



Challenges for funerary taphonomy viewed through prehistoric Cyprus



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ABSTRACT

Older archaeological excavations present challenges for exploring current research questions relating to funerary taphonomy, while ongoing excavations offer opportunities for maximizing relevant data through adjustments in the recording and recovery of human remains. This paper explores these issues through specific case studies from the Mediterranean island of Cyprus, drawing wider inferences relevant to the region and beyond. The archaeological record of prehistoric Cyprus (from the earliest evidence of human occupation to the Late Bronze Age) includes a rich array of mortuary contexts exemplifying the infinite variations in human treatment of their dead. These include burial contexts containing single inhumations within settlements or cemeteries; burial contexts containing multiple primary inhumations; burial contexts containing both primary and secondary depositions of human remains; burial contexts containing only secondary arrangements of human remains or evidence for complex processing scenarios; human remains in settlement contexts (pits, middens, general settlement depositions); and remains within other anthropogenic features (such as wells). While soil chemistry, diagenesis and looting (both ancient and more recent) complicate the application of some methods with relevance to funerary taphonomy in Cyprus, opportunities for using archaeoethnatology, the study of articulation and context, as well as element representation curves and bone representation indices exist. This paper explores the potential of these methods through the presentation of specific case studies of successive investigations spanning several decades at Cypriot prehistoric sites and complexes, including Neolithic Khirokitia, the Chalcolithic Souskiou complex, and the Bronze Age chamber tomb complexes at Psematismenos-Trelloukkas. In doing so, this paper not only draws attention to the wealth of data to be gleaned from specific groups of prehistoric Cypriot burials where detailed recording has been conducted (or the loss of data where such recording methods have not been in place), but also, in a wider perspective, offers suggestions for re-assessing archive records and examining their potential and limitations in relation to questions formulated in current research. As the challenges due to the nature and quality of recording and recovery of archaeological human remains are not unique to Cyprus, but rather, are also found in the surrounding regions of the Aegean and the Eastern Mediterranean, as well as further afield, the paper goes further by suggesting ways to maximize data for funerary taphonomy within ongoing and future excavations.

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1. Introduction

Older archaeological excavations with limited recording and recovery strategies for human remains present challenges for exploring current research questions relating to funerary taphonomy, while ongoing excavations offer opportunities for maximizing relevant data through adjustments in the recording and recovery strategies for human remains. This paper explores these issues through specific case studies from the Mediterranean island of Cyprus, drawing wider inferences relevant to the region and beyond. It highlights particular methodological problems arising with a cumulative regional dataset that has not been recovered with taphonomy in mind, and discusses strategies for dealing with these problems, including the use of a variety of

different taphonomic methods in conjunction, to illuminate particular problems of burial ritual processes. Further, excavation strategies maximizing data for funerary taphonomy are proposed.

There are challenges for conducting funerary taphonomy research (focusing on depositional processes leading to the observed layout of mortuary remains during excavation; for a detailed definition, see Robb and Knüsel in this volume) on the burial record of prehistoric Cyprus. While the variety of depositional contexts of human remains provides a fertile ground for applying evolving methods with relevance to understanding the depositional processes that led to the observed positioning and condition of the human remains, there are challenges for the application of such methods. Such challenges include both those relating to the condition of the human remains on recovery, as well as those relating to the manner in which recovery and recording have and are being conducted. The motivation to conduct studies of funerary taphonomy is, however, clear, as the case studies included within the

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paper demonstrate – the loss of socio-culturally relevant data in the absence of recording and recovery strategies focused on taphonomy is highlighted through the scrutiny of, and by comparing and contrasting the results obtained from, the successive periods of excavation and research (some beginning as early as 1880s) on the case study sites, which represent different time periods of Cypriot prehistory.

The archaeological record of prehistoric Cyprus (from the earliest evidence of human occupation to the Late Bronze Age) includes a rich array of mortuary contexts exemplifying the infinite variations in human treatment of their dead. These include burial contexts containing single inhumations within settlements (e.g. Neolithic Kalavassos-Tenta) or cemeteries (e.g. Bronze Age Psematismenos); burial contexts containing multiple primary inhumations (e.g. Neolithic Khirokitia); burial contexts containing both primary and secondary depositions of human remains (e.g. Chalcolithic Souskiou-Laona); burial contexts containing only secondary arrangements of human remains or evidence for complex processing scenarios (e.g. Souskiou-Laona); human remains in settlement contexts (pits, middens [e.g. Kalavassos-Tenta], general settlement deposits [Souskiou]); and remains within other anthropogenic features (such as wells, as at Chalcolithic Kissonerga).

Historically, publications often stated whether Cypriot prehistoric burials on a particular site were single or multiple, but this clearly ignores the variety possible within those categories. Are all the skeletons within single or multiple burials articulated (primary), or are some, or perhaps all of them commingled? Are there different degrees of articulation present (fully articulated, partially articulated, completely disarticulated)? Recent bioarchaeological investigations apply a range of methods to answer such questions, and these include constructing element representation curves, the study of articulation and context (including those based on the principles of archaeoethnology), and systematic and quantitative analyses of aspects such as burning, cut marks, animal activity, weathering, and intentional fragmentation, as well as the refitting of conjoins and individuation (or re-individualisation). While it would be desirable to be able to apply any set of these methods to any specific Cypriot prehistoric burial context and site, the poorly preserved nature of Cypriot prehistoric archaeological human remains prevents this in many instances. Condition of the bone surfaces is often poor on discovery, and loss of particular parts of specific bone elements (those with predominantly cancellous bone, or thin structures) either prior to or on recovery (poor techniques; absence of human remains specialists on site) compounds the issue. Soil chemistry, extreme variations in temperature and humidity, as well as mechanical factors are possible causes. Looting (both ancient and more recent) of burial contexts further hampers the application of methods such as the analyses of fragmentation when oriented towards discovering patterns of ancient human activity other than looting. Selective, partial or otherwise problematic recovery at the time of excavation creates further challenges.

This paper presents three case studies on successive investigations spanning several decades to over a hundred years at specific Cypriot prehistoric sites and complexes, drawing attention to the potential and application of methods related to funerary taphonomy. The case studies include Neolithic Khirokitia, the Chalcolithic Souskiou complex, and Bronze Age Psematismenos-Trelloukkas (Fig. 1). The aim is to highlight, through these case studies, particular methodological problems arising with a cumulative regional data set that has not been recovered with taphonomy in mind, and to discuss and demonstrate strategies for dealing with these problems, including the use of different taphonomic methods in conjunction.

Stereotypically, burials during the Neolithic can be said to have been conducted within pit graves (this however ignores mortuary deposits in middens, wells, and other ‘non-standard’ contexts). During the Chalcolithic, alongside the traditional Neolithic-Chalcolithic pit graves in settlements, appear new types of mortuary facilities in cemeteries: the rock-cut shaft tombs, and chamber tombs. Rock-cut chamber tombs persisted throughout the Bronze Age in Cyprus, albeit in a larger



Fig. 1. Map of Cyprus with case study sites.

scale and with more elaborate forms, while pit graves have also been recovered. As to the number of individuals within each separate mortuary facility, single burials were the norm during the Neolithic. Similarly, single burials were the norm for Chalcolithic burials within settlements, with only a few exceptions, while multiple burials took place in the cemeteries, so far known only from the locality of Souskiou, within rock-cut features. During Early Bronze Age multiple burials within chamber tombs or pit graves located in cemeteries are the norm. What is less well known is what kinds of depositions were made within the above mortuary facilities, especially in the case of facilities containing multiple individuals. In other words, were burials primary or secondary? Were previous burials summarily shoved aside within e.g. the Chalcolithic rock-cut tombs, presumably to make space for further burial(s), or was there ‘bundling’ of individuals as some have hypothesized (see below), or other organizational principles? Even less is known of the Early Bronze Age burials, where no detailed plans or photographs of human remains in situ exist. In order to explore social change between the above key periods of Cypriot prehistory, with debates centering around indigenous innovation and development versus arrival of new populations as causes for archaeologically observed change, it is not enough to focus on mortuary facility type and classification of burials into single or multiple. Detailed information on primary versus secondary nature of burials, and any potential complex manipulations of bodies and their skeletal parts is required for a nuanced exploration of social change as viewed through evolving burial practices.

2. Theory and method

The assumption that archaeological human remains in context contain data relevant to social interpretations (see e.g. Brown, 1971; Gowland and Knüsel, 2006) is not new, but the assumptions as to which kinds of socially relevant data are retrievable, as well as the methods employed to coax out such data have evolved in connection with shifting disciplinary paradigms, such as the culture-historical (with explanations by diffusion or migration), processual and post-processual archaeologies. Archaeological and bioarchaeological recording, recovery and analyses have undergone significant changes as to the way in which they are conducted in connection with the above paradigm shifts.

As the field of funerary taphonomy is just coming into being, but does not yet really exist (Robb & Knüsel, this volume), it would be unreasonable to expect to assess past projects for any use of specific methods with relevance to this field as described above. As the key focal point of funerary taphonomy is the depositional process, in other words the reconstruction of the deposition of human remains, past archaeological investigations and resulting publications are assessed here as to the use of approaches to recording, recovery and analyses that allow inferences to be made as regards the depositional process.

More specifically, the focus is on whether recording allows correspondence between contextual information and the actual human remains (through use of feature plans), whether all (or none of) the human remains were recovered (including those from sieving), or if there was selective recovery only, and whether any attempt was made to assess any potential over- or under-representation of bone elements, or positioning of the bones or skeletons. This assessment is based on archival material (including text, plans, and photographs as included in publications and in archival reports held at the Department of Antiquities, Cyprus) and the (re-)examination of all collected or previously studied human remains, save those from the most recent Khirokitia excavations undergoing analyses by the excavators.

In addition to presenting the changes through time in recording, recovery and analyses of human remains discovered on these sites, the paper explores types of socially relevant data available from these mortuary assemblages when methods such as the construction of element representation curves (Psematismenos-Trelloukkas), and the study of articulation and context (Souskiou complex; Khirokitia) are employed. This allows us to make inferences as regards the kind of data that is lost in the absence of application of such methods, or absence of recording in detail sufficient for conducting such analyses subsequently.

As the range of methods relevant to funerary taphonomy and reconstruction of deposition of human bone are discussed and reviewed in detail elsewhere within this volume, only brief reference to the relevant methods are made here. Construction of element representation curves is based on calculations of bone representation indices for a selection or all of the bones that occur in the human skeleton (see e.g. Bello and Andrews, 2006; Andrews and Bello, 2006). The bone representation index (Dodson and Wexlar, 1979) is a percentage that expresses the frequency of each bone element within a sample, being a ratio between the actual number of bones recovered, and the number of bones that should have been present according to the minimum number of individuals (MNI; Bokonyi, 1970) calculated for the sample (Bello and Andrews, 2006: 3). Element representation curves are constructed using BRI values, but the joining of the BRI values by lines, while aiming at improved visual comprehension, has no mathematical significance (Bello and Andrews, 2006: 3).

The assumption that some or all of the smaller bone elements of the skeleton would be (accidentally) left behind in the primary burial location, or lost or (accidentally) destroyed during transport or redeposition is often used as a criterion in order to investigate possible presence or absence of secondary burials (Robb et al., 2015: 45). An over-representation of particular elements has been tied to selective introduction of secondary burial material into tombs. To infer such under- or over-representation, the BRI value pattern (as shown by the element representation curves) should differ significantly from an element representation curve obtained from an assemblage that is known to consist of primary burials only (such as those from Spitalfields Church in London). The BRI values from Spitalfields (Bello and Andrews, 2006) are used within this paper as a reference for skeletal preservation not greatly affected by factors external to the human bone elements and their characteristics themselves, as there is as yet no suitable BRI reference from a climate similar to that of Cyprus. It should be noted that, where possible, the findings suggested by bone representation analyses should be evaluated through the contextual consideration of multiple factors, including aspects of preservation (completeness, fragmentation, surface preservation) and results of individuation analyses. Due to the highly deteriorated and fragile nature of prehistoric human remains in Cyprus, it is crucial that data on completeness, fragmentation, and surface preservation of human bone elements is recorded already in the field, on exposure of the human remains, as subsequent laboratory study results on completeness, fragmentation, and surface preservation are likely to substantially reflect difficulties in recovery and subsequent processes rather than aspects of completeness, fragmentation, and surface preservation related to processes and phenomena affecting the human remains prior to exposure.

Studies of articulation and context may involve differing sets of observations, some governed by the principles of archaeoanthatology (Duday, 2006; Duday, 2009; see also Roksandic, 2002). Field recovery involves the allocation of an individual designator for each bone element and bone element fragment in the field, the use of this individual designator in all field plans and records relevant to the bone or bone fragment, as well as its inclusion on the bone or the separate container for each bone or bone fragment (the poorly preserved surfaces of Cypriot prehistoric human bone elements rarely support any markings). This allows reconstructions of the exact original locations of each bone or bone fragment analysed in the laboratory, making inferences about body position and/or complex processing scenarios possible, together with methods of segregation and individuation of commingled remains (Rösing and Pischtschan, 1995; Adams and Byrd, 2006, 2008), where possible.

3. Case studies

The case studies represent three different periods of Cypriot prehistory: the Neolithic, the Chalcolithic, and the Bronze Age. Each case study focuses on a single site or site complex, which has undergone several different investigations at successive time periods, the earliest dated to 1885, and the latest still on-going. In the interest of conciseness, the procedures followed by each successive period of investigation are described briefly, and expanded upon further only when the specifics of discussion so require in relation to funerary taphonomy (e.g. in the case of Psematismenos-Trelloukkas). Beyond the discussion of procedures relating to recording and recovery of data relevant to funerary taphonomy, details on the mortuary evidence and its interpretation at each site and specific project can be found in further publications (e.g. for Souskiou-Laona in Lorentz, 2016).

3.1. The Neolithic: Khirokitia

The Aceramic Neolithic site of Khirokitia, occupied from the 7th to the 4th millennium BC, is located near the southern coast of Cyprus, between the modern cities of Larnaca and Limassol. The site has been designated as UNESCO World Heritage site. Two main periods of excavation took place on the site, first by Dikaïos from 1936 to 1946 ('Dikaïos excavations' here; Dikaïos, 1953) and then by le Brun between 1977 and 1991 ('le Brun excavations'; le Brun, 1986, 1989, 1994). Human remains were recovered by both expeditions from pit graves containing mainly single burials (see Table 1). Angel, a prominent physical anthropologist of the Mediterranean and the Near East, analysed and published the human remains recovered by Dikaïos (Angel, 1953), though Angel did not participate in the excavation. The recovery of human remains was incomplete based on comparisons of photographs and plans with human remains as published and as curated at the Cyprus Museum (the human remains were re-examined by the author). Angel's numbering system for the human remains cannot, unfortunately, be tied to mortuary context numbers allocated in the field. Some, or possibly most of the bone elements are drawn on plans (Table 1; Fig. 2), but no plan includes individual designators for human bone elements. Photographs of some of the mortuary features, with human remains in situ, are included in the publication. Analyses of human remains by Angel do not involve any commentary on context (Table 2), articulation, or body positioning, but focus on the origins of the people, through cranial shape. There seems to have been little interest in the depositional process per se.

Re-analyses of deposition are possible to an extent, based on the plans and photographs of some of the skeletons discovered, together with an illustration labeled 'types of burials' (Dikaïos, 1953: Plate CXLV) which includes 11 examples of burial positions within tombs. While the plans as reproduced in the publication are often too small to permit detailed inferences as regards the specifics of body positioning and degrees of articulation, the photographs, together with the 'types of

Table 1

Recording of contextual data on human remains (plans and photographs) within successive projects at Khirokitia, Souskiou, and Psematismenos.

Year/s of project	Project	Number of tombs/burials with human remains	Planned tombs/burials (% of all tombs/burials with human remains)	Plans including human remains (%)	Plans with individual designators for all human remains (%)	Plans with individual designators for some human remains (%)	Type of bone element/s allocated individual designators (%)	Tombs/burials with photograph of mortuary feature (%)	Photographs including human remains in situ (%)	Photographs including artifacts (where present) in situ (%)
Khirokitia 1936–1946	Dikaïos excavations	123	86	99 ^a	0	0		43	100	100
1988–1991	le Brun excavations	22 ^b	100	100	0	0		59	100	100
Souskiou 1950–1951	SV BKE	2	0					0		
1972	SV GAE	13	33	0				8	N/A (looted)	N/A (looted)
1972	SV DAC72	80	100	75	0	75	Crania	25	0	0
1991,	SV_DAC91;94-97	34	59	85	0	85	Crania	29	20	20
1994–1997										
2001–2004	SL	26	100	100	100	100	All bone elements	100	100	100
Psematismenos 1885	Ohnefalsch-Richter	4	0					0		
1982	Todd	1	100	100	0	0		0		
1999	DAC99	1	100	100	0	100	Cranial Fragments	0		
2008	DAC08	29	97	21	0	14	Crania	100	7	97

^a NB This percentage refers to the grave plans included on tholos plans (most of these include indication of human remains in situ), however the size of the plans is too small for conveying detailed positional data; in addition, there are 11 plans of 'types of burial' on plate CXLV (Dikaïos, 1953), but none of these are tied to contextual data, or skeletal numbers.

^b This and the subsequent numbers on the same row refer to the 1988–1991 excavations only by le Brun (1994).

burials' illustration, allow making such inferences to a certain extent: not for each of the uncovered burials, but in a general manner. What evidence there is seems to all point to primary, articulated skeletons, but with remarkable variety in burial positions: some skeletons were found supine (slightly turned towards right or left; upper limbs folded over hyperflexed lower limbs resting on the thorax, or hyperflexed lower limbs resting on hyperflexed upper limbs placed on the thorax, or extended upper limbs and hyperflexed lower limbs; or lower limbs extended at the pelvis and hyperflexed at knee), others prone (thorax on hyperflexed lower limbs with variable upper limb positions, including upper limbs placed posterior to the thorax [Grave II, Tholos XVII], interpreted as bound). There seems to be only minor taphonomic disturbances, for example to the small bones of the hands or feet. Two hypotheses arise prompted by the variety in burial positions: (1) bodies were arranged into various preconceived positions according to multiple criteria lost to us today; (2) body position was not of (major) significance per se, or visible at the time of deposition in the ground. The latter position is supported, amongst others, by Schulte-Campbell's (1986: 78) interpretation of the variation in body positioning at Khirrokita as an indication of wrappings or containers (such as sacks) of soft materials (animal skins; cloth of vegetal or animal origin), presumably of varying degrees of tightness. In either case, such primary manipulations of the body would have likely taken place either prior to *rigor mortis* setting in, or after *rigor mortis* had passed. Some skeletons are in positions consistent with tight bundling or wrapping in the opinion of this author, i.e. with hyperflexed lower extremities, with femora aligned with tibiae and fibulae, positioned close to the torso, accompanied by similarly compact placement of upper limb bones), while other positions are clearly inconsistent with it. The placement of upper limbs posterior to the torso, with wrists in close proximity, has been taken as evidence of tying these body parts, and further interpreted as evidence of human sacrifice by Dikaïos (1953: 90, 221, 340–341).

Human remains recovered during the late 1980s to early 1990s by the le Brun excavations at Khirrokita were analysed and published by Le Mort (1994) who participated in their excavation and recovery.

This involved detailed recording in the field, followed by a complete recovery (including sieving). Plans of mortuary features include detailed drawings of human remains (Fig. 2). Identification of bone elements upon their recovery in the field led to a detailed discussion of body positioning by Le Mort, applying the principles of archaeoanthatology, though no individual designators were used. According to Le Mort (1994: 157), each bone or bone fragment was identified, and its 'anatomical orientation' and find depth were recorded when lifting the skeleton (*démontage*). This detailed identification and description of bone and body positioning (using anatomical terms and referring to aspects of bone visible on exposure, see e.g. Le Mort, 1994: 160) took place in the field, between exposure and lifting, and cannot be repeated in the absence of individual designators in the skeletal plans or on bone elements and their fragments. There are photographs of skeletons in situ, but not of all graves. No detailed inventories of the human remains have been published nor included in a data repository (re-analysis necessary for calculating BRI values; element representation curves would have value as *comparanda* for other Cypriot prehistoric sites). The focus of the chapter on burials is on body positioning, and the orientation of the head and the face of the skeletons. Differences in the body positions of children versus those of adults are noted by Le Mort (1994: 193), characterizing the position of perinate infants as contracted, somewhat older children (age range not specified) as flexed, and adults as hypercontracted. This positional data is consistent with the inferences made above by the author based on the Dikaïos excavation plans and photographs only, indicating that it is worthwhile, and at times fruitful, to attempt to coax out each available indication of body positioning or degree of articulation from old or completed excavations. In summary, the burials at Khirrokita were made in pit graves dug into floors of circular buildings, and contained single primary burials in different degrees of flexion, and with not insignificant amount of variation in body positioning. The primary character of the Khirrokita burials is in contrast to the regional picture of Near Eastern Neolithic burial practices often involving secondary manipulations, including e.g. the retrieval, curation and redeposition of skulls (i.e. cranium and

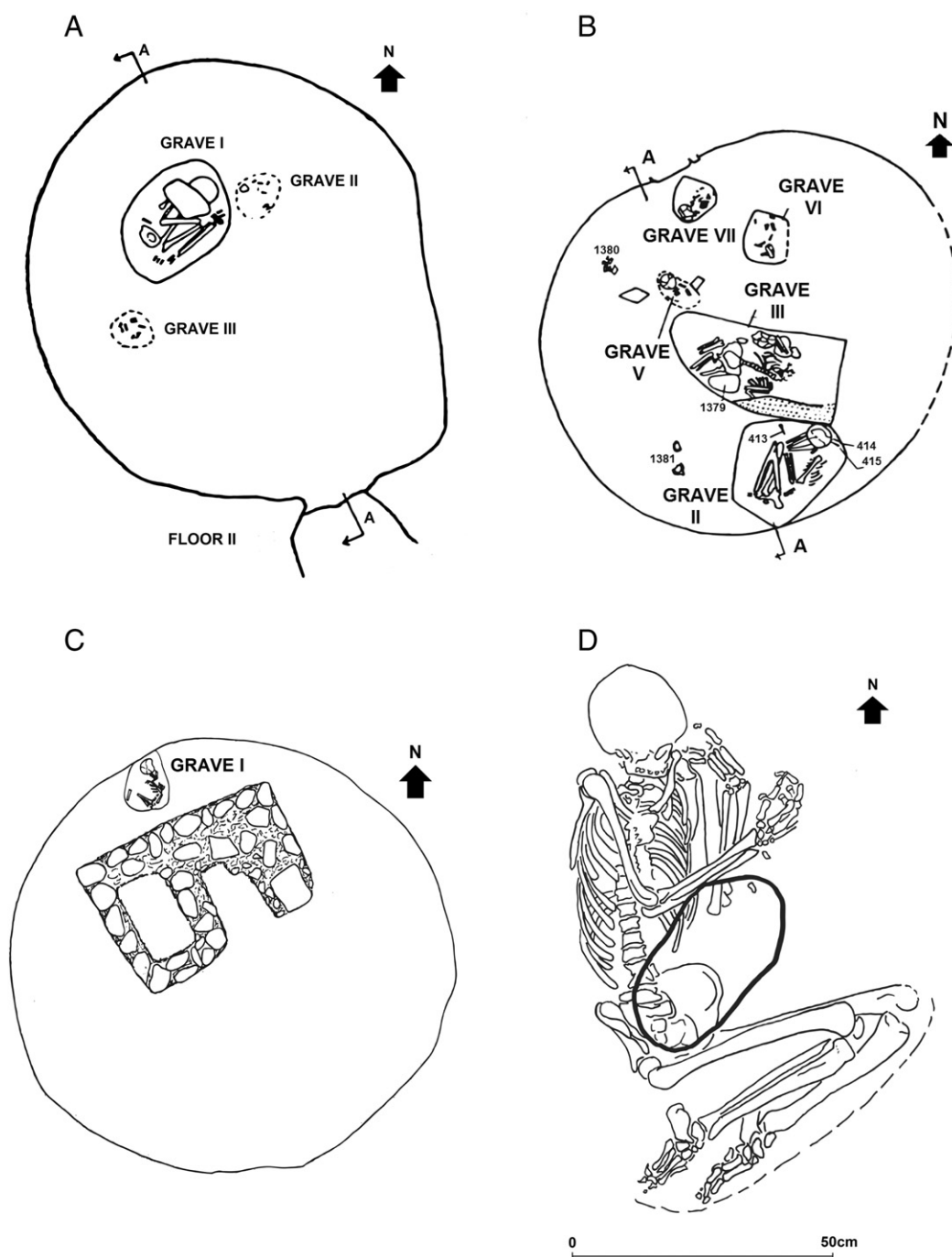


Fig. 2. Plans of burials at Khirokitia: Dikaio's excavations (a: Tholos V, floor II; b: Tholos XV, floor II; c: Tholos XVII, floor I; [Dikaio, 1953](#)); le Brun excavations (d: burial 641, redrawn by author after [Le Mort, 1994](#)).

mandible), or crania, and their enhancement with plaster, mud and bi-valve or cowrie shells.

3.2. The Chalcolithic: Souskiou complex

The locality of Souskiou, in the southern coastal region between the modern towns of Limassol and Paphos, contains a complex of Middle Chalcolithic sites (c. 3000 BCE), including cemeteries and a settlement ([Peltenburg, 2006](#)). Souskiou-Vathyrkakas is located c. 2.5 km inland from Palaepaphos (Kouklia), separated by a ravine from the cemetery and settlement of Souskiou-Laona. The cemeteries are the most extensive evidence of Cypriot Chalcolithic extramural mortuary practices.

The British Kouklia Expedition excavated three rock-cut tombs at Souskiou-Vathyrkakas Cemetery 1 (SVP tombs 1–3¹) in the early 1950s. There are no published plans or photographs of the mortuary features themselves ([Peltenburg, 2006](#): 11, plate 4; [Iliffe, 1952](#); [Mitford, 1951](#)), and it seems that no human remains were recovered for analysis, though some reference to human remains in tombs 1 and 2 are made in the original publications ([Peltenburg, 2006](#): 11). The

¹ While Souskiou-Vathyrkakas has been excavated over several decades, no substantial final publication resulted from any of the projects until [Peltenburg \(2006\)](#) produced a volume integrating the study of material from these successive excavations. SVP signifies Souskiou Vathyrkakas Publication, and tomb numbers given are SVP tomb numbers (original excavations used duplicate numbers or investigated single tombs several times).

Table 2

Aspects of recording, recovery and analysis of human remains within successive projects at Khirokitia, Souskiou, and Psematismenos.

Year/s of excavation	Project	Recovery of human remains	Inventories present?	Correlation of recovered human remains with mortuary features (context)	Correlation of individual human bone elements with original location
Khirokitia 1936–1946	Dikaïos excavations	Incomplete	No	No	No
1988–1991	le Brun excavations	Complete; sieving	No	Yes	No
Souskiou 1950–1951	SV BKE	Not recovered			
1972	SV GAE	Complete	No	Yes	No
1972	SV DAC72	Complete?	No	Yes	No, save some crania
1991, 1994–1997	SV_DAC91;94–97	Complete?, sieving	No	Not always ^a	No, save some crania
2001–2006	SL	Complete; sieving	Complete (in preparation)	Yes	Yes
Psematismenos 1885	Ohnefalsch-Richter	Not recovered			
1982	Todd	Complete	Partial (Moyer, 1985)	Yes	No
1999	DAC99	Partial	Partial (Georgiou, 2000)	Yes	Yes, location by letter for the scant remains recovered
2008	DAC05	Attempted complete	Complete (Lorentz, 2011)	Yes	No, save some crania

^a NB. Peltenburg (2006:26) notes in SVP: 'Note concerning skulls from T.77–100: During the 1997 season, there was a tendency to number skulls sequentially in the field and on bags, and to ascribe 5000 series numbers in reports and plans subsequently without altering bag labels. As a consequence, it is not always possible to correlate the identification of human remains with depicted and reported skeletal material in this series of tombs'. 'Skulls' presumably mean crania here.

only mention indicating body positioning is for Tomb 1 where '[o]f the skeleton, which had virtually disintegrated, enough remained to indicate a contracted burial' (Iliffe and Mitford, 1951:51). Archaeological analyses focused on the red-on-white pottery considered 'exceptional', necklaces of dentalium shells and picrolite cruciform pendants, and other finds.

The German Archaeological Expedition investigated seventeen rock-cut tombs (SVP tombs 4–20) at Souskiou-Vathyrkakas after they had been looted in 1972. All human remains from looters spoil were recovered, and only dentitions analysed by Lunt (1994); Lunt and Watt, (2006). While there are plans for some of these mortuary features (see Peltenburg, 2006: plates 5–7), no human remains are included on plans.

The Department of Antiquities of Cyprus (DAC) excavations at Souskiou-Vathyrkakas in 1972 discovered five rock-cut tombs (SVP tombs 21–25, Peltenburg, 2006). Initially plans for only three tombs were published (Christou, 1989:85), but at too small a scale for full comprehension. Four mortuary feature plans (tombs 21–24) are included in the SVP volume (Peltenburg, 2006: plates 8, 9, and 11), three with human remains (tomb plans 21–23). Individual designators are included for artifacts, but generally not for human remains: only (some) crania have been lettered (Fig. 3a). There seems to have been no human remains specialist in the field, and the remains were published only later (Parras, 2006). The publication does not include any detailed inventories of remains within each tomb, save for brief identifications of lettered crania.

Subsequent DAC excavations in 1991–1997 investigated 34 rock-cut tombs with human remains at Souskiou-Vathyrkakas, some of which have been deemed to be re-investigations of previously excavated tombs² (Peltenburg, 2006). Some mortuary feature plans exist, and some include human remains (see Table 1; SVP), but not in sufficient detail to allow inferences on articulation, primary versus secondary nature of burials, or positioning of bodies or commingled remains, beyond possible grouping of crania and alignment of long bones (Fig. 3b). There are no indications of any articulated skeletons on plans, and though Peltenburg (2006: 173) posits 'bundling' of individual bodies after

secondary manipulation, the plans or photographs do not provide evidence of this. Individual designators were reserved for artifacts, and some crania. No human remains specialist participated in the excavation, and the remains were only published later, and without inventories, save brief identifications of the numbered crania (Parras, 2006). Original find locations can be reconstructed only for these crania. The author has re-examined all Souskiou-Vathyrkakas human remains curated by the Department of Antiquities, Cyprus.

Lemba Archaeological Project excavated the Souskiou-Laona (SL) cemetery in 2001–2006, discovering over hundred rock-cut tombs, of which 26 contained (mostly) intact burial layers (others looted or otherwise disturbed). All human remains were meticulously exposed, recovered and recorded, regardless of context status (intact or disturbed). All human bone elements in intact burial layers were planned, photographed, and allocated an individual designator. A human remains specialist (the author) created the protocols for the full recovery of all human remains; participated, collaborated, and advised in the exposure, recording and recovery of the remains; and soil was fine sieved. Detailed notes on positioning and articulation were made in the field on purpose-specific recording forms, fieldwork diaries, and plans. This permits inferences on primary burials, as well as on the patterns evident in the bone stacks (intentionally organized commingled bone elements in tombs), and the semi-articulated material (articulated sections of the skeleton, such as an articulated humerus and shoulder girdle, a section of the thorax, and a completely articulated foot) in the tombs (Lorentz, 2014; Lorentz, 2016). Such observations were conducted according to the principles of archaeoethnology. Complete inventories of all skeletal remains permit calculations of BRI values and construction of element representation curves. Preliminary results as to bone element representation include findings that support, together with the contextual data, the hypothesis that multiple bodies were introduced in the burial features as primary burials and that secondary manipulations took place within each individual tomb feature, rather than bodies or body parts or skeletal elements being removed from or added to the burial layer within a tomb (ibid.). Pertinent evidence includes the following: all skeletal elements are present, including the small bones of hands and feet (Farnaby, 2008; Lorentz, 2016), and there is sufficient consistency between bone element representation values and MNI values (ibid.).

² Thus the 114 numbered tombs in the SVP volume include some duplicates, amounting to 95 investigated tombs in total within all projects that undertook investigations at Souskiou-Vathyrkakas.

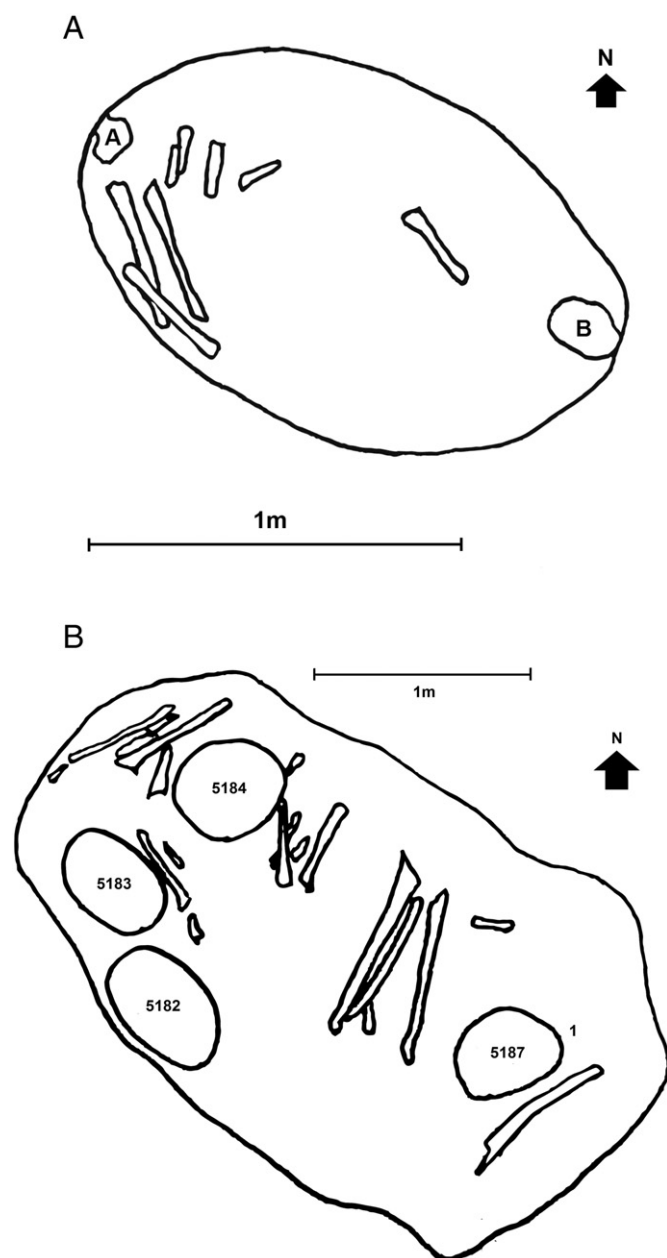


Fig. 3. Plans of burials at Souskiou-Vathyrkakas (A: DAC 1972 excavations, Tomb 22; B: DAC 1990s excavations, Tomb 58; redrawn by author after SVP).

The exposure, recording and recovery methods employed at Souskiou-Laona resulted in a bone assemblage that permits investigation of context and positioning of both articulated and disarticulated human remains, as well as investigation of element representation within the assemblage as a whole and within different subsets of the remains. This is the first, and so far the only human remains assemblage treated in this manner in Cyprus. Only such a process permits understanding the Souskiou burial ritual practices in detail and in their full complexity. The funerary practices involved the introduction of successive single (and at times multiple) primary burials into tombs, with subsequent complex manipulations involving patterned stacking of disarticulated bone elements or semi-articulated body sections from previous burials within the tomb, and the placement of disarticulated larger long bones on the corresponding articulated extremities of the intact skeletons (Crewe et al., 2005; Lorentz, 2014, 2016). Such patterns (Lorentz, 2016), may be taken to indicate that the manipulators were highly knowledgeable as to human skeletal anatomy.

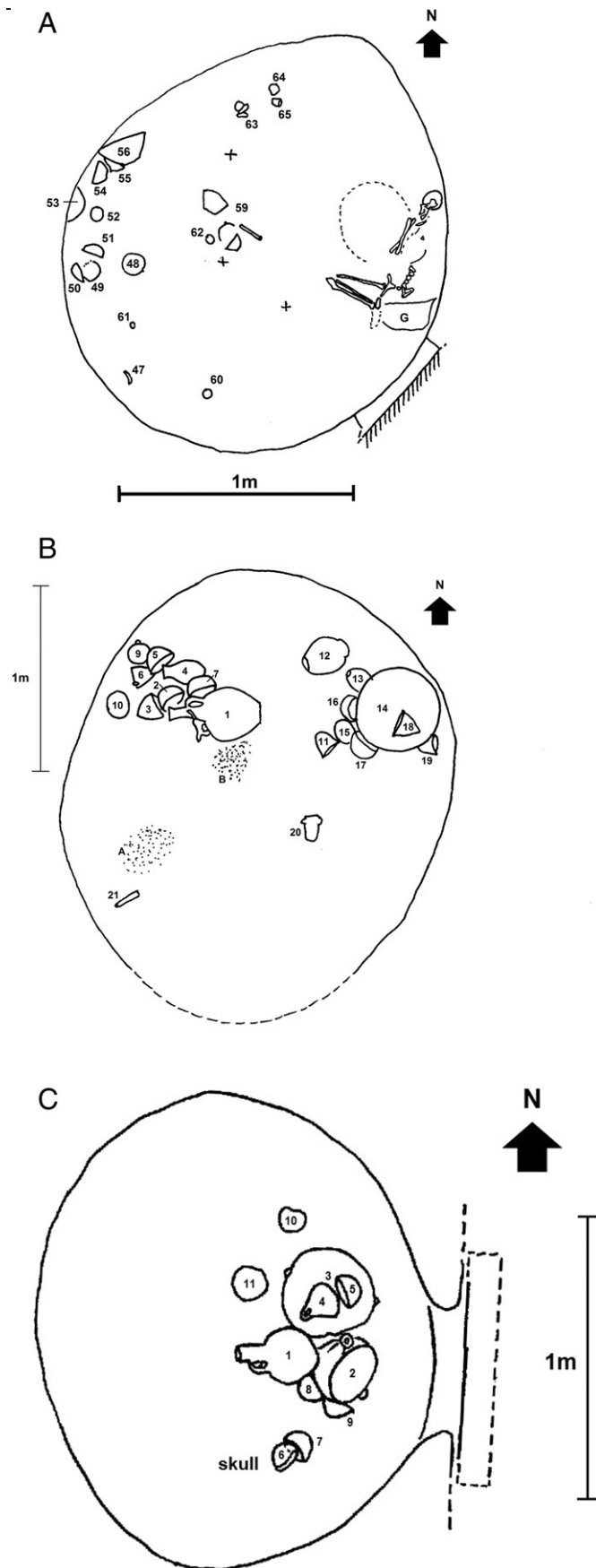
Prior to the extensive excavation and research that has taken place in the Souskiou cemeteries, the stereotypical view of burial practices in Chalcolithic Cyprus consisted of pit graves with (mostly) single, primary inhumations, located within settlements, with some scant evidence of multiple burial in rock-cut tombs at Souskiou-Vathyrkakas cemeteries. While hypotheses of 'bundling' of individual bodies after secondary manipulation at Souskiou-Vathyrkakas were put forward more recently (see above), without firm evidence, it is only after the Souskiou-Laona excavations and analyses, involving a focus on funerary taphonomy, that a clear picture of the complex secondary manipulations of multiple individuals within single rock-cut tombs emerges. Such manipulations were clearly geared towards constructing new communal entities from several originally individual bodies (Lorentz, 2014), rather than towards preserving individual integrity, e.g. through 'bundling'. Focusing on the stereotypical view of Chalcolithic burial practices at settlements shows a false similarity (and presumed continuity) with Neolithic burial practices also involving single, primary inhumations in pit graves (the latter view on the Neolithic also ignores a variety of depositional contexts). The detailed taphonomic analyses at Souskiou-Laona point to entirely new pathways for the disposal of the dead, which may be taken as indicators of significant social change. In the wider, regional context, funerary taphonomy at Souskiou provides firm evidence of contemporaneous multi-pathway burial practices within a single site or site complex, with variation both between settlements and cemeteries, as well as within cemeteries, adding to the growing evidence against archaeological approaches normalizing burial practices in order to characterize particular archaeological periods or culture complexes.

3.3. Early Bronze Age: Psematismenos-Trelloukkas

The Early Bronze Age cemetery of Psematismenos-Trelloukkas (c. 2300–2200 BCE) is situated in the southern coastal region of Cyprus. It is one of very few unlooted Bronze Age Cypriot cemeteries to be scientifically investigated, as well as the most extensively excavated Early Cypriot Bronze Age (periods I–II) burial ground from the south coast region (Georgiou et al., 2011:2). There are two types of tombs: chamber tombs (both large and small), and pit tombs. The tombs shed new light on social developments in southern Cyprus, as well as on regional relations during the first half of the Early Bronze Age.

Ohnefalsch-Richter (1893) excavated four tombs at Psematismenos in 1885, leading to recovery of artifacts, but no recovered human remains or tomb plans. DAC excavated one tomb in 1960, with publications focusing on ceramic vessels (Georgiou et al., 2011). Todd excavated one tomb (1/82) in 1982 (Todd, 1985) and the tomb has been re-dated since. Skeletal elements appear on the published tomb plan (Todd, 1985: 58, Fig. 5), with no individual designators, but enough detail to allow the inference that the articulated skeleton was discovered with the lower limbs flexed and lying on its right side (Fig. 4a). All skeletal elements were recovered, and analysed by Moyer (1985). Another tomb (1/99) was excavated at Psematismenos in 1999 (Georgiou, 2000). Recovery of skeletal elements from this tomb seems to have been incomplete based on the excavator's commentary. Two sets of elements are marked on the tomb plan ('A' and 'B'; Fig. 4b), and these recovered remains were identified by a medical practitioner, Dr. Symeou (Georgiou, 2000: 51).

DAC excavated 47 tombs in 2008 at Psematismenos-Trelloukkas (Georgiou et al., 2011), with 29 tombs producing human remains. While tomb plans and photographs for most of the tombs with human remains are included in the publication, most show artifacts in situ, not human remains (Table 1). There are only two photographs that show some human remains in situ. The key focus in the volume on the 2008 excavations were clearly the vessels recovered from the tombs, posited to comprise by far the largest sample of complete or near complete vessels from any site of the same period, with the exception only of Bellapais-Vounous site A on the north coast. While the



excavation conditions were clearly less than ideal (Georgiou et al., 2011: 10) artifacts were photographed in situ, and allocated a unique identifier, placed on plans. This type of detailed recording was not afforded, however, to human remains (indicated rarely on plans, with words 'teeth', 'skull', 'bones'; Fig. 4c). Given that the human remains were identified in the field sufficiently to allow recovery it is reasonable to assume that it would have been possible to note their location on most occasions. The excavators attempted full recovery of human remains. No physical anthropologist participated in the excavation. The author was requested to analyse the human remains after their recovery by the DAC excavations at Psematismenos-Trelloukkas in 1999 and 2008. No field notes or any other type of field records, photos, or plans that would have allowed the differentiation between any putative primary versus secondary burials at Psematismenos-Trelloukkas were available. All human remains reached the laboratory in containers in a commingled state following recovery, with no contextual information other than the grave/tomb number.

There is only one note in the publication that gives some data relevant to the positioning of bones within the tombs, or in relation to each other: '... flexed leg bones [sic.] are visible in the southeast part of the chamber' (Georgiou et al., 2011: 156, Fig. 2.155). It is notable that these are not drawn onto the tomb plan, though they may be referred to by text 'bones' on the plan. As no individual designators were allocated to the bones in the field, and as containers of bones for this tomb do not single these bones out, it is not possible to correlate these presumed lower limb bones with any bones analysed in the laboratory. The only lower limb bones identified in the laboratory are a right tibia fragment (distal 1/3 of diaphysis with distal epiphysis), and a fibula of indeterminate side (diaphyseal fragments). As both of these bones belong to the distal half of the lower leg (i.e. the tibia and fibula), and there are no fragments of the femur, they could not have been found in a position indicating flexion, as indicated in the publication. There is only a single upper limb bone (diaphyseal fragments of a radius), which precludes consideration of this as a flexed upper limb. The options remaining include the following: (1) there were no lower limb bones in articulation and in a position of flexion, or (2) the articulated lower limb bones in flexion were destroyed during recovery. This example pinpoints two crucial obstacles for conducting studies of funerary taphonomy in Cyprus: (1) the lack of recording of contextual and positional data, and data related to articulation, using correct anatomical terms, and (2) the lack of correlation between what has been recorded in the field (be it correlation of burial contexts with human remains; or positioning of specific bones) and what is available for analysis in the laboratory. Such obstacles are by no means unique to research in Cyprus. They occur elsewhere in the Mediterranean and the Near East, as well as further afield.

What is, however, available for the study of funerary taphonomy at Psematismenos-Trelloukkas are detailed inventories of the skeletal elements recovered. This allows the construction of skeletal element representation curves based on bone representation indices. These, together with an assessment of the relative abundance of the smaller bone elements, permit exploration of the question of whether the human remains discovered were introduced into the tombs as primary burials, or whether they were brought in for secondary burial after primary burial elsewhere. This has relevance not only to the understanding of funerary ritual at Psematismenos, but relates to arguments about mortuary ritual in Bronze Age Cyprus in general. Keswani (2004) has suggested in her review of mortuary ritual in Bronze Age Cyprus that a multi-stage burial program was prevalent. According to Keswani, this involved at least occasional, temporary burial in shallow pits or other features followed by exhumation and re-burial in chamber tombs. While the level of recording of the human skeletal remains in

Fig. 4. Plans of burials at Psematismenos (A: Tomb 1/82; B: Tomb 1/99; C: Tomb 105; redrawn by author after Todd, 1985, Georgiou, 2000, and Georgiou et al., 2011, respectively).

the field at Psematismenos-Trelloukkas does not allow inferences on articulation, it is possible to construct element representation curves based on the published detailed inventories (Lorentz, 2011) in order to investigate the patterns of bone representation at Psematismenos in general (e.g. are burials primary, or secondary introductions from elsewhere), as well as the question of whether Keswani's suggestion regarding sequential burial (primary in pits; secondary in chamber tombs) would be consistent with the evidence at Psematismenos. As outlined in the methods section, the relative abundance of the smaller bone elements of the skeleton can be employed in making inferences about the possible presence of secondary versus primary burials.

As to the overall patterns of bone element representation, Fig. 5 shows the BRI values for the Psematismenos-Trelloukkas human remains assemblage as a whole. The BRI values are relatively low, and none rise above 70%, reflecting perhaps the overall poor preservation of human remains on the site (see also below). Crania and dentitions (both maxillary and mandibular) are the most often represented parts of the human skeleton, followed by radii, ribs, vertebrae (thoracic), and femora. The most poorly represented elements are those of the sternum and the coccyx, no fragments of which were represented within the material recovered. As to the smaller bones of the skeleton, they are present in relatively abundant numbers, as compared, for example, with the ulnae. While carpals are relatively poorly represented, tarsals, metacarpals, metatarsals, and hand and foot phalanges are present in numbers comparable to those of the humeri. While the BRI values clearly show variable representation for different bone elements, is this pattern due to human action (unintentional or intentional introduction or removal of specific bone elements) or perhaps more related to the intrinsic patterns of preservation of human skeletal elements? Fig. 6 shows BRI values both at Spitalfields (representing no selective human action) and Psematismenos-Trelloukkas. While it is clear that representation of bone elements is significantly poorer overall at Psematismenos-Trelloukkas than at Spitalfields, the general pattern of the skeletal representation curves is remarkably similar: the sternum and patellae are poorly represented, while crania are the most well represented skeletal region. Femora are also relatively abundant, as are the other larger long bones of the upper and lower limbs.

While specific BRI values for the bones of hands and feet are not available from Spitalfields, the range of values summarized visually for these from sites of St. Estève le Pont and Observance (Bello and Andrews, 2006: 6, Fig. 1.3) indicate representation at similar levels to those of the radii and ulnae, as well as the tibiae and fibulae on these sites, again consistent with the BRI results from Psematismenos-Trelloukkas. Therefore, given the relative abundance of the small bones of the hands and feet in relation to the other bone elements, as well as the pattern of BRI values consistent with such a pattern from a site where no under- or over-representation due to human action is expected to be present (Spitalfields), it seems that the BRI values, and the pattern evident in the bone element representation curve of the overall Psematismenos-Trelloukkas assemblage, are consistent with the hypothesis that the burials within the cemetery were (at least initially, on introduction to a mortuary feature) primary (i.e. the pattern of bone element representation is due to intrinsic factors of preservation of human remains, rather than any human action causing, intentionally or unintentionally, either over- or under-representation of certain bone elements). This interpretation is based on the presence of elements (small bones) rather than absence, and is further supported by the skeletal plan in Todd (1985): 58, Fig. 5), indicating an articulated, flexed skeleton within a chamber tomb (Fig. 4a). Such primary burials may have then been manipulated further within each mortuary feature.

To investigate in specific Keswani's suggestion of primary burials in pits followed by secondary burials in chambers, element representation was further scrutinized in the two main types of burial feature present on the site: chamber tombs (both large and small), and pit tombs. Unfortunately, there are only two pit tombs with recovered human remains (total MNI 2), as opposed to 27 chamber tombs (total MNI 50)

with recovered human remains. The two pit tombs contain skull remains only (cranium, mandible and the respective dentitions): one pit tomb contains an adult or older subadult (i.e. a skeletally immature individual), the other a subadult of c. 1.9 years of age at death. As there are also chamber tombs that contain only remains of the skull (cranium and mandible), there is little to distinguish such contexts as either primary or secondary depositions in the absence of the relevant contextual data.

It may also be questioned whether the multiple burials (as opposed to the single burials) at Psematismenos-Trelloukkas might contain significant numbers of secondary burials brought from elsewhere, but the pattern of bone element representation shown in Figs. 7 and 8 is not consistent with such a hypothesis. The element representation curves constructed using the BRI values for single versus multiple burials at Psematismenos-Trelloukkas are very similar to each other, as well as to the reference curve, reflecting the presumed intrinsic pattern of preservation of human remains (Spitalfields).

It can therefore be concluded that there is no definitive evidence at Psematismenos-Trelloukkas for temporary burial in shallow pits or other features followed by exhumation and reburial in chamber tombs, as suggested by Keswani for Bronze Age mortuary ritual. The human remains recovered from the Psematismenos-Trelloukkas tombs are consistent in their element representation pattern with poorly preserved remains of primary burials, or at most, remains of within-tomb manipulation of such burials. This is a significant result for the understanding of mortuary ritual at the site, the region, and for the period, but also has ramifications for the understanding of mortuary ritual during the Cypriot Bronze Age as a whole. It is no longer enough to infer multi-stage mortuary ritual practice involving primary burial elsewhere followed by secondary burial when human remains assemblages show uneven representation of skeletal elements – a criterion often used in the relevant literature (Keswani, 2004; see also Mithen et al., 2016). The work of Webb et al. (2009): 240) at Karmi Lapatsa leads them to argue, based on contextual evidence, for primary burials in Early Cypriot chamber tombs, an argument consistent with the above results derived from analyses of the human remains.

Another hypothesis often presented in the literature is that children and infants did not have access to burial in cemeteries or chamber tombs during the Bronze Age. There are substantial numbers of subadults (31% of the individuals are between ages 1.9 and 9 years) within the Psematismenos tombs: there are 16 individuals between 1.9 and 9 years of age at death and 35 individuals over 16 years of age at death.³ In order to investigate whether bone element representation differs between age groups, a simple comparison between the BRI values for adults (here defined as over 16 years of age at death) and subadults (here under 9 years of age at death) was conducted (Fig. 9). The bone element representation values for subadults seem to roughly follow a similar pattern to those of the adults, while the values for subadults are lower across all element categories, save for the dentitions. Subadults are therefore mainly identified by their dentitions at Psematismenos. Bello and Andrews (2006:10) also found that subadult skeletal elements were less well represented than those of adult skeletons on their study sites. In summary, the substantial number of subadults (31%) present at Psematismenos is inconsistent with the hypothesis that children and infants did not have access to burial in cemeteries or chamber tombs during the Bronze Age. The pattern of bone element representation for subadults is not substantially different from that of adults, though the values for subadults are lower across all element categories, save for the dentitions. Further studies on this should involve investigation of other preservation patterns such as analyses of weathering and completeness.

Our knowledge of the Cypriot Bronze Age is enhanced by such analyses, leading for example to an appreciation of (1) the position of subadults in the mortuary programmes and burial pathways of the Early

³ NB. Tomb 95 is excluded from analysis due to lack of age diagnostics.

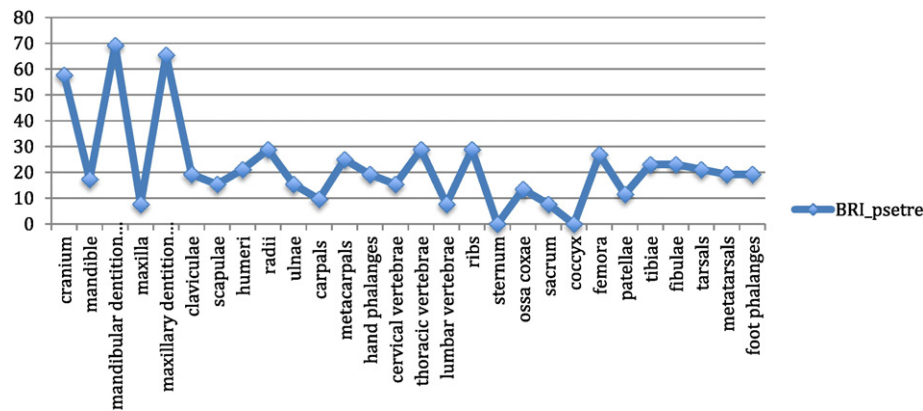


Fig. 5. Element representation (%) in Psematismenos-Trelloukkas (psetre) tombs (2008 excavations).

Bronze Age Cyprus, and by implication, their social position, furthering understandings of age as socially constructed difference, as well as of (2) the primary versus secondary nature of human remains on introduction to the mortuary facilities from which they were archaeologically recovered, and further, of (3) the location of any potential secondary manipulations of the bodies of the deceased. The stereotypical view of Early Bronze Age burials includes multiple burials in cemeteries within chamber tombs. The primary versus secondary nature of burials is however in most cases not known, and we do not have, in the absence of detailed plans and photographs, any specific positional data on the placement of human remains within the burial facilities. Therefore it is not possible to explore to what extent, if at all, the complex secondary manipulations of human remains, as seen during the Chalcolithic, continued during the Early Bronze Age. Any real understanding of Early Bronze Age burial practices will be conditional to integration of detailed approaches to funerary taphonomy during future excavations and research on Early Bronze Age mortuary contexts.

4. Discussion and conclusions

The above case studies focusing on different periods of the Cypriot prehistory are relevant to other temporospatial contexts in that they draw attention to the wealth of data to be gleaned from burials where detailed recording has been conducted, or the loss of data where such recording methods have not been in place (see Tables 1 and 2). For example, the skeletal plans and photographs for Dikaio's Khirokitia permit

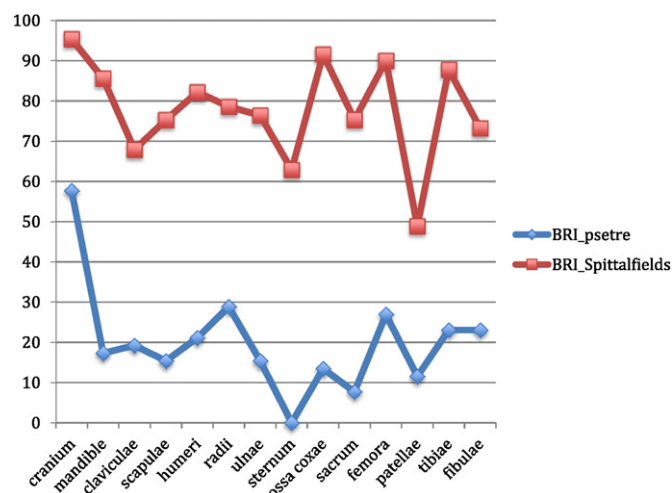


Fig. 6. Element representation (%) in Psematismenos-Trelloukkas tombs (2008 excavations) in comparison to Spitalfields burials (Bello and Andrews, 2006).

inferences on the degree of articulation and body positioning. The Souskiou-Laona evidence demonstrates beyond doubt the enormous data gains when the principles of archaeothanatology, or study of articulation and context, are applied to even such poorly preserved assemblages of human remains in their original find contexts, which permit inferences on the complex and varied processing scenarios present at Souskiou for the first time (Lorentz, 2014, 2016). Despite the putative commingling of human remains at the archaeological recovery stage, the complete inventories of Psematismenos-Trelloukkas remains permit the construction of element representation curves and the exploration of the relative abundance of smaller bone elements that resolve key questions about burial ritual on the site, as well as falsify generalizations about Bronze Age mortuary practice as a whole. Successive investigations at the sites were conducted against the background of shifting disciplinary paradigms that influenced the way archaeological and bioarchaeological recording, recovery and analyses took place. The possibility of depositional analyses is not simply a function of time period and progress of methods for exposure, recording and recovery. The focus on artifacts at the expense of human remains is not a thing of the past, and older excavation records sometimes offer more possibility for depositional analyses than more recently completed excavations (compare Khirokitia of 1930s and 40s with Souskiou-Vathykarakas of 1990s). The case studies spur us on to consider two sets of implications, with relevance not only to Cypriot prehistory, but beyond: (1) best practice in recording human remains encountered on archaeological excavations; and (2) best practice for dealing with archive records and/or publications of old excavations involving human remains, in order to gather potential data of relevance to funerary taphonomy (i.e. what taphonomic data can we access or salvage after excavation has already taken place).

In order to maximize the data for funerary taphonomy within ongoing or future excavations, the following aspects, at a minimum, need to be integrated into the exposure, recording and recovery strategies for human remains: (a) inspection of all emerging bone material in situ by a sufficiently trained specialist (i.e. with an understanding of skeletal anatomy and archaeological context); (b) based on (a), a decision on the level and degree of recording (continuously reviewed and revised as excavation progresses); (c) meticulous exposure (identification of bone elements or fragments guiding the excavation process); (d) detailed recording, including (1) identification of bone elements or fragments in situ; (2) photographs and (3) plans (not simply one or the other) showing relations of human remains to the mortuary feature and any artifacts, and relations of bone elements with each other; (4) allocation of unique designators for each bone and bone fragment (and inclusion of these on plans and bone containers); (5) recording of the levels on which each bone element, and in the case of articulated individuals, joints were found; (6) data on the orientation of bones (not

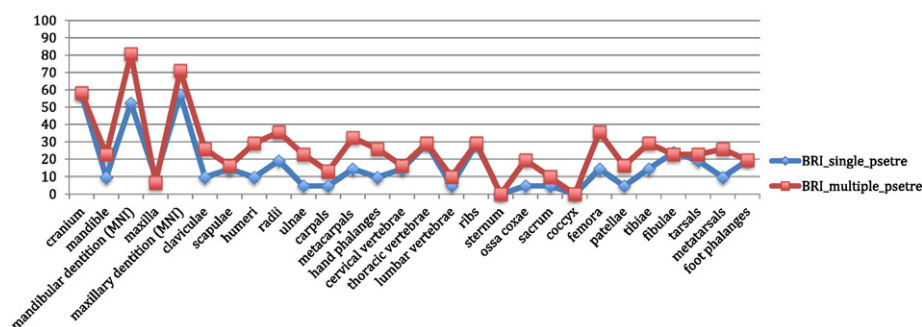


Fig. 7. Element representation (%) in single versus multiple burials at Psematismenos-Trelloukkas (psetre).

just crania) in terms of the cardinal directions and as to the aspect visible on exposure; (7) detailed observations on the degree of articulation and (8) any initial patterns observed in the placement of any putative commingled material (unique designators permit exploring any patterns in further detail while excavation proceeds, as well as afterwards); and (e) complete and meticulous recovery, including fine sieving, and inclusion of unique designators on bone containers. Digital recording techniques are being refined, and can provide solutions both as to the volume of data generated, as well as the time it takes to record each individual mortuary context. Three-dimensional reconstructions of contexts with human bone depositions can also be usefully employed in attempts to explore potential evidence for intentional organization of bone elements within a single context, as well as in conducting comparisons between multiple contexts. The above steps need to be repeated cyclically as many times as necessary in order to expose, record and recover all human bone elements with their accompanying contextual data.

In the case of completed excavations that did not originally integrate recording and recovery strategies oriented towards detailed investigations of funerary taphonomy, there are several avenues that remain open for depositional analyses, provided that one or more of the following are present or have taken place: (1) complete recovery of all human remains (or an attempt towards it); (2) retention of at least some contextual data that can be tied to actual human remains; (3) availability of photographs and/or plans showing human remains in situ. Descriptions within reports and publications are at times useful, but may include confused usage of anatomical terms and erroneous differentiations of individuals (as perceived by excavators), lack in detail, and present descriptions and interpretations coloured by defunct paradigms or

'explanations' (see e.g. Dikaïos, 1953 for unconvincing evidence for human sacrifice at Khirokitia). Even in the absence of any illustrative material, or detailed descriptions of body positioning and context, some inference as to the nature of burials may be possible, employing BRIs and element representation curves (as for Psematismenos), provided that a complete recovery of human remains was at least attempted. Depending on the preservation status of the bone elements, analyses of aspects such as burning, cut marks, animal activity, weathering, and potential patterns indicating intentional fragmentation may be possible. Correlation between human remains and the mortuary features they derive from permits division of the material into analytical categories for exploration of any variation in patterning (this is not possible e.g. for the Dikaïos' Khirokitia material, but is possible for the Psematismenos material). Photographs and/or plans, provided that they show at least some detail as to articulation and positioning of bone elements, allow for some inferences as to deposition and its timing (e.g. for the Dikaïos' Khirokitia; the single plan in Todd (1985) is the only, and thus crucial, evidence for body positioning at Psematismenos). Consequently, it is possible to access and salvage valuable taphonomic data on deposition of human remains from publications and records for completed excavations in Cyprus, as well as elsewhere.

There is therefore both good reason and opportunity to apply methods with relevance to funerary taphonomy to prehistoric mortuary contexts in Cyprus, or indeed to mortuary contexts and assemblages deriving from a wide range of different temporal or geographical origins, despite the challenges posed by poor preservation, or vagaries of past practices of recording and recovery. The application of a selection of methods to recover and record funerary taphonomy, according to their suitability in each case, has the potential to revolutionize understandings of the social aspects of funerary ritual and mortuary practice, not just in prehistoric Cyprus, but also in many other temporospatial contexts. Such research is currently more advanced in parts of the wider Mediterranean region, and is producing increasingly interesting results. Future directions for funerary taphonomy in Cyprus, as well as other temporospatial contexts, could include the coupling of research employing the principles of archaeoethnatology with digital field recording methods, and the routine construction of element representation curves, or at the very least, inclusion of complete skeletal inventories in publications (or dissemination of these through services such as ADS [Archaeological Data Service] in the UK). Poor preservation is not an obstacle, but rather provides an even more urgent motivation to glean all potentially available data from these irreplaceable remains.

In conclusion, while there are particular methodological problems that arise when dealing with cumulative regional datasets not necessarily collected with taphonomy in mind, there are strategies for mitigating these, to an extent. Cyprus typifies a cumulative regional mortuary dataset with repeated and continuing disregard for taphonomy. The Cypriot case studies show that when a variety of different taphonomic methods are used in conjunction, the burial process can be much more completely revealed. These kinds of strategies are applicable to the study of mortuary datasets regardless of period or place, as well as

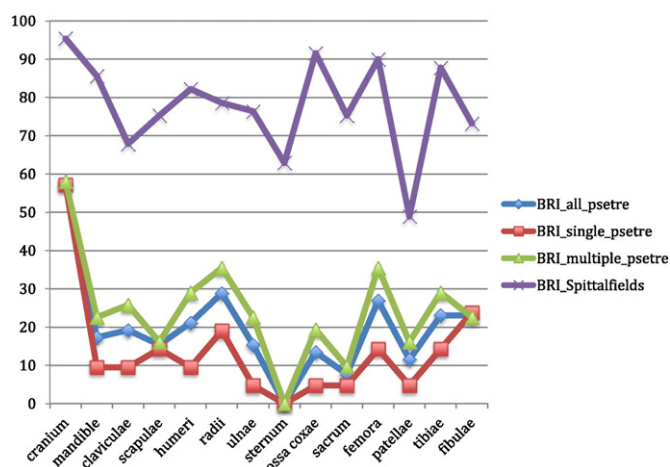


Fig. 8. Element representation (%) in single (BRI_single_psetre) versus multiple (BRI_multiple_psetre) burials at Psematismenos-Trelloukkas, compared with element representation at Psematismenos-Trelloukkas tombs as a whole (BRI_all_psetre), and at Spittalfields (BRI_Spittalfields).

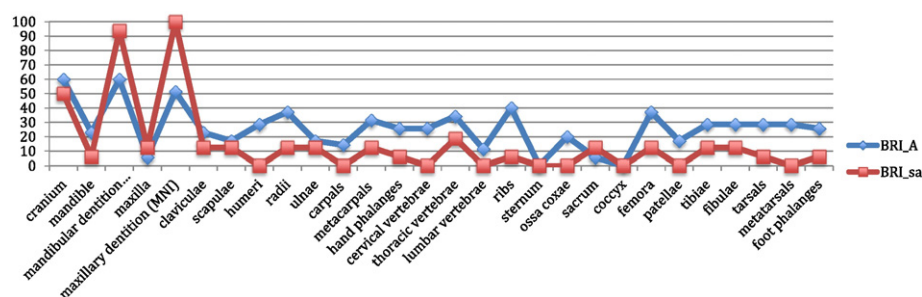


Fig. 9. Relative abundance of bone elements (BRI, %) at Psematismenos-Trelloukkas for adults (over 16 years of age at death; MNI = 35) and sub-adults (1.9–9 years of age at death; MNI = 16). NB. Tomb 95 excluded from analysis due to lack of age diagnostics.

variations in the detail of recording and recovery, opening up the potential for similar approaches to datasets from other geographical regions and time periods. Re-examinations of this kind may also further highlight the need, and enhance the motivation of archaeologists to maximize the data for funerary taphonomy within ongoing and future excavations, through the engagement of relevant specialists both in the planning stages of a project, and in the field from the earliest stages of exposure of any mortuary contexts, and through the employment of detailed recording and recovery strategies.

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