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Rémy Crassard, Hervé Guy, Jérémie Schiettecatte, Holger Hitgen. Reuse of tombs or cultural continuity? The case of tower-tombs in Shabwa governorate (Yemen). Lloyd Weeks. *Death and Burial in Arabia and Beyond Multidisciplinary perspectives*, 2107, BAR Publishing, pp.173-177, 2010, BAR International Series, 9781407306483. hal-01828488

HAL Id: hal-01828488

<https://hal.science/hal-01828488>

Submitted on 2 Sep 2018

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Society for Arabian Studies Monographs No. 10

Series editors D. Kennet & St J. Simpson

Death and Burial in Arabia and Beyond

Multidisciplinary perspectives

Edited by

Lloyd Weeks

BAR International Series 2107

2010

Published by

Archaeopress
Publishers of British Archaeological Reports
Gordon House
276 Banbury Road
Oxford OX2 7ED
England
bar@archaeopress.com
www.archaeopress.com

BAR S2107
Society for Arabian Studies Monographs 10

Death and Burial in Arabia and Beyond: Multidisciplinary perspectives

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ISBN 978 1 4073 0648 3

Printed in England by CMP (UK) Ltd

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Oxford
OX2 7BP
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Reuse of tombs or cultural continuity? The case of tower-tombs in Shabwa governorate (Yemen)

Rémy Crassard, Hervé Guy, Jérémie Schiettecatte and Holger Hitgen

Summary

During a preventive archaeological survey along the Yemen LNG pipeline route, a cemetery was discovered, and was at first dated to the Bronze Age period. After excavation, these tombs were not clearly datable to this period, as typical Iron Age material was discovered inside them. The ^{14}C dating of three typologically similar tombs reveals two distinct occupation phases. The first one starts from the beginning of the 3rd millennium BC, and the second one from the first half of the 1st millennium BC. What can be concluded? Are we facing a reuse of ancient tombs by later populations, or do we have enough data to think that there was a cultural/technical continuity in building tower-tombs?

Keywords: Yemen, Bronze Age, tombs, Shabwa, South Arabian kingdoms

The survey, architecture and findings

In 2006, an archaeological survey took place along the Yemen LNG pipeline from Ma'rib to Bālhāf (Crassard & Hitgen 2007), by the *Centre Français d'Archéologie et de Sciences sociales de Sana'a* (CEFAS), the *Deutsches Archäologisches Institut* in Sana'a (DAI) and the General Organization for Antiquities and Museums. In the governorate of Shabwa, the plateau area is covered by hundreds of burial places. Several of these were recorded during the survey, most of which are 'tower-tombs'. This type is often dated to the Bronze Age due to architectural typology and comparisons (Steimer-Herbet 2004).

The Bronze Age period (from the early 3rd millennium to the first half of the 2nd millennium BC) has been defined thanks to the discoveries of numerous tombs and cemeteries characterized by megalithic architecture (de Maigret 2002; de Maigret & Antonini 2005). A strong symbolism appears sometimes in the funerary architecture of this period bearing elements which remain poorly understood such as tomb "tails" (Steimer-Herbet 2004) or drawings inside dolmen-like structures (Braemer *et al.* 2003). Associated domestic architecture is scarcely found and is best represented in the Yemeni highlands (de Maigret 2002).

Nevertheless, the terminology and the chronology used for this period are not accepted by all scholars working in Yemen. The term Bronze Age has its origin in European archaeology and refers to precise cultural concepts that are not equivalent to those in Yemen. The concept of a Yemeni Bronze Age is simply used to qualify a period following the so-called "Neolithic" and preceding the period pertaining to the South Arabian kingdoms. This Bronze Age in Yemen appears as an amalgam of very different cultures with their own material culture and socioeconomic systems. Moreover it is different in many ways from Bronze Age societies in Mesopotamia or Western Europe.

Nonetheless, the burial structures are in general very similar in types during this period of time. The tombs discovered along the pipeline route are of three different types that are already published elsewhere (Crassard &

Hitgen 2007; Hitgen *et al.* 2008): cists, wall-tombs and tower-tombs. These include one main type, the tower-tomb, characterized by a circular tomb with an orthostat-lined funerary chamber. The initial structure of these monuments is not immediately perceptible. At first sight, they look like tumuli with a central funeral chamber. But this is not the case. Excavation showed that they had a more structured architecture than first thought. They are cylindrical in shape with a flat or ribbed cover (Fig. 1).

The absolute date of such structures remains an issue. The dwelling structures detected during the preventive survey along the pipeline route were not excavated. A few small soundings demonstrated that no stratigraphic remains were present on sites. The date for these structures is thus indeterminate and it remains difficult to confirm whether they are contemporaneous with the circular tombs. Our sole evidence comes from the tombs themselves.

The human remains from the tombs

Physical anthropology, thanks to precise archaeological recording, analyses the position of bones in a grave in order to decipher the movements that a corpse has undergone, so as to work out the initial position of the body in its grave and to apprehend a possible structure or perishable container which may have contained the body. Moreover, anthropology allows us to characterize a skeletal population. First we estimate the sex and the age of the skeletons. Then we measure the bones and note abnormalities, which are then examined meticulously to see if they indicate diseases, ill-treatment or nutritional deficiencies. Taken together these observations permit us to define a population of skeletons in terms of demography, morphology and health.

The 2006 Yemen LNG excavation campaign gave us the opportunity to investigate 6 megalithic collective graves at first dated to the South Arabian Bronze Age. They are dry stone built tombs and the burials are successive. The graves were all robbed in the past, probably near to the time when they were built. There were doubtless several episodes of looting. Human remains were found in only three of the graves (T6, T7 and T1).

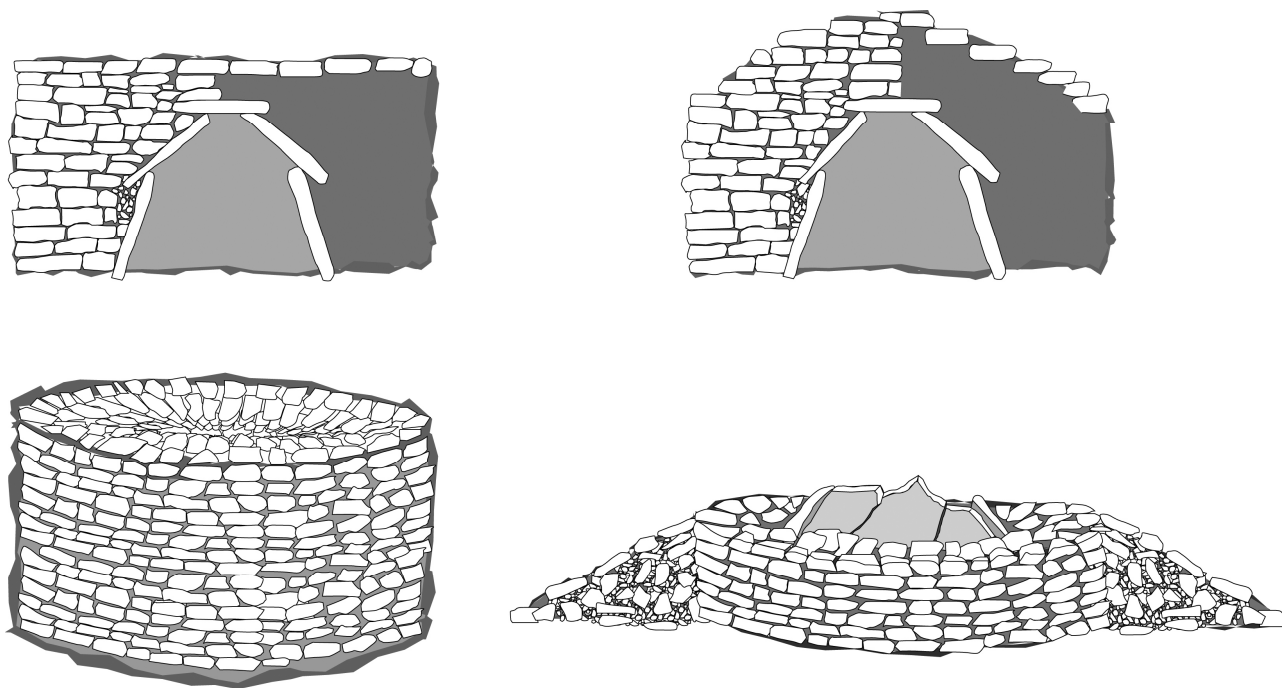


Figure 1. Top: two possible simplified sections of the excavated tower-tombs. Bottom: two views of the structure in elevation before and after robbing and collapse.

| Site & Tomb | Peri-natal | IM1 | IM2 | IM3 | IM4 | IM5 | Total IM | Adult Male | Adult Female | Undet. sex | Total Adult | TOTAL |
|--------------|------------|----------|----------|----------|----------|----------|-----------|------------|--------------|------------|-------------|-----------|
| YLANG 09 T1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| YLANG 09 T2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| YLANG 10 T5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| YLANG 10 T6 | 0 | 0 | 1 | 3 | 1 | 1 | 6 | 1 | 0 | 2 | 3 | 9 |
| YLANG 10 T7 | 0 | 1 | 2 | 1 | 0 | 0 | 4 | 1 | 1 | 2 | 4 | 8 |
| YLANG 10 T9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 3 | 4 | 1 | 1 | 10 | 2 | 1 | 5 | 8 | 18 |

Tab. 1. Distribution by age and by grave; perinatal: before and near birth, IM1: 0-1 years old, IM2: 1-4 years old, IM3: 5-9 years old, IM4: 10-14 years old, IM5: 15-19 years old.

The preservation of the bones is poor, from both a quantitative and a qualitative point of view, as only half of the graves contained human bones. In the end, after sieving and cleaning, 366 bones were identifiable, most of them fragments. Overall, 52 belonged to immature subjects (14.2 %), and 314 to adults. The distribution by age in each grave is summarised in Table 1.

In spite of a very small sample size, we can put forward some hypotheses. The ratio of immature individuals to adults is 10:8, that is to say 1.25. Ordinarily, this figure indicates a relatively high infant mortality rate, which corresponds to what are called “archaic” populations (Bocquet-Appel & Masset 1996; i.e. before the invention of the smallpox vaccine and the adoption of hygienic obstetric methods, Masset 1973). It also usually indicates

a rather high rate of population increase (Bocquet-Appel 2008). Indeed considering that all the children were not found, we would be inclined to postulate that the ratio of immature individuals to adults could have approached 1.5.

In concrete terms, if this figure proves to be correct, we would face a population that renewed itself rapidly. Women’s fertility rate would then have been probably around 6 children for each 3 reaching the age of reproduction. This kind of demographic “explosion” is a rare, rather brief moment (it happens in 1 to 3 centuries) in the history of a society. It corresponds generally to a period of deep change in social, economic, and technological organisation. At such a time demographic pressure forces a society to adapt (Boserup 1981). We

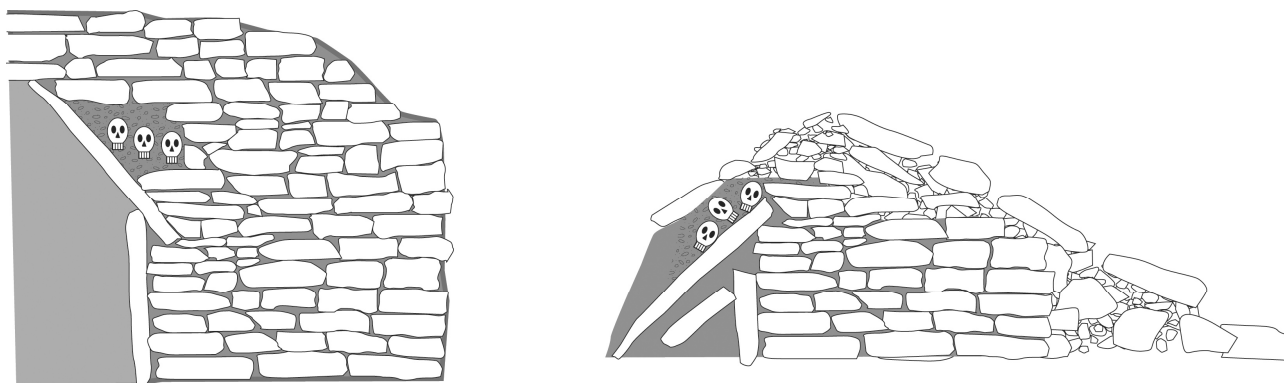


Figure 2: The three aligned children in grave 6, lying on a corbel stone, before and after collapsing.

acknowledge that the statistical data from Shabwa governorate discussed here are rather meagre. Nevertheless, we are not very far from what has already been observed in the vast Jabal Jidrān necropolis in the Ramlat as- Sab'atayn (Steimer-Herbet 2001). At Jabal Jidrān, as in the case of the gas pipeline graves we are likely dealing with family units, where one or two generations of adults were buried with their children (Braemer *et al.* 2001).

The poor general preservation of the bones, in terms of both number and quality, limits the possible measuring and morphological observations. At most we see a very moderate degree of dental wear. In Jabal Jidrān, dental wear was greater, but the “sandy” environment of this site would easily explain this fact. We also noticed the presence of one remarkable detail, the complete ankylosis (or stiffness) of an adult’s left wrist and radius.

Finally, in grave 6, one of the stones of the first level of the corbelling was found lying horizontally near the centre of the chamber. On this stone were the remains of 3 young children (being 3 to 6 years old). The bones show a loose but coherent anatomical organization between the principal anatomical pieces (Fig. 2 left). These three children were found lying on their left sides. We can reasonably suggest that they were put in a sort of burial chamber reserved for young subjects, as indicated in Fig. 2 (right). They were probably buried together having died at the same time.

Discussion

Besides cists or wall-tombs, the burial places on the plateau area are mainly circular tombs with wall enclosures and an inner burial chamber. According to the results of the excavations carried out there, based on artefact study and ^{14}C dating, this type of tomb was a common burial structure for many hundreds of years. Contrary to the opinion formed by some researchers, these tombs were used not only during the Bronze Age (3rd and 2nd millennia BC) but also during the Iron Age (first half of the 1st millennium BC).

Eight samples of bone were collected for radiocarbon dating (AMS ^{14}C). The collagen inside the bones was preserved enough for analysis, and it was possible to date at least two burial phases in three different tombs from the YLNG-010 site (Tab. 2: T5, T6 and T7). These dates reveal a first period of occupation between 3030-2670 cal BC (beginning of the 3rd millennium BC), and a second occupation phase during the 1st millennium BC (between 810-360 cal BC). Are we then facing a reuse of ancient tombs by later populations? Or is it possible that there was a cultural continuity in building tombs over several millennia?

The few objects left in the excavated tombs by the looters can help in answering this question. In the tombs dated to the 1st millennium BC, most of the objects pertain to the same material culture. For instance, the obsidian

| Designation | Nature | 14C Age BP | Calibrated Age 1σ BC | Calibrated Age 2σ BC |
|---------------|--------|------------|----------------------|----------------------|
| YLNG 10 T5 #1 | Bone | 4310 ± 40 | 3010-2880 | 3030-2870 |
| YLNG 10 T5 #2 | Bone | 4225 ± 35 | 2900-2760 | 2910-2670 |
| YLNG 10 T6 #3 | Bone | 2370 ± 30 | 510-390 | 540-380 |
| YLNG 10 T6 #4 | Bone | 2340 ± 30 | 415-380 | 510-360 |
| YLNG 10 T6 #5 | Bone | 2390 ± 30 | 510-400 | 730-390 |
| YLNG 10 T7 #6 | Bone | 2555 ± 35 | 800-590 | 810-540 |
| YLNG 10 T7 #7 | Bone | 2710 ± 30 | 895-820 | 920-800 |
| YLNG 10 T7 #8 | Bone | 2250 ± 30 | 390-230 | 400-200 |

Table 2: Radiocarbon dates from three tombs from the YLNG-10 site

geometric microliths (a few also made from chert) are good cultural and chronological markers. They consist of a small flake of obsidian or chert abruptly retouched on three edges and un-worked along one edge which acts as the active surface. The common shapes of geometric microliths in Yemen include trapezoids, rectangles or squares. These composite tools can also take the form of a half-circle. The majority of those collected in the tombs are trapezoidal in shape. These objects have been found on the surface of several sites and from a few excavated contexts (Inizan & Francaviglia 2002; Crassard 2008). They are present in many different regions of Yemen and have been collected from the Red Sea coast (Tihama) to the Western Highlands, and from the central desert of the Ramlat as-Sab'atayn to the plateaus of Ḥaḍramawt. These geometric microliths appear to date to the same period of time, starting from the appearance of the South Arabian kingdoms (1st millennium BC), but most probably earlier in Tihama (Khalidi 2006). At YLNG-10 site, the radiocarbon dating confirms this hypothesis, but does this necessarily mean that these tombs are much more recent than was thought before and were effectively built during the 1st millennium BC?

Some iron object fragments have been found in the Tomb 7, which further demonstrates the later date suggested for the burials. Nevertheless, prior to excavation, Tomb 7 was found in a very poor state of preservation, which could indicate an intrusive context for these iron elements.

In sum, at least Tomb 6 and Tomb 7, which were chronometrically dated, are well associated to a later period than originally thought. In opposition, Tomb 5 is dated to the beginning of the 3rd millennium, which coincides with the dating of the typologically similar tombs at Jabal Jidrān and Jabal Ruwaik (Steimer-Herbet 2004; these tombs have doors, unlike those at YLNG-10). Despite its imposing dimensions, Tomb 5 contained only few beads in shell and cornelian and three tiny pieces of bronze (possibly rivets), which allowed no clear chronological attribution. The absence of obsidian microliths, which were numerous in the later dated tombs, is an interesting fact for the confirmation of the chronometric dating. The typology of Tomb 5 is strictly identical to that of Tombs 6 and 7, although the material culture and the ¹⁴C dates are very dissimilar.

Because the material from the tombs dated to the Iron Age could also be dated to the Bronze Age, excepting the geometric microliths and the iron pieces, it is very probable that these tombs are testimonies of reuse of the original Bronze Age funerary structures. The builders of such tombs were possibly an indigenous, nomadic population group who adhered to the same way of life and traditions for a long period, lasting long after the development of the Iron Age caravan kingdoms.

Acknowledgements

We would like to thank Lloyd Weeks for his invitation. We also warmly thank the staff of Yemen LNG, especially Robert Hirst and Mohammad Sinnah, the President of the General Organization of Antiquities and Museums Abdullah Bawazir, the director of GOAM, Shabwa branch, Khairan Mohseen al-Zubaidi and the directors of the German Archaeological Institute (DAI Sana'a) Iris Gerlach and of the French Centre for Archaeology and Social Sciences in Sana'a (CEFAS), Jean Lambert, for their support and assistance during the fieldwork. The excavations were directed by Rémy Crassard and Holger Hitgen and carried out by 'Issa 'Alī Ibn 'Alī, Mohammad 'Amin, 'Abd al-Karīm al-Barakani, Rabia' Abdullah al-Batful, Sylvain Bauvais, Ueli Brunner, Julien Espagne, Hervé Guy, Sarah Japp, Olivier Lavigne, Jürgen Malsch, Jamāl Mukrit, Jérémie Schiettecatte and Mike Schnelle. Rémy Crassard thanks the Fondation Fyssen for financing his stay at the University of Cambridge.

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