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**LA PRATIQUE DE L'ESPACE
EN OCÉANIE
DÉCOUVERTE, APPROPRIATION
ET ÉMERGENCE
DES SYSTÈMES SOCIAUX TRADITIONNELS**

***SPATIAL DYNAMICS IN OCEANIA
DISCOVERY, APPROPRIATION
AND THE EMERGENCE
OF TRADITIONAL SOCIETIES***

ACTES DE LA SÉANCE
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Frédérique VALENTIN et Guillaume MOLLE

SÉANCES DE LA SOCIÉTÉ PRÉHISTORIQUE FRANÇAISE

7

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*La pratique de l'espace en Océanie :
découverte, appropriation et émergence des systèmes sociaux traditionnels*
*Spatial dynamics in Oceania: Discovery,
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Pottery spatial patterns at the Lapita site of Teouma, Central Vanuatu

Some preliminary refitting results

Mads RAVN, Stuart BEDFORD, Matthew SPRIGGS, Stuart HAWKINS, Iarowai PHILIP
and Frédérique VALENTIN

Abstract: In this paper, we will present preliminary results of spatial distribution of Lapita pottery at the Teouma burial site on Efate Island in Vanuatu. Based on reassembling of pots over the last ten years at the Vanuatu Culture Centre and GIS recording we argue that this excavation offers a possibility to discuss the spatial distribution of pottery and aspects of ritual burial patterns of the Lapita Culture 3000 years ago. Lapita pottery at the site reveals aspects of contemporaneity between grave groups, behavioral, technical and ritual choices in the use of pots and aspects of complex spatial activity patterns in the burial rites.

Keywords: spatial burial patterns; intra-site analysis, rituals; Lapita; fragmentation; refitting of pottery.

Répartition spatiale des poteries du site Lapita de Teouma, Vanuatu central : résultats préliminaires des remontages

Résumé : Dans cet article, nous présentons les résultats préliminaires d'une étude de la distribution spatiale des restes de poterie découverts sur le site de Teouma (Efate, Vanuatu). En nous basant sur les remontages et un SIG, nous soutenons l'idée selon laquelle cette fouille offre la possibilité de discuter la distribution spatiale des fragments de poteries en relation avec certains aspects des rituels et funéraires associés culture Lapita (*ca* 3000 BP). L'étude met en évidence des relations spatiales et de contemporanéité entre groupes de tombes, des choix comportementaux, techniques et rituels dans l'utilisation des pots ainsi qu'une spatialisation de certains gestes funéraires.

Mots-clés : répartition spatiale des sépultures, analyse intra-site, rituels, Lapita, fragmentation, remontages de céramique.

*The evidence for deliberate object (and body) fragmentation
can no longer be overlooked or dismissed as an irrelevant
and time-consuming curiosity
(Chapman and Gaydarska, 2007, p. 204).*

DECORATED LAPITA POTTERY has intrigued and fascinated researchers for more than half a century. The elaborate designs and their potential significance even inspired comment more than hundred years ago (Meyer, 1909) and have remained central to discussions ever since. More recent theoretical debate relating to the deposition and use of Lapita pottery has raised a number of central problems in relation to Lapita research and more specifically the fragmented nature of the pottery recovered from most sites (Sand et al., 2013, p. 2–12). To explain the overwhelming pattern of generally small sherds that have been recovered from

the more than two hundred fifty recorded Lapita sites, Christophe Sand proposed that Lapita pottery could have been deliberately smashed and deposited in settlement sites as part of a ritual associated with the taming, inscribing and taking possession of landscapes. This would have been a ritual performed over a number of generations as new groups colonised different islands and new arrivals joined earlier colonists. A key argument challenging this hypothesis of deliberate breakage of Lapita pots, however, is the general problem of equifinality: that several behavioural actions may lead to the same material end pattern (Wylie, 1985; Ravn, 2011a). Pots may well have sometimes been ritually broken during specific ceremonies but whole vessels may also have ended up fragmented into tens of pieces owing to a range of other processes (Chapman and Gaydarska, 2007).

As outlined in the discussion by Christophe Sand and others (Sand et al., 2013, p. 2–12) these factors might include first and foremost that a variety of post-depositional processes could have led to the pattern of small, scattered pottery sherds at sites, which is an aspect that remains poorly understood in this region. In associated discussion both Peter Sheppard and Matthew Spriggs (in Sand et al., 2013, p. 7) pointed out that it is essential to better understand the patterns of pottery breakage and associated activities before we jump to conclusions. A further point, related to the first, is how one actually defines or identifies ritual in the archaeological record; is it possible to distinguish rituals from other human activity associated with deposition? Indeed the whole concept and definition of ritual is problematic; there is a tendency for archaeologists to reserve the term for something out of the ordinary but rituals of various forms are being performed on a daily basis (Marshall in Sand et al., 2013, p. 6). One of the ways in which these various processes can be better understood is a greater focus on ethnographic parallels and the relevance of direct historical continuity in the Pacific (Chiu in Sand et al., 2013, p. 9). However, while the latter avenue is important and can be very productive, it is also problematic as the discussion by Matthew Spriggs (Spriggs, 2008) and Jim Roscoe (Roscoe, 2009) reveals, since population density, owing to epidemics following contact with Europeans, is, even today, quite different from that of the pre-contact Pacific. It nonetheless remains a useful approach if applied cautiously where the focus is on the long-term perspective and involves assessing both similarities and differences, on both sides of the equation of past and present (Spriggs, 2008; Ravn, 2011a, p. 720).

However, if robust data are available, further focus on the archaeological side of the equation is still one of the most fruitful lines of inquiry in the Pacific. Such an opportunity has presented itself at the Lapita site of Teouma on Efate. At this settlement and cemetery site a detailed analysis of individual pots and their spatial distribution in relation to burials has provided an improved understanding of the actual behaviour and funerary rituals that were being practised there some 3,000 years ago (Bedford and Spriggs, 2007). This approach is the first step towards exploring archaeologically the hypothesis proposed by Christophe Sand: that at least some decorated Lapita pots were smashed in ceremonies associated with human colonisation and settlement of new landscapes. While well aware that we are never going to get into the heads of the Lapita people, a better understanding of their ritual behaviours may at least see us some of the way there (see Marshall and Spriggs in Sand et al., 2013, p. 6–8)!

DEFINITIONS AND HYPOTHESES

Here we present examples of vessels that as possible whole pots have formed part of an intentional burial ritual. Also we show examples where sherds from pots

have formed part of secondary rituals. Finally, we discuss the possibility that some sherds may also have been the result of accidental breakage by trying to distinguish the spatial patterns that may represent a range of behaviours associated with burial and other activities at the site.

Generally, we suggest that the Teouma site offers original insights into a 3,000 year old ritual behaviour associated with Lapita pottery. It is now possible to substantiate this hypothesis because extensive data processing, although not complete, is approaching a level where complex analyses can reveal intra-spatial depositional patterns in relation to burials, space and time. Two principal factors make this possible.

The first is the time-consuming reassembling of pots that has been conducted over the last ten years at the Vanuatu Culture Centre. Like the refitting of stone flakes, the exercise of reassembling Lapita pottery may reveal contemporaneity, behavioural and technical choices as well as spatial activity patterns in more detail. By this approach we also avoid the fallacy of identifying “redundant design elements from the same vessel” as coming from multiple separate pots (Chiu, 2003, p. 162).

Spatial activity patterns are revealed especially when data-recording of finds in a GIS system is applied; this approach may help more precisely to illustrate the intra-spatial distribution of identified whole pots in relation to burials and other features. In particular, it has been revealed that unambiguous clusters of sherds in some cases must indicate that whole pots were deposited in association with one or more burials.

As suggested above we argue that reassembled pots provide the potential for assessing the role of the pottery in the funerary ritual. It would be reasonable to expect that if pots were deposited as whole pots and broken as part of the rituals at the graveside, they would have been placed within a relatively limited spatial area as a cluster. If pots were simply discarded in the midden, in association with everyday activities, they would be distributed in a less densely clustered way, more widely scattered over the site. However, a complicating factor is that judging from the treatment of the individuals *per se* (Scott et al., 2010; Valentin et al., 2010a), it is clear the burials and with them any grave goods were reprocessed several times and re-deposited in multiple graves, thus explaining the level of fragmentation of some of the sherds.

The data generated from the Teouma site make it possible to gain insights into the behavioural patterns behind some of the activities performed, thus placing the theoretical discussion of “the meaning of pots”, as put forward by Christophe Sand and coworkers (Sand et al., 2013), into a stronger empirical framework than has so far been possible. As to the relation between religion and ritual, the following definition may be useful:

Religion is no longer defined as theology, but is viewed much more as changing social practice, associated with religious transcendental discourse. Myth and ritual are understood as two different but interrelated social categories. As a consequence, ritual is not necessarily regarded

as a representation of myth, but can be apprehended as a formalized act that in itself creates meaning. Instead of merely maintaining a cosmological order, ritual is also seen as a transformative act. Besides, ritual is not regarded as necessarily religious, since it can refer to other—legal, political, and social—discourses (Andr en, 2014, p. 13).

From the quotation above, we understand that ritual is not something only in the minds of people but is also composed of practices that leave a material pattern. As a consequence, ritual use of material culture may here be defined as densely “clustered deposition of special finds or fixed combinations of special finds in a special context” (Ravn, 2011b, p. 138). Where we can identify such unambiguous patterns it is likely that ritual activity is being mapped.

INTRA-SITE DISTRIBUTION OF POTTERY AT TEOUMA

The Teouma site on Efate Island in Vanuatu was excavated by the Vanuatu Cultural Centre and the Australian National University in collaboration with numerous other institutions between 2004 and 2010. The site is located on a low, flat plain about 8 m above present sea level. Today the area is utilized as pastureland for cattle. When the first people arrived, they would have encountered a wide shallow bay. Located on the eastern side was a large flat, uplifted karstic reef terrace, a coral-

rubble beach and a permanent water source in the form of a stream that drains from a swamp in the nearby eastern interior (Bedford et al., 2010). A map created from the isolines reveals an impression of the coastline 3,000 years ago (fig. 1).

The excavation team opened up 484 m² in the north area and 16 m² in the south area (Bedford et al., 2004, 2006, 2009, and 2010; Spriggs and Bedford, 2013). We concentrate here on the main northern area. It is a previously unoccupied site beginning with a number of first settlers burying their dead over the area of a previously-uplifted reef and beach. The Lapita settlers buried their dead in an orange tephra layer (layer III) that overlay the old reef and the adjacent upper beach. Activity at the site began around 3000 BP (Petchey et al., 2014). A total of sixty-eight burial features displaying a variety of arrangement of individuals was recorded (Valentin et al., 2009, 2010a, 2011, and 2014; Scott et al., 2010). Together with the burials, large amounts of pottery and other artefacts of the Lapita culture were recovered (Constantine et al., 2015).

Immediately to the east and respecting the cemetery boundaries was a contemporary Lapita midden (Spriggs and Bedford, 2013). Immediately sealing the graves in places was a late Lapita midden, which in turn was subsequently sealed by a Post-Lapita midden some 50-80 cm thick (layer II). The site was then abandoned no later than about 2500 BP on the evidence of pottery styles and radiocarbon dating. The extensive data processing from this site has consisted of more than 12,000 find numbers, not including human skeletal remains from the burials

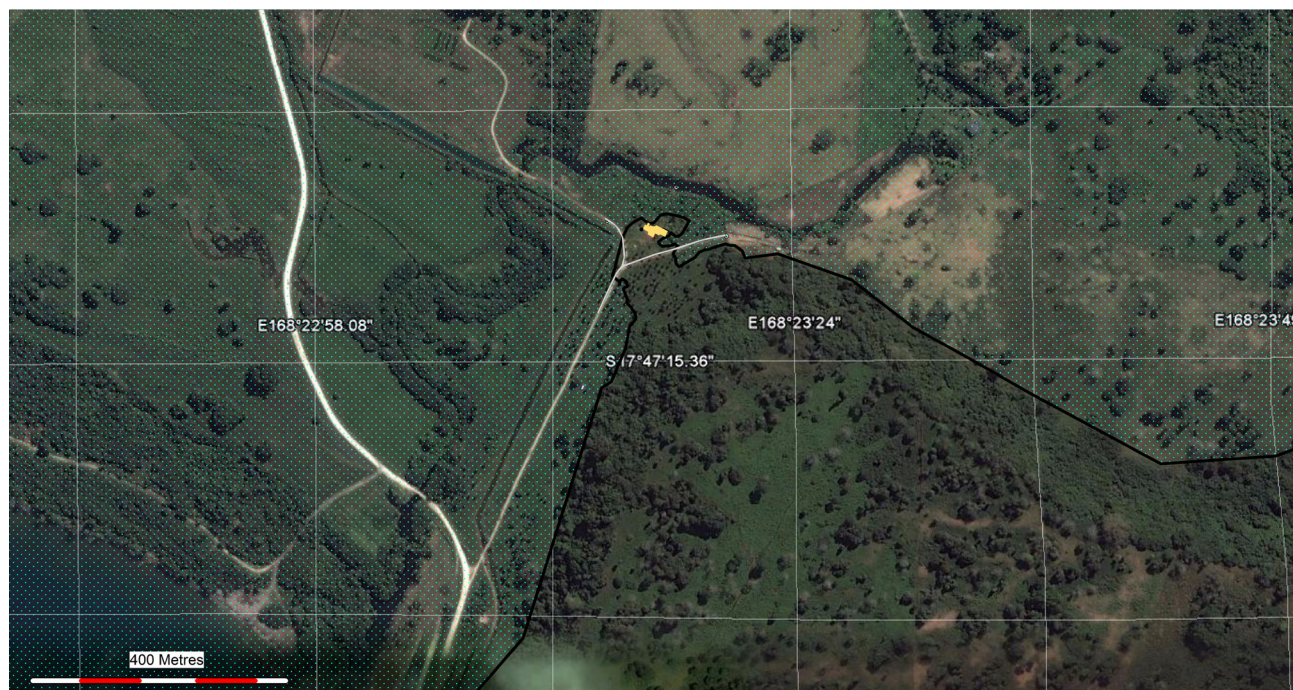


Fig. 1 – Overview of the Teouma area. The hatched area north of the dark line is the estimated shoreline 3,000 years ago (CAD M. Ravn).

Fig. 1 – Aperçu de l’aire de Teouma. La zone hachurée au nord de la ligne foncée correspond à la ligne de rivage d’il y a 3 000 ans (DAO M. Ravn).

(Bentley et al., 2007; Valentin et al., 2010b; Kinaston et al., 2014; Hawkins, 2015).

In the burials, most skulls and many other upper skeletal elements had been removed. In addition, the bodies and bones were manipulated in various ways, as described in detail by Frédérique Valentin and coworkers (Valentin et al., 2009 and 2010a). Clearly then, we must assume that a number of rituals were performed in relation to the burials during and after the deceased were deposited. We shall here focus on the role of the pottery that has been reassembled in relation to the burials. From the Lapita phase at least three hundred pots have been wholly or partly refitted.

Here we take a closer look at a number of examples of Lapita pots from Teouma that have been refitted using criteria corresponding to codes 1, 2 and 3 of Charles Bollong (Bollong, 1994, p. 18). These encompass direct conjoins through to morphological characteristics that allow determination that sherds are derived from a common vessel, and with occasional use of code 4 that “judgment of gross morphology permits association as ‘probable’ (i.e. analyst judgment of better than 50%)”. We do know that some pots were placed in graves as whole vessels (Bedford et al., 2007 and 2010), as possible grave markers and in several cases as repositories for secondary burials (Bedford and Spriggs, 2007; Valentin et al., 2010a and 2015). However, other patterns suggest some vessels may have been deliberately broken and distributed amongst particular graves. It is important to note that while we have been able to reconstruct the form and full design motifs of dozens of vessels from this site, there are very few vessels that have the full complement of sherds. Thus, where complete vessels can be reconstructed, some missing sections or sherds of some pots can be attributed to the quarrying activities that led to the site’s discovery in 2004. Nonetheless, in areas of the site that were not disturbed by these activities, large pieces of incomplete individual vessels were also recovered from layer III deposits, raising the question of “what happened to the other fragments” (cf. Chapman and Gaydarska, 2007)?

Sherds from the same pot were by definition contemporaneous when the pot was whole; so the closer they are situated in space archaeologically, the more likely it is that they were deposited as one complete pot at a given time. Thus, the challenge of the following is to assess whether the reassembled pottery sherds were in situ and, if not, were they closely clustered in space in prehistory and to which graves, if any, they can be related. If there is a clear clustered association among potsherds and one or more graves, it may be suggested that graves where the sherds from the same pot appear are connected in some way. If pots can be identified as being associated with particular graves in our analysis we assign them here with a burial group which in turn may help explain social relationships between the various burials. If the sherds are scattered over the site and not associated with particular graves, it is however more likely that the pots had been originally deposited as refuse in the contemporary Lapita midden.

Pot TC 45 (Teouma carinated)

Pot TC 45 reveals just such a pattern where pottery pieces are scattered over an area. Twenty-seven pieces could be refitted to pot TC 45. It was found in the Lapita midden in the eastern part of the excavation, and while it could have been associated with some sort of ceremonial activity (fig. 2) it looks from its distribution that it is scattered more widely than other pots described below that were found in the cemetery area. This pot typifies the pattern one would expect of a pot being broken during some sort of activity, perhaps simply during non-ritual use, and becoming incorporated into the midden area.

Pot TD 16 (Teouma dish)

Twenty-eight pieces of pottery could be refitted to pot TD 16. This pot is a flat-bottomed dish decorated over its entire body (fig. 3). It is distributed in the western area and found in a relatively restricted area where burials B8, B50, B 51, B52, B53, B58 and B59 are situated. In nearby B52 two sherds occur within the grave fill. B53 is cut by B8, and B52 was buried after those two. Additionally both B52 and B59 were buried with anklets. It is not possible to assess conclusively whether those graves, among which the pottery has been deposited, were related. The argument, relating to the definitions given above for this, is that the pottery is closely confined in space. Owing to the confined spatial distribution, it seems less likely that these sherds are simply the result of refuse activity, but more likely that of a ritual activity related to specific graves where pots have been placed deliberately, as part of a burial ritual. It cannot be ruled out that the pot was damaged during later burial activity within in the same group of burials. Allowing for the possibility that this pattern may be a palimpsest accumulated over time, we shall call this burial concentration I (hereafter BCI).

Bird pot TC 5 (Teouma carinated)

One hundred and eighty pieces of pottery retrieved between 2004 and 2010 could be refitted to the distinctive bird pot TC 5 (Bedford and Spriggs, 2007). The large pot is unique within the Lapita distribution, suggesting a specialised ritual use for this item. The modelled birds on the rim, looking into the pot, additionally support the ritual function of this vessel (fig. 4). It was found in the lowest cultural layer and is spread over several square metres, but still restricted to a small number of individual graves. The basal part of the pot was still in situ but the upper part of the pot had been broken off in antiquity as a result of disturbance from the digging of later burials in the same area of the site (Bedford and Spriggs, 2007, p. 12).

The pot constitutes the container for secondary burial B22 and is situated between burials B6, B12, B14, B18, B25 and B17. Burials B1, B2, B4, and B5, B15, B19 and B23 are placed less centrally in relation to the pot. The well-delimited distribution of sherds from this pot and the closeness of graves in this area could suggest that

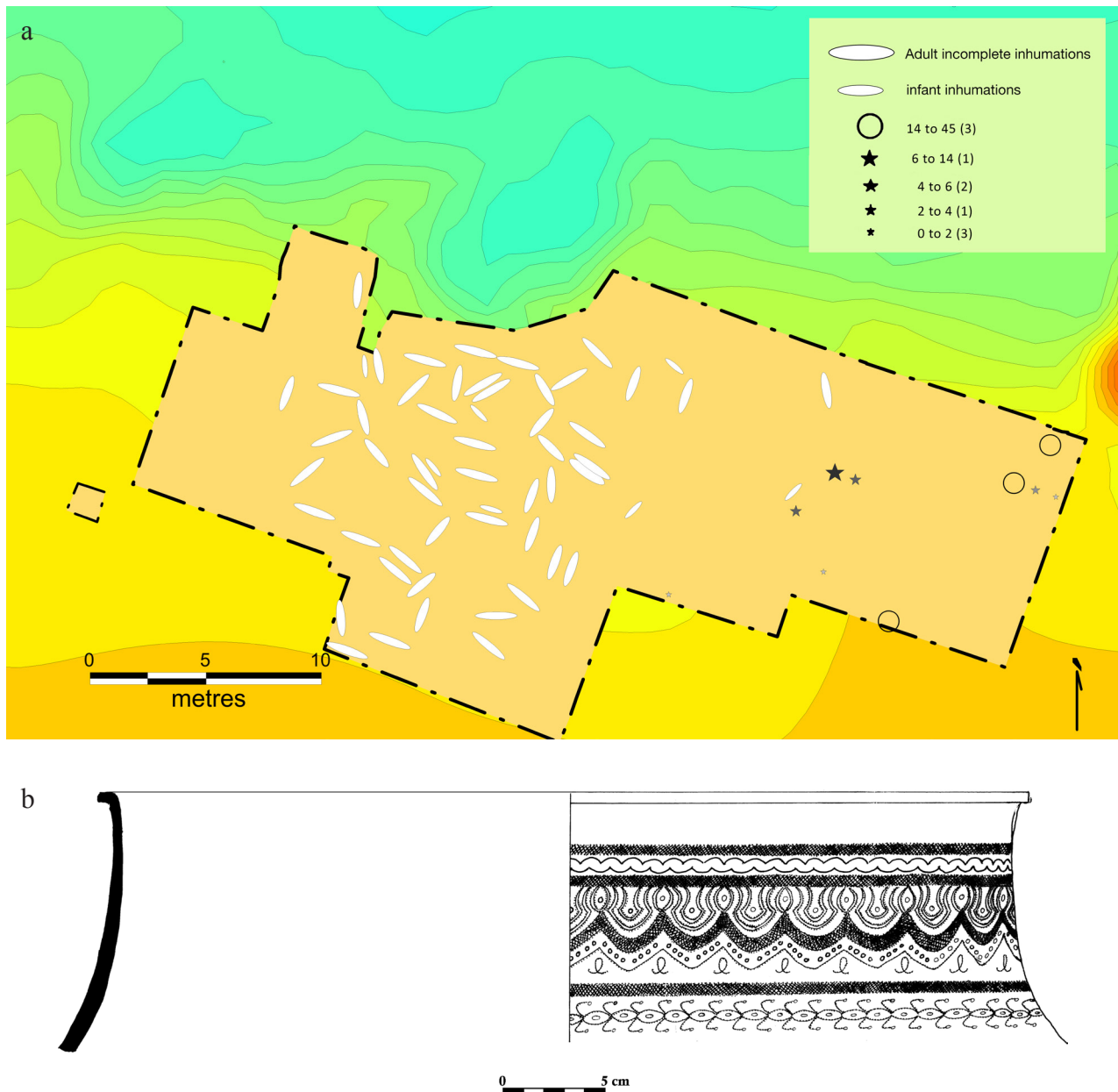


Fig. 2 – a: spatial distribution pattern of pot TC45, size of the circles and stars indicates weight of pottery sherds (CAD M. Ravn); b: form and design of pot TC45 (drawing S. Seoule, Vanuatu Cultural Centre).

Fig. 2 – a : répartition spatiale du récipient TC45, les différentes tailles des cercles et des étoiles indiquent le poids des tessons (DAO M. Ravn) ; b : forme et dessin du récipient TC45 (dessin S. Seoule, Centre culturel du Vanuatu).

the burials here form part of a focal burial group among which related persons are buried. We shall call this burial concentration II (BCII). Furthermore, additional research needs to be done before we can rule out that the vessel was merely disturbed by later grave activity and thus incorporated into other graves adventitiously.

Pot TCC 3 (Teouma carinated convex)

Seventy-seven sherds, totalling 1,720 g, could be definitively assigned to the TCC 3 vessel. This is one of the vessels that has been established as being exotic to Vanuatu, having been brought to the site from New Caledonia

(Dickinson et al., 2013). An initial glance at the spread of sherds reveals that they were found across the western part of the cemetery zone in two primary concentrations (fig. 5). Further clarification can be gleaned when considering together sherd spread, number, weight, surface condition and stratigraphic location. The greatest concentration of sherds was that found near burials B30, B41 and B44. In a single square meter alone, adjacent to these burials, eight sherds comprising some 34% (585 g) of the total sherds by weight were recovered. One sherd was found in the fill and one on the top of a skull of secondary burial B30 associated with burial B44. This collection of burials demonstrates multi-phase activity, and one was one of only three

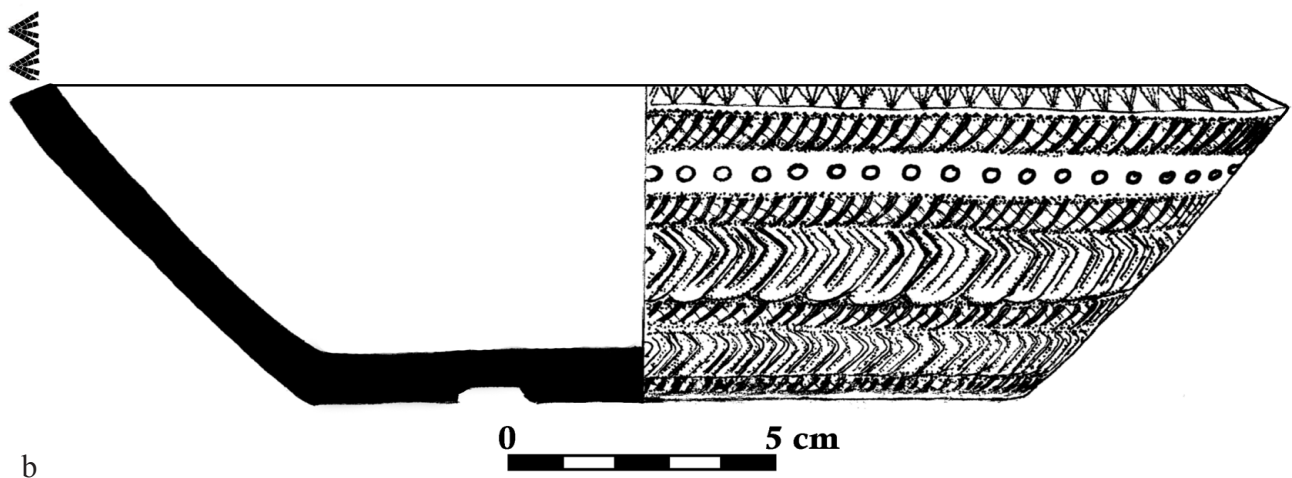
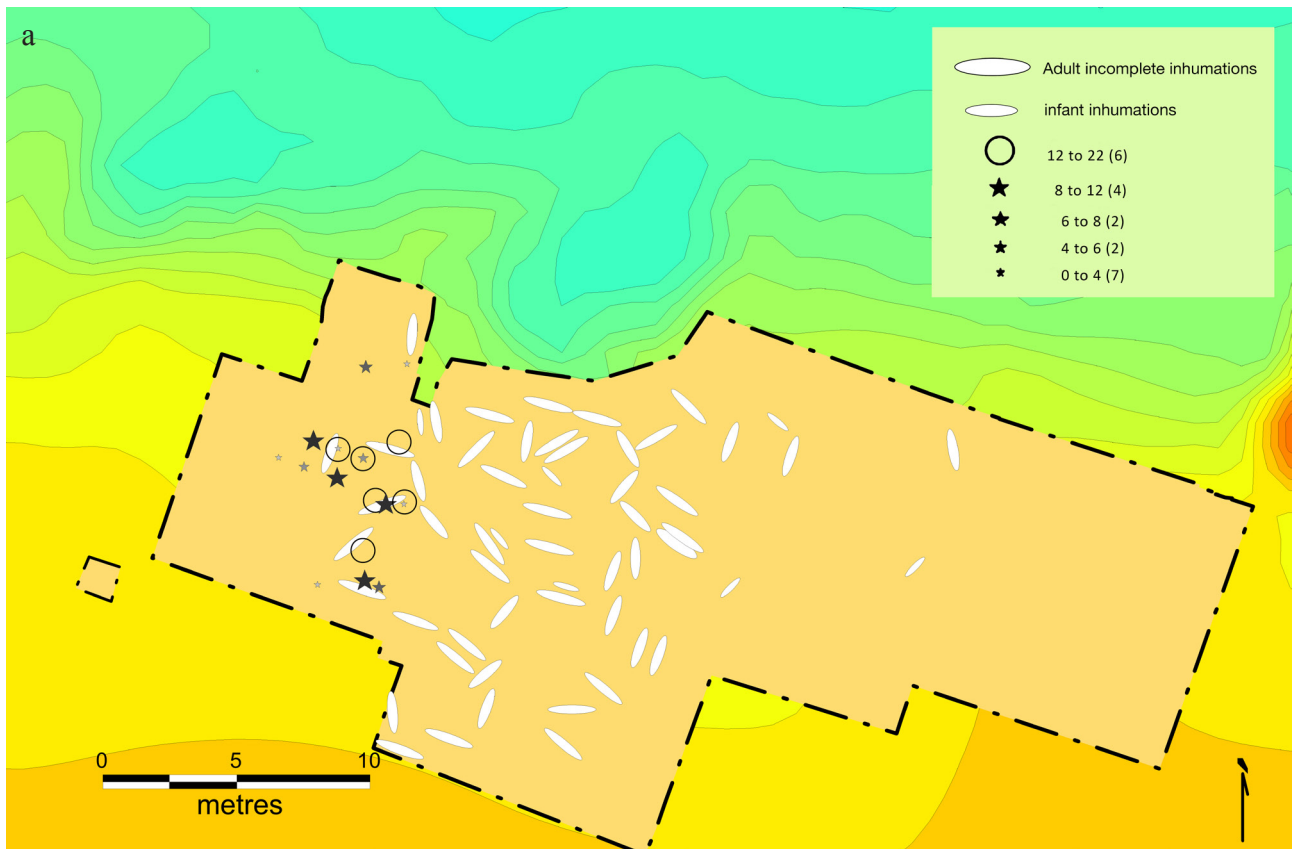


Fig. 3 – a: spatial distribution pattern of pot TD16, size of the circles and stars indicates weight of pottery sherds (CAD M. Ravn); b: flat dish TD16 (drawing S. Seoule, Vanuatu Cultural Centre).

Fig. 3 – a : répartition spatiale du récipient TD16, les différentes tailles des cercles et des étoiles indiquent le poids des tessons (DAO M. Ravn); b : dessin du récipient plat TD16 (dessin S. Seoule, Centre culturel du Vanuatu).

graves where complete skulls had been redeposited. In the eight adjacent squares there were again eight sherds recovered but only weighing 85 g or 5% of the total. It is noticeable that in the three adjacent southernmost squares there were no sherds at all recovered.

The other area of the cemetery where there appears to be a concentration of TCC 3 sherds is between burials B52, B53 and B59. Fifteen sherds weighing 408 g (25% of total by weight) were retrieved from five square metres

centred amongst these burials. The recovered sherds outside these concentrations are all generally small (less than 20 g) and isolated. This is why they are not singled out as a concentration in figure 5. Later burial activity at the site would appear to account for much of their distribution. A number of sherds also confirm post-cemetery disturbance. Eleven were found in the Late Lapita midden sealing part of the cemetery and a single sherd was found in an area of recent disturbance associated with earthmoving.

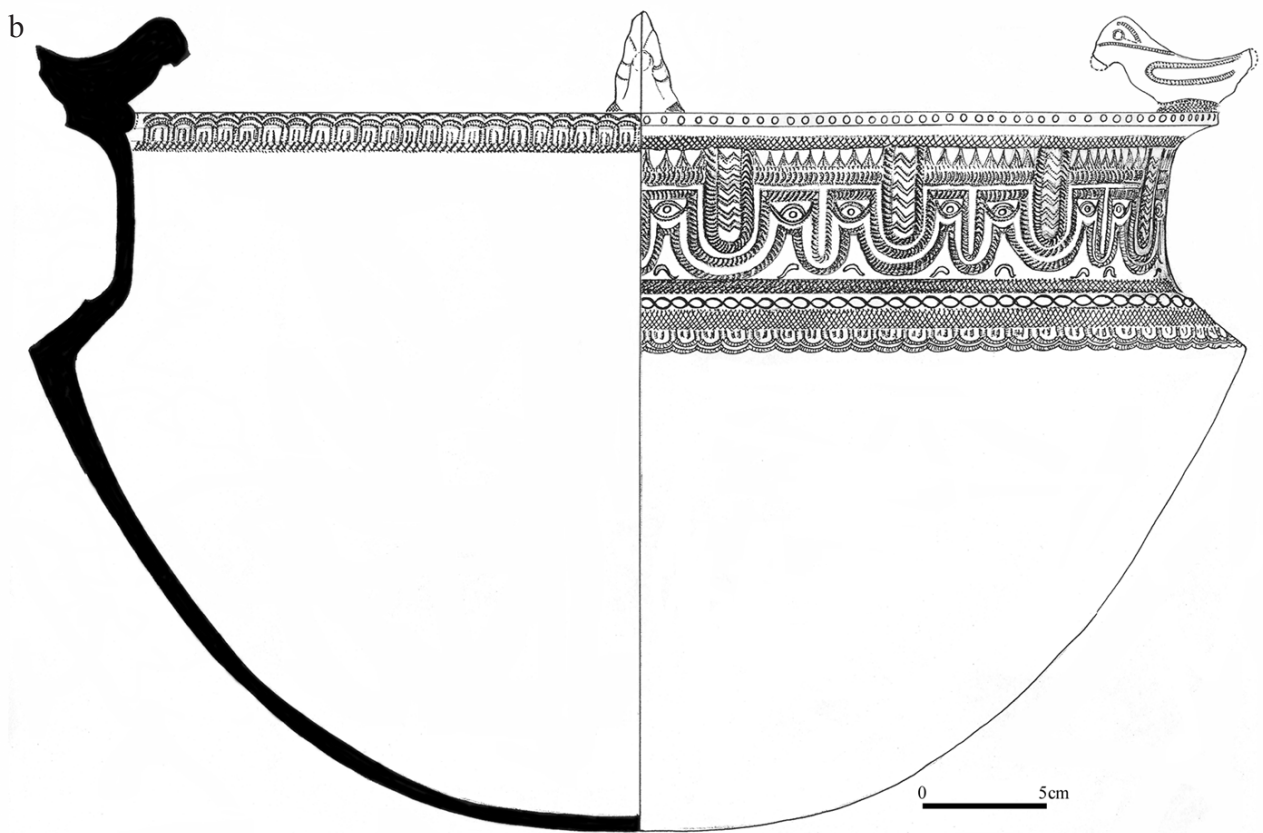
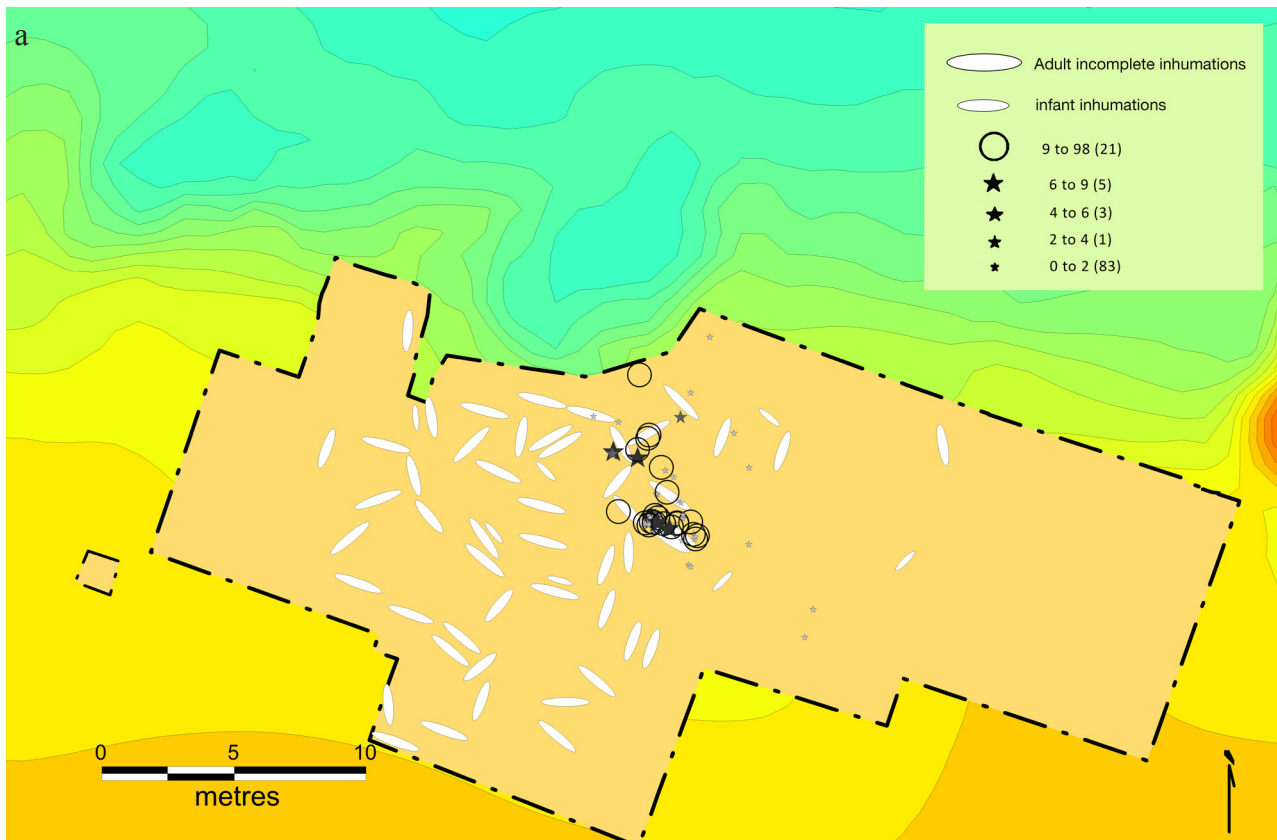
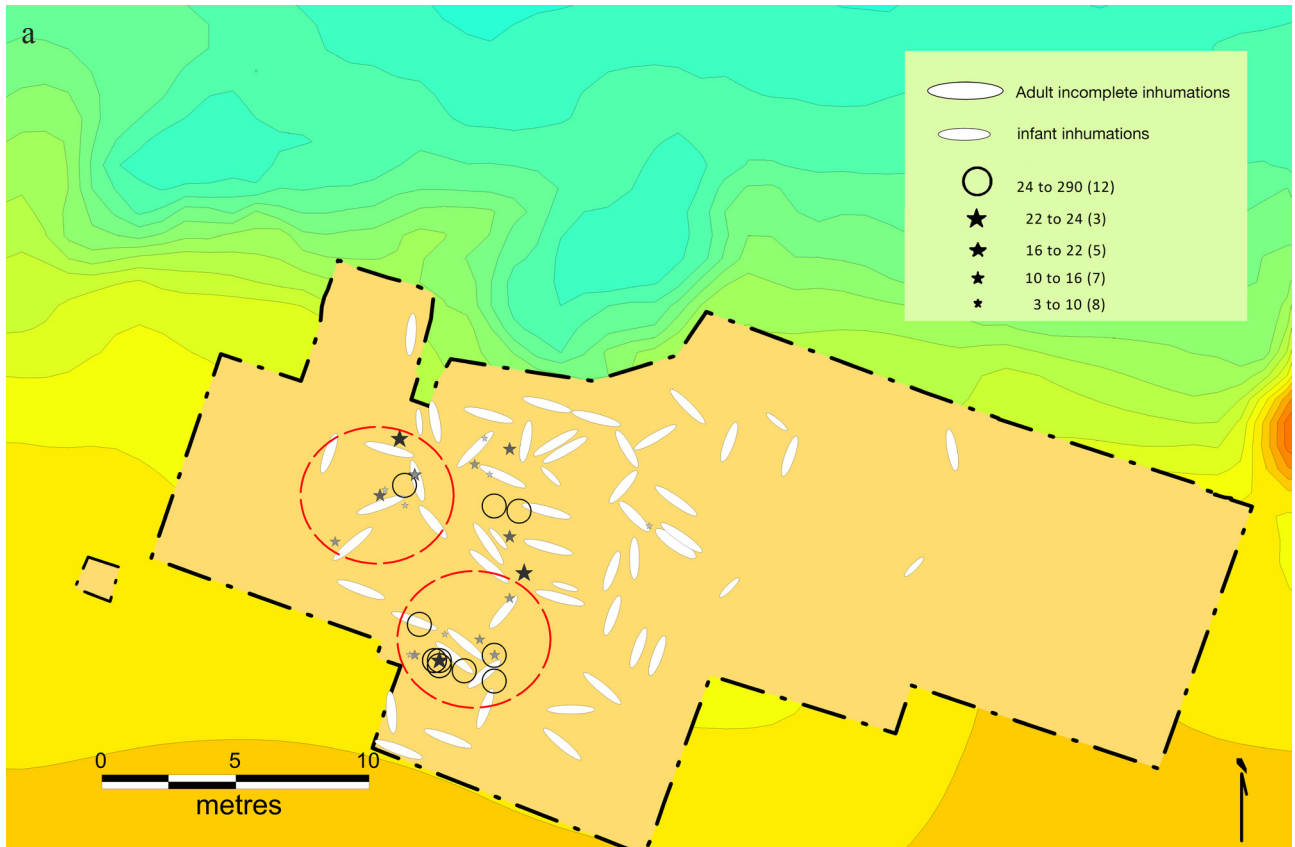


Fig. 4 – a: spatial distribution pattern of pot TC5, size of the circles and stars indicates weight of pottery sherds (CAD M. Ravn); **b:** form and design of TC5 (drawing F. Yoringmal, Vanuatu Cultural Centre).

Fig. 4 – a : répartition spatiale du récipient TC5, les différentes tailles des cercles et des étoiles indiquent le poids des tessons (DAO M. Ravn) ; **b :** forme et dessin du récipient TC5 (dessin F. Yoringmal, Centre culturel du Vanuatu).



b

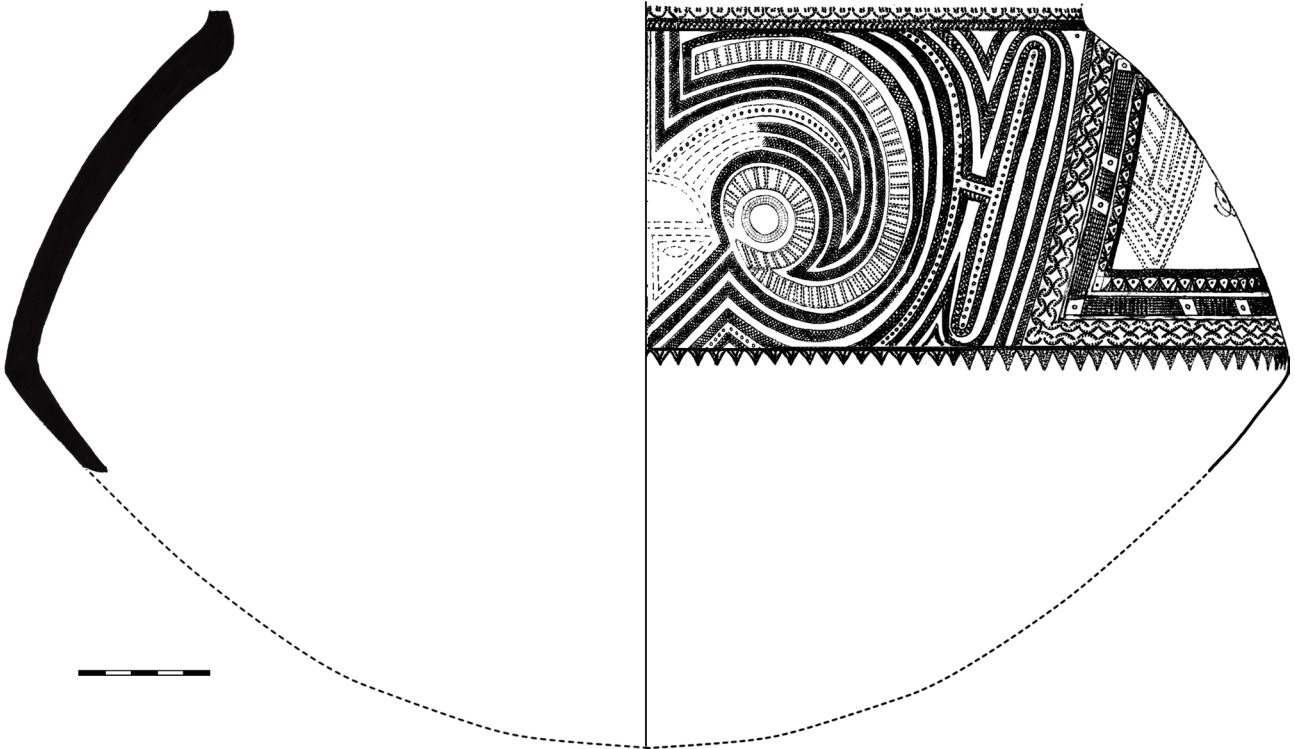


Fig. 5 – a: spatial distribution of pot TCC3, size of the circles and stars indicates weight of pottery sherds (CAD: M. Ravn); b: drawing of pot TCC 3 (drawing F. Yoringmal and S. Seoule, Vanuatu Cultural Centre).

Fig. 5 – a : répartition spatiale du récipient TCC3, les différentes tailles des cercles et des étoiles indiquent le poids des tessons (DAO M. Ravn) ; b : dessin du récipient TCC3 (dessin S. Seoule, Centre culturel du Vanuatu).

The sherds recovered from TCC 3 suggest that it was associated with burial rituals that took place in two separated areas of the cemetery. This is an indication that this exotic vessel would have to have been smashed at some stage of the mortuary process and then distributed among two separated burial activity areas.

Pot TD 4 (Teouma dish)

This is another flat-bottomed dish. Fifty three sherds (1,005 g) were recovered. TD 4 is a very robust vessel with thick walls and base and is associated with B5. Nine sherds (160 g; 16% of total) were recovered from a single square meter where B5 was centred. Sherds were found both amongst the burial fill and beneath the

B5 skeleton. In the other squares totalling 8 m² that surround this square a further twenty-nine sherds (586 g; 58.6% of total) were recorded. In summary then, 70% of the total number of recovered sherds, representing 74% (746 g) of the total weight of all sherds recovered came from squares centred around B5. The robust nature of this vessel and the recovery of numerous sherds within very few squares throughout the grave fill of B5 suggest it was broken at some stage during the burial ritual of this individual. Other more dispersed and isolated sherds from this vessel indicate both subsequent disturbance and displacement during cemetery use as well as recent quarrying activity. For instance, a single sherd was found in the fill of B32, which might indicate that this burial is later than B5 (fig. 6).

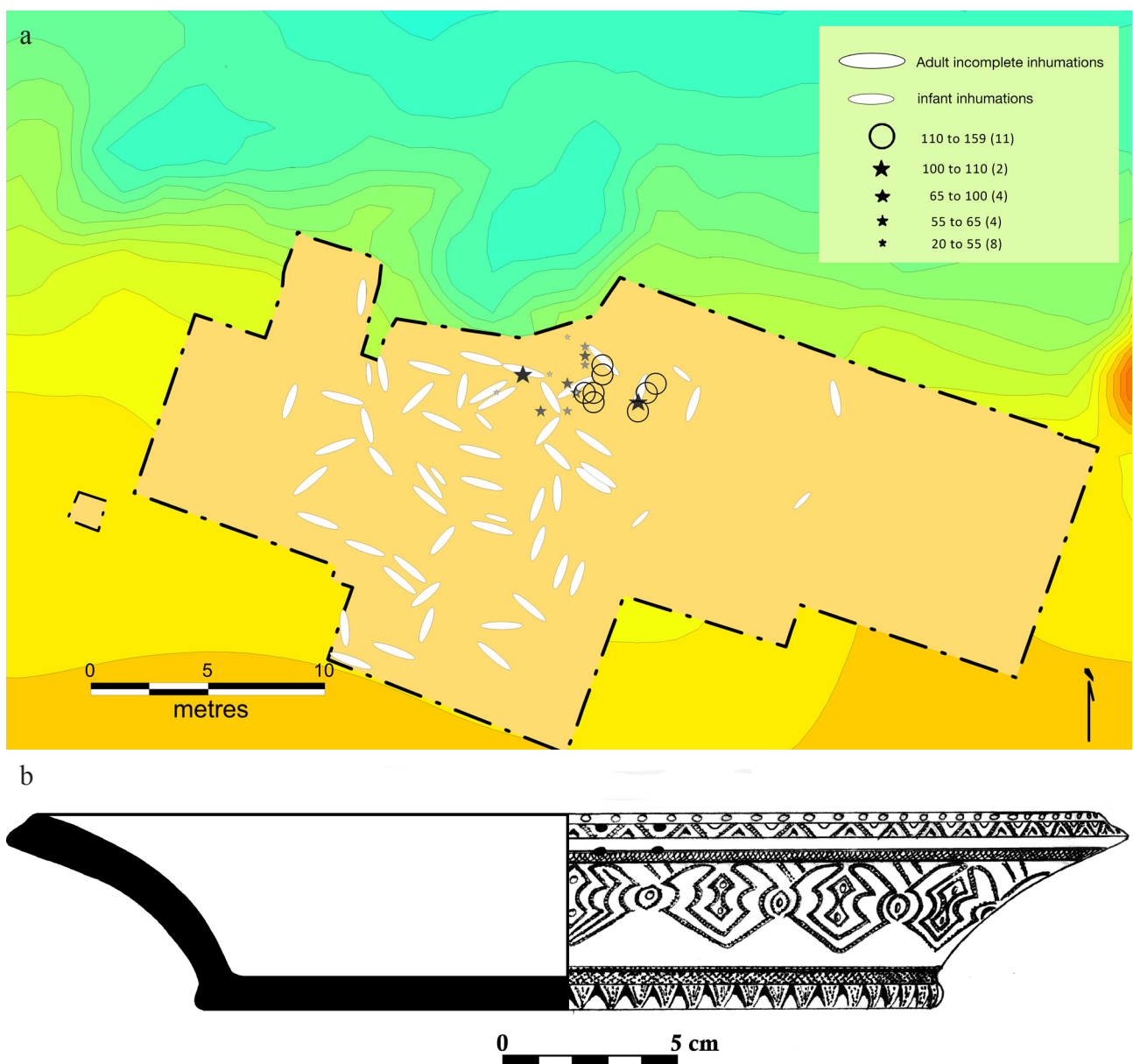


Fig. 6 – a : spatial distribution of pot TD4, size of the circles and stars indicates weight of pottery sherds (CAD M. Ravn); **b :** drawing of pot TD 4 (drawing F. Yoringmal, Vanuatu Cultural Centre).

Fig. 6 – a : répartition spatiale du récipient TD4, les différentes tailles des cercles et des étoiles indiquent le poids des tessons (DAO M. Ravn) ; **b :** dessin du récipient TD4 (dessin F. Yoringmal, Centre culturel du Vanuatu).

Pot TC 12 (*Teouma carinated*)

TC 12 is a large, flaring carinated vessel (fig. 7). Some 248 sherds (2,356.5 g) were identified as being associated with this vessel. However, it came from an area that was much disturbed by recent earthmoving activities. Removing those sherds that were interpreted as having

been redeposited owing to these recent disturbances we are left with 198 sherds with a total weight of 1,811.5 g that came from 75 squares. However, almost 50% of the recovered sherds by weight and number come from two distinct areas (18 m²). The base of the vessel was recorded in situ (fig. 7) indicating that it was initially likely to have been buried whole up to its carination. Its initial

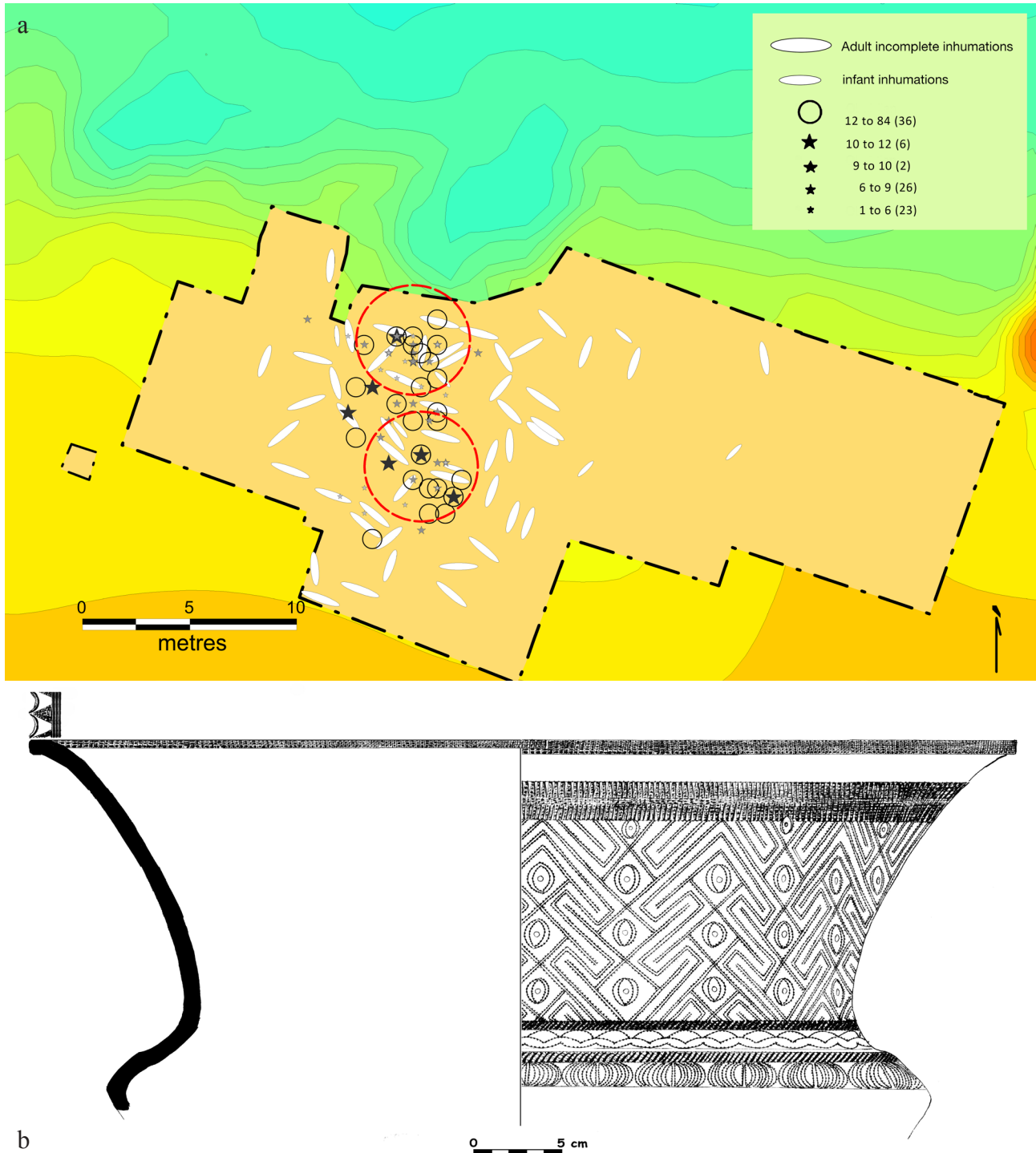


Fig. 7 – a: spatial distribution of pot TC12, size of the circles and stars indicates weight of pottery sherds (CAD M. Ravn); **b:** drawing of pot TC 12 (drawing F. Yoringmal, Vanuatu Cultural Centre).

Fig. 7 – a : répartition spatiale du récipient TD12, les différentes tailles des cercels et des étoiles indiquent le poids des tessons (DAO M. Ravn) ; **b :** dessin du récipient TD12 (dessin F. Yoringmal, Centre culturel du Vanuatu).

use may have been as a burial jar (Valentin et al., 2015). Some thirty-five sherds (17.5% of total; 27.4% total weight) come from the nine square meters that surround the in-situ base. A large percentage of those were found in association with B38 (underneath the burial). The other concentration centres around B49. Some forty-one generally smaller, sherds (20% of total; 22% of total weight) were recovered from the nine square meters surrounding this burial. Most of the other recorded sherds are spread in proximity to these two concentrations, with the vast majority weighing less than 10 g each. It is not surprising that there is a concentration of large sherds near the location of the in-situ base. This is the pattern that would be expected if a large vessel, mostly exposed above the ground surface, had been damaged and its fragments scattered nearby over time. The second concentration six metres north of the in situ base, however, suggests that parts of this vessel were deliberately used as part of the burial ritual of at least one other burial (B49).

DISCUSSION

It was established during the initial excavation of Teouma in 2004 and more dramatically in 2005 that whole Lapita vessels had been placed amongst some of the burials and were associated with burial ritual at the site (Bedford et al., 2006). Further confirmation of pottery associated with ritual at the Teouma cemetery is the presence of vessels brought from New Caledonia (Dickinson et al., 2013). The identification of clustered patterns, here defined as confined collections of sherds within a small area, further indicates that other whole pots were initially deposited in the cemetery area and that they are not simply representative of a generalised pattern of refuse disposal. However, apart from the whole vessels found *in situ*, almost every other identified individual vessel is incomplete despite excavations covering more than 400 m². This suggests a number of scenarios and brings us back again to the problem of equifinality. While part of the site was damaged by earthmoving in 2003 this does not account for the fact that many incomplete vessels, comprising clusters of associated sherds, have been identified outside the area of recent damage. The burial rituals at Teouma were lengthy and multi-staged and the deposition of decorated pottery was only one of the many stages associated with funerary rites. Some whole vessels placed with burials were clearly damaged as other later burial rituals were being performed (e.g. TC 5 and TC 12). They may also have been used (and broken) in separate ceremonies that occurred outside specific graves or even outside the immediate cemetery area. Some sherds may then have been placed with the burials. This is one aspect to consider when deciding whether to relegate decorated sherds from the midden zone to simple domestic discard. Pots may well have been broken deliberately during the burial ritual and some sherds may also have been removed,

acting as ‘relics’ and strengthening connections with the dead (Chapman and Gaydarska, 2007, p. 99–100; Woodward, 2002, p. 1041). The (almost) whole upturned flat-dish that appears to have been used as an expedient protective cover is a further indication of the potential range of uses of these highly decorated vessels (Bedford et al., 2007).

It is worth noting that a pattern of ritual use of pottery in burials is commonly found in Neolithic and Bronze Age societies in Europe and Asia, as John Chapman and Bisserka Gaydarska (Chapman and Gaydarska, 2007) discuss. In Europe, pots were smashed ritually within and in front of megalithic monuments and systematically reburied several times in enclosure ditches (Ravn, 2011b). We know of partial skeletons and pottery pieces being placed with several different individuals in Scandinavia (Larsson, 2009), Britain (Thomas, 1999), Turkey (Hodder, 2006), in Neolithic societies in China (Morris, 2010) and in island Southeast Asia (Lloyd-Smith, 2009; Lloyd-Smith and Cole, 2010; Valentin et al., 2015). Morris observes that Neolithic societies around the world seem to have chosen quite similar ways of dealing with burials and skeletons, pottery and other valued artefacts in the grave ritual, as also pointed out by Sand (Sand et al., 2013, p. 5). The skeletons at Teouma, while all having been fragmented to some extent by removal of skulls and various other bones, are more intact than the typical Middle Neolithic skeletons of Europe. Burial appears more focused on actual individuals, as also seen from the later Neolithic, Bronze Age and Iron Age of Europe (e.g. Haak et al., 2008; Ravn, 2003, p. 106). Thus, we cannot exclude that burial of family groups was practiced in Teouma, as it certainly was in Late Neolithic Europe. What we can say is that in a comparative perspective it seems likely that the pots we find at Teouma should be seen as not only placed in individual graves both *in situ* and broken as a result of later burial activity in the area, but also that pots were smashed as part of a ritual of commemoration, with some of the sherds (and human bones) taken away off-site.

CONCLUSIONS

It hardly needs to be said that it is difficult to read the minds of past peoples, just as it is often difficult to understand the thoughts and motivations of contemporary populations. However, ritual is often the behavioural manifestation of less tangible ideas and thoughts, and studying the patterning of this behaviour makes it possible to access certain layers of meaning. The site of Teouma provides us with an almost unique opportunity in terms of understanding aspects of Lapita ritual behaviour, with its well-preserved cemetery and adjacent associated midden deposits. However, even at a site as well-preserved and extensively excavated as Teouma we cannot be definitive about all activities that were associated with pottery use. What we can certainly say is that decorated Lapita vessels were used during different phases of Lapita

mortuary ritual. Whole vessels were placed with burials and some were used for jar burials (Bedford et al., 2010; Valentin et al., 2015). Many other individual vessels were also placed amongst the burials and there is evidence that these could have been damaged post-placement or equally that they may have been purposely smashed as part of final rites. The largest numbers of vessels are variously represented by dozens of sherds but in some cases only a handful or a single ‘orphan sherd’ is present. Post-depositional activity may account for some of the breakage and absent sherds, but many vessels may have been only partly whole even when used as part of the burial rituals. Alternatively, parts of the smashed vessels could have been subsequently removed and taken elsewhere as part of ritual activities—as certainly happened with human skulls and bones at Teouma. In addition, some pottery fragments including single ‘orphan sherds’ may have been brought in as fragments from other contexts (cf. Chapman and Gaydarska, 2007).

The dead of the Lapita culture were buried in what may have been related groups, and rituals were undertaken where highly-decorated pots and shell valuables played a role (Bedford et al., 2006). Refitted pots have the potential to provide a clue as to which graves are related chronologically, although we are well aware of the many pitfalls associated with trying to use them in this way (Chapman and Gaydarska, 2007, p. 83–85). It seems that the most important and possibly one of the oldest burial concentrations must have been burial concentration II, within which area bird pot TC 5 was located. Further assessment of the apparent associations of finds using more precise means of dating and more detailed stratigraphic and refitting analyses (Blanco-Gonzalez and Chapman, 2014) should provide increased definition of the various activities at the site.

We cannot definitively establish whether pots were smashed purposefully as suggested by Sand (Sand et al., 2013), in this case as part of the burial ritual, but it does seem highly likely this was what was happening in some cases, such as with TCC 3, either on or off the burial area. It is possible to suggest that some pots were originally whole when used in the burial ritual, as these pots are

found within well-defined areas around graves, such as with TD 4 and TC 12. It may be that they were deposited in order to mark one or more graves of a group. Some were used more directly as burial containers, as with TC 5. The patterning of TD 16 is an example where it is more difficult to reconstruct an artefact biography, as it must to some extent represent a palimpsest of activities including more recent taphonomic disturbance. Widely scattered patterns of potsherds such as that seen with pot TC 45 indicate refuse deposition as one would expect from a midden, although what the original function of the pots may have been remains open to speculation.

Christophe Sand (Sand et al., 2013) has suggested that one of the reasons that there is a high level of fragmentation in Lapita sherds found at sites may relate to the smashing of decorated vessels in ceremonies of colonisation. This may well be the case, although taphonomic processes are more likely to have been the primary agent in diminishing sherd size where sites are not deeply buried. With all things Lapita we can expect regional and chronological variation across its distribution. The challenge remains teasing out activities associated with major ritual from the myriad of daily rituals (Marshall in Sand et al., 2013) that were occurring at these sites, and distinguishing which ones might or might not have been associated with burial and other major ceremonies.

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