50 Years of Archaeology in Southeast Asia

Essays in Honour of Ian Glover

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Back cover: *Prehistoric burial at Si Thep, central Thailand. Courtesy of Stephen A. Murphy.*

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Figure 1: Sites and places in southwest Sulawesi mentioned in the text.

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UNEVEN DEVELOPMENT IN SOUTHWEST SULAWESI, INDONESIA DURING THE EARLY METAL PHASE

David Bulbeck

Introduction

This paper outlines technological and socio-economic development during the Early Metal Phase (EMP) in southwest Sulawesi. Southwest Sulawesi includes the island's southwest peninsula and the equatorial land to the immediate north, covering the provinces of South and West Sulawesi (Fig. 1). The EMP spans the period when early metal wares and metallurgy appeared in southwest Sulawesi, between the last centuries BCE and the early centuries of the second millennium CE. It was preceded by the Neolithic, when pottery and stone axes were introduced to southwest Sulawesi, accompanied by the early expansion of Austronesian speakers (Bulbeck 2008a). It was followed by the early historical period when the pre-Islamic kingdoms were established (Bulbeck and Caldwell 2000; Caldwell 1995).

Chronometrically dated EMP sites are uncommon in southwest Sulawesi. A cluster of these sites occurs in Luwu at the region's northeast, but their previously published chronology and interpretation (Bulbeck and Caldwell 2000) require slight revision (Bulbeck submitted). As for sites west and south of Luwu, especially those excavated before radiocarbon dating was available, knowing which sites represent the EMP requires professional judgment and expertise in the region's archaeology. Tables 1 and 2 detail the isolated finds, sites and contexts here assigned to the EMP, including their subdivision into three intervals: early EMP (c. 0–500 CE), middle EMP (broadly first millennium CE) and late EMP (c. 1000–1300 CE).

Much of our knowledge of the EMP of southwest Sulawesi is due to Ian Glover's long-term interest in the region's prehistory, as summarised in my other contribution to this volume. Ian's fieldwork in the Leang-Leang valley included the first systematic site survey in southwest Sulawesi and two of the earliest excavations to produce a radiocarbon chronology (Glover 1978). A lot has been learned about the region's archaeology since Ian's seminal fieldwork. At that time, the prehistory of southwest Sulawesi was a collage of scraps of knowledge: numerous early sites, none of them chronometrically dated (Van Heekeren 1957); and 'Bronze–Iron Age' museum acquisitions and sites, many of the latter historical (Van Heekeren 1958). Thirty years later we can trace a reasonably continuous narrative from Austronesian arrival and interaction with the indigenous Toalean foragers, through to EMP developments and the origins of the Bugis and Makasar kingdoms (Bulbeck 2004a). This contribution is offered as a reflection of the growth in our knowledge of the prehistory of an area whose scientific foundations Ian helped lay through his pioneering archaeological research.

Early Metal Phase finds and sites in southwest Sulawesi

The first inklings of knowledge of the EMP in southwest Sulawesi came from bronzes acquired by Dutch colonial officials or, as in the case of the Selayar Dongson drum, reported during tours of duty (Hoop 1941; Van Heekeren 1958). Further bronzes have since been identified in museums around the world, or acquired from antique dealers in Makassar, or recorded during fieldwork. The only radiometrically dated examples are two dog figurines, which have yielded determinations of 155 BCE-330 CE and 230-580 CE (calibrated, 95% confidence interval) from carbon extracted from the core (Glover 1997). All of the others are dated stylistically or based on the expected age of artefacts of their type (Table 1).

Many of the bronzes are loosely provenanced or, in the case of the three reportedly from 'Bontonompo, Bantaeng', ambiguously located.[1] Nonetheless, southwest Sulawesi's bronzes (19 of 20) are clearly concentrated along the southwest coast, the south coast proper and Selayar to the southeast (Table 1). This seaboard so closely matches the distribution of lowland speakers of Makasar and its dialects (Grimes and Grimes 1987) that we may refer to it as the 'Makasar lowlands'. The recovery of small items of copper or bronze from eight (Bulbeck submitted) of the seventeen provenanced EMP sites along the Makasar lowlands (Table 2) confirms its concentrated presence of early bronze.

The Selayar Đông Sơn drum, manufactured in Vietnam, and the Amaravati -style Buddha statue found at Sikendeng, were definitely imported (indirectly in all likelihood) from beyond Island Southeast Asia. The reported looting at Bonto Ramba of a bronze drum with frog-shaped handles, which evokes comparison with the Selayar drum, suggests this was also a Đông Sơn drum. Bonto Ramba however is one of several examples of a Makasar lowlands tradition of interring human cremations in jars between 1000 and 1300 CE (Bougas 2007). If indeed a Đông Sơn drum had been interred at Bonto Ramba, this probably occurred centuries after the drum's manufacture. To generalise from Bonto Ramba's case, bronzes imported from overseas, whether dated stylistically or radiometrically, may have arrived in southwest Sulawesi significantly later than their time of manufacture. This issue however does not affect the dog figurines or the three bronzes described by Caldwell and Noble (2005) which, as discussed in due course, were probably made locally.

Fifteen of the thirty-two southwest Sulawesi EMP sites are located elsewhere than the Makasar Coast (Table 2). They occur at Lake Matano and the coastal plain in Luwu, on the Karama River in West Sulawesi, and along the Walanae valley in the southwest peninsula. Ameliorating the distinct lack of sites in the mountainous interior due north of the peninsula, the rockshelters excavated in Enrekang no doubt include material of EMP antiquity in the deposits assigned by Mahmud (2008b) to the Neolithic.

Only two materially rich archaeological assemblages can be assigned to the early EMP. One of these is obtained for southern Sabbang Loang by combining the results from Willems's (1938) trenches and the test pits with datable remains excavated in the late 1990s (Bulbeck and Caldwell 2000). The other is deduced for Mallawa by assuming that the EMP dates reported for the site by Bulbeck (2004) apply to the carnelian and glass beads, and a proportion of the pottery and stone tools, described by Mahmud 2008

1 Bontonompo is a rural centre south of Makassar, while there is nowhere called Bontonompo known in Bantaeng; conceivably, these bronzes came from both Bontonompo and Bantaeng.

Table 1: Isolated bronze finds in approximate chronological order.

Find	Find-spot	Location	Approximate dating (CE)	Dating evidence
2 dog figurines[a]	Coast south of Makassar	Southwest coast	200–300	Charcoal AMS dates
Heger 1A Đông Sơn drum[b]	Bontobangung	Selayar	Early centuries	Stylistic
Buddha statue[c]	Sikendeng	Karama River	2nd – 7th centuries	Stylistic
Macassar flask[d]	Makassar	Southwest coast	1st millennium	Stylistic
Axe[e]	Pangkajene	Southwest coast	1st millennium	Artefact type
Axe[e]	Gantarang	South coast	1st millennium	Artefact type
Axe[e]	Bulukumba	South coast	1st millennium	Artefact type
2 Axes[e]	Bira	South coast	1st millennium	Artefact type
Axe[e]	Bontobangung	Selayar	1st millennium	Artefact type
Axe[f] (Figure 3)	Pulau Jampea	Selayar	1st millennium	Artefact type
Ring[f] (Figure 3)	Pulau Jampea	Selayar	1st millennium	Artefact type
2 Buddha statues[g]	Bontonompo, Bantaeng	South or southwest coast	7th – 8th centuries	Stylistic
Bodhisattva statue[g]	Bontonompo, Bantaeng	South or southwest coast	7th – 8th centuries	Stylistic
Reported Đông Sơn drum[d]	Bonto Ramba	Southwest coastal plain	1000	Associated cremations
Priest's bell[h]	Unknown	South coast	1000	Stylistic
2 Buddhist figurines[h]	Sasara	Selayar	1000	Stylistic

References: (a) Glover 1997. (b) Kempers 1988. (c) Bosch 1933. (d) Bulbeck 1996-7. (e) Hoop 1941. (f) Hakim 2004. (g) Scheurleer and Klokke 1998. (h) Caldwell and Nur 2005.

Better chronological information would broaden our knowledge of early EMP material culture in southwest Sulawesi, because where the EMP finds are too vaguely dated for assignment to a particular interval, they receive a 'middle EMP' dating by default. Notwithstanding this caveat, we can observe that the ancient artefact class of flaked stone, as well as polished stone implements (axes/adzes, barkcloth beaters) and earthenware pottery, are represented throughout the EMP (Bulbeck submitted). The same is true of bronzes, iron knives/spearheads and glass beads, even though the technology for the first two of these was introduced during the EMP and the glass beads were imports. The addition of gold to local material culture during the middle EMP (Bulbeck submitted), and high-fired ceramics during the late EMP,[2] suggests a trend towards an increase in conspicuous wealth.

Wealth creation and distribution in southwest Sulawesi

The basis for material wellbeing during the EMP was primary production and limited secondary production, accompanied by redistribution of goods through barter. Neolithic farming activities for which there is archaeological evidence may be inferred to have continued into the EMP, for the reason of evidence for expanded forest clearance throughout the late Holocene (Simons and Bulbeck 2004). Any trade in foodstuffs was probably limited geographically, and so subsistence activities would have formed the basis for sustaining local populations, including seasonal influxes of traders. Thus, increased food production and extraction would have underpinned the growth of craft production, and the rise of trade in locally manufactured wares as well as imported goods.

2 High-fired ceramics were arguably imported into southwest Sulawesi during the late EMP. There is a report of a Tang ewer (earlier than 1000 CE) from Maros; and Talaborong, one of the sites assigned to the Makasar Coast tradition of burying cremated remains in jars, has some early Song ceramics, and a radiocarbon date on human bone calibrated at one sigma to 970-1270 CE (Bulbeck 1996-7). At Rahampu'u on Lake Matano, a sherd from a coarse stoneware jar, of a type manufactured throughout the second millennium CE, was excavated in a context dated to the eleventh/twelfth centuries (Bulbeck and Caldwell 2000).

Table 2: EMP sites and contexts in southwest Sulawesi arranged in approximate chronological order.

Site/context	Location	Approximate EMP dating	Evidence	Type of site
Basal Sukoyu charcoal[a]	Lake Matano	Early (200 BCE–50 CE)	Charcoal radiocarbon date	Forest clearance
Basal Bola Meraja deposit [a]	Luwu coastal plain	100 BCE–200 CE	Charcoal AMS date	Habitation
Southern Sabbang Loang[b]	Luwu coastal plain	200 BCE–300 CE	Charcoal AMS/ radiocarbon	Habitation and urn burials
Mallawa[c,d]	Middle Walenae	Early (1–500 CE)	Charcoal AMS date	Habitation
Sikendeng[e]	Karama River	Middle (200–700 CE)	Association with Buddha statue	Habitation
Leang Burung 2[f]	Leang-Leang (southwest coastal plain)	1 – 800 CE	Charcoal dates	Habitation
Lower Bola Meraja deposit[a]	Luwu coastal plain	200–800 CE	Charcoal AMS dates	Habitation
Katue[b]	Luwu coastal plain	300–1000 CE	Charcoal/shell AMS dates	Habitation
Leang Burung 1[g]	Leang-Leang	1–1000 CE	Radiocarbon dates on human bone	Rockshelter ossuary
Ulu Leang 1[h]	Leang-Leang	100–1000 CE	Charcoal radiocarbon date	Hearth with rice remains
Ulu Leang 2[c,i]	Leang-Leang	1st millennium CE	Artefactual contents	Rockshelter ossuary
Leang Pette Kere[c]	Leang-Leang	1st millennium CE	Pottery stylistic dating	Rockshelter ossuary
Leang Ara[c]	Bulukumba (south coast)	1st millennium CE	Artefactual contents (bead)	Rockshelter ossuary
Tagbuncini[j,k]	Galesong (southwest coast)	1st millennium CE	Artefactual contents	Urn burials
Manjalling[j]	Galesong	1st millennium CE	Artefactual contents	Urn burials
Pakka Mukang[b,h]	Galesong	1st millennium CE	Geomorphology/ artefacts	Habitation
Pangannreang Tudea[j]	Bantaeng (south coast)	1st millennium CE	Artefactual contents	Rockshelter ossuary
Minanga Sipakko[c]	Karama River	1st millennium CE	Stylistic dating of bronze bangle	Habitation
Bukit Pantaraan 1[j]	Karama River	1st millennium CE	Artefactual contents	Habitation and urn burial
Leang Codong[j]	Lower Walennae	1st millennium CE	Artefactual contents	Rockshelter ossuary
Gua Mangana[m]	Middle Walennae	1st millennium CE	Stylistic dating	Unclear (cave surface finds)
Tomatoa Kaicang[j]	Lamoncong	1st millennium CE	Artefactual contents	Habitation
Upper Cakondo[n]	Lamoncong	1st millennium CE	Lamoncong sites' seriation	Habitation and inhumation
Uphill Sabbang Loang[b]	Luwu coastal plain	Mid to late 1st millennium CE	Artefactual contents	Habitation and urn burials
Pontona Bangka main deposit [b]	Lake Matano	500–1000 CE	Charcoal radiocarbon dates	Ironstone roasting
Rahampu'u 1[a]	Lake Matano	Middle (600–1100 CE)	Charcoal AMS/ radiocarbon dates	Habitation
Bonto Ramba[j]	Southwest coastal plain	Late (1000 CE)	Presence of cremations	Cremated remains in jars
Bonto-Bontoa[c]	Bantaeng	1000 CE	Artefactual contents	Habitation
Batu Ejaya 1[c]	Bantaeng	1000 CE	Charcoal date	Ceremonial
Kiling-Kiling[c,o]	Bantaeng	1000–1200 CE	Stylistic comparisons	Ceremonial
Matoanging[j]	Southwest coastal plain	1000–1200 CE	Artefactual contents (reported)	Cremated remains in jars
Sukoyu[b]	Lake Matano	1000–1300 CE	Charcoal radiocarbon date	Forest clearance
Nuha[b]	Lake Matano	1000–1300 CE	Charcoal radiocarbon date	Ironstone roasting
Talaborong[j]	Southwest coastal plain	Southwest coastal plain	Radiocarbon date on human bone	Cremated remains in jars
Galogorro[j]	Southwest coastal plain	1000–1300 CE	Artefactual contents (reported)	Cremated remains in jars
Tile-Tile[j]	Selayar	1000–1300 CE	Artefactual contents	Cremated remains in jars
Pontona Bangka burials[b]	Lake Matano	1100–1300 CE	Technological dating (beads)	Mortuary

References: (a) Bulbeck and Caldwell 2000. (b) Bulbeck submitted. (c) Bulbeck 2004a. (d) Mahmud 2008a. (e) Bulbeck and Nasruddin 2002. (f) Glover 1981. (g) Bulbeck 2004b. (h) Bulbeck *et al.* 2000. (i) Andrews and Glover 1986. (j) Bulbeck 1996–7. (k) Bougas 2007. (l) Anggraeni 2009. (m) Flavel 1997. (n) Bulbeck 2006. (o) Hardiati 1998. (p) Bulbeck *et al.* 2006.

st diverse assemblage of late prehistoric remains of edible plants, 3000–2000 BP (Bulbeck 2004a), comes from Leang Burung 1 of Trench A). The 'probable' identifications given by Paz (2004) ndant canarium nuts, *Vigna* and *Cassia* seeds, and *Dioscorea* yam bers. Domesticated rice grains have been recovered from nearby l, possibly dating back to the Neolithic but certainly to the EMP . Other plant remains include candlenut shell and seeds of Fabaceae to which *Vigna* and *Cassia* belong) from the Neolithic levels at Sipakko (Simanjuntak *et al.* 2008). In addition, sago, which was a of the Luwu lowlands during the historical period (Bulbeck *et al.* esumably played a role in EMP subsistence even if direct evidence historic exploitation is lacking.

The plant remains mentioned above, only the rice from Ulu Leang 1 from Leang Burung 1 constitute direct proof of prehistoric re. Nonetheless, the expansion of swidden agriculture is indicated nce for early forest clearance dated to c. 500 BCE (Bulbeck and l 2000: 2; Hope 2001: 142) and later (Table 2) at Lake Matano, and at oint after 500 BCE at Minanga Sipakko, when disturbance to the pine forest resulted successively in Fagaceae- and shrub-forest (Vita f. Simanjuntak *et al.* 2008: 62–3). In addition, the fertility of the soils southwest peninsula and its large number of EMP sites, including burial s, leave little doubt as to the importance of agriculture. The evidence ained Javanese influence affecting the Makasar lowlands between 1000 500 CE suggests that wet-rice production, long implemented in Java, ave been introduced to this area during the late EMP (Bulbeck tted). Under that scenario, the Makasar lowlands would have been the it for the transmission of wet-rice agriculture to the central peninsula nds by the thirteenth century CE, where its expansion, more so than here in the peninsula, underwrote the economic development of the rical kingdoms (see Bulbeck and Caldwell 2008; Druce 2009).

The faunal assemblages from Neolithic and EMP sites in southwest wesi reflect the combined importance of foraging, fishing and animal andry in obtaining animal protein. The hamlet dwellers at Minanga kko dined on native mammals such as the Celebes boar and black aque, introduced forest mammals such as deer and porcupines, nesticated mammals such as the dog, various birds, and freshwater and ine fish (Simanjuntak *et al.* 2008). The fauna from Kamassi, Minanga akko's 'twin' Neolithic hamlet, includes dwarf buffalo and Celebes boar, as ll as fish and domesticated pig (Van Heekeren 1957). Most of the fauna m Leang Burung 1 (Trench A), including its marine shellfish, crab and undant freshwater shellfish, is attributed to Toalean foragers who continued occupy the Leang-Leang rockshelters until c. 2000 BP. However, they also nsumed bovids (cattle or water-buffalo), probably obtained by trading forest oduce to early Austronesian farmers in the vicinity (Simons 1997). Similar xchange may account for the dog and water-buffalo fragments at Tomatoa Kacicang, in the remote Lamoncong highlands. Alternatively, these remains ould postdate the EMP, which would be consistent with the lack of domesticated fauna recorded for the EMP at Upper Cakondo (Bulbeck 2006; Simons and Bulbeck 2004). Artistic representations of EMP domesticated animals include bronze dog figurines (Table 1) and probably the water-buffalo horns engraved at Mangkaluku (Hakim 1999). The faunal remains from

Katue, which include 3.3 kg of marine shellfish and 41 g of burnt bone including pig (Bulbeck 2003), should be viewed in the context of a mixed economy in which sea fruits and forest resources complemented farming produce.

Pottery production encourages a focus on handicrafts, as potters can exploit their skills and commitment of effort to meet their subsistence needs by bartering their wares (Arnold 1985). Certainly, the pottery recovered from Mallawa appears to have been obtained through trade, perhaps in exchange for Mallawa's stone axes (Mahmud 2008a). However, as no two EMP sites have produced demonstrably similar pottery, the exchange networks would appear to have been geographically and/or temporally restricted. The potential for production on a moderate scale is indicated by the 98 kg of pottery collected from Ulu Leang 2 (Andrews and Glover 1986) and the 12 kg excavated from 5 sq m at Katue (Bulbeck submitted). The pottery from most sites appears to have been fired at low temperatures, especially the EMP 'soft pottery' from Bola Merajae (Bulbeck 2009: 9), but also the Mallawa earthenware (Hasyim 2001) and the mortuary pottery from Ulu Leang 2 (Flavel 1997: 64), Bonto Ramba (Bulbeck 1996–7: 1030) and Sabbang Loang (Willems 1938).

Pottery dominates the remains excavated at EMP sites along the Karama River (see Prasetyo 2008) but there is also evidence of metallurgical activity. Anggraeni's (2009) recovery of gold from Bukit Pantaraan 1 is consistent with a scenario of the exportation of gold, extracted from the Karama, via Sikendeng during the EMP (Bulbeck and Nasruddin 2002). Iron fragments and slag were also recovered from Bukit Pantaraan 1 (Anggraeni 2009) and the subsurface iron fragments from Minanga Sipakko also probably date to the EMP (Bulbeck 2004a). The Karama River was potentially a conduit for the ironwares which reached Sabbang Loang by 2000 BP (Bulbeck submitted). In support of this proposal, obsidian from a central Sulawesi source (Matthew Spriggs pers. comm.) was transported both to the Karama River Neolithic sites and to Sabbang Loang by 2000 BP (Simanjuntak *et al.* 2008), which indicates that a network across the highlands connected the Karama River and Luwu by the EMP. Another possible conduit for the ironwares that had reached Sabbang Loang, and apparently stimulated ironstone roasting there by 2000 BP, is the Makasar lowlands, where EMP iron fragments have been recovered from Leang Burung 1 and Ulu Leang 2 (Bulbeck submitted).

The chronology of early iron extraction in Luwu includes an association of ironstone with charcoal or other evidence of hearths dated to between the early centuries CE and 1200. This association indicates a rudimentary technology of roasting ironstone, which lacked the iron bloomery smelting practised at Lake Matano by the fifteenth century. Limited production of metallic iron is indicated by the iron prills excavated at Katue (Fig. 2) amongst its quantities of ironstone which appear to have been imported overland from the northern shore of Lake Matano via Rahampu'u. The abandonment of Katue may be related to the exportation of Lake Matano's extracted iron between c. 1000 and 1200, northward through Luwu-Banggai, where some of the oldest Chinese ceramics in Sulawesi have been found (Bulbeck submitted).

Iron unfortunately tends to corrode rapidly, and so the archaeological record of early iron must be a pale reflection of reality. By some point during the first millennium CE, iron was being produced at Katue and apparently

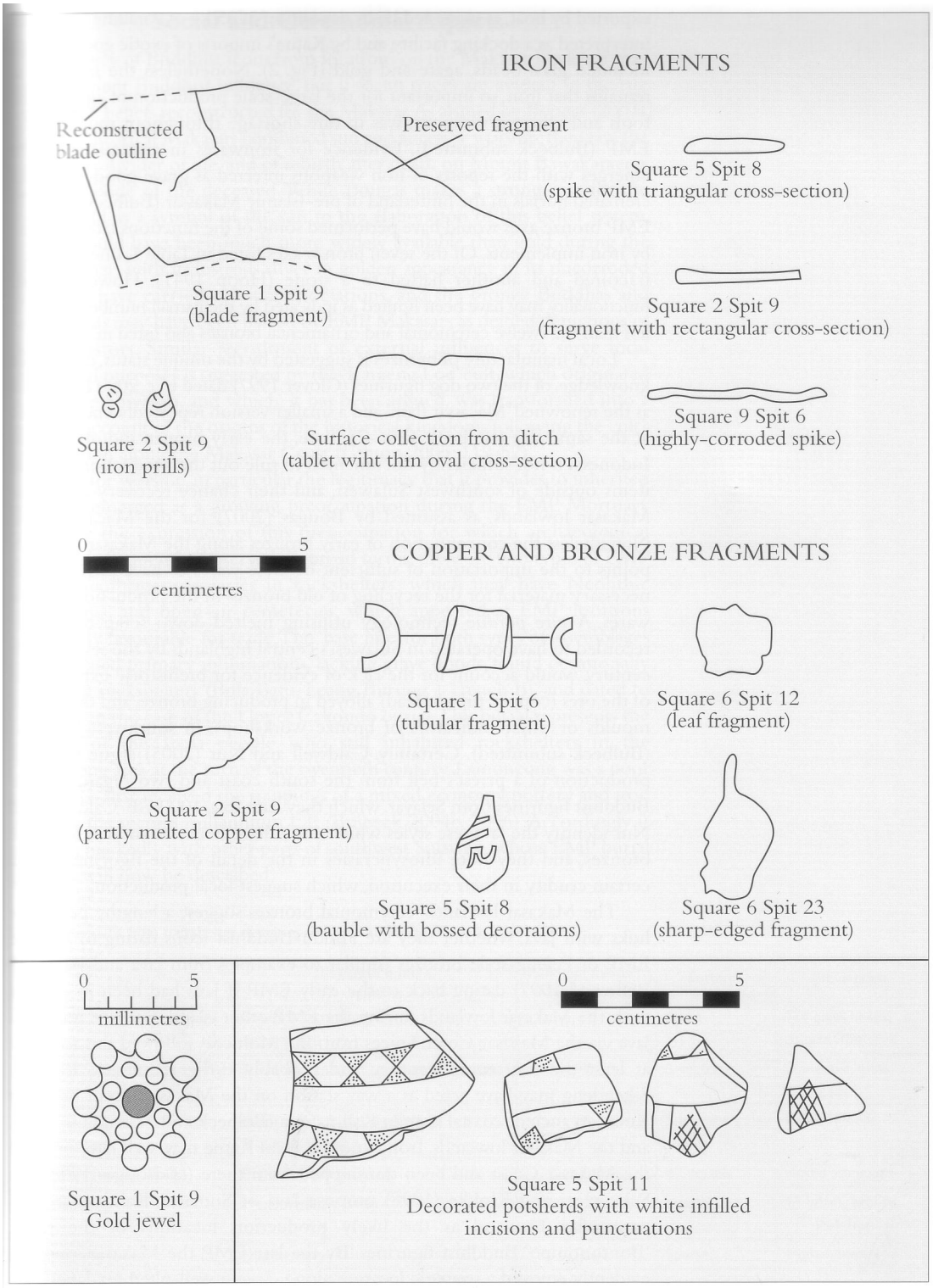

Figure 2: Examples of material culture from Katue, Luwu.

exported by boat, as suggested by its deposition of 35 kg of coralline limestone interpreted as a docking facility, and by Katue's imports of exotic goods which included glass beads, agate and gold (Fig. 2). Nonetheless the impression remains that iron, so important for the large-scale production of agricultural tools and efficient weapons, was in dire shortage throughout much of the EMP (Bulbeck submitted). Evidence for ironwares in any quantity first emerges with the reports of iron weapons interred as grave goods with the cremated burials in the hinterland of pre-Islamic Makassar (Bulbeck 1996–7). EMP bronze axes would have performed some of the functions later handled by iron implements. Of the seven bronze axes listed in Table 1, one had been fractured and another hafted to a stone (Hoop 1941). However, their functionality may have been limited as indicated by their small number, which is less than the twelve ceremonial and ornamental bronzes also listed in Table 1.

Local manufacture of bronzes is suggested by the unique status, on current knowledge, of the two dog figurines (Glover 1997) dated to c. 2000 BP as well as the renowned 'Macassar flask' and a smaller version reportedly encountered at the same site (Bulbeck 1996-7). True, the early bronze industry across Indonesia is not sufficiently documented to rule out the production of these items outside of southwest Sulawesi, and their chance recovery along the Makasar lowlands, as assumed by Bougas (2007) for the Macassar flask. Nonetheless the concentration of early bronzes along the Makasar lowlands points to the importation of sufficient of these wares to have provided the necessary material for the recycling of old bronzes in the production of new wares. A *cire perdue* technology utilising melted-down scrap bronze, recorded to have operated in Sulawesi's central highlands by the seventeenth century, would account for the lack of evidence for prehistoric exploitation of the ores (copper, tin and lead) alloyed in producing bronze, and the lack of moulds or other indicators of bronze workshops, in southwest Sulawesi (Bulbeck submitted). Certainly, Caldwell and Nur (2005) argue for local production of a priest's bell from the south coast and two Nganjuk-style Buddhist figurines from Selayar, which they date to c. 1000 CE. Caldwell and Nur identify the Javanese styles which could have been the models for these bronzes, and they note idiosyncrasies in the detail of the figurines, and a certain crudity in their execution, which suggest local production.

The Makasar lowlands' ceremonial bronzes suggest a lengthy period of links with Java, whether they are Hindu-Buddhist icons dating to the late EMP, or Pejeng-style bronzes (similar to examples from Java and Bali – Bellwood 1997) dating back to the early EMP. If Java had been in contact with the Makasar lowlands during the EMP, other islands perhaps traded with Java via the Makasar Coast. Spices from the Moluccas followed this route by at least the fourteenth century and probably earlier (Bulbeck 1996). Sikendeng may have acted as a way station on the Makassar Strait between Kutai, an ancient coastal state in Kalimantan (Bulbeck and Nasruddin 2), and the Makasar lowlands. Iron exported from Katue may well have reached the Makasar Coast and been transhipped from there (cf. Bougas 1998). Scheurleer and Klokke (1998) propose Java or Sumatra, Kalimantan or peninsular Thailand as the likely production locations of the 'Bontonompo' Buddhist figurines. By the late EMP, the Makasar lowlands evidently enjoyed a strategic location along certain well-plied sea-lanes

Social and Ceremonial Aspects

The recovery of Buddhist icons from locations on the Makasar lowlands may hint at ancient Buddhist influence, but if so, no traces are evident in the late pre-Islamic beliefs reconstructed for the Makasar. As argued by Bougas (2007), the early historical Makasars combined sun and ancestor worship; they saw the sun as the provider of life, and of rebirth after death on Mount Bawakaraeng, the final abode of the deceased. While Bougas makes a strong case for the role of gold as a symbol of the sun in the elaboration of this belief system, bronze would have been much more widely available than gold during the EMP. Bronze, with its lustrous silver to golden appearance in its uncorroded state, may have carried celestial associations, and the bronze Buddhas and *bodhisattvas* may have been prized by EMP Makasars as deified depictions of their ancestors. Similar recruitment of external influences to serve local ideological purposes is suggested by the 'Karaeng Loe' cult, which originated in Javanese Shivaism, and which, it has been argued, was transformed into a mythical account of the origins of the historical kingdoms following the cult's implantation along the Makasar Coast (Gibson 2005: 119-52).

Ancestor worship, in particular the legitimacy that it provides to inherited privilege, emerged as a growing preoccupation during the EMP. Mortuary rituals are the expression of this preoccupation for which archaeological evidence is frequently preserved. In broad terms, there are two types of EMP burial assemblages: ossuaries in rockshelters, which may have Neolithic antecedents; and open-air cemeteries, which appeared at EMP locations particularly favourable for trade. The 'base line' for both types of assemblages is the isolated primary inhumations, lacking grave goods, found occasionally in Toalean rockshelters (Bola Batu, Leang Burung 1 Trench B), and dated to the EMP in the case of the Upper Cakondo burial. This burial represents the ancestry of the Toala people who still inhabited rockshelters in the Lamoncong area at the turn of the twentieth century. Lamoncong was a poor area which first received the trappings of a mixed economy, pottery and iron as late as the second millennium CE (Bulbeck 2004b, 2006). Accordingly it contrasts markedly with other parts of southwest Sulawesi, whose EMP burial grounds will now be described.

Table 3: Remains from rockshelter ossuaries (Bulbeck 1996-7, 2004a, b; Flavel 1997).

Site	Status of human remains	Minimum number of individuals	Pottery	Grave goods
Ulu Leang 2 (Leang-Leang)	Unburnt secondary disposal (79 kg)	50	98 kg	171 glass beads, copper, iron
Leang Pette Kere (Leang-Leang)	Burnt and unburnt secondary disposal	7	5 vessels	Stone axe, glass beads
Leang Burung 1 Trench A (Leang-Leang)	Burnt and unburnt secondary disposal (191 g)	5	Some decorated sherds	Iron fragment
Leang Paja (Leang-Leang)	Disturbed (secondary?)	Not known	47 vessels	Flaked stone axe
Leang Codong	Predominantly teeth	127	Sparse	15 beads, bronze leaf, iron
Panganreang Tudea	Fragmentary	Few	Sparse	1 bead, bronze
Leang Ara	Mandible fragment	1	Sparse	1 bead

Figure 3: Bronze axe and ring from Pulau Jampea, Selayar.

Rockshelter ossuaries are best represented at Leang-Leang, with four such sites (Table 3). Of these, the Leang Burung remains may represent descendants of the Toalean who inhabited the site until its conversion into a burial site, as would be consistent with the limited osteological evidence (Bulbeck 2004b: 243, 251). Additionally, Leang Petta Kere and Leang Pajja yielded stone axes which could reflect a Neolithic burial component. However, even if Ulu Leang 2 were the only Leang-Leang ossuary to entirely reflect an EMP population of non-Toalean ancestry, the remarkable advantages of Leang-Leang, as reflected in its uniquely rich Toalean archaeology (Bulbeck 2004a), would appear to have translated into the densest concentration of prehistoric ossuaries in southwest Sulawesi. The closest parallel is the Leang Codong rockshelter, on a gentle slope flanking the lower Walanae, where a large number of individuals are represented but the associated material culture is slight (Table 3). Two rockshelters from the south coast are also included in Table 3, but both have so few EMP burials that their description as ossuaries could be debated.

A consistent feature of the rockshelter mortuary remains is the secondary nature of their disposal, often preceded by mortuary activities which had burnt the bones to scraps or separated them from the teeth (Bulbeck 1996-7). They exemplify the mortuary remains expected of Indo-Malaysian competitive ranked societies, as detailed by Tillotson (1989) from ethnographic accounts. She identified a complex of features that include swidden rice production, a pioneering ethos to carve fields out of the forest, limited access to markets, sponsorship of status-boosting feasts, and multi-stage burial rites which altered and often physically reduced the bones of the dead. Personal possessions may have been left with the deceased if the living could spare them (*ibid.*). This complex of features is evident amongst the non-Bugis societies nominally subject to Luwu at the turn of the twentieth century: feasts were to be staged and exchange relations ratcheted up to maintain social ranking, and the deceased were treated with dread until they had the status of ancestors

bestowed upon them through sumptuous feasts and/or raids against enemy villages (Schrauwers 1997, 2004). In the socio-politically volatile world described by Tillotson and Schrauwers, staking a corporate ancestral claim on prime agricultural land, as implied by the Ulu Leang 2 and Leang Codong ossuaries, would have been critical for social reproduction.

Approximately contemporary with the rockshelter ossuaries were the EMP cemeteries established at Sabbang Loang and Galesong. Both were strategic locations for trade; Sabbang Loang occupies a hill where the Rongkong River meets the Luwu coastal plain, while Galesong occupies an estuary at a cape. Both appear to have been intermittently or continuously occupied by substantial populations for the last two millennia. In the case of Sabbang Loang, large urns were buried during part or all of the first millennium CE, both in a cemetery at the south of the hill and uphill as isolated jars. Few grave goods are in evidence, and wretched preservation of organic materials pre-empts knowing whether the jars contained primary burials (Bulbeck submitted; Bulbeck and Caldwell 2000). In the case of Galesong, archaeologists excavated eleven urns, ten interpreted to have held tightly flexed skeletons and one containing beads, at the site of Taqbuncini. The fragmentary remains contained too little carbon for conventional radiocarbon dating, and so we do not know their exact age, nor that of the two probable jar burials from nearby Manjalling (Bulbeck 1996-7). Both Sabbang Loang and Galesong appear to have hosted stable communities well set up for self-defence.

By the late EMP, security and prosperity along the Makasar lowlands are evident from burial grounds (with cremations) dated to approximately 1000 to 1300 CE. The examples listed in Table 2 include Bonto Ramba, Galogorro, Matoanging, Talaborong and Tile-Tile. To these could be added: the oldest burials at Saumata, associated with imported ceramics and ironwares; perhaps Saukang Boe, with human remains radiocarbon dated to 1280-1650 CE, calibrated at one sigma; and the apparent cremations at Gantarang (Bougas 1998: 96; Bulbeck 1996-7). The rich array of burial goods now included gold, ironwares and bronze cups. Inspection of the human remains, where they have been recovered, indicates cremation of the corpse, a mortuary practice probably introduced from Java (Bulbeck 1996-7). This and related evidence for Javanese influence on late EMP Makasars suggests that the Karaeng Loe cult had been introduced earlier than the fourteenth century date proposed by Gibson (2005). In fact the fourteenth century witnessed a switch to east-west inhumations amongst the Makasars, in this case related to Bajau sea-gypsy influences. However, the question of external influences is secondary to the point that the cremation and inhumation traditions both reflect a focus on inherited personal wealth, which underpinned the hierarchical organisation of the historical kingdoms (Bougas 2007; Bulbeck 1996-7).

Apart from Sabbang Loang, few sites in Luwu offer information on EMP mortuary practices. Burials would be expected for Katue, which was intensively occupied over 0.6 ha. Test pit 5 produced two pots, one decorated (Fig. 2) and one plain, which was perhaps ritually interred (Bulbeck submitted). They may be associated with a burial under a house, perhaps used for the secondary disposal of unburnt remains, which would have dissolved in Katue's acidic soils. A similar, burial-container use is proposed by Bulbeck (submitted) for the pot excavated in association with glass beads in the upper Pontanoa Bangka deposit.

Artistic decoration was important for the inhabitants of southwest Sulawesi even if the symbolic content is elusive. The richly decorated pottery interred at Batu Ejaya 1 during non-mortuary rituals (Flavel 1997) may have contained afterbirth burials, as recorded ethnographically in South Sulawesi (Bulbeck and Caldwell 2000). The 'Sa Huỳnh Kalanay' decorations on this and other Neolithic/EMP earthenware assemblages is best analysed in terms of an ancestral, early Austronesian iconography, which underwent diversification as the descendant branches of colonists established their local identity (Bulbeck 2008). The Pejeng-style decorations on the bronze dog figurines and the Macassar flask (Glover 1997; Hoop 1941) resemble the most ornate pottery decorations from Batu Ejaya 1, Ulu Leang 2 and Leang Paja (Flavel 1997), which may suggest a Pejeng influence on Makasar lowland iconography. A totally distinct decorative repertoire is the 'Austronesian Painting Tradition' manifested in twelve-spoked circles engraved on a boulder at Lawo (Kallupa *et al.* 1989), as well as the Pangkajene rockshelter paintings of a boat at Sumpang Bita, boats with fishermen at Gua Pattebakang (Bulbeck 2004a), and boats, dynamic anthropomorphs, fish and curvilinear designs at Biraeng (Sumantri 1996). The distinctive nature of this tradition compared to other southwest Sulawesi art may suggest maritime contact with places where the tradition is well entrenched, such as East Kalimantan (Chazine 2005) or the islands circumscribing the Banda Sea (Ballard 1988; O'Connor and Oliveira 2007). Finally, the Mangkaluku boulder is engraved with Toraja-style motifs (Hakim 1999) which could reflect the expansion of Toraja-related languages into the western Luwu highlands (cf. Bulbeck 2008).

Discussion

This paper's survey of the EMP of southwest Sulawesi may seem premature, for the archaeological coverage is still uneven. In Tana Toraja it is essentially restricted to ethnoarchaeology (e.g. Adams 2004; Bernadeta 1999). West of

Table 4: Overall summary of southwest Sulawesi EMP local characteristics.

Locality	Subsistence	Technology	Trade	Settlement patterns	Social organisation
Makasar lowlands	Dry-field farming (wet rice after 1000 CE), fishing, hunting and gathering	Bronze working, pottery production	Sea-lane connections to Java, Luwu, Moluccas, Kalimantan	Coastal trading centres; hamlets and villages inland	Trend towards the formation of stable, prosperous communities
Luwu	Gardening, arboriculture, sea foods (as part of a mixed economy)	Ironstone roasting, iron extraction, pottery production	Iron traded for exotic goods	Central trading places; iron production centres	Competitive ranked society
Karama River	Gardening, arboriculture, fishing, hunting and gathering	Ironworking, probable gold extraction, pottery production, polished stone	Macassar Strait trade	Coastal trading centre; riverine hamlets	Under investigation (Anggraeni 2009)
Walennae north of Lamoncong	Dry-field farming (as part of a mixed economy)	Pottery production, probably polished stone	Local peddling	Dispersed hamlets	Competitive ranked
Lamoncong	Hunting and gathering	Stone knapping	Forest produce	Mobile settlements	Egalitarian

Tana Toraja, the Karama River alone has hosted archaeological investigation (Anggraeni 2009; Simanjuntak *et al.* 2008). Historical archaeological fieldwork has been undertaken in the lowlands from the Gulf of Mandar across to the south of the Cenrana (Bulbeck and Caldwell 2000, 2008; Druce 2009), but Leang Codong remains the sole excavated prehistoric site. Along the east coast south of the Cenrana, professional archaeological investigations have been limited to a small number of surface collections and excavations (Bulbeck 1996-7). At the same time, Selayar has a rich EMP archaeology, even though professional research there has been restricted to a historical archaeological project and fleeting visits by prehistorians (Hakim 2004). Thus it seems unlikely that an EMP archaeological record equal to that of the Makasar lowlands would be found elsewhere in southwest Sulawesi.

The key to the prominence of the Makasar lowlands would appear to be its juxtaposition of agricultural fertility and strategically sited coast. Follow these lowlands from Maros south and east to Selayar, and the climate shifts from predictable and bountiful monsoonal rains, to a much drier regime where the monsoon may bring refreshing rains or it may completely fail. Follow these lowlands in the other direction and we shift from Selayar and Bira, superbly located as way-stations for maritime trade between the Moluccas and Java, to Maros which lies off route (Caldwell and Bougas 2004; Reid 1983). In addition, the geology of Selayar and Bira is dominated by uplifted limestone, whose agricultural potential is miserly compared to the volcanic-based soils between Bantaeng and Maros. From Makassar south to Takalar, the landscape combines agricultural productivity with access to the main Java-Sulawesi sea breezes and currents, while Bantaeng to the east was an agricultural oasis (Bougas 1998; Bulbeck submitted). Precisely these two vicinities would have been ideal to harbour sailors en route to or from Java, and precisely here are the main concentrations of EMP finds and sites (Fig. 1), including evidence of stable, prosperous communities between 1000 and 1500 CE (Tables 1 and 2).

Table 4 summarises the nature of EMP society, as suggested from archaeology, at each southwest Sulawesi locality with EMP sites. Settlement nucleation was evidently linked to local metallurgy, based on their association with the Makasar Coast, Karama River and particularly Luwu. Mallawa, the Walennae valley site settled throughout the Neolithic and EMP, has not yielded evidence of metallurgy. Its locational benefits, such as its defensive vantage, may have fostered its continuity as a rural hamlet even after demand for its stone axe blanks had diminished. Indeed, in a pattern that had continued from the Neolithic (Bulbeck 2008; Simanjuntak *et al.* 2008), trade was evidently critical to the stability of settled communities (Table 4). A mixed subsistence economy was widespread except in Lamoncong where the local Toaleans lived off foraging, and connected to the outside world through a network that included other Toaleans who lived close to settled populations (Bulbeck 2006). The Leang Codong cemetery points to population increase in the lower Walanae compared to the Neolithic, presumably related to local agricultural fertility. The EMP of the Cenrana-Walennae valley north of Leang Codong calls out for archaeological illumination, as these agriculturally productive lowlands, endowed with freshwater fish and the capacity for riverine trade, comprise the suspected hearth of Bugis kingship (Bulbeck and Caldwell 2000, 2008; see also Druce 2009; Kallupa *et al.* 1989).

A characteristic of the Bugis and Makasar historical kingdoms, large and small, was the royalty's ownership over regalia, which include spectacular items of exotic origin, often made of gold (e.g. Bougas 2007; Kallupa *et al.* 1989; Pelras 1996). Contrasting with these carefully curated items, southwest Sulawesi's bronze axes, Buddhist images and kettledrums appear to have been discovered in the ground (Bosch 1933; Bulbeck 1996-7; Caldwell and Nur 2005; Hoop 1941), indicating their deployment as sumptuary grave goods. They evidently predated the establishment of centralised polities marked by hereditary ownership over regalia, but, also being too singular to serve as exchange items (Schrauwers 2004), they were interred with their high-status owners. Political centralisation in southwest Sulawesi lay in the future, but the process had begun during the EMP at main trading nodes. When this originally trade-based political centralisation took root in southwest Sulawesi's agricultural heartland, along the Cenrana and lower Walanae, it laid the basis for dense Bugis populations, supported by wet-rice agriculture, during historical times.

In a previous review of the archaeology of southwest Sulawesi (Bulbeck 1996-7: 1049) I settled on 1200 CE as a watershed date to mark the importation of an expanded array of sumptuary goods, the introduction of inhumations to the Makasar lowlands, the transition from ranked to stratified societies, and the origins of South Sulawesi's kingdoms. My purpose was to demarcate the province's prehistory, with some tantalising pointers to subsequent developments, and its early history, recorded thanks to the development of the Bugis script during the fourteenth century. The current paper partly reinforces that perspective by noting retention of rudimentary iron-reduction technology in Luwu until c. 1200 CE. On the other hand considerable evidence has now emerged for technological development and centralised settlements prior to 1200, particularly along the Makasar Coast – as in local bronze metallurgy during the first millennium CE, and the subsequent proliferation of rural cemeteries.

The *Desawarnana*, a fourteenth century poem which concerns the Javanese state of Majapahit, includes Makassar, Bantaeng, Selayar and Luwu amongst the list of around one hundred claimed tributaries (Robson 1995). The first three of these correspond to landmarks along the Makasar lowlands (Fig. 1), and the fourth brings in Luwu which now exported ironwares from its capital of Malangke (Bulbeck and Caldwell 2000). The historically attested importance of the Makasar lowlands to Java, at the dawn of southwest Sulawesi's history, well matches this locality's signs of a prominent EMP archaeology, and supports the case that it was a zone of convergence in trade from as far afield as the Moluccas, Kalimantan, Luwu and Java by the late EMP.

Conclusions

Compared to the Neolithic, the EMP in southwest Sulawesi evidently witnessed a significant increase in population size. The EMP is associated with our oldest evidence of mortuary customs in the region, apart from some pre-ceramic Toalean interments and possible Neolithic burials (Bulbeck 2004b). Habitation as well as mortuary sites combine with the finds of EMP bronzes to indicate an increase in the range of material culture during the period. The available data additionally furnish a reasonable coverage of the nature of EMP society in southwest Sulawesi.

The Makasar lowlands juxtaposed the agricultural productivity of the ...nsula's southwest coastal plain with the south coast's strategic position for ...-lane connections to Java, and this combination of benefits led to relatively ...se populations. By the late EMP a complementary relationship had ...erged between coastal trading centres and permanent rural settlements, ...ile local bronze metallurgy, which relied on melting down earlier imported ...onzes, had been established. In Luwu, by the early EMP, settlements had ...en established widely and rudimentary ironstone roasting was practised at ...bbang Loang. Somewhat later, high-quality iron ore from Lake Matano was ...nsported south to Katue and then northward to Luwu-Banggai for ...ocessing. The Karama River, which was one of Indonesia's Neolithic 'hot ...ots' (Simanjuntak *et al.* 2008), continued to be well populated into the EMP, ...hen Sikendeng arose as a coastal trading centre. As suggested by Bulbeck and ...Asruddin (2002), extraction and exportation of Karama River gold may ...ve underwritten this locality's EMP prominence. Wet-rice agriculture was ...troduced to southwest Sulawesi by the late EMP, and would appear to have ...en the basis for the nascent Bugis kingdoms which developed in the ...minsula's central lowlands after the late thirteenth century. However, much ...f southwest Sulawesi currently appears bereft of EMP archaeology, which ...ggests light population densities and limited economic change throughout ...e EMP. The retention of ancient lifeways is particularly demonstrated for ...moncong, which remained a forager stronghold until historical times.

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