



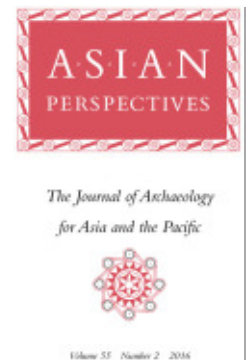
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# *Mortuary Caves and the Dammar Trade in the Towuti–Routa Region, Sulawesi, in an Island Southeast Asian Context*



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## INTRODUCTION

THIS ARTICLE DESCRIBES THE SEQUENCE OF MORTUARY PRACTICES and associated funerary items in the Towuti–Routa region of Sulawesi during the first and second millennia A.D. in the context of the broad chronology of similar customs documented elsewhere across Island Southeast Asia (ISEA). In particular, the mortuary sequence in Towuti–Routa is compared with sequences spanning the centuries A.D. in Old Luwu to the immediate west. Trade in dammar gum, which was used to coat mortuary vessels, was an economic mainstay in Old Luwu and Towuti–Routa at the time of European contact. Dammar gum is investigated for its potential role in financing the import of exotic goods, underpinning regional networks that facilitated the spread of mortuary traditions, and promoting the development of a chiefly social organization.

Towuti–Routa includes the land bordering Lake Towuti in South Sulawesi Province and the Routa regency including the Walandawe district in Southeast Sulawesi Province (Fig. 1). The two dominant geological formations in the area are a sinusoidal member of Cretaceous ultramafics and a calcilutite limestone member that includes steep karsts. Lake Towuti is Sulawesi's largest lake and the most ecologically diverse of the Malili system lakes, which extend north to Lake Matano. The southern watershed

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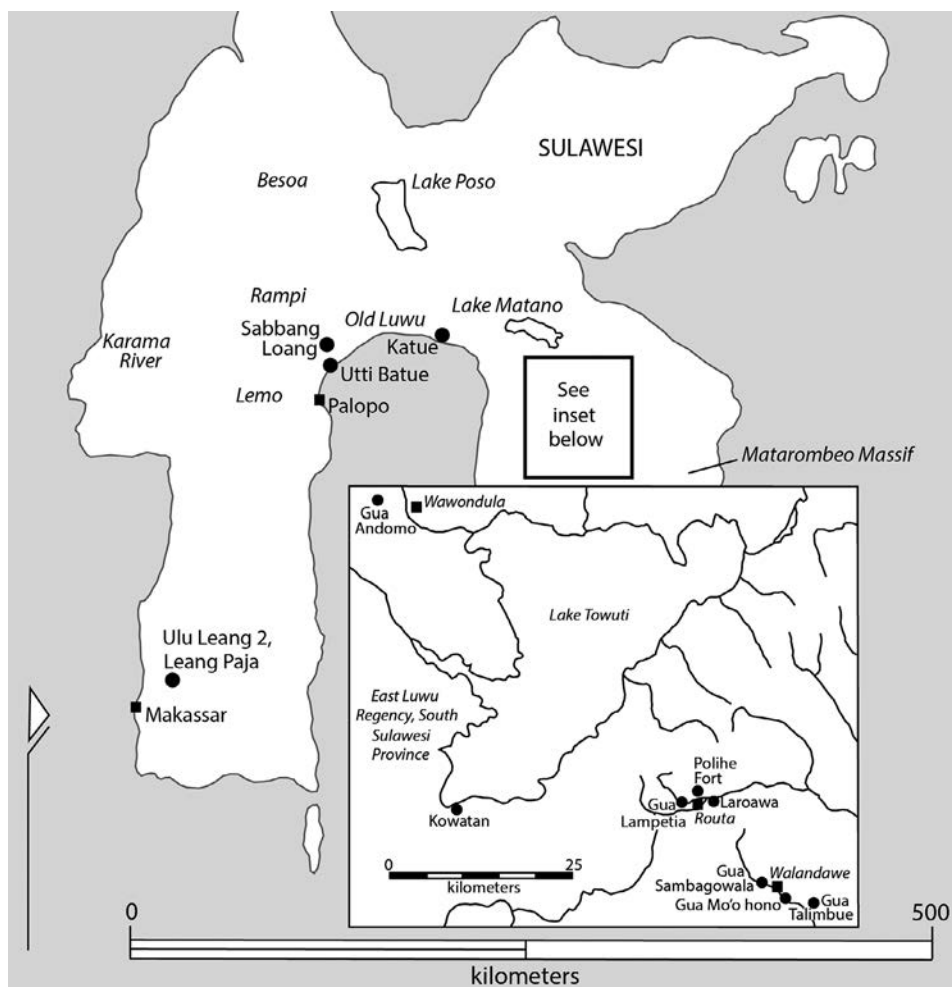


Fig. 1. Central Sulawesi and Western Sulawesi sites and other places mentioned in the text.

of the Malili system lies about 20 km south of Lake Towuti. The dissected terrain south of the watershed is drained by southward-trending rivers, including the Waki and the Wiwirano. Land cleared for settlement and gardens flanking the waterways give way to forest cover on the slopes and ridges. The fertility of the soils is generally poor, especially at the ultramafic outcrops, but the warm temperatures and abundant year-round rainfall sustain diverse forests that include dammar-yielding dipterocarps (O'Connor et al. 2014).

Towuti–Routa is the focus of an archaeological project titled “The Archaeology of Sulawesi: A Strategic Island for Understanding Modern Human Colonization and Interactions Across our Region.”<sup>1</sup> The two periods covered by datable archaeological traces at Towuti–Routa are the pre-pottery (pre-Neolithic) period from the terminal Pleistocene to about 1500 B.C. (Aplin et al. 2016) and the Palaeometallic to historical period, represented by mortuary and habitation remains dating to the centuries A.D.

Findings from the latter period can be compared with those examined for the “Origins of Complex Society in South Sulawesi” (OXIS) project, which investigated the evolving iron industry during Palaeometallic and historical times in Old Luwu between Lake Matano and the historical city of Palopo (Bulbeck and Caldwell 2000).<sup>2</sup> The ethnohistorically spoken languages of the general region represent two “stocks” within the Malayo-Polynesian branch of Austronesian. The three main divisions of the Bungku-Tolaki stock overlap at Towuti–Routa, including Bungku dialects to the east, Tolaki dialects to the south, and Padoe, a Mori language, to the west (Mead 1999). Mori dialects are also spoken in the northern reaches of Old Luwu, whereas the Luwuq, Lemolang, and Bugis languages to the southwest belong to the South Sulawesi stock (Friberg and Laskowske 1989).

Like other islands of the eastern archipelago, Sulawesi was largely unaffected by Hindu-Buddhism and was visited by Europeans before Islam had made a large-scale impact on local beliefs. As described in a variety of sixteenth- to twentieth-century European sources, there was widespread belief that spirits of people’s ancestors dwelling in a nonmaterial realm continued to nurture their living descendants. Guided by community protocols, deceased community members received mortuary treatment suitable to prepare them for their appropriate station in the afterlife and support their capacity to wield influence in the realm of the ancestors. This general perspective on indigenous Malayo-Polynesian “ancestor worship” has been employed for interpreting a range of mortuary assemblages, including those thought to have a direct historical relationship with the assemblages of societies recorded by early European visitors (Bougas 2007; Harrisson 1990; Junker 2001) and those whose association with ethnographically recorded groups is unclear (Bulbeck 2001; Tillotson 1989).

Archaeologists studying Neolithic (associated with pottery but no metals) and Palaeometallic mortuary assemblages dating between c. 3500 and 1000 years ago in ISEA, have generally sought evidence for cultural interconnections based either on mortuary practice details or associated material culture such as pottery decorations. The geographic scope of the posited interconnections can be local, as with the investigations in highland Sumatra (Bonatz 2012), or regional, such as Bellwood’s (1988) comparison of mortuary remains from Sabah, the central Philippines, and the Sangihe Sea. Some comparisons have ventured farther across ISEA to adjacent southern coastal Vietnam, where Malayo-Polynesian (Chamic) languages are also spoken. Examples include Solheim’s (1964) recognition of a Sa Huynh–Kalanay tradition of decorated mortuary pottery and Bellwood’s (1997) proposal that the use of earthenware jars as mortuary containers (“jar burials”) was a tradition independently developed and maintained by Malayo-Polynesian speakers.

Our study of the Towuti–Routa mortuary archaeology follows a different approach by emphasizing the primacy of local factors rather than the role of external influences. For instance, we note an inverse relationship between whether a mortuary practice is documented widely across Towuti–Routa and whether it can be plausibly linked to external influence (Table 1). We further propose that the uptake of a mortuary practice reflects its suitability as a localized material expression of ancestor worship in the context of local communities’ technological skills and access to exotic goods. Finally, our investigations register an early (Palaeometallic) exploitation of the region’s abundant dammar resources, but suggest that the development of a systematic dammar trade was essentially confined to the historical period.

TABLE 1. SUMMARY OF THREE MORTUARY PRACTICES DOCUMENTED FOR TOWUTI–ROUTA

PRACTICE	DOCUMENTED		PLAUSIBLE EXTERNAL INFLUENCE
	DURATION AND EXTENT	GEOGRAPHICALLY CLOSEST MATCH	
Secondary disposal of remains of deceased on cave floors, including aristocrats in large imported jars	c. A.D. 1500–1900, across Towuti–Routa	Large mortuary jars (earthenware, undated) on the Rukuo and Anawai cave surfaces, Matarombeo Massif, Southeast Sulawesi (Fage 2014)	None found (the Rukuo/Anawai jars and Towuti–Routa remains could represent the same tradition)
Secondary burial of multiple persons in large earthenware jar	c. A.D. 1000, at a single site	Large earthenware burial jars (contents not preserved) dating to first millennium A.D. at Sabbang Loang, Old Luwu	Old Luwu
Extended inhumation	c. A.D. 300–1100, at 3 Towuti–Routa sites	Fourteenth–seventeenth century A.D. burial tradition of Makassar speakers, southwest Sulawesi	None clear

## ETHNOHISTORY OF THE TOWUTI–ROUTA STUDY REGION

In 1911, Berlin zoologist Albert Grubauer arrived in Macassar (now Makassar), then the administrative center for the southern half of Sulawesi. He learned that Lake Towuti was the main source of dammar, which was Macassar's major export at the time. He journeyed to Lake Matano and then trekked to the eastern shore of Lake Towuti through lands inhabited by the Leoka (i.e., the Padoe), whom he described as similar to the Toraja “highland people” of central Sulawesi. Approaching southeast Lake Towuti, he encountered a group he called the Tolambatu whose customs reminded him of the “Dayaks” and Dusun of Borneo (Grubauer 1913). At the time, the widespread Bungku language included a Routa dialect near Lake Towuti and a Tolambatu dialect well to the southeast (Mead 1999), so it is likely that Grubauer had confused these two Bungku dialects.

Until shortly before Grubauer's visit, the corpses of the deceased were stored beneath family houses until their bones were defleshed and ready for transport to communal mortuary caves. Commoner and aristocratic adults were accorded different treatment. Commoners were stored in wooden coffins or wrapped in cloth and temporarily buried. Every eight to twelve months, a mortuary feast was held to accompany the collection of the bones and clothing of deceased commoners for transport in wooden caskets to a cave in the mountains. By contrast, deceased aristocrats were stored in finely decorated, wooden litters, along with their personal effects. Every three to five years, their bones were collected for storage in Chinese martavans (stone-ware jars). These were placed in the litter along with a life-size wooden image of the deceased. Amidst great fanfare, the litter was carried to a communal mortuary cave. Deceased children, whether commoner or aristocrat, were also taken to a mortuary cave following a mortuary feast held by the immediate family (Grubauer 1913).

The “Tolombatu” (Bungku) at Lake Towuti directed Grubauer to Routa as their ancestral home, but he found the village of Routa virtually deserted when he arrived. He was guided to a disused mortuary cave an hour's trek east of Routa. He recorded

litters for the nobility and coffins for the commoners in varying states of disrepair depending on how much they had been exposed to the elements. Some attention had been given to keeping the skulls collected together, but the other bones lay strewn across the cave floor, along with wooden bric-a-brac, death hats from wooden images, and the aristocrats' garments, ornaments, weapons, crockery, and victuals for their afterlife (Grubauer 1913).

Social anthropologists McWilliam and Lorenzen (2009) conducted the first survey of the Towuti–Routa mortuary caves. Then, in 2011, a team of Indonesian and Western archaeologists inspected these and other sites for their excavation potential (Bulbeck et al. 2011). Additional mortuary caves were surveyed during the 2012 and 2013 excavation field seasons (O'Connor et al. 2014). As described in this article, we identified two mortuary practices that precede the ethnohistorical tradition described by Grubauer in three of the five excavated limestone caves: Gua Talimbue, Gua Andomo, and Gua Lampetia (Fig. 1; Table 1).

#### GUA TALIMBUE

Gua Talimbue lies in Walandawe, the part of the study region traditionally inhabited by Wiwirano (Tolaki) speakers (Mead 1999). It has a large, well-lit entrance and a complex of back chambers with mortuary disposals similar to those described by McWilliam and Lorenzen (2009). Excavations, mainly m<sup>2</sup> test pits removed in 5 cm artificial levels (AL), focused on the west and east parts of the cave entrance (Fig. 2).

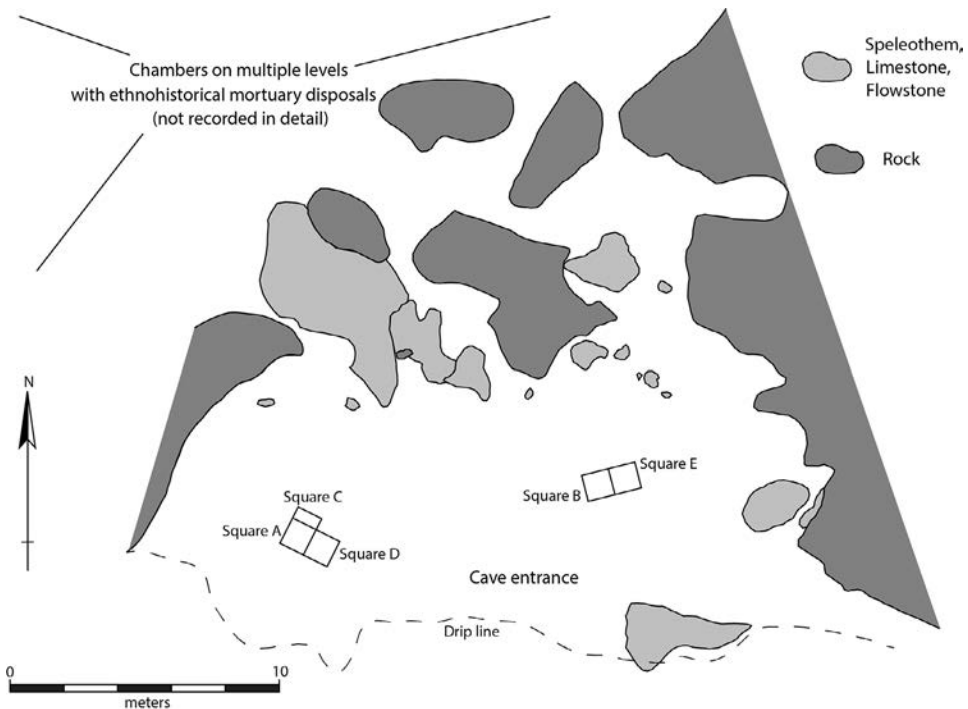


Fig. 2. Gua Talimbue entrance showing location of excavated squares.

The overall habitation sequence of over 4 m depth from the terminal Pleistocene to the late Holocene has been dated by a generally consistent series of Accelerator Mass Spectrometry (AMS) dates on charcoal from Square B (Aplin et al. 2016). These have been calibrated against IntCal13 (Reimer et al. 2013) in Oxcal version 4.2 (Bronk Ramsey 2013), as have all of the <sup>14</sup>C dates presented in this section.

In Square A, at the west, the extended burial of an elderly female was encountered about 40 cm below the surface. The individual appears to have survived for at least several years without functioning dentition: the mandible is edentulous with healed-over alveoli and the small number of preserved maxillary tooth sites lack any teeth. Poor dental health is associated in pre-industrial times with an agriculturally based diet (Hillson 1996). Square D and the half-square C were then excavated to allow removal of the skeleton (Fig. 3). Glass beads, an iron pendant, and ornate earthenware pottery, found down to AL 11 in squares A, C, and D, appear to be mortuary goods associated with the burial. A sample of bone taken from the skeleton's left femur proved to be of adequate quality for reliable AMS dating and returned a date of about A.D. 250–400 (Tables 2, 3).

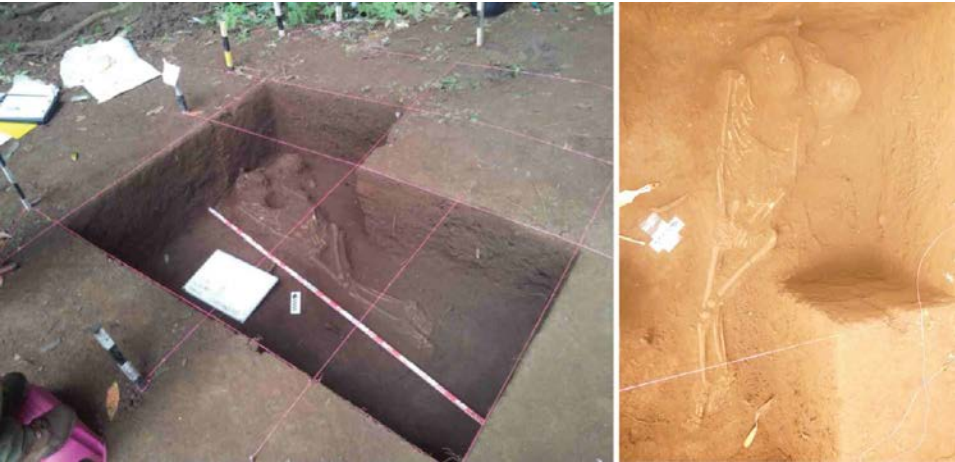


Fig. 3. Extended burial of elderly female at Gua Talimbue.

TABLE 2. INDICATORS OF THE QUALITY OF BONE COLLAGEN\* FROM GUA TALIMBUE (SANU 40418)

COLLAGEN QUALITY ASSURANCE	DATA
Collagen yield	24.0 mg, 4.3 weight %
% C	36.8%
C:N	3.3
δ <sup>13</sup> C	−20.6‰
δ <sup>15</sup> N	7.8‰

\* Extracted with an ultrafiltration protocol and AMS dated. For a reliable date, more than 1 weight % of the bone should be collagen, more than 30% of the collagen should be carbon, and the collagen should have a C:N of 2.9–3.4. Stable isotopes should be representative of the individual's diet, in this case a terrestrial omnivore (van Klinken 1999).

TABLE 3. GUA TALIMBUE AMS DATES YOUNGER THAN 2000 B.C.

SQUARE	ARTIFICIAL LEVEL	LABORATORY CODE	MATERIAL	UNCALIBRATED DATE	CALIBRATED DATE (95% PROBABILITY RANGE)	ASSOCIATION
B	3	D-AMS 004027	Charcoal	347 ± 26 B.P.	1465–1635 cal A.D.	Lowest Square B pottery
A	8–10	SANU 40418	Human bone	1710 ± 20 B.P.	256–393 cal A.D.	Extended burial
B	8	D-AMS 004028	Charcoal	3372 ± 27 B.P.	1742–1614 cal B.C.	Uppermost pre- pottery date

Decorated pottery similar to that associated with the burial was recovered at a lower density down to AL 3 in Square B and AL 6 in Square E, at the east of the cave entrance. Two AMS dates are available for the upper eight artificial levels in Square B, a date of about A.D. 1500 from AL 3 and a date of about 1700 B.C. from AL 8 (Table 3). AL 4 to 7 in Square B would presumably cover the c. 1500–1 B.C. interval when there was a transition from plain red-slipped pottery to plain unslipped pottery at the Karama River sites in West Sulawesi (Anggraeni et al. 2015). However, there is no sign of pottery at Gua Talimbue older than the Palaeometallic pottery associated with the extended burial.

GUA ANDOMO

Gua Andomo, which lies in the part of the study region traditionally inhabited by Padoe speakers (Mead 1999), includes a lower and an upper chamber with mortuary disposals (Fig. 4). A 50 cm × 50 cm test pit was excavated near the center of the upper chamber in the vicinity of several clusters of wooden coffins containing the secondarily stored bones of sub-adults (teenagers) and adults. The coffins, which are held together with early twentieth-century nails, include rectangular boxes and square containers with centrally peaked covers (Fig. 5). The upper chamber is accessed via a sloping tunnel through the limestone from a cavity at the rear of the lower chamber. The lower chamber is dominated by rock and flowstone, with only a small area of sediment at the entrance, where a second 50 cm × 50 cm test pit was excavated (Fig. 6). Ethnohistorical mortuary remains include nine adult crania lodged in cavities within a rock warren (a maze of loosely clustered boulders) at the east and rectangular coffins suspended from the walls at the west.

The test pits yielded sherds of local earthenware and imported ceramics, supplemented by beads of glass and other materials, wood, copper-based ornaments, and in Test pit 2 two indecipherable Chinese coins and a variety of iron fragments. The imported ceramics mostly date to between the fifteenth and nineteenth centuries. Sherds from martavans and other large jars date to between the sixteenth and eighteenth/nineteenth centuries (Table 4). Both test pits were taken to bedrock, but there was no sign of increasing age of the contents with depth. For instance, sherds of European bottle glass were found in five of the nine artificial levels in Test pit 2 including the top and bottom levels. The reported looting of the site for antiques may be a contributing factor to this lack of chronological resolution.





Fig. 4. Gua Andomo lower and upper chambers, from the south.

Both test pits yielded fragmentary human remains, including teeth, manual and pedal extremities, and fragments from the cranium, vertebral column, pelvis, radius, femur, patella, and feet. Analysis of the dental remains demonstrates a minimum number of five children, aged between four years old and adolescence, and four adults of

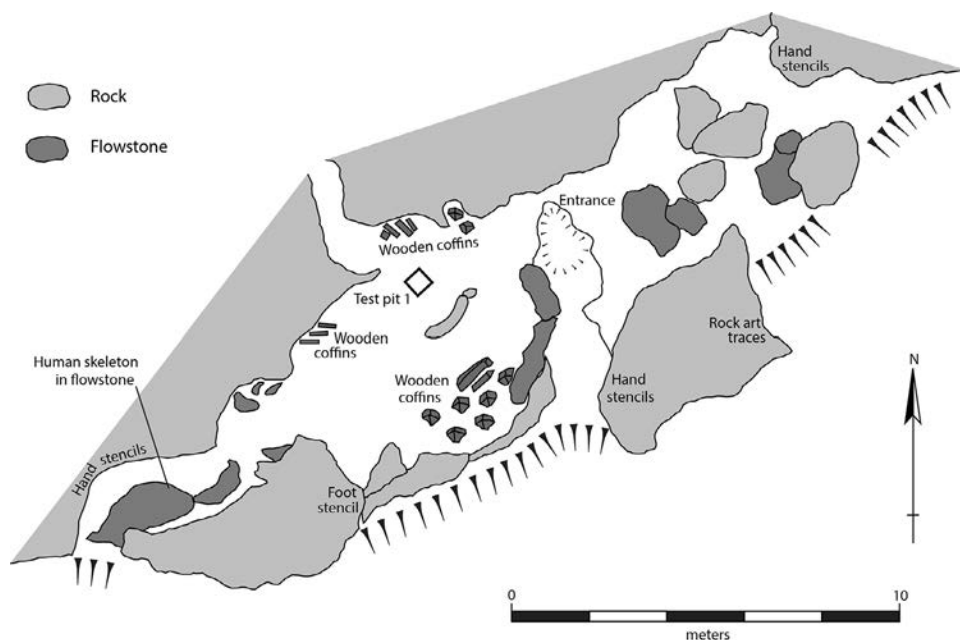


Fig. 5. Gua Andomo upper chamber showing location of Test pit 1.

various ages. One adult is represented by a left maxillary fragment with advanced alveolar recession at its canine and first premolar sites, a second adult by well-worn teeth including a third molar with a carious pit, and the other two adults by assortments of teeth with betel-nut staining. Thus, the dental remains evidently reflect a substantial agricultural component in the diet.

The upper chamber also includes a semicomplete skeleton embedded in flowstone, probably an inhumation that got caught up in an active flowstone event. These circumstances prevented detailed recording, but the on-site impression of large bones suggests an adult male (Bulbeck et al. 2011). A cranial fragment from the skeleton was of sufficient quality for an AMS date of  $1000 \pm 25$  B.P. (987–1149 cal A.D., 95% probability range) (Table 5).

#### GUA LAMPETIA

Gua Lampetia, which lies in the part of the study region traditionally occupied by Rوتا (Bungku) speakers (Mead 1999), includes an east and a west chamber, both roomy and well lit (Fig. 7). In the east chamber, human bones including 17 crania (all adult apart from one teenager), leg bones, and pelves were found stored on a boulder, and a large collection of sherds from imported, sixteenth- to nineteenth-century ceramics was found on another boulder in the west chamber (Bulbeck et al. 2011).

Both of the m<sup>2</sup> test pits (A and B) excavated in the west chamber produced fragmentary human remains, sherds of earthenware and imported ceramics, glass beads, and bronze ornaments in the upper artificial levels. The human teeth allow a minimum of four children (three years old to teens) and four adults to be identified. Two

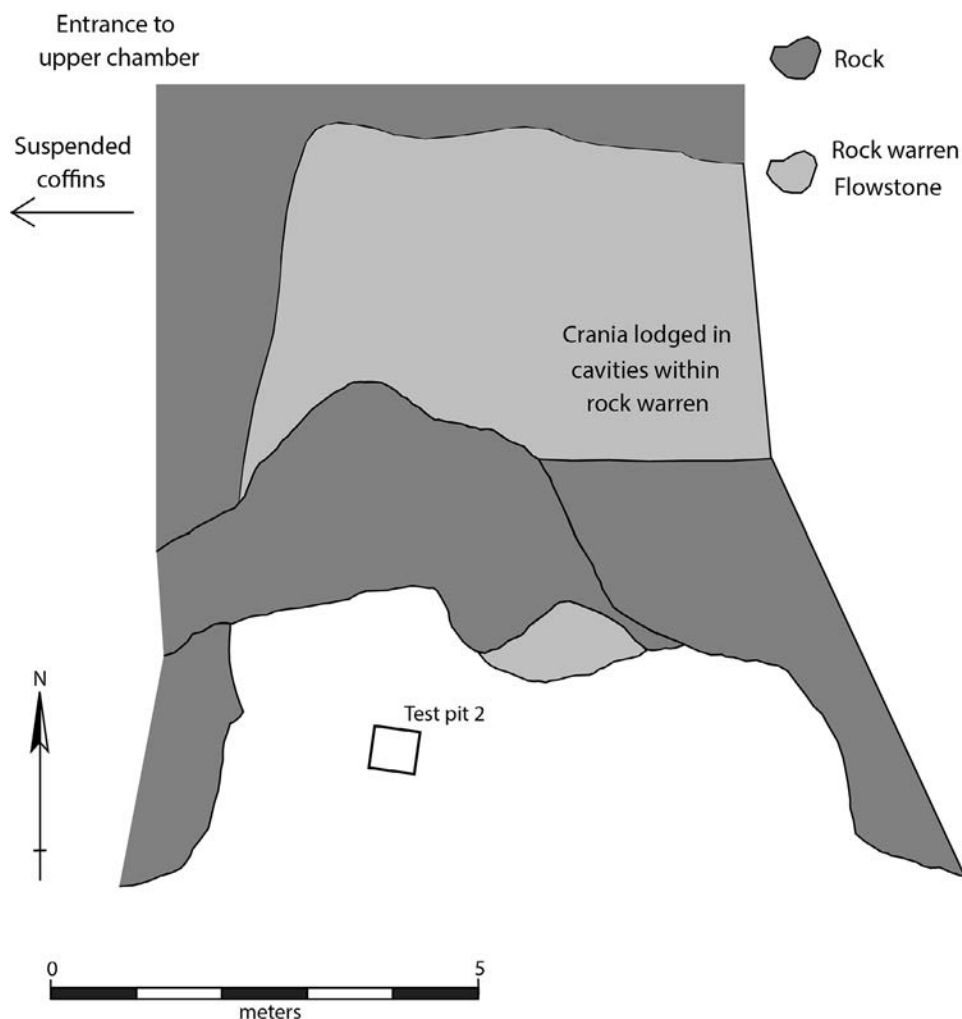


Fig. 6. Gua Andomo lower chamber showing location of Test pit 2.

of the adults have carious lesions, while another adult and the teenager have betel-stained teeth. The other skeletal parts include cranial, vertebral, scapula, arm-bone, hand, sacral, pelvic, leg-bone, and foot fragments, and manual and pedal extremities. The imported ceramics date to between the fifteenth/sixteenth and nineteenth/twentieth centuries (Table 4). The excavations also yielded traces of earlier habitation including ocher and three chert artifacts from Test pit A and some earthenware pottery found near the base of Test pit B.

The excavation of Test pit A was extended so as to remove a large earthenware mortuary jar revealed in the southwest corner. The jar has a date of A.D.  $1140 \pm 60$  from both thermoluminescence and optically stimulated luminescence (OSL) for the jar body (UW2870) and an OSL date of A.D.  $900 \pm 120$  for the jar cover (UW2871). The two dates overlap at their 95 percent probability range. Taking into account the

TABLE 4. IMPORTED CERAMIC SHERDS EXCAVATED AT GUA ANDOMO AND GUA LAMPETIA

CERAMIC TYPE	VESSEL FORM	ESTIMATED AGE (CENTURIES A.D.)	GUA ANDOMO	GUA LAMPETIA
Vietnam brownware	Jarlet/covered bowl	14/15?	1	—
Ming celadon	Bowls, plate	14–16	3	—
Vietnam celadon	Bowl	15/16	1	—
Ming whiteware	Bowl	15/16	—	1
Sawankhalok brownware*	Martavan	16	1	—
Ming red overglaze	Bowl	16	—	1
Ming whiteware	Bowl	16/17	1	—
Thai brownware*	Martavan	16/17	2	2
Vietnam celadon	Jar	16/17	1	—
Vietnam? unglazed	Unidentified	16/17	—	1
Brittle (East Asian)*	Martavan	16/17?	2	1
Coarse brown (Thailand/Cambodia)*	Martavan	16/17	1	—
Guangdong brownware/blackware*	Martavan	16–19	8	1
Vietnam brownware*	Martavan	18–19	9	—
Qing blue-and-white	Bowls, plate	19	—	3
European (finer classification not attempted)	Bowls, plate	19–20	9	4

\* Martavan categories defined by Harrison (1990).

TABLE 5. INDICATORS OF THE QUALITY OF BONE COLLAGEN\* FROM GUA ANDOMO  
(SANU 34619)

COLLAGEN QUALITY ASSURANCE	DATA
Collagen yield	67.4 mg, 6.5 weight %
% C	36.8%
C : N	3.3
$\delta^{13}\text{C}$	–19.8‰
$\delta^{15}\text{N}$	7.4‰

\* See note to Table 2.

technical complexities associated with the dates, the most cautious approach would be to date the probable age of the jar burial to A.D. 900–1200. The jar contained the commingled remains of five individuals (three young children, an adult male, and an adult female) as well as a marine shell ring and bone pendant. The five individuals were identified on the basis of the dental remains, supported by analysis of the cranial, mandibular, clavicle, scapula, arm-bone, pelvic, and leg-bone fragments, and the manual and pedal extremities. Both adults showed betel-nut staining of their teeth.

The extended burial of a young male on the verge of adulthood was found in stratigraphic position beneath the jar, its skull dislodged by the interment of the jar. This extended inhumation would be older than the jar burial, but how much older is not possible to determine, because analysis of the poorly preserved bone showed there was not enough collagen for reliable <sup>14</sup>C dating.

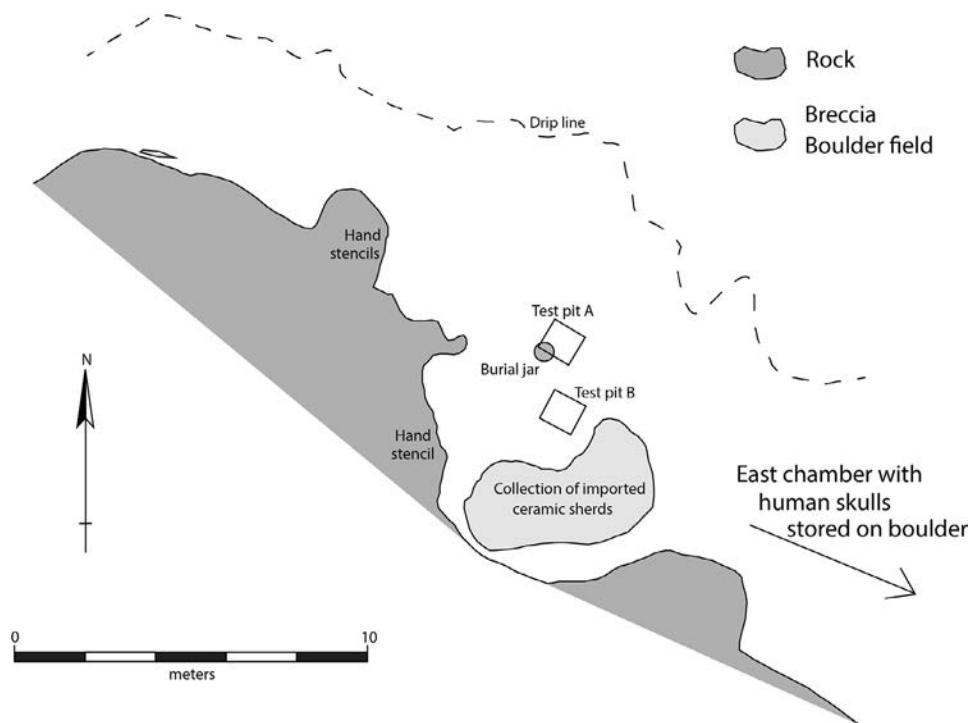


Fig. 7. Gua Lampetia west chamber showing location of Test pit A and Test pit B.

#### CAVES WITH EXCAVATIONS LACKING MORTUARY REMAINS

Excavations at two rock shelters near Walandawe named Gua Sambagowala and Gua Mo'o hono are relevant to our analysis. Both were test-pitted with 1 m<sup>2</sup> excavations to a depth of several meters. Neither produced distinct burials, but the surface collection from Gua Sambagowala contained mortuary remains similar to those excavated from Gua Andomo and Gua Lampetia. Gua Sambagowala and Gua Mo'o hono echoed Gua Talimbue in indicating that preceramic habitation lasted until at least the second millennium B.C. and that the site continued to be used in recent centuries. The pottery in Square A at Gua Sambagowala was limited to a few sherds in the top 10 cm AL, beneath which (at 25 cm depth) was a charcoal AMS date of  $3297 \pm 29$  B.P. (D-AMS 001988, 1637–1504 B.C. calibrated, 95% probability range). The pottery assemblage from Gua Mo'o hono is quite substantial, but it cannot be dated any earlier than the first millennium A.D. because it appears at a depth about halfway between dates of about A.D. 1450 at AL 5 and 1800 B.C. at AL 13 (Table 6).

#### CAVE EXCAVATION SUMMARY IN LOCAL CONTEXT

The mortuary remains found at Gua Andomo and Gua Lampetia correspond well to Grubauer's observations of "Tolambatu" mortuary practices. Intact crania and other large bones were lodged on rock surfaces or stored in coffins, as at the mortuary cave that Grubauer visited. The identifiable individuals excavated from the deposit consist

TABLE 6. DISTRIBUTION OF POTTERY IN GUA MO‘O HONO TEST PIT A UPPER SPITS

ARTIFICIAL LEVELS	INFERRED		RELEVANT ASSOCIATIONS
	APPROXIMATE CHRONOLOGY	POTTERY QUANTITY	
1–5 (to 50 cm)	A.D. 1450– 1950	320 sherds (392 g)	European sherd, bottle glass, Chinese sherd, charcoal at 50 cm (D-AMS 001622) $450 \pm 24$ B.P. calibrating to A.D. 1420–1466 (95% interval)
6–9 (to 90 cm)	A.D. 1–1450	428 sherds (497 g)	Polished stone tip and box fragment; AL 9 pottery just 2 sherds, probably displaced from above
10–13 (to 1.3 m)	2000–1 B.C.	Pre-pottery	Charcoal at 1.28 m (D-AMS 001623) $3452 \pm 26$ B.P. calibrating to 1879–1690 B.C. (95% interval)

of similar numbers of children and adults. With reference to Grubauer’s account, the children would have have been carried to the caves for burial as corpses unaccompanied by coffins, while the adults would have been transported to the caves in biers that subsequently deteriorated and spilled their contents. This spillage would also account for the excavated material culture, which covers the range of mortuary goods described by Grubauer. About half of the imported ceramic sherds came from large stoneware jars, reminiscent of those described by Grubauer used for holding the remains of deceased aristocrats. The dates of the imported ceramics suggest an overall period of c. A.D. 1500–1900 for the mortuary tradition described by Grubauer.

However, the Towuti–Routa excavations also reveal a Palaeometallic mortuary sequence extending back to the early centuries A.D. The earliest documented mortuary practice involved direct burials in the cave floor, overlapping at around A.D. 1000 with the use of a large earthenware jar for communal burial. The total number of 4 Palaeometallic burials is small compared with the minimum number of 17 individuals excavated in association with the ethnohistorical cemeteries at Gua Andomo and Gua Lampetia. While the quantity of Palaeometallic burials is insufficient to infer the establishment of Palaeometallic cemeteries, the excavated area (about 9 m<sup>2</sup>, from just 5 sites) is too small to rule out their existence.

The mild to severe oral pathology of the adult jaws and dentitions of both the Palaeometallic and ethnohistorical burials, along with betel-nut staining on about one-third of the teenager/adult dentitions, points to an agriculturally based subsistence economy. Site survey in 2011 documented one open site—Laraowa—that may be of Palaeometallic antiquity. Local farmers donated a stone barkcloth beater and a corroded iron bushknife blade from the site and reported coming upon potsherds at around 50 cm depth. The c. A.D. 1500–1900 phase is certainly represented by some large open sites documented during the 2011 survey. These include the Polihe fort, with a perimeter of earth ramparts and a hill line enclosing an extensive area of about 3 ha, and Kowatan (“place of artisans”), with ironworking debris of early twentieth-century and older antiquity (O’Connor et al. 2014).

EARTHENWARE POTTERY

Representative samples of earthenware pottery have been documented for Gua Talimbue and Gua Mo‘o hono and large quantities have been excavated from Gua Andomo and Gua Lampetia. The earthenware fabric from all sites is similar. The pre-

dominant inclusions (where present) consist of white speckles or grains, presumably weathered from local limestone and naturally present as grit in the clays that can be found along the Towuti–Routa streambeds. Unfortunately, time restrictions limited the documentation of the Gua Andomo assemblage or the Gua Lampetia pottery (apart from the burial jar). In the latter case, limited sampling would seem to explain why the sherds with visible traces of their manufacturing technique reflect paddle-and-anvil finishing less often than alternative observed techniques (hand modeling, molding in a basketry casing, use of a slow wheel for finishing jar apertures), whereas paddle-and-anvil finishing dominated the other assemblages (Table 7).

The decorations on the Gua Talimbue pottery from all five excavated squares follow the same ornate style (Fig. 8), although the proportion of sherds that are decorated is higher in the vicinity of the extended burial than in Square B and Square E. The most common motifs in the excavated sample either have archaeological parallels with the pottery decorations at Gua Mo'o hono or ethnographic parallels with the central Sulawesi highlands (Table 8). Not all of the Gua Talimbue pottery motifs were recorded at Gua Mo'o hono, but this could be explained by the more diverse decorative repertoire at Gua Talimbue, which, in turn, could reflect the ritual nature of its pottery compared with the habitation context of Gua Mo'o hono. Interestingly, the two most common motifs are also depicted on a large mortuary jar from Gua Rukuo (Fage 2014), which lies in the Matarombeo Massif, a Bungku-speaking area approximately 50 km to the east (Mead 1999).

The large Gua Lampetia burial jar, dated to around A.D. 1000, is a remarkable artifact (Fig. 9). When intact, the jar body would have weighed about 5.5 kg and the cover 850 g; the height and girth of the body would have been 50 and 70 cm, respectively. The body would have gleamed golden-brown inside and outside from its comprehensive dammar coating. The cover had an external dammar coating over its paddle-impressed, shallowly crenulated decorations (Fig. 10). The inside surface is rough and black from being fired in a reducing environment.

At both Gua Lampetia and Gua Andomo, the excavations of the ethnohistorical mortuary disposals produced a greater quantity of local earthenware than imported ceramics. At Gua Lampetia, there was over 1.5 kg of local earthenware (not including the large intact jar), but only about 200 g of imported ceramics. Earthenware pottery included large jars, some with appliqué zigzags along the neck, and smaller vessels, a few decorated with punctate dots, incisions, and paddle-impressed crests (Fig. 11). The punctate-dot motif may have been quite long-lasting, since it is also present on the stratigraphically deepest pottery from Gua Lampetia Test pit B, deposited well before the ethnohistorical burials, and also on the Gua Talimbue and Gua Mo'o hono pottery.

At Gua Andomo, excavated local earthenware amounted to some 13 kg, dwarfing the 600 g of imported ceramics. Large jars with a brown to black coloration, often polished or coated with dammar, and undecorated apart from occasional horizontal incisions, dominate the earthenware. As with the imported martavans, the large earthenware jars at Gua Andomo were probably used for holding the remains of the deceased, but presumably only commoners.

A resinous coating that appears to be dammar was recorded on just a small proportion (<2%) of the Gua Talimbue sherds, but 12 percent or more of the other pottery assemblages (Table 7). One possible explanation for this difference is that a resinous coating would tend to mask fine decorations and so was avoided as a surface finish for the Gua Talimbue pottery. Application of a red slip was also unrecorded for Gua

TABLE 7. MAIN EARTHENWARE POTTERY ASSEMBLAGES FROM TOWUTI-ROUTA

SITE	POTTERY QUANTITY	AVAILABLE DATING	MORTUARY/ HABITATION ASSOCIATION	PROPORTION DECORATED SHERDS	PROPORTION RESIN-COATED SHERDS	PROPORTION RED-SLIPPED SHERDS	PROPORTION PADDLE-AND- ANVIL FINISHING
Gua Talimbue	2.05 kg	A.D. 250-400*	Burial goods	141/1215 (11.6%)	18/1215 (1.5%)	0/1215 (0%)	528/537 (98.3%)
Gua Mo'o hono AL	0.50 kg	~A.D. 1-1450	Habitation	28/428 (6.5%)	64/428 (15.0%)	2/428 (0.5%)	74/95 (77.8%)
Gua Lampetia burial	6.35 kg	~A.D. 1000	Mortuary	333/978 (34.0%)	937/978 (95.9%)	0/978 (0%)	929/935 (99.4%)
jar			container				
Gua Lampetia	1.50 kg	Mainly second	Mainly	25 decorated	4/25 (16.0%)	2/25 (8.0%)	2/16 (12.5%)
(excluding burial jar)		millennium A.D.	mortuary	sherds studied			
Gua Andomo	13.00 kg	~A.D. 1500-1900	Mortuary	4/63 studied	33/63 studied	4/63 studied	50/55 studied
				sherds (6.3%)	sherds (52.3%)	sherds (6.3%)	sherds (90.0%)
Gua Mo'o hono AL	0.39 kg	~A.D. 1450-1900	Habitation	27/320 (8.4%)	40/320 (12.5%)	13/320 (4.1%)	65/84 (77.4%)
1-5							

\*An unknown proportion of the pots/sherds may date to as recently as the second millennium A.D. (see Table 3).





Fig. 8. Decorated earthenware pottery from Gua Talimbue, Square A, AL 6.

TABLE 8. MOST COMMON GUA TALIMBUE DECORATIVE MOTIFS AND THEIR PARALLELS

MOTIF	PARALLEL
Semicircles arranged in compositions*	Gua Mo'o hono AL 6
Lines of commas that resemble fern leaves*	Wooden panel, Lake Poso, Central Sulawesi (Grubauer 1913: 442)
Series of dots in lines or fields	Gua Mo'o hono AL 5
Panels of rounded triangular indentations	Wooden front doors, Lemo, Tana Toraja, northern South Sulawesi (Grubauer 1913: fig. 309)
Vertical paddle-impressed crests	Gua Mo'o hono AL 3–7

\*Also depicted on the sherds of a mortuary jar from Gua Rukuo (Fage 2014).

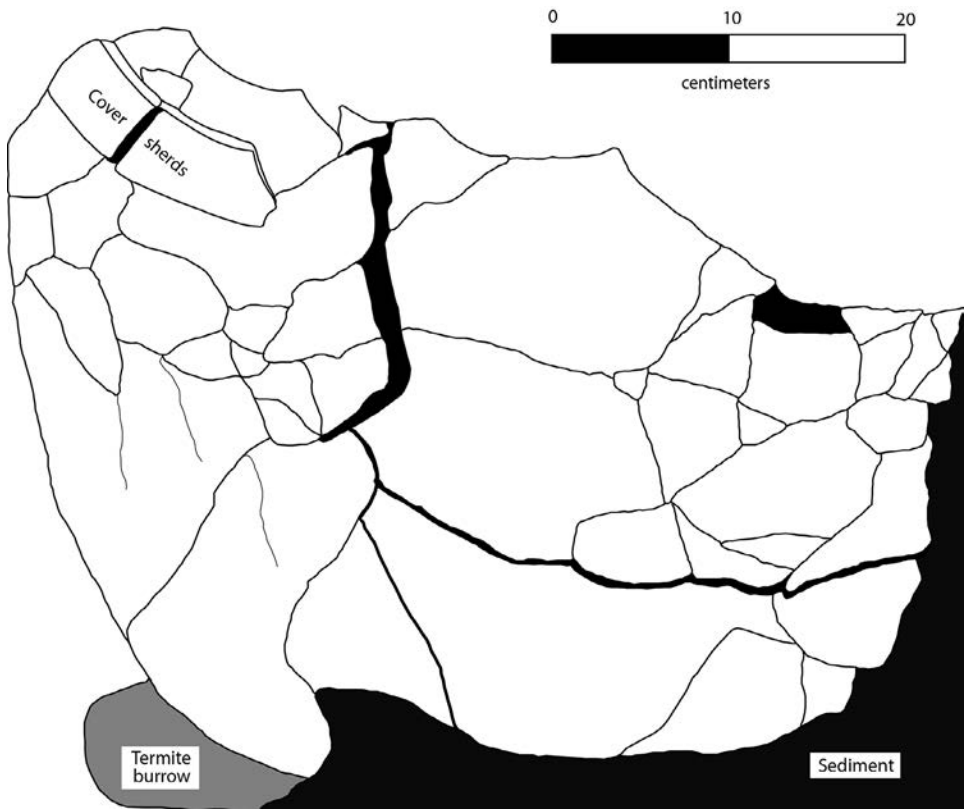


Fig. 9. Large burial jar at Gua Lampetia, sketched during excavation.

Talimbue, but it was similarly rare for the other assemblages, perhaps reaching a prevalence rate of about 5 percent after A.D. 1500. In any case, the copious use of dammar for the Gua Lampetia burial jar marks its local availability in large quantities by approximately A.D. 1000.

These observations are offered largely as a basis for future research. Further analysis of the earthenware pottery for socioeconomic information on Towuti–Routa would



Fig. 10. External surface of the cover of large burial jar from Gua Lampetia.

be premature in view of the scarcity of other well-documented earthenware sequences in central Sulawesi. However, the earthenware pottery from Old Luwu has been described in sufficient detail to demonstrate its marked differences from Towuti–Routa. The first millennium A.D. pottery from Sabbang Loang and Katue has a very low proportion of decorated sherds (0.2% at both sites). The comma shapes observed on two Katue sherds provide the only point of similarity with the most common Gua Talimbue motifs (Bulbeck 2008). The analyzed earthenware pottery from Utti Batue, the palace center of the Bugis kingdom of Luwu between the fifteenth and sixteenth centuries A.D., includes an imitation martavan with horizontal incised lines similar to the Gua Andomo jars, as well as rates of sherds with a red slip (3%) or suspected resin coating (28%) similar to Towuti–Routa second millennium A.D. assemblages. However, these Towuti–Routa assemblages do not include any matches for the “arabesque” designs observed on some Utti Batue sherds, nor any sign of the “soft pottery” class that accounts for around 10 percent of the earthenware manufactured in Old Luwu between the fourteenth and seventeenth centuries A.D. (Bulbeck 2009:9, table 1.2; Bulbeck et al. 2007:136–137).

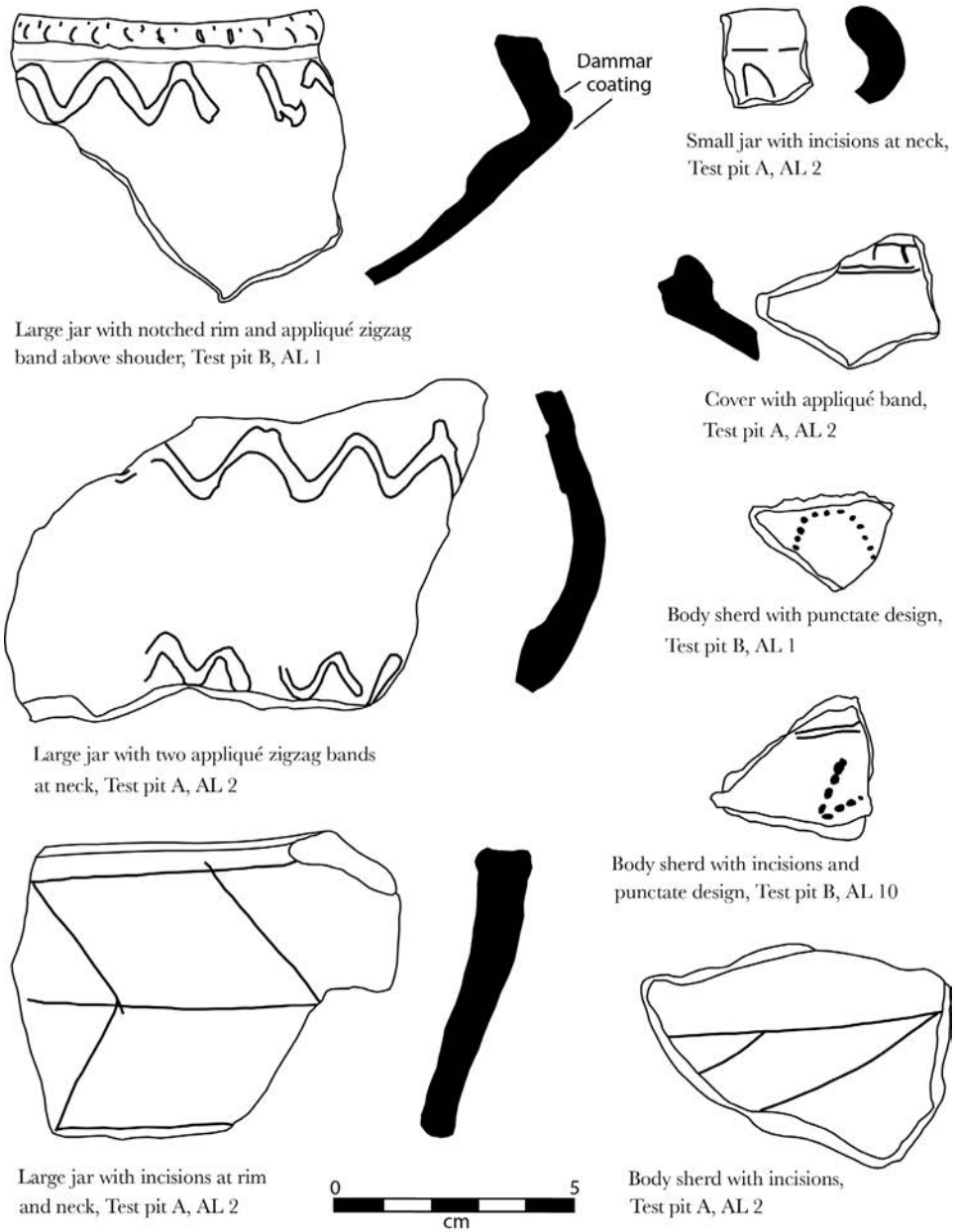


Fig. 11. Decorated earthenware sherds from Gua Lampetia Test pit A and Test pit B.

#### BEADS

The great majority of the 336 beads that were excavated are glass. Only 5 were identified as made of other materials, including a bronze bead and a *Nassarium* sp. shell bead from Gua Talimbue, and an agate bead and two *Nassarium* sp. shell beads from

Gua Andomo. The possible source of the *Nassarium* sp. beads is unclear because in Sulawesi this genus includes marine, brackish, and freshwater species. The bronze bead may have been manufactured in Sulawesi, whereas the agate and glass beads would have been imported from overseas.

Project scheduling and funding restrictions prevented chemical analysis of the glass beads, so their coverage here focuses on metrical and visual attributes. The recorded measurements include the length of the bead (the axis along which the bead would have been strung) and the (maximum) diameter perpendicular to the bead's length. The color classes used here are those from the Munsell standard charts, mostly the soil-color chart, but also the rock-color chart for the most brightly colored beads.

The 48 Talimbue glass beads, all associated with the extended burial, are less diverse than the 158 Andomo and 125 Lampetia glass beads. All of the Talimbue examples can be classified as "Indo-Pacific drawn monochrome glass beads," which were produced in Southeast Asia between the early centuries and the twelfth century A.D. (Francis 1999:94) (Fig. 12). They range in length from 1.1 to 4.8 mm and in diameter from

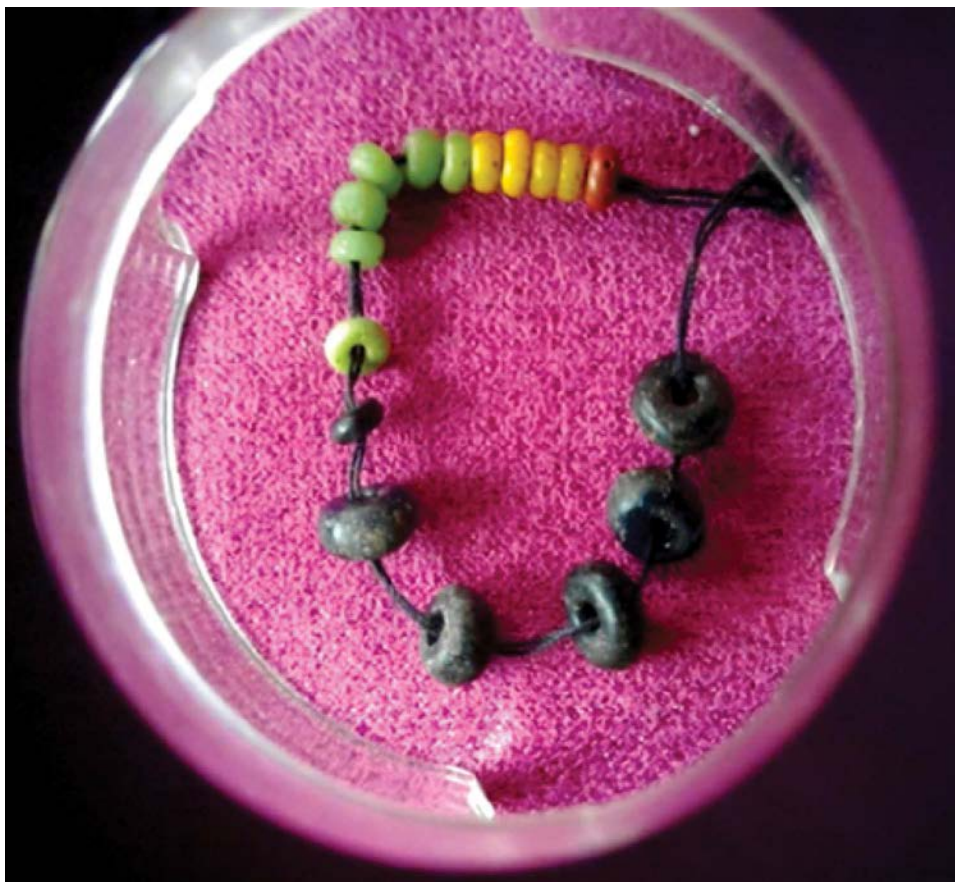


Fig. 12. Glass beads (counterclockwise from top right: red, yellow, green, black) from Gua Talimbue, Square A, AL 10.

TABLE 9. SUMMARY OF THE SHAPES OF THE TOWUTI–ROUTA BEADS

SITE	GLOBULAR CLASSES			TOTAL GLOBULAR	CYLIN- DRICAL	HEXAG- ONAL	TOTAL
	ANNU-	OBLATE	ELLIP-				
	LAR		SOID				
Gua Talimbue	27	20	1	48	0	0	48
Gua Andomo	18	101	5	124	32	1	157*
Gua Lampetia <sup>#</sup>	31	74	2	107	18	0	125
PERCENT OF GLOBULAR CLASS				PERCENT OF ALL BEADS			
Gua Talimbue	56%	42%	2%	100%	100%	0%	100%
Gua Andomo	15%	81%	4%	100%	79%	20%	100%
Gua Lampetia	29%	69%	2%	100%	86%	14%	100%

\*Excludes one glass bead too fragmentary for its shape to be discerned; <sup>#</sup> includes one annular and five oblate beads from AL 4–6 (stratigraphically beneath the other beads).

2.3 to 7.9 mm. Many of the Andomo and Lampetia examples can also be assigned to the Indo-Pacific class, but they are complemented by beads that continued to be produced for export after A.D. 1200, including wound beads and small, drawn mono-chrome “seed beads” that were made across Eurasia (Francis 1999:67). The 382 Andomo/Lampetia wound beads include nine specimens with a length between 6.5 and 12 mm, clearly distinguishing them from the Talimbue beads, while the Andomo/Lampetia seed beads include 32 specimens with a diameter less than that recorded for any of the Talimbue beads.

The range of shapes of the Talimbue glass beads is also less than their Andomo and Lampetia counterparts (see the bead shape table in Adhyatman and Arifin 1996: 154–157). The two main shape classes are globular and cylindrical, respectively distinguished by whether the diameter is clearly rounded or relatively constant for the length of the bead. All of the Talimbue glass beads are globular, but this is not the case with the approximately 15–20 percent of the Andomo and Lampetia beads that are cylindrical or, in one case, hexagonal (Table 9). Within the globular class, the modal shape for the Talimbue beads is flat or “annular,” defined here as having a diameter at least 1.7 times the bead length. But for Gua Andomo and Gua Lampetia, including the 6 stratigraphically deepest Lampetia beads, rounded or “oblate” is the most common shape, defined by having a diameter between 80 and 170 percent of the bead length. At all three sites, just a small proportion of the beads are “ellipsoid,” with a diameter less than 80 percent of the bead length.

There are also color differences between the Talimbue and the other beads. The most common color classes for the Talimbue beads are green, yellow, or black; none are brown/olive, pink, or white (Table 10). With the Andomo and Lampetia beads, about half are classified as gray based on a subdued greenish tinge equating to light to dark greenish gray; smaller proportions have a brown/olive, pink, or white coloration. This description also applies to the six stratigraphically deepest beads from Gua Lampetia, providing little reason to distinguish them from the other Andomo/Lampetia beads.

Based on these observations, the Talimbue and the Andomo/Lampetia beads constitute distinct assemblages. This corresponds to the early first millennium A.D. date for



TABLE 10. SUMMARY OF THE COLORS OF THE TOWUTI–ROUTA BEADS

SITE	WHITE	PINK	YELLOW	RED	GREEN	BLUE	BROWN/		GRAY	BLACK
							OLIVE			
Gua Talimbue	0 (0%)	0 (0%)	10 (21%)	3 (6%)	21 (44%)	1 (2%)	0 (0%)		3 (6%)	10 (21%)
Gua Andomo	5 (3%)	8 (5%)	21 (13%)	11 (7%)	3 (2%)	0 (0%)	12 (8%)		75 (48%)	23 (15%)
Gua Lampetia	19* (15%)	5 (4%)	7 (6%)	2 (2%)	5* (4%)	0 (0%)	11* (9%)		71* (57%)	5* (4%)

\* Colors recorded (gray twice) for beads from AL 4–6 (stratigraphically beneath the other beads).

the Gua Talimbue burial and the late second millennium A.D. date for the majority of the Gua Andomo/Lampetia mortuary disposals.

#### METALS

Gua Talimbue produced two metallic items in close proximity to the extended burial: the bronze bead mentioned above, and an ear pendant, apparently of iron, with a hook at the top of the unphotographed side (Figure 13). Pendants of this variety seem to have had a long history of use in Towuti–Routa, since the Gua Talimbue pendant is similar to a middle ear pendant from Wawondula, then a Leoka (Mori) village, illustrated by Grubauer (1913: fig. 82).

The excavated metal ornaments from Gua Andomo and Gua Lampetia are all copper-based, either brass or bronze. All of them have parallels in the ethnography of Central Sulawesi, where traditional bronze metallurgy thrived during ethnohistorical times (van Heekeren 1958) (Table 11). They may indeed source to central Sulawesi given that site survey in Towuti–Routa recovered evidence only of local iron metallurgy (Bulbeck et al. 2011). Their antiquity would be the same as the c. sixteenth- to nineteenth-century mortuary disposals with which they are associated.

#### COMPARISONS WITH OTHER ISEA SITES WITH SIMILAR MORTUARY REMAINS

This section compares the burial customs of Towuti–Routa with other ISEA sites.<sup>3</sup> Extended burials in the c. first millennium A.D. time range are the earliest mortuary practice documented for Towuti–Routa, but they were evidently preceded in Sulawesi by Neolithic extended inhumations, seen in the Oluhuta cave on Sulawesi's northern arm. Certainly, Neolithic extended inhumations date back to 1000 B.C. or earlier at caves in Borneo, Java, Sumatra, Peninsular Malaysia, and perhaps Flores. A shift from caves to open-air settings for the majority of extended burial sites can be dated to the first millennium A.D., as documented at numerous sites in Peninsular Malaysia, south Sumatra, Lomblen, and Luzon, though not Sulawesi (Table 12). In summary, the Towuti–Routa extended burials are not only unmatched in Sulawesi for the first millennium A.D. (per current documentation), their cave setting is atypical for extended burials of this age across ISEA in general.

Many of the grave goods from extended inhumations indicate a local capacity to make pottery and polished stone items and shell jewelry. These techniques are



Fig. 13. Iron ear pendant from Gua Talimbue, Square C, AL 6.

TABLE 11. EXCAVATED METAL ORNAMENTS FROM GUA ANDOMO AND GUA LAMPETIA

OBJECT	PROVENANCE	ETHNOGRAPHIC PARALLEL
Brass ringlet	Gua Andomo Test pit 2, AL 2	Soroako, Lake Matano (Grubauer 1913: fig. 60)
Brass wristlet	Gua Andomo Test pit 2, AL 2	Rampi, northern South Sulawesi (Grubauer 1913: fig. 206)
Bronze earring	Gua Andomo Test pit 2, AL 2	Besoa, Central Sulawesi (Grubauer 1913: fig. 256)
Bronze ringlet	Gua Andomo Test pit 2, AL 4	Soroako, Lake Matano (Grubauer 1913: fig. 60)
Bronze wristlet	Gua Andomo Test pit 2, AL 5	Rampi, northern South Sulawesi (Grubauer 1913: fig. 206)
Copper wristlet	Gua Andomo Test pit 2, AL 6	Soroako, Lake Matano (Grubauer 1913: fig. 60)
Bronze bangle	Gua Andomo Test pit 2, AL 9	Rampi, northern South Sulawesi (Grubauer 1913: fig. 206)
Bronze earplug	Gua Lampetia Test pit A, AL 1	Soroako, Lake Matano (Grubauer 1913: fig. 60)
Bronze earplug	Gua Lampetia Test pit B, AL 1	Besoa <i>taiganja</i> , Central Sulawesi (Grubauer 1913: fig. 258)
Bronze bangle	Gua Lampetia Test pit B, AL 1	Soroako, Lake Matano (Grubauer 1913: fig. 67)
Bronze ringlet	Gua Lampetia Test pit B, AL 1	Soroako, Lake Matano (Grubauer 1913: fig. 60)



evidently associated with the southward spread of Austroasiatic languages to Peninsular Malaysia, and Malayo-Polynesian languages across ISEA (Bellwood 1997). To some degree, extended inhumations replaced an earlier practice of flexed inhumations (Bulbeck 2011; Lloyd-Smith et al. 2013; Noerwidi in press), but this on its own constitutes a poor candidate trait for marking cultural contact. Since the Neolithic examples appear as a wide geographic scatter with little indication of a dispersal route, extended inhumations register as a simple solution to disposal of the deceased (Fig. 14). The Neolithic and later inhabitants of ISEA practiced a great variety of mortuary practices, whether associated with extended inhumations or represented at other funerary sites (Valentin et al. 2015) (Table 12). Accordingly, despite their Neolithic precedents in North Sulawesi, there is little basis for invoking an external influence for Towuti–Routa extended inhumations.

The second mortuary practice documented for Towuti–Routa involved the burial of a large jar holding commingled mortuary remains at Gua Lampetia at around A.D. 1000. Large jars with secondary disposals occurred as a minor component of the Niah Cave Neolithic burials dating to around 1000 B.C. (Table 12). However, the great majority dates to the Palaeometallic and later, including all of those in sites dominated by large burial jars. The Palaeometallic appearance of open-air burial grounds with these large jars at locations as far apart as southern Sumatra, the Batanes Islands at the north of the Philippines, Sumba, and southwest Sulawesi suggests that they mark an archaeological “horizon” related to the spread of metallurgy and a burgeoning trade in exotic goods made of glass and jade in the early centuries A.D. (Bulbeck in press *b*). The immediate source of inspiration for the Gua Lampetia mortuary jar could have been Sabbang Loang in Old Luwu, with its large burial jars dated to the first millennium A.D. (Bulbeck and Caldwell 2000). Unfortunately, comparison of jar contents is not possible because the strongly acidic soils of Sabbang Loang would have dissolved any bone or shell interred in the jars.

The Gua Lampetia mortuary jar was presumably not a unique creation for Towuti–Routa even though it is the only example recovered. Considerably more excavation in the study region would be required to develop a sense of whether large mortuary jars were a marginal phenomenon restricted to around A.D. 1000 or whether they played a systematic role. The organizational costs of maintaining the potting skills to make large mortuary jars would have been high. Obtaining the dammar to coat them (depending on how consistently this embellishment was applied) and incorporating them into local funerary rites would also have entailed high economic costs. A deeply ingrained perception of the benefits of Lampetia-style large jars would have been necessary for the production of these jars to have become a mainstream practice. They could constitute an antecedent for the ethnohistorical mortuary tradition if they were followed by a transition, during the early second millennium A.D., toward (1) surface disposal rather than burial, and (2) usage for individual rather than compound disposals.

However, given the lack of data for early second millennium A.D. mortuary practices in Towuti–Routa, drawing any relationship between the Gua Lampetia mortuary jar and the ethnohistorical mortuary tradition is hypothetical. Mortuary practices during this period for Old Luwu are well documented, but they were dissimilar to the Towuti–Routa ethnohistorical mortuary tradition. The prevailing practice along the coastal plain between the thirteenth and seventeenth centuries A.D. involved the cremation of the deceased and their burial along with often sumptuous possessions

TABLE 12. COMPARATIVE EXAMPLES OF ISEA SITES WITH EXTENDED INHUMATIONS

SITE	LOCATION	SITE TYPE	OTHER BURIAL MODES?	INHUMATION BURIAL GOODS	AGE	REFERENCES
Niah Cave West Mouth	Sarawak	Closed	Secondary disposals in large to small jars*	Pots, polished stone adzes, shell items, bronze (1)	c. 1500–500 B.C.#	Lloyd-Smith et al. 2013
Gua Harimau	Malay Peninsula	Closed	Secondary burials*	Pots, shell jewelry, bronze axes, glass bead	c. 1500–0 B.C.#	Bulbeck 2011, 2014
Gua Harimau	South Sumatra	Closed	Under documentation	Pots, polished stone, iron, bronzes	c. 1500–0 B.C.#	Oxenham and Buckley 2015
Song Keplek	Java	Closed	Preceded by flexed burials	None	c. 1300 B.C.#	Noerwidi in press
Gua Cha	Malay Peninsula	Closed	No	Pots, shell, jewelry, polished stone artifacts	c. 1000 B.C.#	Bulbeck 2011, 2014
Oluhuta	North Sulawesi	Closed	No	Pots and polished stone adzes found in same layer	Neolithic (1500 B.C. or later)	Simanjuntak and Siswanto 2008
Liang Bua	Flores	Closed	Child's skull*	Pots, polished stone axes	c. 1000–0 B.C.	Sukadana 1981
Gua Alo	Flores	Closed	No	None	<1000 B.C.	van der Plas 2007
Lewoleba	Lomblen	Open	Baby in jar*	None	c. 1 B.C.	Liong 1965
Golo	Maluku	Closed	Secondary burials	Red ochre	c. A.D. 150#	Bulbeck in press <i>a</i>
Muara Betung	South Sumatra	Open	Secondary burials in large jars	Iron spearheads	By A.D. 300	Soeroso 1997
Batujava	Java	Open	None	Pots, iron tools, gold ornaments	Early centuries A.D.#	Manguin and Indradjaja 2011
Bondalem	Bali	Open	Jar burial, flexed burial*	Pottery	Early centuries A.D.	Ardika 2000
Gilimanuk	Bali	Open	Secondary inhumations, flexed burials, secondary burials in jars	Pots, glass beads, items of bronze, iron, and gold	c. 60 B.C.–A.D. 800#	Aziz 2012; Soejono 2008
Towuti–Routa	Southeast Sulawesi	Closed	Secondary burials in large jar*	Pottery, glass beads, iron	c. A.D. 300–1100#	This article
Plawangan	Java	Open	Secondary inhumations, primary and secondary burials in jars, and Dong Son drum	Pots, glass beads, items of bronze, iron, and gold	First millennium A.D.	Bulbeck 2001
Anyer Lor	Java	Open	Large jar burials, flexed burials	None documented	First millennium A.D.	van Heekeren 1956
Kuala Selinsing	Malay Peninsula	Open	Secondary burials in canoes*	Pots, glass and stone beads	First millennium A.D.#	Bulbeck 2011
Igid	Samar	Open	Jar burials with children*	Glass beads, iron dagger	First millennium A.D.	Henson 1992

(Continued)

TABLE 12. (*Continued*)

Tumagudtad	Luzon	Open	Primary and secondary burials in jars	None	First millennium A.D.	Solheim 1960
Ille Cave	Palawan	Closed	None	Pots, glass beads, imported ceramics	c. A.D. 1000 <sup>#</sup>	Szabó et al. 2004
Lobang Tingalan Pila	Sabah, Borneo Luzon	Closed Open	None Cremations in imported jars*	Bronze bowls, iron knives Imported ceramics, local pots, metal items	c. A.D. 1100–1500 c. A.D. 1100–1600 <sup>#</sup>	Bellwood 1988 Tenazas 1968
Santa Ana	Luzon	Open	None	Imported ceramics, glass beads, metal items	c. A.D. 1100–1600	Bacus 2004
Tanjay	Negros	Open	Skull burials*	Imported ceramics, glass beads, metal items	c. A.D. 1100–1600	Bacus 2004
Makassar burials	Southwest Sulawesi	Mostly open	Preceded by cremations*	Imported ceramics, local pots, gold and other metals	c. A.D. 1300–1650	Bougas 2007; Glover 1965
Sa'gung rock shelter	Palawan	Closed	Preceded by flexed and secondary burials	Shells, glass beads, Ming bowl	c. A.D. 1400–1650	Kress 2004

\* Other burial modes less well represented than extended inhumations; <sup>#</sup> age based on or supported by <sup>14</sup>C dates.

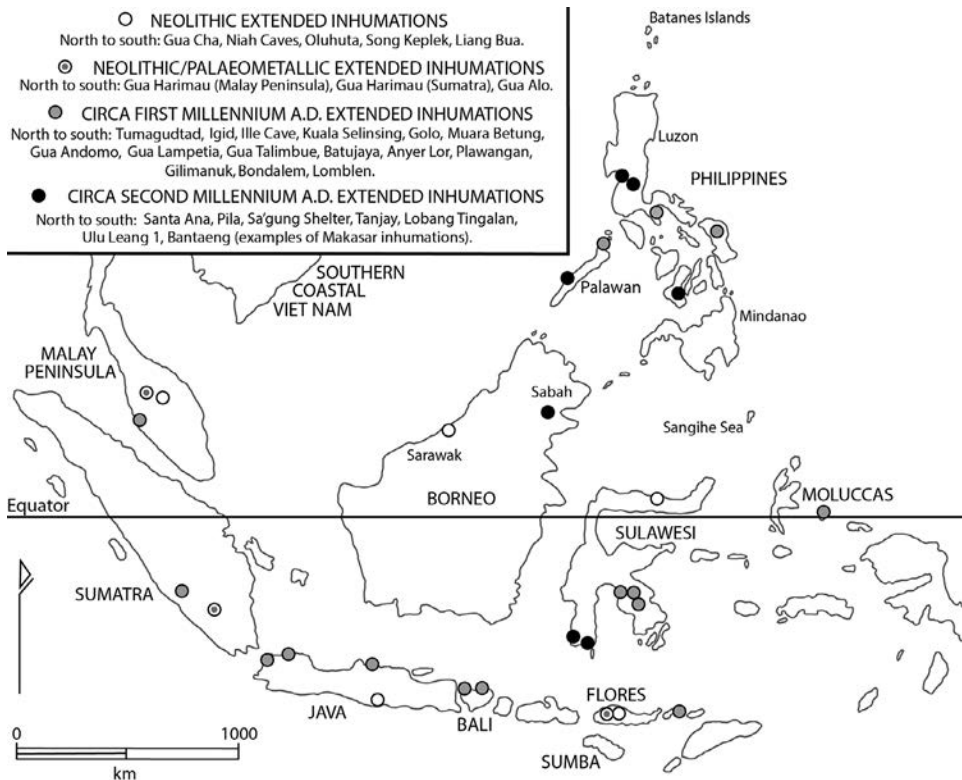


Fig. 14. ISEA sites with extended inhumations.

in martavans. Along the shores of Lake Matano between the twelfth and nineteenth centuries, the (sometimes cremated) deceased were buried with their possessions (Bulbeck and Caldwell 2000).

In terms of archaeological contents, a close match to the Gua Andomo/Lampetia ethnohistorical assemblages is provided by a complex of single-phase Palaeometallic cave sites distributed from southwest Sulawesi (Ulu Leang 2 and Leang Paja) to Sabah and southeastern Mindanao. These sites have yielded fragmentary human remains associated with metals, glass beads, and pottery sherds from large jars and accessory vessels (Bulbeck *in press b*). However, the lack of imported ceramics highlights their considerable antiquity and, accordingly, their unsuitability as an antecedent tradition for the Towuti–Routa ethnohistorical mortuary rites. A more promising candidate would be Lobang Tulang, part of the Niah Caves complex in Sarawak, even though it is not usually thought of as a jar burial site. In addition to a log coffin with secondarily disposed human bones, Lobang Tulang contained scattered human remains associated with a range of artifacts including glass, metal, and sherds of martavans and other imported ceramics dating to between the eleventh and fourteenth centuries A.D. (Harrison 1958).

Interestingly, Grubauer (1913) speculated that the “Tolombatu” (Bungku) had immigrated from Borneo to pursue the Towuti–Routa dammar trade, to explain why their mortuary rituals, unique to Sulawesi, had ethnographic counterparts in

northern/central Borneo. Although unremarked by Harrisson (1990), Lobang Tulang could serve as an antecedent for the ethnographically recorded Borneo mortuary practices, in which martavans dated to c. A.D. 1500–1900 played a central role. However, these practices were highly diverse. For instance, martavans were used as containers for the decomposing corpse as well as receptacles for skeletal relics. Furthermore, they were displayed not just in caves but also on wooden and stone funerary monuments (Bulbeck in press *b*). Given linguistic evidence against any Borneo connection with Towuti–Routa, the superficial similarities between the ethnohistorical mortuary traditions of northern/central Borneo and Towuti–Routa are best attributed to cultural convergence.

In summary, of the three mortuary practices documented for Towuti–Routa, large earthenware burial jars are the only practice that can be plausibly attributed to external influence. Their widespread appearance across ISEA including Old Luwu during the Palaeometallic seems to have prefigured their appearance in Towuti–Routa where, on the available data, extended inhumations were an older practice. Large burial jars may have been a precursor to the ethnohistorical mortuary rites, but such a possibility is speculative without data for the early second millennium A.D. funerary practices in the Towuti–Routa region.

Table 13 compares the Towuti–Routa funerary practices with their most similar counterparts documented at other ISEA mortuary site complexes. The Niah Caves and Baturong–Madai complexes of Borneo present the greatest number of similarities, although both lack true burial jars, and their chronological sequences differ from Towuti–Routa (and from each other). South Sumatra, north coastal Java and Bali, and southern Luzon resemble Towuti–Routa in their extended inhumations and burial jars of Palaeometallic antiquity, but differ in lacking the Towuti–Routa ethnohistorical mortuary tradition. Other comparisons in Table 13 show age discrepancies from Towuti–Routa for similar mortuary practices. In summary, notwithstanding a degree of permeability to wider social interactions, mortuary practices appear to have been fluid in response to local social imperatives at Towuti–Routa, as elsewhere in ISEA (Bulbeck in press *b*; Valentin et al. 2015).

#### TOWUTI–ROUTA MORTUARY PRACTICES IN RELATION TO DAMMAR TRADE

Use of dammar as a resin and fire-stick head presumably has ancient origins in Towuti–Routa; its commonplace application as a pottery coating is evident from the inception of the Gua Mo'o hono pottery sequence. Although the proportion of Gua Talimbue sherds with observed dammar coating is miniscule, some sort of local product would have been required to finance the importation of the glass beads and metal ornaments associated with the Gua Talimbue burial, and dammar is a plausible candidate. This last point raises the question of whether the shared practice of extended inhumations, at sites that respectively fall within the ethnohistorical distribution of Wiwirano, Bungku, and Padoe speakers, reflects the early establishment of a social network built on the collection of dammar for external trade. However, if the expansion of farming communities across Towuti–Routa occurred no earlier than the Palaeometallic, as the available data suggest, then the broad distribution of extended inhumations could simply reflect the mortuary custom of the founding settlers. The region's complex intersection of ethnohistorical language groups could be a later consequence of the dispersal of swidden farming communities across a broader

TABLE 13. SITE COMPLEXES SIMILAR TO TOWUTI—ROUTA ON AT LEAST TWO MORTUARY PRACTICES

SITE COMPLEX	EXTENDED INHUMATIONS	LARGE JAR BURIALS	SURFACE WOOD COFFINS	(SUB)SURFACE LARGE JARS	REFERENCES
Niah Caves, Sarawak	Neolithic	Neolithic (partial burial)	Palaeometallic	Early second millennium A.D.	Harrison 1958; Lloyd-Smith et al. 2013; Szabo et al. 2013
Madai-Baturong, Sabah	c. A.D. 1300 (Lobang Tingalan)	Not recorded	c. A.D. 1000 (Agop Atas)	Palaeometallic (several sites)	Bellwood 1988
South Sumatra	Neolithic/ Palaeometallic	Palaeometallic	Not recorded	Not recorded	Bonatz 2012; Simanjuntak et al. 2015; Soeroso 1997
North Java	Palaeometallic	Palaeometallic	Not recorded	Not recorded	Table 12 above
North Bali	Palaeometallic	Palaeometallic	Not recorded	Not recorded	Table 12 above
Southern Luzon	First/second millennia A.D.	First millennium A.D.	Not recorded	Not recorded	Fox and Evangelista 1957; Table 12 above
North Maluku	c. A.D. 150 (Golo)	Not recorded	Not recorded	A.D. first millennium (Uattamdi)	Bellwood et al. 1998; Bulbeck in press <i>a</i>
Maros, southwest Sulawesi	c. A.D. 1300–1650	Not recorded	Not recorded	Palaeometallic	Bulbeck 1996–1997
Galesong, southwest Sulawesi	c. A.D. 1300–1650	Palaeometallic	Not recorded	Not recorded	Bulbeck 1996–1997

landscape that remained lightly inhabited through to the second millennium A.D., consistent with Mead's (1999) general reconstruction of Bungku-Mori linguistic relationships.

Of the Towuti-Routa burials that preceded the ethnohistorical mortuary disposals, the burial of the elderly female at Gua Talimbue is both the earliest and the richest. The disparity between her burial and that of the Gua Lampetia adolescent (no grave goods) could reflect a number of factors including differential status based on age, achievement, or birth. However, the modest nature of the ornaments (a shell ring and a bone pendant) recovered from the Gua Lampetia mortuary jar suggests at least a lack of any increased importation of exotic valuables into Towuti-Routa during the Palaeometallic period. Nonetheless, the jar's thick dammar coat testifies to the intensive local use of dammar by A.D. 1000. It is argued here that such large burial jars reflect an introduced mortuary practice. Further, Old Luwu (the plausible source of the practice) evidently experienced an increase in the availability of glass beads and other exotic valuables during the first millennium and into the early second millennium A.D. This supposition is founded on evidence for increased exploitation of its high-quality iron ore for smelting and implement production (Bulbeck and Caldwell 2000; Do 2013). Whilst acknowledging the merely exploratory nature of our available coverage of Towuti-Routa Palaeometallic archaeology, the evidence as it stands speaks against the role of dammar as a notable trade item prior to the ethnohistorical period.

By default, dammar is the most likely item exported in exchange for the considerable variety and volume of exotic goods, including high-fired ceramics and copper-based jewelry as well as cloth (reported ethnographically) and beads, associated with the Towuti-Routa ethnohistorical mortuary tradition. Although trade statistics point to a late nineteenth-century florescence of the Sulawesi dammar trade (Bulbeck 1993), the dammar trade in Old Luwu can be dated to between the seventeenth and twentieth centuries (Bulbeck and Caldwell 2000), similar to the inferred Towuti-Routa chronology. Further, the ready availability of dammar in the forests surrounding Lake Towuti and the valuable nature of its trade (Grubauer 1913) is echoed by the traditional role of dammar as the most valuable export from the highlands overlooking Sabbang Loang (Caldwell 2014).

The widespread distribution of the ethnohistorical mortuary tradition within Towuti-Routa suggests that the dispersed communities retained or regained their ancestral social connections as the dammar trade became increasingly attractive. The importation of exotic valuables would have provided an opportunity for social aggrandizers to control the ownership of these goods, leading to the development of a ranked society with well-to-do aristocrats and humble commoners (Bougas 2007). The congregation of the Towuti-Routa deceased in communal mortuary caves regardless of age or birth status suggests a belief system that prioritized the unity of the ancestors, different from the sharp social stratifications observable amongst more populous groups such as the Bugis and Makassarese of southwest Sulawesi (Bulbeck 1993, 1996–1997). Archaeological evidence for status differentiation within the Towuti-Routa mortuary assemblages is hard to pin down, due to their intermingled status, apart from broad indications such as the distinction at Gua Andomo between its imported and locally produced jars of large size. However, archaeological survey near Routa of a fortress and a large artisans' settlement stand as confirmation for the development of a secure, ordered society by the late second millennium A.D.

The overall perspective to be gathered from Towuti–Routa implicates the continued practice of ancestor worship associated with enhanced status differentiation, burgeoning trade, and the establishment of large settlements during the ethnohistorical period. The perspectives developed by Junker (2001) and Bacus (2004) for the Philippines, and Bulbeck (1996–1997) and Bougas (2007) for southwest Sulawesi, would view these last three phenomena as elements of political centralization, leading to chiefdoms that wielded authority over ranked societies at or within their boundaries.

To be sure, Bellwood (1996) has proposed that hierarchy lay at the heart of the Malayo-Polynesian linguistic expansion, at which time ambitious individuals migrated by land and sea to found communities to aggrandize their status and the status of their descendants. Bellwood noted the general division in Melanesia between Malayo-Polynesian societies where status was inherited, and non-Austronesian societies where status was achieved, even though ancestor worship was virtually universal across Melanesia (Kiste 1994). However, as Bellwood conceded, the linguistic and archaeological evidence for any form of early Malayo-Polynesian ranking is weaker in ISEA than in the Pacific, although some sort of latent tendency—perhaps related to the social skills needed to mount successful sea-going expeditions—would have been at play. Accordingly, there may not be a necessary contradiction between historical linguistic approaches, with their implication of a tendency for early Malayo-Polynesian status differentiation, and evolutionary approaches that seek out the factors that crystallized these tendencies into a chiefly society, as appears to have transpired at Towuti–Routa on the back of the dammar trade.

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3. For further discussion of the use of jars as mortuary containers, see overview recently prepared by Bulbeck (in press *b*).



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# ABSTRACT

Archaeological evidence from survey and cave excavation in the Towuti–Routa region of Sulawesi suggests the following sequence of late Holocene cultural change. Settled communities whose subsistence included an agricultural component had established themselves by the early centuries A.D. and began the use of caves for mortuary purposes. Extended inhumations are the oldest attested mortuary practice, overlapping in time

with secondary burials in large earthenware jars dated to around A.D. 1000. The third, ethnohistorically described practice involved the surface disposal of the deceased, including the use of imported martavans for the elite, between approximately A.D. 1500 and 1900. This sequence of mortuary practices has not been documented elsewhere in Island Southeast Asia, although each practice has multiple parallels. The Towuti–Routa dammar trade, which was at its peak at the time of European contact, can perhaps account for the quantity of exotic items imported to the region but not the specifics of the mortuary practices. **KEYWORDS:** Sulawesi archaeology, Island Southeast Asia mortuary practices, Sulawesi dammar trade, Southeast Sulawesi.