

Human Skeletons, Identity and the Late Bronze Age/Iron Age Transitional Period

Introduction

The Late Bronze Age-Iron Age transitional period is one of the most controversial periods in Levantine archaeology. Whilst most scholars would agree that significant political and social changes occurred at the end of the Late Bronze Age, there is little agreement concerning the structure of societies in the succeeding transitional Late Bronze-Early Iron Age period.

One of the major issues concerning this period, which has for many years attracted a good deal of attention (particularly those concerned with establishing the process of Israelite settlement in Canaan, see Dever 1990; Finkelstein 1988; Mendenhall 1962) is the ethnic identity and origin of the inhabitants of the Levant. Most evidence employed to support this originates in numerous textual references and evidence recovered from archaeological sites.

Although change is reflected in the material culture at sites throughout the Levant, was this change significant enough to impact upon the people themselves? Fortunately major lifestyle changes can be reflected on the human skeleton, and there is the potential to observe changes by comparing the demographic profiles and general health of populations that represent the period in question.

The site of Pella in the Central East Jordan Valley provides an ideal opportunity for comparative study of two groups of human skeletons which span the transitional Late Bronze-Early Iron Age period.

The End of the Late Bronze Age and Ethnic Identity

Over the last ten years numerous scholars (Aharoni 1970; Albright 1960; Bloch-Smith and Nakhai 1999; Dever 1990; Finkelstein 1988; Mendenhall 1962) have proposed a variety of models to account for the end of the LBA, the Iron I settlement patterns and the rise of "nation states" in the Iron II period.

Several of these models suggest that the Egyptian influence, if not control, over many of the Southern Levantine sites contributed to the prosperity and wealth recovered at those sites during the Late Bronze Age. Ultimately when that interaction ceased at the end of the LBA with the collapse of the Hittite and Egyptian empires, changes of settlement, power and control of resources changed as well. There are several identities promoted to take control of the region, prominent among the discussion are the tribes of Israel (Aharoni 1970; Bloch-Smith and Nakhai 1999) and the Sea Peoples (Negbi 1991; Sandars 1985; Tubb 1988).

Much of the above discussion concerning the various identities has considered the ability of Archaeology to identify ethnic groups on the basis of material culture (see Jones 1997; Kamp and Yoffee 1980). What is now considered by some to be a simplistic attitude has received much criticism, and according to some scholars should be abandoned altogether (Herzog 1997).

However, Faust on the subject of ethnic identity, suggests that there are certain relationships between material culture and ethnicity, and we may be in danger "of throwing out the baby with the bath water", if we dismiss this avenue of inquiry (Faust 2000).

The Human Skeleton and Ethnicity

As there are certain relationships between material culture and ethnicity, there are also certain relationships between race¹ and ethnicity.² These relationships are often obvious when two or more populations come from distinct and well-separated geographical regions. However, when populations come from the same geographical region they are more likely to be biologically similar. When this happens it is necessary to look for trends that are reflective of social, economic and political changes that might have im-

¹ There is much discussion in the anthropological community on the use of the word race. For the purpose of this article race is referred to in attempting to define trends that identify common ancestry via sets of common characteristics.

² It is recognised that a person may self-identify in a manner that is not notably obvious to an observer. This aspect will be discussed further in a following article.

pacted on these populations and consequently on the human skeleton. If cultural evidence suggests that socio-economic change has been significant and the human skeletons under study represent the period of change, then there is an increased likelihood that those skeletons will show some indication of that change.

One of the biggest hurdles facing the reconstruction of past communities via human skeletal analysis has been the shortage of well-excavated and recoverable samples. The paucity of human skeletons makes the identification of people from antiquity very difficult, although not impossible. Bone is one of the strongest biological materials in existence. Furthermore it is often the most lasting signature of an individual's way of life and an indicator to their ethnic identity (White 1992).

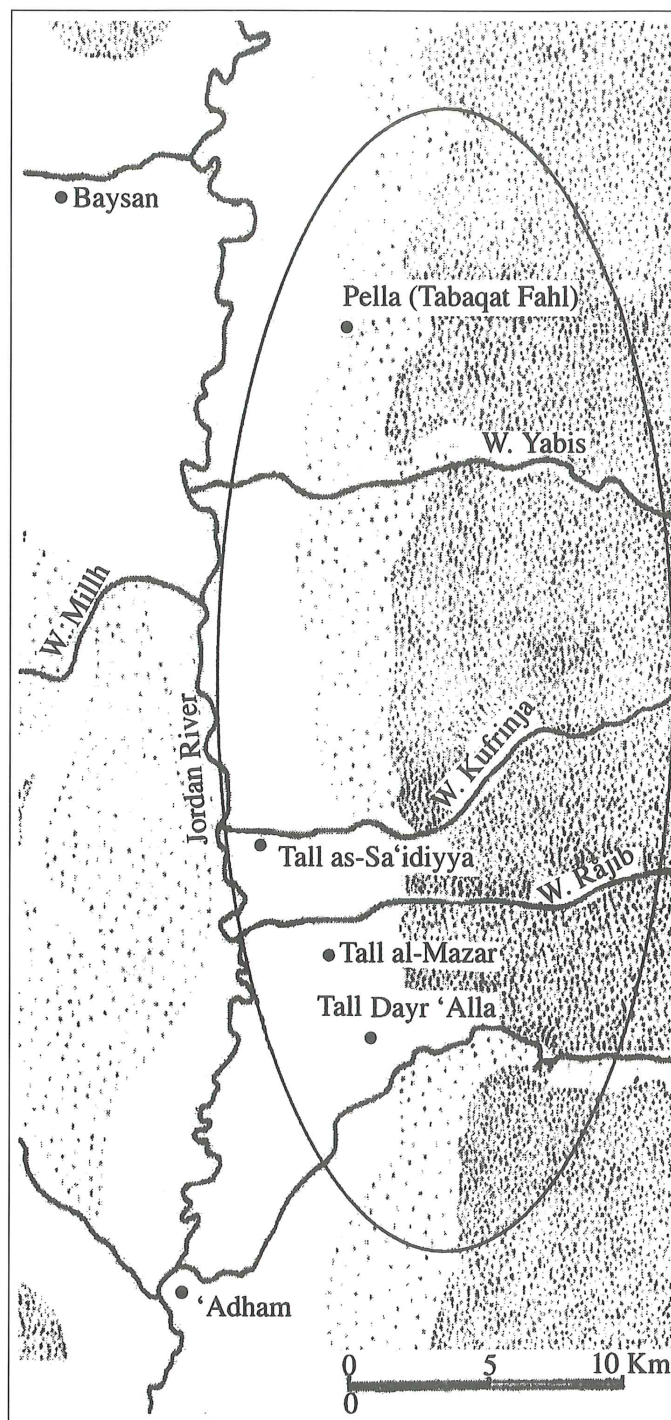
Information gathered from paleodemographic analysis (sexing and ageing) generally form the basis for most archaeological skeletal remain studies. However the past decade has produced considerable debate over the feasibility of paleodemographic research and in particular the reliability of age estimation techniques to provide unbiased age classes (Bocquet-Appel and Masset 1996; Konigsberg and Frankenberg 1992; Molleson and Cohen 1990).

Nevertheless, despite the uncertainty in the method and theory of paleodemography, results from this type of research can provide information to reconstruct a population's adaptation to its environment, living conditions and diet. Furthermore observable differences between female/male ratios and sub-adult/adult ratios might be reflective of different burial customs, differential access to food and specific incidences of disease and general health particular to sex or age. Finally age-at-death results may provide information concerning social and political events such as infanticide; war and/or invasion that pre-select certain sectors of the community.

The Central East Jordan Valley

Over the last ten years a number of scholars (Ji 1997; Negbi 1991; Tubb 1988; 1998; Van der Steen 1996; 1999) have attempted to integrate the historical literature, the archaeological evidence, and settlement patterns from sites in the Central East Jordan Valley, the area between the Yarmūk River in the north and Wādī az-Zarqā' in the south (FIG. 1). These attempts have primarily focused on the occupational history and settlement patterns during the transition from the LBA to the Early Iron Age. The current model taken from work by Tubb, Ji and Van der Steen, suggests a peaceful transition and continuity between the LBA and the EI, and the changing patterns of settlement between indigenous urban and rural populations over the period in question.

In many of these recent attempts to synthesize the archaeological and textual data from the period under discussion, the one item most often missing from the ar-



1. The Central East Jordan Valley.

chaeological repertoire is the people themselves. Mortuary data is mostly represented by an appraisal of burial practices, including types of burials, that is multiple use rock-cut tombs or single pit burials with or without associated anthropoid coffins (Dothan 1989; Gonen 1989).

Very rarely are skeletal collections reported in these syntheses, with notably exceptions from the Baq'ah Val-

ley Project (Rolston 1986) and Tall as-Sa'idiyya (Pritchard 1980; Tubb 1998). The major reason for this situation is undoubtedly the shortage of significant human skeletal material for analysis in this region.

The Evidence from Pella

Pella provides an ideal location for the comparison of human skeletal remains, which span the transitional Late Bronze-Early Iron Age period. It is a key site in the North Jordan Valley (FIG. 1) and has produced significant human skeletal remains over the 20 years of the archaeological investigation at the site. The skeletal remains come predominantly from the many rock-cut cave burials that dot the surrounding landscape of Pella (FIG. 2). Furthermore, the large number of tombs that have been excavated cover an extensive range of Jordanian prehistory and history. A series of studies (Bourke 1992; Browne 1992) initiated in 1979 set the pattern for further examination of Pella skeletal material with investigation undertaken by the author (Bourke and Hendrix 2001) on skeletal groups spanning the Middle to Late Bronze Age to the Iron II periods.

Tomb 62

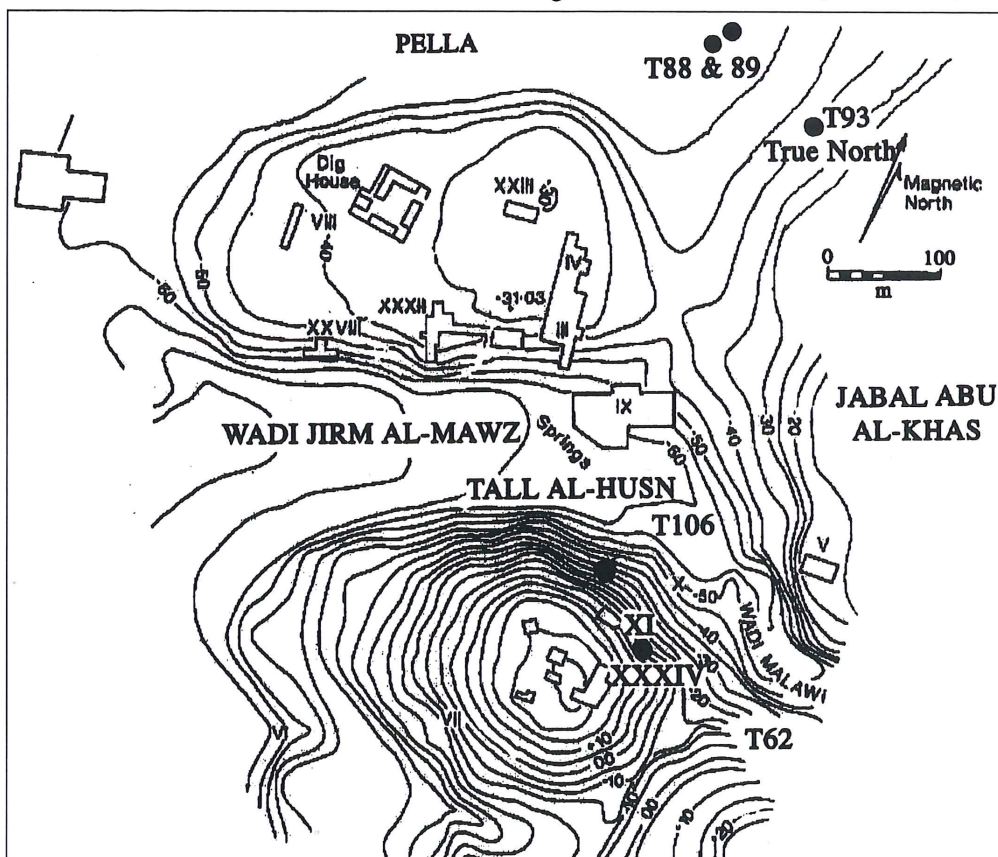
The very rich Middle to Late Bronze Age Tomb 62 consists of three rock-cut chambers entered through a short

dromos. There were over 2000 artifacts recovered from this tomb. The human remains from this tomb are badly fragmented, and analysis is dependent on the examination of the teeth. Although the material from the tomb dates from the Middle to Late Bronze Age, much of Locus 4 comes from the Late Bronze Age I period (Bourke 1997). In this study, Tomb 62 is being employed to look at the possible distinctions between a Middle Bronze Age population and that from the Late Bronze Age II and Iron Age samples.

Tomb 88

Tomb 88 is a small severely disturbed single chambered rock-cut cave burial, dating to the Late Bronze Age IIB period. It produced ivory stamp seals and several large bronze and iron anklets (Bourke 1997). The tomb appears to have been re-used in the Iron Age I, as excavations revealed a hole punched in the wall between Tombs 88 and 89 and bodies placed inside the northern sector of Tomb 88. It is reported that within the passageway between the tombs, a number of burials had their upper torso in one tomb and their lower limbs in the other (Bourke 1997).

The distribution of the burials within Tomb 88 was difficult to determine, as the tomb had been robbed and severely disturbed, with the consequence that much of



2. Site plan of Pella.

the material was disarticulated and fragmentary in nature. Very few individuals, except those from the Iron Age related northern sector, could be identified. Of necessity, the material was excavated in a series of bone scatters, forcing group assessment by skeletal element (Bourke and Hendrix 2001)

Tomb 89

Excavations in Tomb 89 revealed a burial cave utilised over a number of generations and very typical of the tradition of multiple burials within rock-cut caves, the traditional burial practice since the Early Bronze Age. This tomb was discovered intact and produced over 200 cultural items, including necklaces, anklets, ivory plaques and alabaster (Potts *et al.* 1988). These items should provide information concerning burial customs, in particular information concerning social differentiation and wealth distribution.

The cultural assemblage dates the tomb to the Late Iron I/II period and as there is no imported pottery in this tomb (either Cypriot, Egyptian or Philistine) it is suggested that the interaction with foreign elements is likely to have ceased at Pella by the Iron Age I period (Bourke 1997).

The majority of the skeletons (with a few exceptions) were pushed to the back of the chamber and largely disarticulated. Although disarticulated and fragmentary in nature, the material was carefully excavated, allowing partial reconstruction of more than 70 individuals from the tomb (Bourke and Hendrix 2001). Further analysis of commingled material should increase this figure considerably.

Tomb 93

Tomb 93, excavated in 1988, is a small Iron Age IIA bench tomb, containing approximately 40 objects and about 10 individuals (Bourke 1997).

Objectives and Concepts

Of particular concern to the question of identity are Tombs 88 and 89 as these two tombs cross the Late Bronze Age - Iron Age boundary. Current theories based on the archaeological evidence have suggested that changes in lifestyle occurred to the population of Pella over this period. Through the study of human skeletons it might be possible to throw some light on this by comparing the health status between the populations, through study of the specific demographic patterns.

By incorporating human skeletal evidence into the analysis, it is possible to learn more about the lives of the people who lived at these sites. Furthermore, what has been lacking in research in the past are attempts to integrate the rare and unusual observations into more formal quantitative skeletal analysis, and to try and under-

stand what affect these irregularities may have had on the population in general (Littleton 1998).

To place the human skeleton on the same level as other cultural data, it has been necessary to develop an approach that moves beyond the typological bias of craniometric analysis and away from the clinical concern for tracing the history of particular diseases. The biocultural approach to skeletal analysis allows — where possible — the biological and cultural evidence to be considered together in an attempt to interpret the social composition of a population. This concept relies on the assumption that humans are constrained by biology and environment, with human history the result of individual and social adaptations to these constraints.

Methodology

There has been much debate in the field of physical anthropology as to what is an appropriate method for analyzing human skeletal material, in particular that from archaeological sites (Brothwell 1981; Ortner and Aufderheide 1991; Roberts and Manchester 1995). A need to standardize information was recognized in the mid 1990s and a numerical based scoring system was devised (Buikstra and Ubelaker 1994). This system allows for a standard set of observations, measurements and assessments to be recorded in such a manner that allows meaningful comparisons of data (Buikstra and Ubelaker 1994).

Following in the footsteps of several of researchers working in Western Asia (Blau 1998; Griffin 2001), the author is undertaking similar methodological considerations and recording methods suggested by Buikstra and Ubelaker (1994). This methodology will allow the opportunity for researchers in the future to do meaningful comparisons.

Results

Although work is not yet complete on all the skeletal material, preliminary results for sexing and aging the skeletons is presented as well as comparison of results from Tomb 89 with the published data from the neighbouring site of Tall as-Sa'idiyya.

Sex Trends

The results presented here are for individuals over the age of 16 years when reliable sex indicators can be recognised. In both Tombs 88 (n=16) and 89 (n=53) there was a higher number of females present than males. When the results are compared on percentage values this is also evident (FIG. 3). The results also demonstrate that the people in Tomb 89 were more sexually dimorphic than those in Tomb 88, with only 13% assigned to the ambiguous³ class in Tomb 89. In contrast, 31.25% of the skele-

³ Skeletons were assigned the ambiguous class if their sexual di-

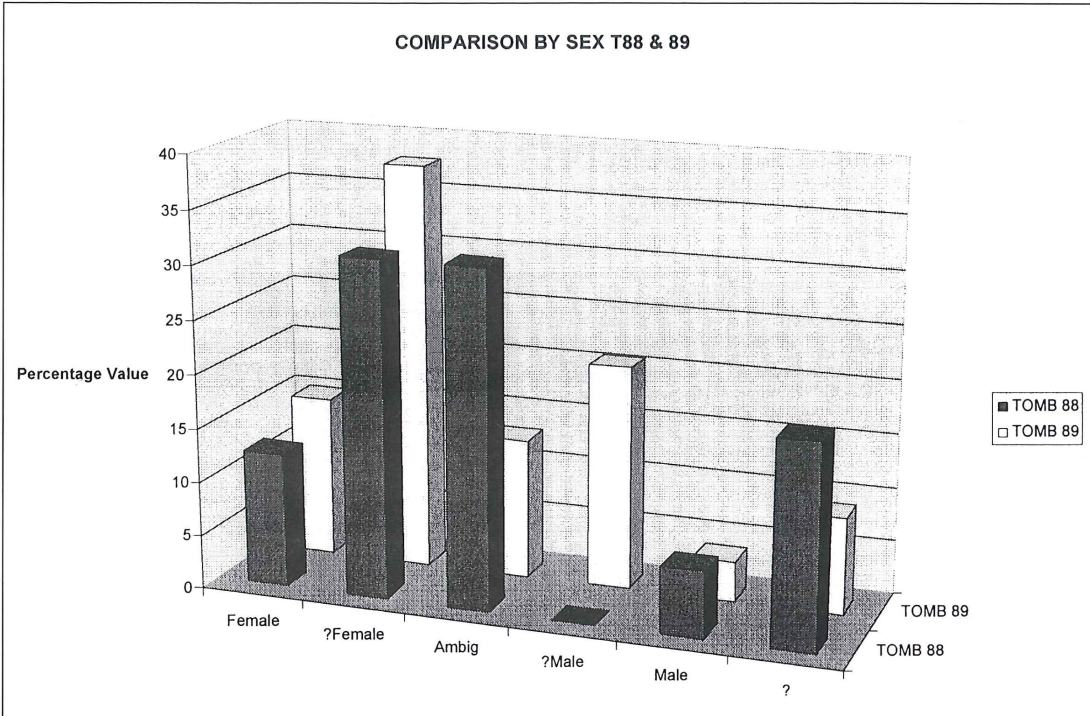
morphic indicators lay midway between females and males.

tons in Tomb 88 were assigned to this class.

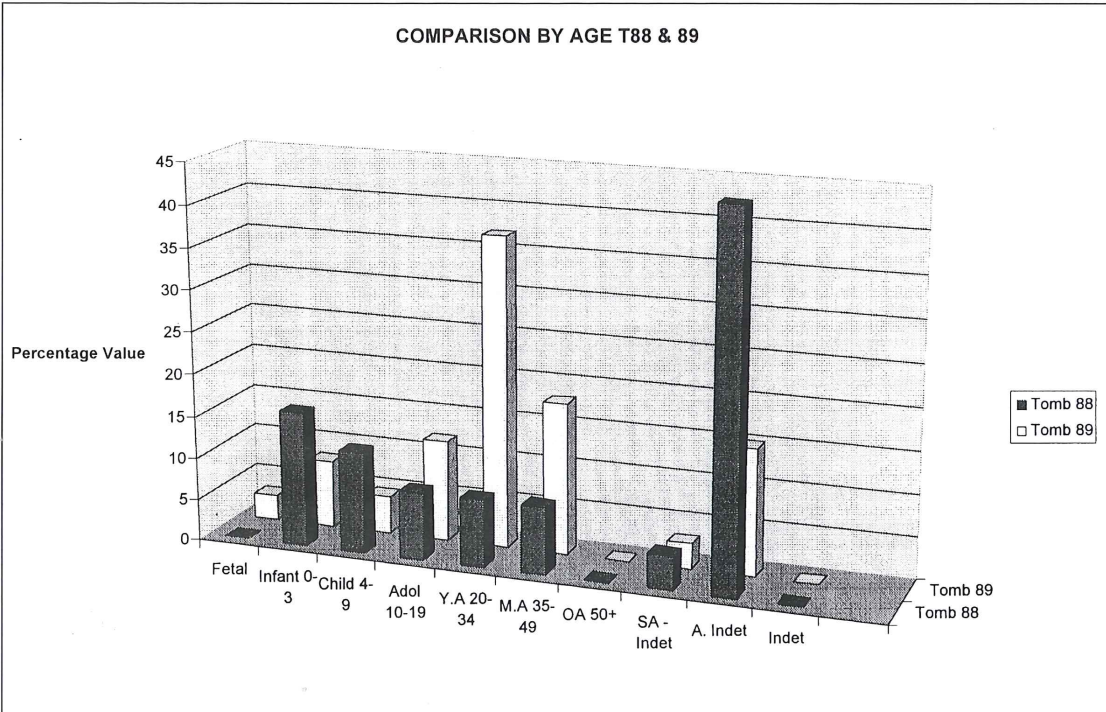
Finally, in Tomb 88 the results show that 18.75% of the skeletons were assigned to the class (?), which demonstrates that no significant sexual indicators were present. In this case this was due to the highly fragmented nature of the skeletons in Tomb 88.

Age Trends

The fragmentary nature of the skeletons in Tomb 88 was further expressed in the comparison of age-at-death results (FIG. 4). In Tomb 88, 44% of adult skeletons could not be assigned an age class due to lack of remaining sufficient age criteria remaining. This contrasts to Tomb 89 where



3. Sex trends for Pella.



4. Age trends for Pella.

only 15% could not be assigned an adult age class.

However, when the remaining individuals who were assigned a class are compared, the overall age-at-death profiles of the tombs are different. Tomb 88 has more children, whilst Tomb 89 has a higher percentage of young adults who died between the ages of 20-34.

In neither tomb was there a skeleton that could be assigned the old-age class of over 50 years.

Comparison between Pella and Tall as-Sa'idiyya

One of the few comparative sites is Tall as-Sa'idiyya (FIG. 1). The figures employed here are taken from a human skeletal report of Areas DD and BB excavated in the 1995 season and published in 1996 (Leach and Rega 1996). These areas are chronologically similar with Tombs 88 and 89 at Pella.

a) Sex Trends: Leach and Rega's article states that the sex analysis of both areas at Tall as-Sa'idiyya did not include sub-adult skeletons, due to the absence of reliable sex indicators before puberty (Leach and Rega 1996). Therefore sex trend comparison between the two sites is limited to adult individuals. This fact then limited potential comparisons with other data sets. Tomb 88 was omitted due to the high incidence of sub-adults, as was Tall as-Sa'idiyya

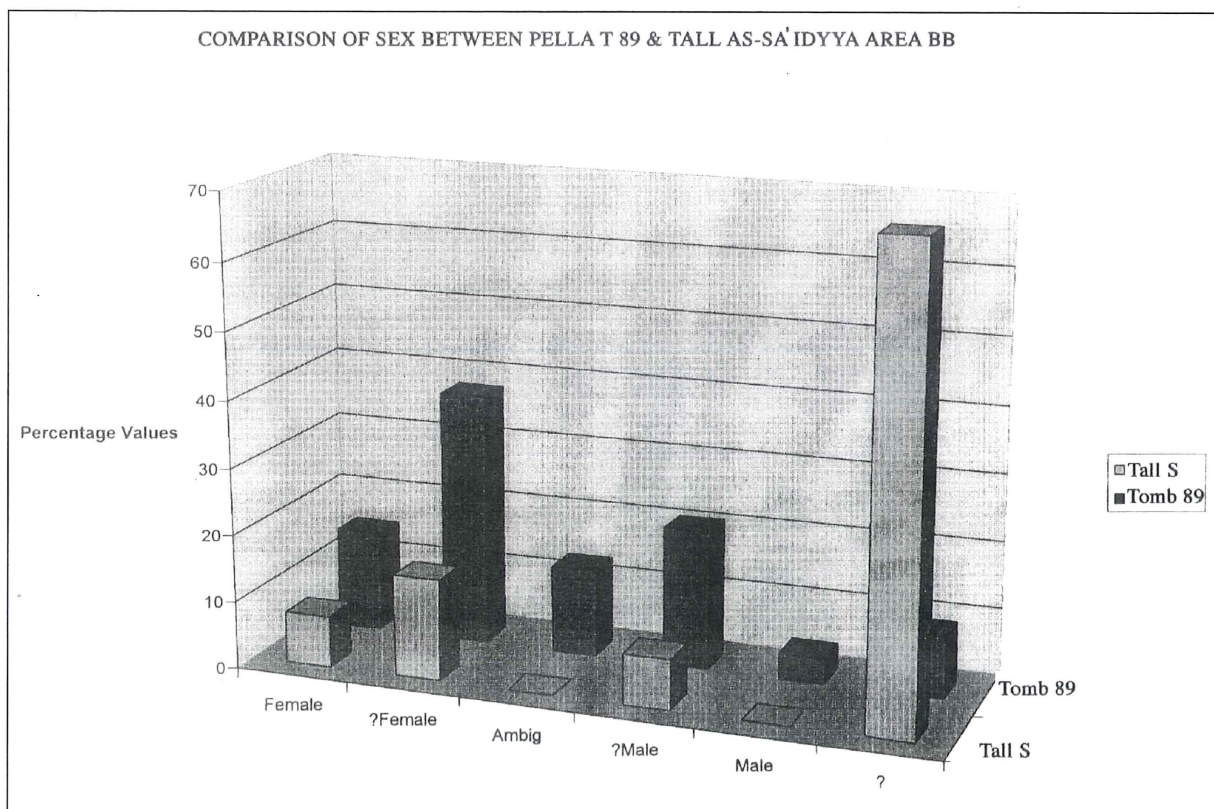
Area DD for the same reason (Leach and Rega 1996).

Although skeletal sex assignment from Pella and Tall as-Sa'idiyya was based on similar methodology, the scoring of our results was slightly different, which may have some influence on the results (FIG. 5). This is particularly evident in the ambiguous category.

However, both sets of data exhibit a medium to high tendency for females. It is also clear that the researchers of the Tall as-Sa'idiyya skeletons were unable to assign a sex classification to 69% of the sample. This was due to the unavailability of sexual indicators on these skeletons (Leach and Rega 1996: 132).

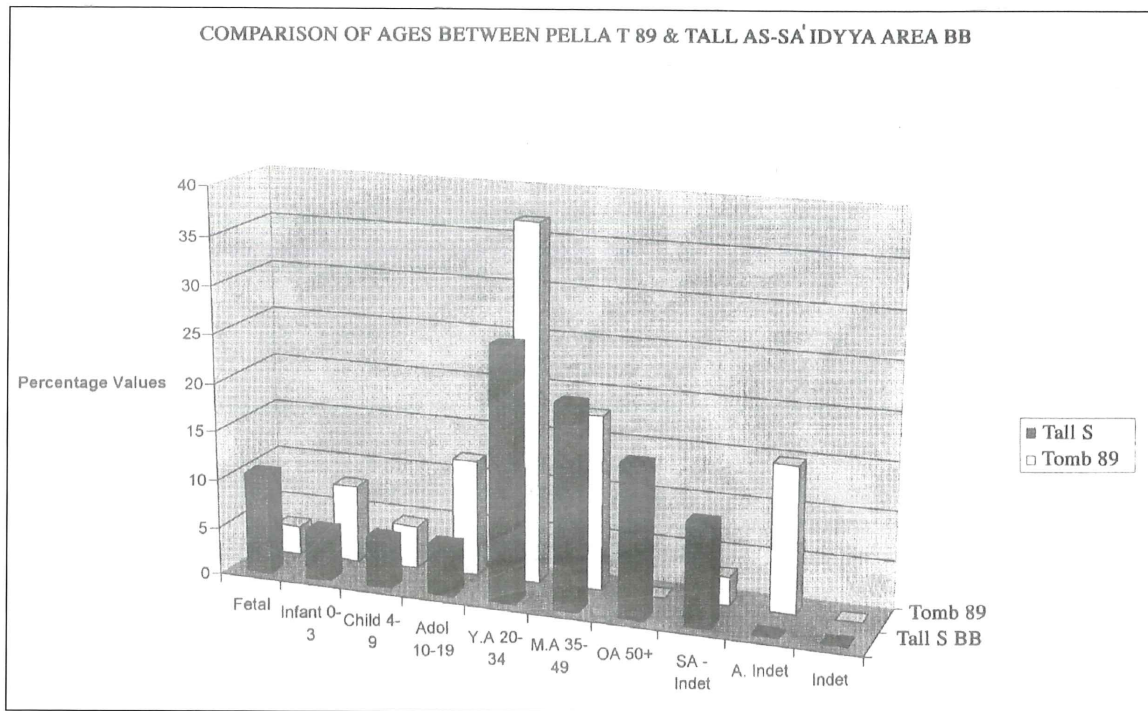
b) Age Trends: Again Leach and Rega employed standard anthropological age-at-death indicators. They assigned age categories using dental development for sub-adults and skeletal and dental transformation on adult skeletons (Leach and Rega 1996: 132). However they have one more age category than the Pella data and they do not offer in their report the age parameters for each category.⁴ Again this may influence the results (FIG. 6).

It is however apparent that between Area BB and Tomb 89 at Pella there is a similarity in age-at-death profiles, with the largest sector represented by those in young adults and the next highest mature adults.



5. Comparative sex trends for Pella and Tall as-Sa'idiyya.

⁴ Leach and Rega have two adolescent categories. These have been combined in FIG. 6.



6. Comparative age trends for Pella and Tall as-Sa'idiyya.

Discussion

These skeletal results are the first produced from the Late Bronze Age - Iron Age transitional period at Pella. The results suggest that more females than males died during this period and this may reflect the possibility that females in general might have had poorer health. This will be investigated further when the final analysis of the skeletons is complete.

The results from Tombs 88 and 89 illustrated that skeletons from both the sub-adult and adult categories were present. Furthermore, both tombs so far have not produced individuals over the age of 50.⁵ Finally, the distribution of the ages within each tombs is quite different and worthy of further investigation,⁶ particularly the high percentage of young adults in Tomb 89.

There is a clear indication that a similar age-at-death pattern is evident from Area BB at the neighbouring site of Tall as-Sa'idiyya. There are a number of possible explanations for these patterns; in particular this may represent gestational mortality, age-related disease or conflict. However, as there is little published data on life tables specifically for the Levant, further investigations of both sets of data will be necessary to fully explain this unusual result.⁷

Although the sex results suggest that more females were buried in Area BB at Tall as-Sa'idiyya, this is not as conclusive as Pella due to the large percentage of skeletons that could not be assigned a sex class.⁸

Conclusion

The Central East Jordan Valley in the LB/EI transitional period still remains somewhat of an enigma, as does the nature of the ethnic identity of those people who occupied it and the neighbouring regions. It is considered one of the most culturally diverse periods in the history of the Levant.

The traditional attempts to identify ethnic groups during this problematic period on the basis of material culture have not always been successful. However, the more recent attempts to synthesize data has highlighted the validity of integrated studies. The missing part of the picture is the people themselves. Archaeology has demonstrated that during the 200 years of the Late Bronze Age, people lived in a wealthy state controlled socio-economic system, and afterwards apparently moved into a more egalitarian subsistence based economy.

It is my opinion that to better understand this transition, the archaeological potential of human skeletal remains should be recognized. Continuing work on the skel-

⁵ There has been some concern expressed by anthropologists and archaeologists that current techniques employed to determine adult age-at-death rates is producing results that under-score individuals (Aiello and Molleson 1993; Konigsberg and Frankenberg 1992; Molleson and Cohen 1990).

⁶ The final results will include commingled material from both tombs and I suspect this to increase percentages and possibly change the

age distribution.

⁷ In many studies of pre-industrial populations the trend is generally towards higher sub-adult and/or older adult death rates, unless there is a known factor such as an epidemic or conflict.

⁸ The cemeteries at Tall as-Sa'idiyya are numerous and it is hoped that collaboration between the investigators at this site and the author will produce further results.

etal groups at Pella may bring new data to bear on this problem, data that is directly relevant, because it concerns the people themselves, rather than the pottery they were buried with.

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