suggested by Meggers 1971). Instead, factors such as the rotting of houses, frequent deaths, internal disputes, warfare, and sanitary conditions are more likely to have promoted village abandonment, as suggested in the ethnographic literature (Gross 1983).

Ethnographic studies of the Bororo indicate that villages with more than one house ring occur due to household splitting and internal growth as daughters marry, move out, and build new houses behind their mothers’ houses (Viertler 1976:161). Therefore, the presence of two or even three house rings in approximately 10 percent of the archaeological villages and depth of refuse occasionally reaching 60 cm are probable indicators of a longer site duration—at least two generations.

**Village Layout and Cultural Traditions**

Based on ethnographic sources, at least three different types of village layout can be distinguished. The first has many relatively small houses arranged at some distance from each other, as documented for the Kraho (Ladeira 1983) (e.g., Figure 4). In the second type, the distance between these kinds of small houses is much reduced, as it is for the Xavante (Viertler 1976:161). Therefore, the houses often form a complete ring, as can be observed for the Kayapó, Bororo, and some Xavante villages (Giaccaria and Heide 1972; Novaes 1983; Silva 1983; Vidal 1983) (Figure 6). A third pattern contrasts with the first two, in that a few large, multifamily houses are closely packed together enclosing a circular area; this layout is common in the Upper Xingu region (Sá 1983) (Figure 7). Multiple rings of houses are found only in the two first patterns. Central huts (men’s club houses), which seem fairly common in the Upper Xingu villages, appear only occasionally in the second pattern and never in the first.

The archaeological record of ring villages also reveals variation in village layout, but of a different nature. Houses can be arranged in a circle, ellipse,
or horseshoe plan with or without a central structure. Variation occurs mainly in the number of houses (between 5 and 90), arranged in one, two, or even three concentric rings. In the Aratu and Uru traditions, ceramic scatters (even on the surface) are often delimited by darker soils, stratigraphically associated with pits and structured hearths that have been interpreted as house floors (Andreatta 1982; Wüst 1983). In contrast, Upper Xingu residential areas are kept clean, and refuse is accumulated behind the houses, forming a nearly continuous and slightly elevated ring (Agostinho 1993; Heckenberger 1996).

Because Central Brazilian village layout often has been interpreted as the spatial representation of social divisions in the village, differences found in both the ethnographic and archaeological record also could indicate variation in social organization. The data gathered so far also seem to indicate regional differences in such village organization patterns, the clearest one being between the Upper Xingu area and the core area of Central Brazil.

**Village Size and Population Estimates**

It is now clear that archaeological villages in Central Brazil can be surprisingly large in size, a fact that challenges the belief that low agricultural productivity and protein availability in the tropical South American lowlands have placed relatively low ceil-
ings on the maximum size of tribal villages (Gross 1975; Lathrap 1968; Meggers 1954, but see Beckerman 1991; Carneiro 1961, 1983; Myers 1992). Both site size and the number of houses provide a basis for initial demographic estimates. Maximum diameters of Aratu and Uru ring villages range from 100 m to 560 m (see Table 2), with a mean of about 290 m for Aratu sites (n = 26) and 230 m for Uru sites (n = 18). These dimensions correspond to areas of .8 ha to 23.5 ha (see Table 2); the mean for Uru villages is 3.8 ha (n = 19) and for Aratu villages 7.2 ha (n = 27). This strong contrast between the village size of these two ceramic traditions may reflect population reduction due to European contact (especially in the later Uru sites) and does not necessarily imply population limitation due to differences in staple food and ecological settings. The same can be said for the still fragmentary data on house floor dimensions that also indicate differences between these two traditions. In Aratu villages, mean house floor size is 106 m²; most Uru villages houses were smaller, around 60 m² (Wüst 1983, 1990).

Because we do not know if all houses were occupied contemporaneously, demographic estimates based on the number of houses alone can be inflated. Although it is difficult to establish contemporaneity in other kinds of settlements, in ring villages most houses belonging to the same ring are likely to have been occupied simultaneously. Furthermore, the total number of houses can provide a tentative maximum estimate.

The first demographic parameters obtained for Aratu sites in Central Goiás were calculated using the formulas of Naroll (1962) and Casselberry (1974). For the smallest site, GO-RV-31 (Figure 8), with a diameter of 155 m and 11 houses, the maximum estimated population is 145 to 242 individuals. Site GO-RV-66 (Figure 9) with a maximum diameter of 404 m, two concentric rings, and 90 houses, has an estimated maximum population between 1,043 and 1,738 persons (Wüst 1983:258-259).

Ethnohistoric data confirm the plausibility of such large numbers. For instance, we know that a nineteenth-century Apinayé village contained 1,400 people (Nimuendaju 1939). A Bororo village from the same period that included three concentric rings had a total of 140 houses (Rondon and Faria 1948) and an estimated population of more than 1,000 people (Wüst 1990:110-113).

As we are dealing with an occupational pattern that endured for nearly one thousand years, we have to consider whether differences in site size have temporal significance or simply represent responses to circumstantial episodes of village fission and fusion.
Relative chronology and ethnohistorical information show a trend of village size reduction, especially during the contact period (see Table 3, Wüst 1983, 1990). However, some precontact sites also are small (Mello 1996), especially when located on elevated, defendable hilltops (Wüst 1990). Other warfare contexts, however, seem to have promoted larger villages through the fusion of smaller communities, as suggested by the large fortified villages found in the Upper Xingu region (Heckenberger 1996).

**Village Layout and Social Organization**

There has been a tendency to view the typical Central Brazilian spatial arrangement of houses as evidence for social equality (Gross 1979; Lévi-Strauss 1963:138). The equidistant placement of houses along the circle allows each house, at least in the inner ring, the same visual and acoustic access to all activities that take place both in the central patio and outside the village. However, ethnographic data do not support this idea of social equality. First, there are privileged places along the circle. Some are related to supernatural concepts of life and death represented by the path of the sun dividing the village into northern and southern parts (as seen among the Xerente, Maybury-Lewis 1981). Also, the ends of the semicircles of a Bororo village are often occupied by the chief’s houses, where ceremonial paths lead outside the village. Another example of unequal positioning of houses relates to feasting activities that generally occur in front of the central men’s club house; houses behind it are in a less privileged position (Viertler 1989:55).

Archaeologically, it remains to be demonstrated whether these spatial arrangements (and associated implications for prestige and social power) also can
be seen in the distribution of nonperishable remains. Nonetheless, archaeological intrasite spatial analysis has served to question prior emphasis on the homogeneity of refuse. A basic key for understanding the inner dynamics of these societies is the diversity of material culture at the site level. For example, in one of the Uru villages of Rio Vermelho (MT-RN-32), variability of ceramic vessel types among households suggests that division of labor existed along lines beyond age and sex. Activities related to the transformation of manioc into flour and bread was clearly limited to only some of the residential units. Furthermore, some exotic ceramics were distributed unevenly between houses (Wüst 1990). In another Uru village in Goiás (GO-NI-100), an even stronger difference in material culture was found across household units. Only a few households appear to have produced a surplus, and some differentiation in lithic production and use also was noted (Wüst and Carvalho 1996).

Village Hierarchy and Social Complexity

Despite some ethnographic information that several villages had been subordinated to one leader, as was the case for the Bororo in the first half of this century (Viertler 1989), archaeological evidence for the incipient centralization of power or even interregional integration of villages remains weak. Site size variation through time does not show any trend towards a bimodal distribution of settlement size that could indicate strong centralization of power. Instead, differences and continuous gradations in village size seem to suggest rather fluid and occasional hierarchies among sites of the same settlement system. This pattern is quite distinct from those found, for example, in Formative Mesoamerica, where the central place can exceed by more than nine times the size of second order sites, and by 45 times the smallest sites (Marcus 1976). Site hierarchy in Central Brazil is definitely of another nature.
Table 3. Reported Population and Village Size of Ethnographic Gê Speaking Groups (Upper Xingu Area Excluded)

<table>
<thead>
<tr>
<th>Ethnographic Group</th>
<th>Year</th>
<th>Village Name</th>
<th>Population</th>
<th>No. of Houses</th>
<th>Max Diam m</th>
<th>Min Diam m</th>
<th>Total Area m²</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krahó</td>
<td>1962</td>
<td>Aldeia do Posto</td>
<td>169</td>
<td>20</td>
<td>144</td>
<td>144</td>
<td>16,278</td>
<td>Melatti 1978: 32–33, 28</td>
</tr>
<tr>
<td>Krahó</td>
<td>1962</td>
<td>Abobora</td>
<td>58</td>
<td>8</td>
<td>184</td>
<td>184</td>
<td>26,577</td>
<td>Melatti 1978: 32–33, 28</td>
</tr>
<tr>
<td>Krahó</td>
<td>1963</td>
<td>Aldeia do Posto</td>
<td>169</td>
<td>20</td>
<td>204</td>
<td>204</td>
<td>32,669</td>
<td>Melatti 1978: 32–33, 28</td>
</tr>
<tr>
<td>Kre/Pumkateye</td>
<td>1930</td>
<td>Gameleira do Rumo</td>
<td>8</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>1,962</td>
<td>Nimuendaju 1976:49</td>
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<tr>
<td>Ramkokamekra/Canela</td>
<td>1930</td>
<td>Aldeia do Posto</td>
<td>31</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>70,650</td>
<td>Nimuendaju 1976:44</td>
</tr>
<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>Lagoa</td>
<td>77</td>
<td>11</td>
<td>93</td>
<td>31</td>
<td>2,263</td>
<td>Giaccaria and Heide 1972</td>
</tr>
<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>São Domingos</td>
<td>195</td>
<td>13</td>
<td>89</td>
<td>46</td>
<td>3,214</td>
<td>Giaccaria and Heide 1972</td>
</tr>
<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>Areões</td>
<td>191</td>
<td>20</td>
<td>207</td>
<td>45</td>
<td>7,312</td>
<td>Giaccaria and Heide 1972</td>
</tr>
<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>Batovi</td>
<td>275</td>
<td>30</td>
<td>158</td>
<td>158</td>
<td>19,597</td>
<td>Giaccaria and Heide 1972</td>
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<tr>
<td>Xavante</td>
<td>1953</td>
<td>Parawadzaradze</td>
<td>22</td>
<td>268</td>
<td>152</td>
<td>31,978</td>
<td>Giaccaria and Heide 1972:41</td>
<td></td>
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<tr>
<td>Xavante</td>
<td>1984</td>
<td>Pimentel Barbosa</td>
<td>279</td>
<td>23</td>
<td>263</td>
<td>160</td>
<td>33,033</td>
<td>Wüst 1984</td>
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<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>São Marcos</td>
<td>798</td>
<td>54</td>
<td>278</td>
<td>215</td>
<td>46,919</td>
<td>Giaccaria and Heide 1972</td>
</tr>
<tr>
<td>Xavante</td>
<td>prior to 1972</td>
<td>Sangradouro</td>
<td>367</td>
<td>33</td>
<td>305</td>
<td>264</td>
<td>63,208</td>
<td>Giaccaria and Heide 1972</td>
</tr>
</tbody>
</table>

There is a positive correlation between site size and the amount of exotic materials, at least for the sites of the Rio Vermelho area. These exotic materials come from quite distant areas, like the few cauti-xi-tempered sherds brought from 200 km away (Wüst 1990:250). The loose site hierarchies revealed by differences in site sizes also could reflect differential participation in regional exchange networks of goods, information, and possibly of people, too. Therefore, further investigation concerning processes of increasing social complexity in Central Brazil has to consider not only village size and the number and arrangement of houses, but especially the flow of information and goods.13

Another important indicator of village hierarchies can be seen in the presence of a men’s club house, as suggested by Meggers (1971). The presence of this central building may indicate more formal relationships with outsiders, a clearer division between sexes, and a more elaborated ritual life.14 Archaeological visibility of this building is very subtle, and only in few of the Uru and Aratu sites has this feature been recognized (Wüst 1983, 1990).

No correlation was found between village size and village location in relation to the environment. Village size cannot be explained by ecological setting (either the richness of resources or the difficulty of clearing). These data contradict Myers’ hypothesis, which predicts that smaller settlements should be located in more forested areas while larger settlements should be situated in the cerrados, mainly because of difficulties involved in forest clearing (Myers 1973:244). Differences in village size and presumed site hierarchies also seem unrelated to resource richness within each environmental zone (be it cerrado or forest), in contrast to Chernela’s data for the Uaupés region in northwestern Amazonia where settlement hierarchies directly correlate with resource abundance (Chernela 1986).

Regional Dynamics

The archaeological literature for Central Brazil has systematically emphasized relative stability among groups, even when close interaction of different societies has been recognized. Yet we know of at least 24
ring villages (i.e., 15 percent of known sites) where two or more distinct ceramic traditions appear to have co-occurred. The relations between culturally distinct societies in this region appear to have been more dynamic than previously believed. However, a lack of both contextual data and systematic regional surveys in most parts of this region impedes a better definition of the nature of such intergroup interactions.

From the fourteenth century on, Central Brazilian communities experienced strong external pressures. These forces have been identified by fortifications in the Upper Xingu area (Heckenberger 1996), by settlement locations in excellent defensive positions, and by the introduction of new ceramic complexes in the area (Wüst 1990). Whereas the societies of the Upper Xingu seem to have responded to this challenge by increasing regional integration (Heckenberger 1996), others such as the Aratu villages, are thought to have collapsed. Their contacts with the Uru villages resulted in much smaller habitation sites, sometimes located in hidden and narrow valleys, that replaced former large ring villages (González 1996a, 1996b).

Finally, although not responsible for the decline of circular villages, direct and indirect contact with Europeans caused significant change among these native societies, especially in terms of population and territory. A comparison of the ethnographic data with the archaeological evidence reveals considerable disparity in village size. Nearly 63 percent of all known ethnographic ring villages (for which dimensions have been published, see Table 3) are smaller than 3 ha, and none are larger than 7.1 ha (n = 19). In contrast, only 35 percent of the archaeological ring villages are smaller than 3 ha, and at least 28 percent exceed 7 ha (n = 46) (Figure 10).

**Conclusion**

The complex social structure of Central Brazilian native societies can no longer be considered an anomaly, but rather the result of a long and continuous process of integration among culturally distinct groups due to feuding, demographic increase, and external pressures. The onset of such a lengthy process precedes European conquest by at least one thousand years and therefore cannot be considered
as a late or marginal development caused by contact. Instead, archaeological data provide strong evidence that aggregation of population into large communities with complex systems of village organization and a heavy dependence on agriculture evolved in their own local trajectories, responding to a variety of circumstances.

Emphasis on local developments has led us to isolate demographic conditions and defensive concerns as the main factors shaping the ring villages of Central Brazil. Their typical layout can be explained as advantageous for defense, favoring stronger inner control compatible with the ego-focused ideology still present among most Central Brazilian native societies.

The consideration of ring villages as a local development does not imply that we can ignore interaction and population inputs from neighboring areas. In fact, further research on the relationship between both inhabitants of várzea and terra firme areas in the north and populations to the west will be essential to evaluate the nature of external pressures that were responsible for the variety of multi-ethnic alliances and interregional integration of different groups suggested by the diversity of the archaeological record.

These data from Central Brazil also provide important implications for controversies in Amazonian archaeology. Significantly, our findings indicate that large communities and a kind of social complexity can occur in environments considered even poorer than both riverine and terra firme Amazonia, contradicting hypotheses of environmental limitation for cultural development in the lowlands (as argued by Gross 1975; Lathrap 1968; Meggers 1954). The ring villages of Central Brazil offer advantageous conditions to measure at least one aspect of cultural development: community size (a measurement often difficult to obtain in Amazonian contexts, especially for terra preta sites). Some authors have systematically interpreted large deposits as the result of repeated reoccupations, consequently minimizing population estimates and the degree of social complexity reached by Amazonian societies (Meggers 1992a, 1995; Miller 1992; but see DeBoer et al. 1996 for a contrasting view). If there were such large settlements in Central Brazil, why should we deny still larger and denser occupations in the Amazon where ecological conditions for human developments are likely to have been even more advantageous?

In addition, our data from Central Brazil show that social complexity can emerge in ways that differ from the classic site-hierarchy models based on Mesoamerican and Andean examples. Although much remains to be done to understand both the developmental trajectories and degree of social complexity reached by Central Brazilian societies, indications of loose (and perhaps ephemeral) settlement hierarchies related to different regional arrangements and alliances suggest that increasing social complexity also can take place along a horizontal dimension and not as much as in the classic concentration of power in vertical hierarchies. If this idea is supported by future research, it will certainly have major implications for models of chiefdom formation in the Amazon basin.

Perhaps the main lesson that the history (and prehistory) of Central Brazilian societies teaches us is that ethnographic knowledge cannot be simply projected into the past. Unless a clear pattern of continuity is documented, archaeological cultures should not be identified with present native groups. The history of Central Brazilian societies reminds us that cultural development in the South American lowlands might have taken diverse paths and that only the careful documentation of different developmental trajectories will allow archaeologists to evaluate models derived from ethnographic accounts.

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Notes
1. Bororo villages provide a good example of such processes. Villages visited by Baldus in 1934 (Baldus 1979) were small
and located in extremely marginal areas for agriculture. Their survival depended mainly on the natives’ employment by surrounding farms. Such a scenario contrasts markedly with their older villages, located in gallery forests where nutrient-rich soils allowed the cultivation of maize (Wüst 1990).

2. The term cerrado refers to the local savanna-like environment of scrub growth.

3. Ethnographic accounts of the Bororo give us an idea of the nature of such village hierarchies. Among this group, hierarchies occur mainly at a religious level, through the power of shamans, and is only indirectly related to the production of surplus. As only a few villages have more powerful and popular shamans, the number of religious festivities taking place at these villages increases, consequently also fostering the redistribution of goods and attracting temporary residents from other villages (Wüst 1994).

4. For two Aratu sites in the southeastern part of Goiás, there are two absolute dates earlier than A.D. 500 that still require confirmation (Andreatta 1988:155; Mello 1996:268).

5. According to these authors, the Aratu tradition in the state of Goiás has been associated with the Southern Kayapó.

6. Nevertheless, some linear sites of Aruanã phase (Uru tradition) can be securely associated with the ethnographically known Karajá (Wüst 1975).

7. Petesh (1993) suggests that the linear villages of the present Karajá may be a result of significant change in cosmological and sociopolitical structure of former circular villages due to Tupian influence.

8. These numbers are drawn from all known archaeological sites in the states of Goiás, Tocantins, Mato Grosso, and the Federal District, compiled by Wüst in the last several years for the IPHAN (Instituto do Patrimônio Histórico e Artístico Nacional).


10. In a situation highly affected by contact, the data from the Bororo show that only two-thirds of the houses were occupied at the same time (Wüst 1994).

11. Ethnographic data from the Bororo show that internal village hierarchies are related to clan descent, expressed through rules of production, use, and borrowing of specific materials exclusive to particular clans. Several clans also have exclusive myths and chants that express the hierarchical position of the individual within the village (Viertler 1976).

12. This is a particular kind of cauxiti (ashes of water sponges), a variety of Parmula batelesi, a species found in the Paraguai River.

13. Ethnographic accounts of the Bororo give us an idea of the nature of such village hierarchies. Among this group, hierarchies occur mainly at a religious level, through the power of shamans, and is only indirectly related to the production of surplus. As only a few villages have more powerful and popular shamans, the number of religious festivities taking place at these villages increases, consequently also fostering the redistribution of goods and attracting temporary residents from other villages (Wüst 1994).

14. The men’s club house should not be confused with the bachelor’s hut for reclusion of youngsters. The latter construction also is sometimes located in the domestic ring, as reported for Xavante and Kayapó-Xibim (Giaccaria and Heide 1972; Mldal 1977).

15. Although the term “heterarchy” has often been used in opposition to vertical hierarchy (Ehrenreich et al.1995), we expressly avoided its use in this context, because it can suggest the existence of unranked systems (Brumfiel 1995; Rogers 1995). It does not seem applicable to this case in which at least some degree of ranking is shown by differences in village size and access to exotic materials.

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