

BIOARCHAEOLOGY OF TELL IBRAHIM AWAD

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INTRODUCTION

Tell Ibrahim Awad has been excavated by the Netherlands Foundation for Archaeological Research in Egypt since 1988 (Van Haarlem 2000). Prior to 1993, all graves found were excavated, photographed, and then the skeletons were covered in plastic and reburied. Beginning in 1993, Jerry Rose of the University of Arkansas joined the expedition and his team excavated and analyzed both the reburied tombs and those newly discovered in: 1993, 1998, 2000, and 2001. Intensive agriculture in modern times requires continuous irrigation and the wet ground demineralized the skeletons making them as soft as the soil. Many of the bones had been destroyed, and those bones that were still present were very fragile. It was not only the bones that were affected, but also the coffins and associated funerary remains that had decomposed to the point where they were only recognizable as powder or stains. Many organics such as wood and reeds will disintegrate into a powder like white-tan ash that can be documented during excavation.

Very little work, with some notable exceptions, has been published about the bioarchaeology of the people who lived in the Nile Delta because most bioarchaeologists prefer to work in the desert areas with its excellent preservation, rather than the poor skeletal preservation characterizing the Delta. Therefore, even though the skeletons from Tell Ibrahim Awad are relatively few in number and poor in preservation, they can still contribute significantly to bioarchaeology and to our knowledge of what life was like for the Ancient Egyptians who lived in the Nile Delta.

There are three important questions to answer concerning the people who are buried at Tell Ibrahim Awad. The first question is: what was this group like and what was its structure? This question will be answered by looking at the age and sex data in order to compare the demography of the population to other Egyptian skeletal series from the Delta and Nile Valley. A lot of work has been conducted over the years regarding the demography of sites in Egypt (Abd el-Moneim 1996, Brovarski i.a. 1992, Castillos 1983, el Sawi 1979,

Mann 1989, Masali 1980, Masali / Chiarelli 1972, Nemeskeri 1972, Rösing 1990, Winkler and Wilfing 1991). The second question is: what was the overall health of these people? This question will be answered by comparing pathological conditions such as dental hypoplasias, skeletal trauma, osteoarthritis, and pathological lesions to other skeletal samples. Throughout the history of Egyptology, the overall health of the ancient Egyptians has been studied in great detail. Much work has been conducted looking at dental conditions (Buikstra 1992, Greene 1972, Harris et al. 1998, Lovejoy 1985, Rose i.a. 1993, Rösing 1990, Winkler and Wilfing 1991) and bone pathology (Fairgrieve and Molto 2000, Filer 1995, Reeves 2000, Sandison and Tapp 2000, Strouhal 1989, Rösing 1990, Winkler and Wilfing 1991). The third question to consider is: how did burial customs change over time? This question will be answered by looking at the different types of burials present in this cemetery and determining when and how the mortuary practices changed over time. Changes in mortuary practices hint at change in economic and political structure in the region (Baines and Malek 1994, Castillos 1983, Colman 1997, Fletcher 1999, Gratzki 1993, Ikram 2003, Ikram and Dodson 1997, Strouhal 1989).

The cemetery at Tell Ibrahim Awad has so far produced the skeletal remains of 77 individuals (who could be studied) buried in 74 graves. There were three graves that contained two individuals each. One of the double burials contained two adult males, while the other two burials each contained an adult female and a child. Three graves did not have skeletal material that could be studied. Numbers of graves and skeletons vary throughout the study depending upon the pertinent data category being present for the analysis. The people of Tell Ibrahim Awad lived during the Late Old Kingdom, the Early First Intermediate Period, the Late First Intermediate Period, and the Early Middle Kingdom.

METHODS

The cemetery of Tell Ibrahim Awad was laid out in a grid before excavation. There were five

squares that contained burials. During excavation, the soil was removed in 4mm increments. The individuals who were buried in the cemetery at Tell Ibrahim Awad were very poorly preserved. Throughout the history of Egypt, the Nile River has experienced yearly floods (Baines and Malek 1984, Fletcher 1999, Hayes 1996) that leave behind a deposit of soil. The poor preservation at Tell Ibrahim Awad was due to the heavy silt/clay soil and the constant irrigation for agriculture. The poor preservation of the skeletons meant that all osteological analysis had to be done in the field, as many of the bones were destroyed when attempts were made to remove them. The skeletons were uncovered and cleaned with wooden picks and dental tools. The skeletons were drawn and photographed. The exposed surfaces of the skeletons were recorded as described below, including the teeth. The surrounding soil was then removed from each bone and then the bone was turned over and all features were recorded. Any portion that could be lifted was placed in labeled bags for further study and curation.

Determination of Sex

The sex of each skeleton was determined in the field using non-metric and metric traits. When possible, the pelvis and skull were used for sexing the skeleton (Buikstra and Ubelaker 1994). However, for most of the skeletons, the only traits that were able to be classified were the size of the bones (e.g., femur head) and the size of the muscle markings (e.g., linea aspera). Every year of the excavation, all of the previously studied bones were taken from storage and those skeletal features used for sex determination were lined up according to size and robusticity. Because the bones were separated into series every year, it was possible to make sure there were no changes in the criteria and scales used for sexing from one year to the next. Those individuals with more robust bones were classified as male, while those with more gracile bones were classified as female. Therefore, the sex of the individuals is most often only an estimate based on bone size and robusticity, rather than the more usual morphological characteristics of the pelvis.

Determination of Age

The teeth were observed while in the field and the wear was scored using the Scott system (Cross et al. 1986) and the data then used to calculate the age of each of the skeletons (Miles 1963). The mean

wear scores and standard deviations for each tooth class were calculated (see Table 1). A t-test was performed to evaluate the distribution of wear scores. The wear scores appeared to separate into five groups (Figure 1) that seemed to indicate different age brackets. By looking at the groupings from the t-test as well as the standard deviations, the individuals were separated into the five age groupings: 0–20, 20–25, 25–35, 35–50, and 50+.

Every tooth was placed into one of the age groups and an average of the estimated age of each tooth from a single individual was used to place that skeleton into an age bracket. For example, if one skeleton had one tooth aged at 25–35, five teeth aged at 35–50, and one tooth aged at 50+, then this individual would have been placed firmly in the 35–50 category. In this manner, the wear scores from all of the teeth could be used, although if an individual was on the border between two age groupings then preference was given to the molar wear scores. It appears that M₁ worked best for individuals under the age of 35, while M₂ and M₃ worked best for older individuals.

In order to test the age groupings, the differences between wear scores on M₁ and M₂, as well as the differences between wear scores on M₂ and M₃ were examined to determine how much wear occurred every year that the individual was alive. The correlations between the first, second, and third molars were very high (Figure 2): between M₁ and M₂, 0.875; between M₂ and M₃, 0.910; between M₁ and M₃, 0.768. Based on the distributions and correlations, the teeth were seriated into five different age groups: under 20, 20–25, 25–35, 35–50, and 50+. These age-groups were determined by looking at the rate of wear per tooth versus the average age of tooth eruption for that tooth. For all of the individuals, the wear score of M₂ was subtracted from M₁ and M₃ from M₂. The differences between the wear scores of each set of teeth were summed and an average computed: the average difference between tooth wear on M₁ versus M₂ was 5.8, while the average difference between tooth wear on M₂ versus M₃ was 6.0. Thus, every year, about one point of wear occurred. For example, a person who had a wear score of 20 on M₁ would be approximately 26 years of age. Further, a wear score on M₁ of 0–14 indicated an individual under the age of 20; a wear score of 14–19 indicated an individual 20–25 years of age; 19–29 indicated 25–35 years; 29–40 indicated 35–50 years; on M₂ a wear score of 0–8 indicated an individual under the age of 20; 9–13 indicated 20–25;

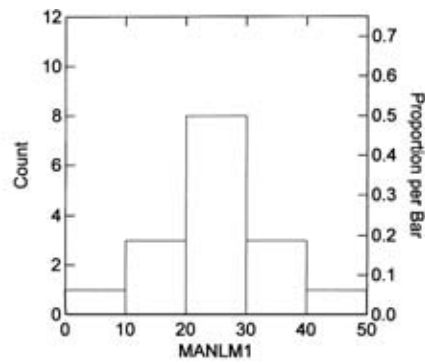


Fig. 1 Distribution of mandibular left first molar wear

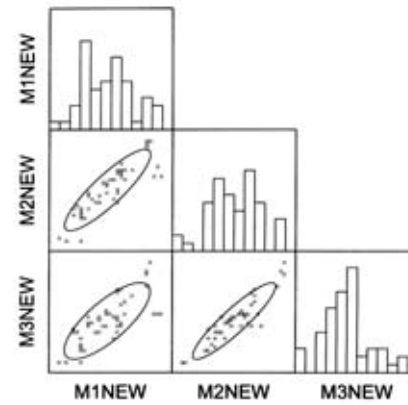


Fig. 2 Correlations between molar wear scores

Tooth	Sample Size	Mean	S.D.
ManLM3	19	15.684	6.872
ManLM2	25	18.600	6.090
ManLM1	16	24.187	8.368
ManLPM2	11	4.091	1.578
ManLPM1	16	4.500	1.862
ManLC	20	4.450	1.572
ManLI2	14	3.857	1.460
ManLI1	10	4.600	1.647
ManRI1	12	3.917	1.240
ManRI2	11	3.909	1.973
ManRC	23	4.522	1.534
ManRPM1	19	4.316	1.529
ManRPM2	16	4.687	0.704
ManRM1	23	23.652	5.033
ManRM2	28	20.179	7.498
ManRM3	19	15.211	8.270
MaxLM3	16	13.000	6.261
MaxLM2	14	15.643	7.782
MaxLM1	13	22.462	8.412
MaxLPM2	14	5.143	1.512
MaxLPM1	15	4.067	1.580
MaxLC	17	4.176	1.237
MaxLI2	15	3.400	1.682
MaxLI1	14	4.357	1.906
MaxRI1	15	4.733	1.668
MaxRI2	13	4.000	1.528
MaxRC	18	4.278	1.320
MaxRPM1	15	4.667	1.988
MaxRPM2	15	4.733	1.944
MaxRM1	20	22.600	7.890
MaxRM2	24	18.917	8.495
MaxRM3	22	15.182	7.582
M1	38	24.474	6.616
M2	44	19.273	7.644
M3	41	14.390	7.619

Table 1 Sample Size, Mean, and Standard Deviation for each tooth

14–24 indicated 25–35 years; 36–40 indicated 35–50 years; on M₃ a wear score of 0–2 indicated under the age of 20; 3–7 indicated 20–25 years; 8–18 indicated 25–35 years; 19–34 indicated 35–50 years; 35–40 indicated an individual over the age of 50. There was little difference between the two methods using wear scores to determine age. The three individuals who were age differently between the two methods had only been borderline using the first method.

Health

There are many ways in which you can determine the health of an individual from their skeletal remains. At Tell Ibrahim Awad enamel hypoplasias, infectious lesions, osteoarthritis, and trauma were observed and recorded. For the individuals in this study, the teeth were a much more reliable method of determining health than bones because teeth were better preserved. Enamel hypoplasias are areas of the teeth where there is a decrease of enamel thickness that is produced due to the slowing of ameloblast secretion during enamel formation. The term can refer to any deficiency of enamel thickness, including a pit, line, groove, or any other instance of missing enamel (Skinner and Goodman 1992). Enamel hypoplasias are caused by a combination of malnutrition and disease. When severe malnutrition or disease occurs, the human body tends to shut down all non-essential processes (in this case the development of the teeth) in order to fight off infection and heal the body (Ortner 2003). The enamel hypoplasias were observed while in the field. Rose was ultimately given the opportunity to observe the dental material from Tell el-Dab^a and adjusted the Tell Ibrahim Awad hypoplasia recording system to match this nearby collection.

Determination of Time Periods

The burials at Tell Ibrahim Awad date to four distinct time periods: the late Old Kingdom, the Early First Intermediate Period, the Late First Intermediate Period, and the Early Middle Kingdom. All of the burials were put into one of these time periods. W.M. van Haarlem assigned the burials to time periods based on finds, stratigraphy and elevation of the burials in relation to the nearby temple. The annual Nile flood caused soil to accumulate quickly making it possible to also use elevation to determine time periods. There were some burials that could not be placed into time periods by using the methods listed above and they were placed using similarity of mortuary pattern.

There were twelve different burial characteristics found at Tell Ibrahim Awad. Some of the burials were mud brick burials, while others were either in pits or rarely were found in a hard cement-like substance. Other types of burials included: several combinations of either plain pits or brick tombs with white powder as reed mat remains, and/or red ochre, and/or white plaster. After looking at the correlations between these types of burials, we were able to place the remaining burials into the four time periods. Table 2 shows which type of burial we have found to belong in each of the time periods.

The data collected from the 77 individuals at Tell Ibrahim Awad are presented here. The distributions of sex and age at the site as a whole and within each time period are compared to those from other contemporary sites. The overall health of the population is assessed using enamel

hypoplasias, dental caries, and pathological lesions. The overall health at Tell Ibrahim Awad, as well as health changes between time periods is compared to other Egyptian sites. Mortuary analysis of the grave goods and types of burials is used to discuss the status of the individuals buried at Tell Ibrahim Awad.

Distribution of Sex

The sex of the individuals was determined primarily by looking at the size of the long bones after they had been separated by size and robusticity. Even using the simple method of bone and muscle attachment size, eight individuals could not be sexed. It is not possible to determine the sex of subadults from their bones so the 12 juveniles are recorded as sex unknown. Of the remaining individuals, 25 were sexed as female and 30 were sexed as male. The breakdown by sex for the four time periods represented at this site are: Late Old Kingdom (50% male: 50% female), Early First Intermediate Period (56% male: 44% female), Late First Intermediate Period (43% male: 57% female), and Early Middle Kingdom (71% male: 29% female).

Of the 55 individuals with a known sex, 25 were female and 30 were male. The expected ratio of women to men would be approximately 50:50, while this ratio is 1.2. Considering the small sample size this difference is small and a χ^2 test showed that it is not statistically significant. The ratio of males to females does not differ from a normal distribution or from two other collections shown in Table 3.

Tomb Characteristic	Late OK	Early FIP	Late FIP	Early MK
PIT + MAT	0%	37%	58%	0%
PIT + PLASTER	0%	5%	6%	0%
PIT + MAT + PLASTER	0%	21%	24%	0%
PIT + MAT + OCHRE	0%	0%	3%	0%
PIT + PLASTER + OCHRE	0%	0%	3%	0%
PIT+MAT+PLASTER+OCHRE	0%	26%	3%	0%
TOMB	0%	0%	3%	30%
TOMB + MAT	0%	0%	0%	15%
TOMB + PLASTER	0%	0%	0%	30%
TOMB + MAT + PLASTER	0%	0%	0%	25%
TOMB + MAT + CEMENT	100%	0%	0%	0%
TOMB+MAT+PLASTER+OCHRE	0%	11%	0%	0%

Table 2 Types of burial by time period

Site	Ratio of Males to Females
Tell Ibrahim Awad	1.20
Gebelan ¹	1.09
Tell el-Dab ^c a ²	0.71
Elephantine ³	0.58
Qubbet el Hawa ³	1.41
Assuan overall ³	1.20

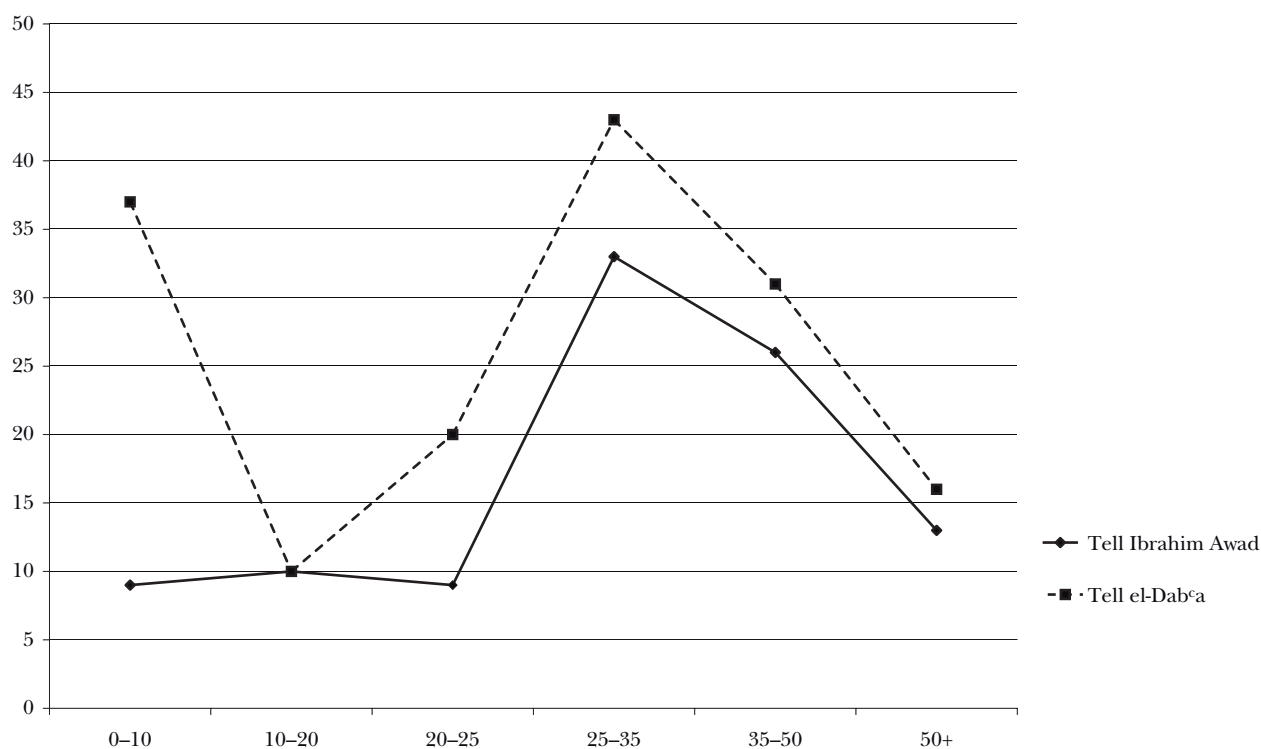
Table 3 Ratio of males to females

Distribution of Age at Death

At Tell Ibrahim Awad, the children only accounted for 16% of the total population of people. It would be expected that they would account for a much larger part of the population as the very young are more susceptible to diseases, parasites and the effects of malnutrition. Tell Ibrahim Awad is not the only site in Egypt to have a small frequency of subadults present. There appears to be a paucity of subadults throughout most of the Egyptian sites prior to the invasion of the Hyksos during the Second Intermediate Period (BAINES and MALEK 1994, NEMESKERI 1972, RÖSING 1990,

WINKLER and WILFING 1991). There are two reasons why the age-at-death distribution is not as would be expected for the subadults: the bones of the infants were so fragile that they completely disintegrated or the people of Tell Ibrahim Awad may have buried their dead elsewhere or left them outside or offered to the Nile for burial. In Figure 3, you can see that the overall distribution of age at Tell Ibrahim Awad is the same as at Tell el-Dab^ca (WINKLER and WILFING 1991) except for the frequency of subadults. As the soil is the same in both sites, we can assume that the Tell Ibrahim Awad children were not destroyed in the ground. Further, Tell el-Dab^ca is a 2nd Intermediate Period site of the Hyksos located in Lower Egypt near Tell Ibrahim Awad, which may explain the difference in distributions of subadults. Simply, the people of Tell el-Dab^ca buried their infants, while the people of Tell Ibrahim Awad did not.

Using the combined population of Tell Ibrahim Awad (all individuals who could be placed in a specific age at death category), the following was found: 6 individuals were 0–10 at the

Fig. 3 Comparison of age distributions between Tell Ibrahim Awad and Tell el-Dab^ca

¹ MASALI and CHIARELLI 1972.

² WINKLER and WILFING 1991.

³ RÖSING 1990.

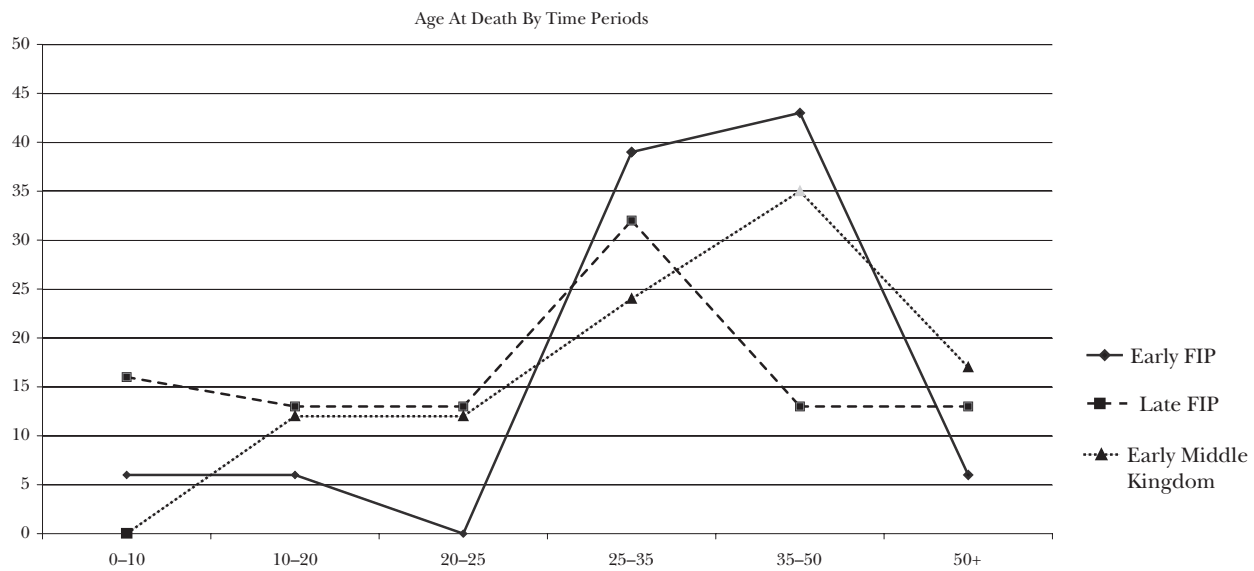


Fig. 4 Number of individuals who died in each age group by time period

time of their death; 7 individuals were 10–20; 6 individuals were 20–25; 23 individuals were 25–35; 18 individuals were 35–50; and 9 individuals were over the age of 50 at the time of their death (see Fig. 3). When you look at each time period separately, you can see that when the sample sizes are considered they are very similar (see Fig. 4). The Old Kingdom has only two people and is not represented in the graph. The Late

First Intermediate Period has the largest proportion of subadults followed next by the Early Middle Kingdom and this difference possibly represents a change in stress levels in the transition to the Middle Kingdom.

Within each of the time periods, the people who died when they were 25–50 represent the highest number of individuals, while those who were under 20 years of age or over 50 years of age

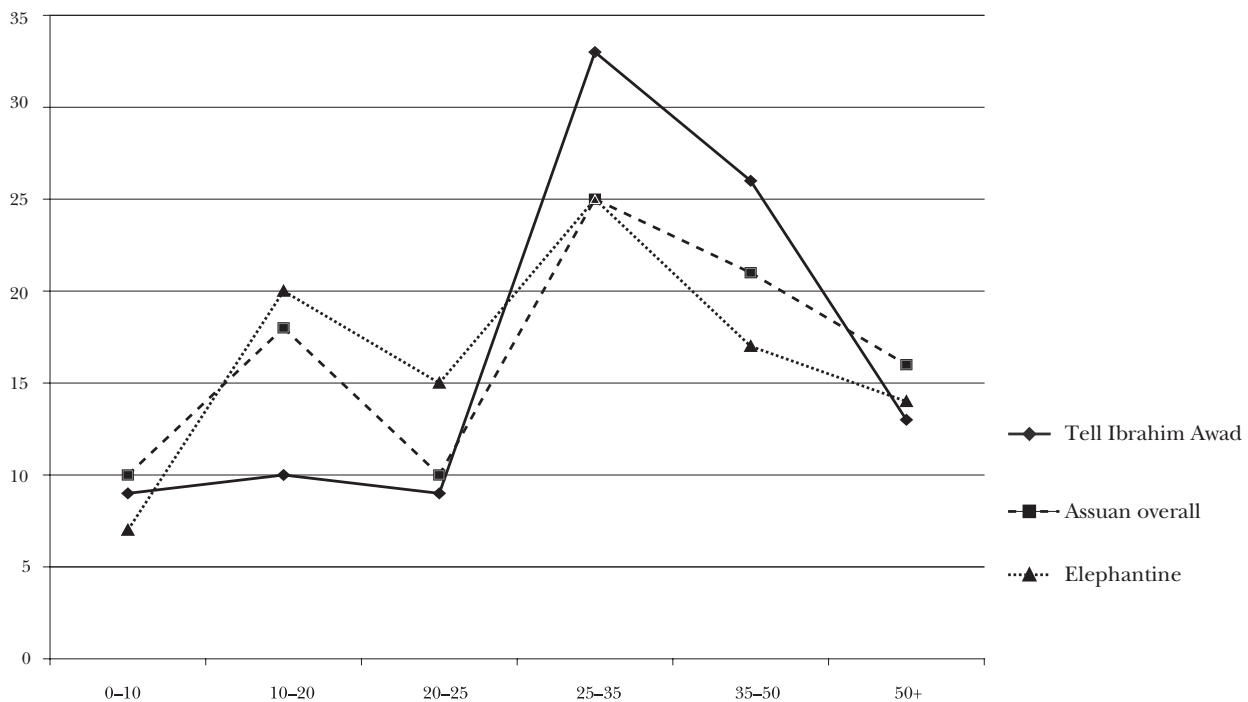


Fig. 5 comparison of mortality rates for Tell Ibrahim Awad, Assuan overall, and Elephantine

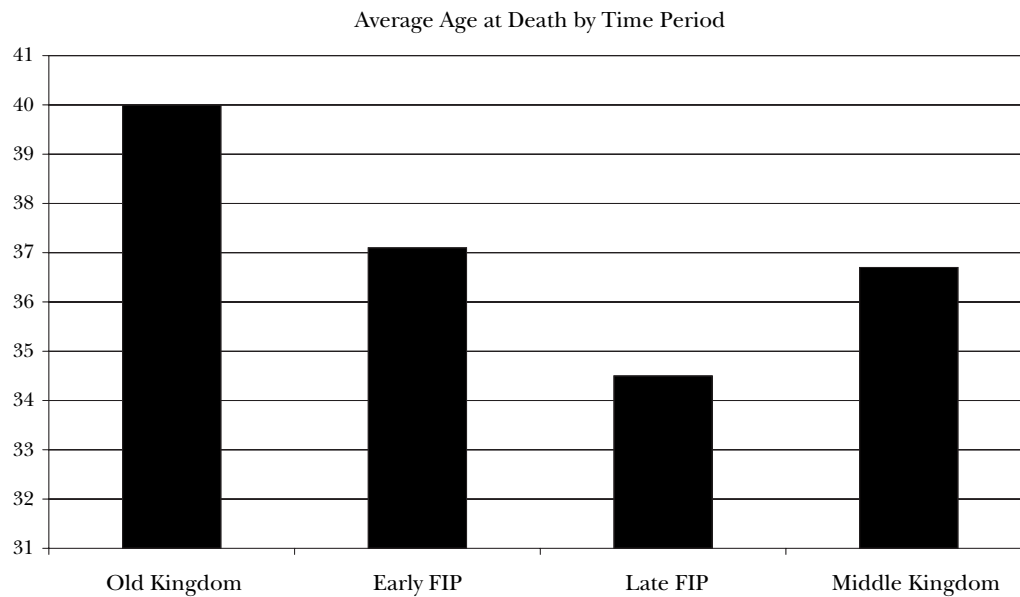


Fig. 6 The average age of death within each time period

represent the fewest individuals. Tell Ibrahim Awad is very similar to the age-at-death distributions for the Assuan inclusive and the Elephantine (Upper Egypt) sites that date from the Old Kingdom through the New Kingdom) samples except in the lower proportion of subadults (Rösing 1990) (See Fig. 5).

The average age at death at Tell Ibrahim Awad for subadults and adults combined was 32.1 years of age. This is quite similar to the Elephantine average life expectancy of 35.5 years. The age at death estimation for Tell Ibrahim Awad is excluding those individuals for whom it was not possible to assign to an age-at-death category (for example, those individuals who were labeled simply as “adult”). When looking at each individual time period for the average age of death only the average age of death for adults is used because of small sample sizes. The average age at death for adults during the Late Old Kingdom was 45 years of age, but there are only two individuals. The average age at death for adults during the Early First Intermediate Period was 40 years of age. The average age at death for adults during the Late First Intermediate Period was 36 years of age. Finally, the average age at death for adults during the Early Middle Kingdom was 40 years of age. Leaving aside the Late Old Kingdom with two people, there is no real difference between the average ages of death in the remaining three periods.

When looking at the average ages at death for men and women, it is necessary to use only the adult population. The average age at death for

women was 33.1 years of age. This is comparable to Tell el-Dab^{ca}, which had an average life span for women of 30 years of age. The average age at death for men was 40.7 years of age. This makes sense when you consider that 58% of females at Tell Ibrahim Awad died before they reached the 35–50 age category. This is best explained by the fact that at this time many women were dying early from the stress of childbearing (Ikram 2003, Kroeber 1927, Masali 1980, Parker Pearson 1998). The average age at death for men is slightly higher than that of Tell el-Dab^{ca}, which had an average life span for men of 34.4 years, but the small sample sizes suggest this difference is insignificant. Figure 7 shows the number of males and females who died within each age category.

The subadults (those individuals under 15 years of age) made up 20% of the overall population. This percentage is comparable to the First Intermediate Period skeletons from Gebelein (Masali 1980), who had a subadult mortality rate of 18%, but much smaller than the 48% of subadults at Tell el-Dab^{ca} (Winkler and Wilfing 1991). The mortality rate of subadults at Tell el-Dab^{ca} is much higher than is normally seen in Egypt, although it is comparable to prehistoric sites in North America (Rothschild 1979). One reason for the difference at Tell el-Dab^{ca} could be that the site was inhabited by the Hyksos (Winkler and Wilfing 1991) who buried their children in the same cemetery as adults rather than in some other location. The age distribution at Tell Ibrahim Awad is unusual in that there were no

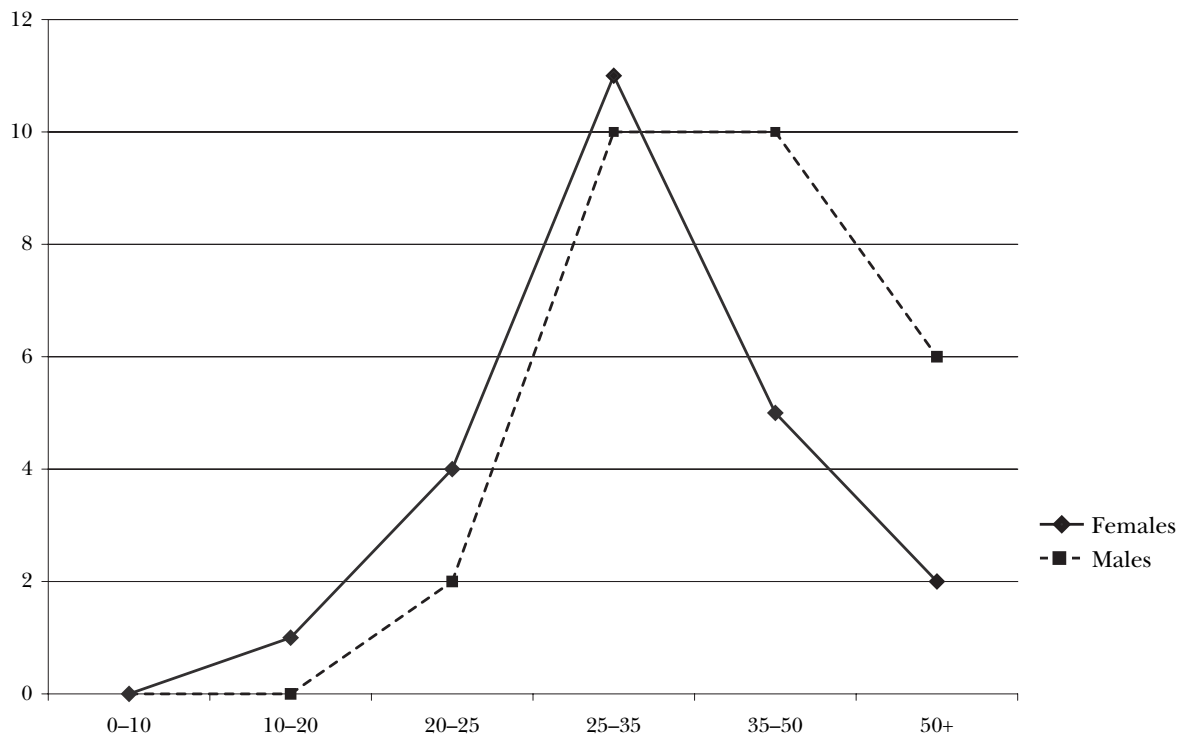


Fig. 7 Number of males and females who died at each age

infants present. The youngest skeleton died at 3 years of age.

Variation in Health

At Tell Ibrahim Awad, only fifty-four individuals had teeth that could be observed for hypoplasias.

Of those, 38% of the individuals had at least one hypoplasia present. This is comparable to the 40% rate of hypoplasias that Hillson (1978, 1979) found in skeletal samples from predynastic and dynastic Egypt and Nubia. It is also only slightly below the rate of 46.4% of adults having

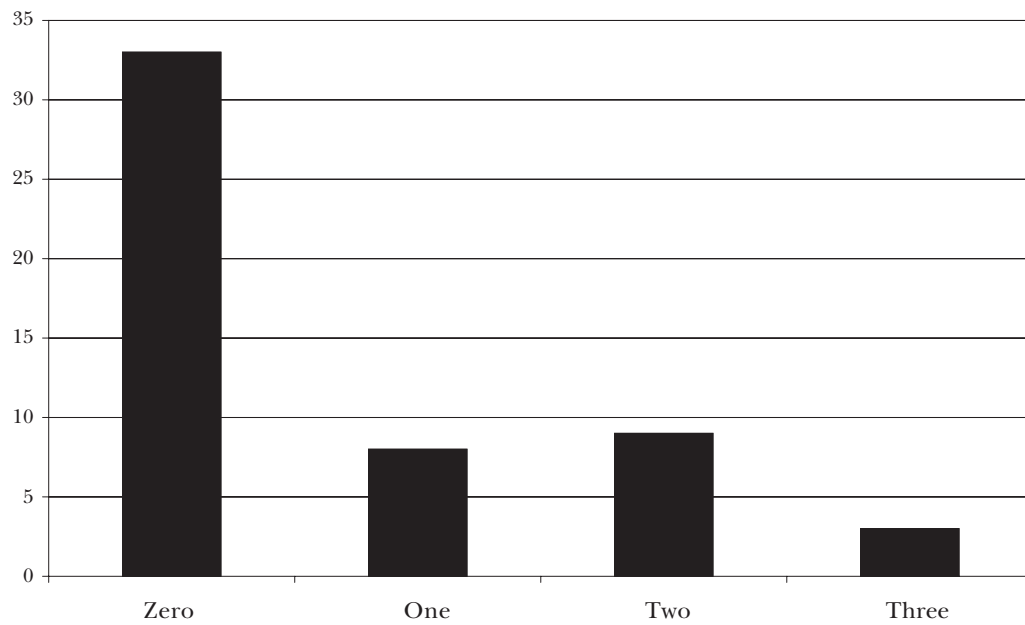


Fig. 8 Number of individuals with zero, one, two, or three hypoplasias at Tell Ibrahim Awad

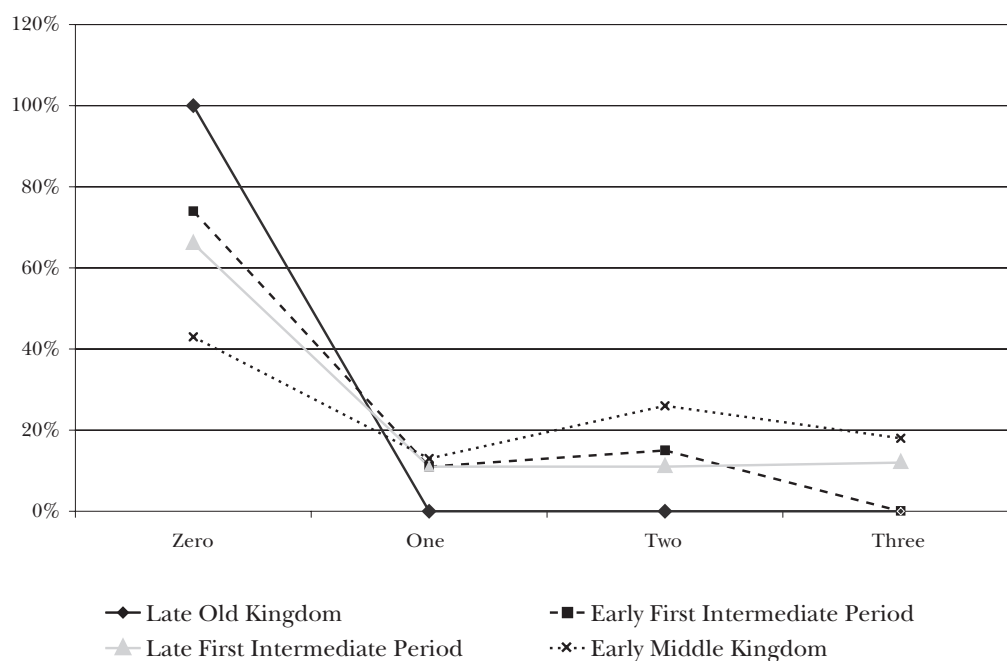


Fig. 9 Percentage of Individuals with 0, 1, 2, and 3 Hypoplasias by Time Period

hypoplasias at Tell el-Dab^ca (WINKLER and WILFING 1991). Tell el-Dab^ca is a good site for comparison as the criteria for measuring hypoplasias at Tell Ibrahim Awad was adjusted to that of Tell el-Dab^a. Figure 8 shows the percentage of individuals who had zero, one, two, and three hypoplasias observable on their teeth.

Of the individuals who had teeth that could be observed for hypoplasias, the average age at death was 33.9 years of age, while the average age at death for those individuals with hypoplasias was 26.1 years of age. The difference between these ages at death for those with and without hypoplasias has been attributed to the fact that those individuals susceptible to childhood stress remain susceptible at all ages which eventually leads to an earlier death. Of those females who had teeth that could be observed, 11.8% had one hypoplasia, 5.9% had two hypoplasias, and 11.8% had three hypoplasias. This makes a total of 29.5% of females who had hypoplasias. Of the men, 8.7% had one hypoplasia, 30.4% had two hypoplasias, and only 4.3% had three hypoplasias. This makes a total of 43.4% of men who had hypoplasias. As you can see, more males had hypoplasias on their teeth than females, although males at Tell Ibrahim Awad had a longer life expectancy. This could be due, in part, to females dying at an earlier age due to the burdens of childbirth. As can be seen in Figure 9 distribu-

tions by time are very similar. The main conclusion is that the two First Intermediate Periods are very similar childhood stress levels, while the Early Middle Kingdom was higher. The Late Old Kingdom has only a sample of two and is discounted here. The increased childhood stress could have been the result of deprivations associated with the transition to a reunited kingdom.

Only 2.4% of the skeletons exhibited carious lesions on their teeth. This is comparable to the 1.1% report of carious teeth from Tell el-Dab^ca (WINKLER and WILFING 1991). This might indicate that the people from Tell Ibrahim Awad had a diet that consisted of very little sugar and starch, but, as it is known that Egyptians ate bread (FLETCHER 1999; HAYES 1996; STROUHAL 1989), it is most likely that this low caries rate is probably due to high attrition which served to clean the teeth and prevent decay.

Many of the bones at Tell Ibrahim Awad could not be analyzed for pathological conditions due to the poor preservation. Of the 57 individuals who had bones that could be observed for pathological lesions (even of these, not all of the bones from each individual could be observed), only 8 individuals (14%) had some type of pathology. Three of the individuals had osteoarthritis present on their joints. Two individuals had an episode of trauma (one had a broken tibia and the other had a cut mark on her middle finger).

The incidence of trauma was 3.5% of the known skeletons. This is comparable to the 3% rate of trauma from Del el-Dab^{ca} (WINKLER and WILFING 1991), and the 2.5% rate of trauma from Elephantine (RÖSING 1990). One individual had a nutritional disease: *cribra orbitalia* (1.75%), which indicates anemia (ORTNER 2003). The rate of *cribra orbitalia* is lower than that seen at Tell el-Dab^{ca}, which had 26.8% of the individuals with *cribra orbitalia* (7.7% when looking at just the adults) and that seen at Elephantine with 38.2% of the individuals displaying *cribra orbitalia*. The difference between Tell Ibrahim Awad and these other sites is most likely due to the poor preservation of the site and the low percentage of bones that could be observed. The other two skeletons had lesions indicative of inflammatory disease processes. One person had a sclerotic reaction on his distal foot phalange, while the other person had a periosteal reaction on his tibiae. These inferred rates of infection are highly unreliable, however, due to the poor preservation of the skeletons, and more weight should be granted to the health indicators of the teeth than to the health indicators of the bones at Tell Ibrahim Awad. The age and sex distributions (excluding children) at Tell Ibrahim Awad are comparable with several sites in Egypt and Nubia as well as with Del el-Dab^{ca}. The hypoplasia rates are similar to those from Egypt and Nubia as reported by HILLSON (1978, 1979), but slightly lower than Tell el-Dab^{ca}. As WINKLER and WILFING (1991) suggest the presence of high stress and disease load at Tell el-Dab^{ca}, these data suggest a slightly lower stress level at neighboring Tell Ibrahim Awad.

Mortuary Analysis

Mortuary analysis of grave goods and burial types can be useful in determining the status of the person and those who performed the burial rites (SAXE 1971; BINFORD 1971, GOLDSTEIN 1981).

Of the eighty-three individuals present in the cemetery (including those without skeletons to study) at Tell Ibrahim Awad, fifty-two (64.0%) had no grave goods whatsoever. Ten individuals (12.0%) had beads. Eighteen individuals (21.0%) had some form of pot, jar, or vase present with their burial. One individual (1.7%) had a scarab associated with their burial. One individual (1.7%) had a button-seal present with their burial. Finally, one individual (1.7%) had a ceramic head-rest as a grave good. Of these grave goods, 48% were personal adornments, while 52% were items



Fig. 10 Skeleton in a pit burial (A 130/210, Tomb 11)

meant to be used in the afterlife. Based on the fact that there were so few grave goods, and these of small value, present, it can be assumed that Tell Ibrahim Awad represented a poor population.

The percentage of individuals buried with grave goods increased from the Late Old Kingdom to the First Intermediate Period through to the Early Middle Kingdom. During the late Old Kingdom, 0% of the individuals had grave goods associated with their burials. During the Early First Intermediate Period, 32% of the burials had grave goods. During the Late First Intermediate Period, 31% of the burials had grave goods during the Early Middle Kingdom, 61% of the burials had grave goods. There is a clear increase in grave goods from the Late Old Kingdom through to the Early Middle



Fig. 11 Remains of powder found in the burials

Kingdom, which is an indication that the economy of the region improved from the First Intermediate Period to the Middle Kingdom.

The First Intermediate Period saw regional

nomarchs declaring themselves to be kings. There was no longer a unified Upper and Lower Egypt, but instead Egypt consisted of many small kingdoms. There was a lot of unrest during this time,



Fig. 12 Remains of yellow plaster, most likely the edge of a coffin (detail of A 130/220, Tomb 23)

which was shown by a decrease in the average life span of Egyptians (BAINES and MALEK 1994) and an increase in individuals suffering from poor nutrition. After this unrest, Egypt was reunified. Therefore, the low frequency of grave goods in the Early First Intermediate Period was a reflection of the breakup of Egypt into smaller kingdoms and a decrease in economic circumstances. The subsequent increase in grave goods was indicative of Egypt once again becoming unified.

Burial customs in Egypt changed from one time period to another, as well as from one region to another (IKRAM and DODSON 1998). During the Old Kingdom, it was common for individuals (particularly royalty, but also some of the commoners) to be buried in stone sarcophagi, as well as sometimes in wooden coffins (IKRAM 2003, GRAJETZKI 2003). It was generally the poor who were buried in pits. Individuals were sometimes buried in a contracted position on their left side so that they faced the Nile (STROUHAL 1989). They were often buried either laid out on or covered in mats (GRAJETZKI 2003).

During the First Intermediate Period, it became more common to bury the dead in wood coffins with hieroglyphic writing on them and less common for individuals to be placed within stone sarcophagi (IKRAM and DODSON 1998). At this time, it was still common practice for the Egyptians to bury their dead on the left side facing the Nile (see Fig. 10). Burial customs began to change again during the Middle Kingdom when Egypt was reunified. Instead of individuals being buried so that they faced the east, it became common to bury individuals so that they were lying in an extended position on their backs (IKRAM and DODSON 1998). The wooden coffins were much more elaborate during the Middle Kingdom, and were often painted extensively on the inside as well as the outside. At Tell Ibrahim Awad, there were six materials that were found in the burials: white – gray powder, plaster, ochre, red paint, brick, and a cement-like substance. The cement-like substance found during the Old Kingdom was not stone, but some mixture of materials which appears to be similar to cement. The white – gray powder (Fig. 11) that was found seems to be indicative of reed mats, such as were found in burials placed into the Mississippi river clay in North America. The powder was found to be underneath the plaster (which is the remains of a coffin) and above the skeletons, as well as underneath the skeleton. There were clear distinctive

layers of plaster-powder-skeleton-powder found. These reed mats were present throughout each of the time periods. During the Late Old Kingdom and Early First Intermediate Period, individuals were either wrapped in these mats or a coffin was built of branches and reeds. Some individuals were still wrapped in mats during the Late First Intermediate Period and Early Middle Kingdom, but it is only during the Late First Intermediate Period and the Early Middle Kingdom that they were also found lying on the mats without being wrapped up or buried in them.

The plaster (Fig. 12) found with the burials indicates the presence of a decayed coffin. Because of the high water table in this area, wood coffins decayed more quickly than in the desert, and only the stains and plaster fragments of the coffin could still be observed. These wood coffins were present throughout all of the time periods (IKRAM 2003, GRAJETZKI 2003).

One feature not expected is how early red paint showed up with the burials. Apparently, it wasn't until the Middle Kingdom that the Egyptians began painting the inside as well as the outside of the coffins (IKRAM and DODSON 1997; IKRAM 2003; GRAJETZKI 2003). However, at Tell Ibrahim Awad, we have examples of red paint being found underneath the yellow plaster coffins during the Early and Late First Intermediate Periods. Red ochre (Fig. 13) was found during the Late Old Kingdom, Early First Intermediate Period, and Late First Intermediate Period which suggests that the Egyptians either painted the inside or outside of the coffin.

Mud brick superstructures were found primarily during the Middle Kingdom. During the First Intermediate Period the inhabitants of Tell Ibrahim Awad buried their dead in either rectangular or oval pits.

Based on all of this information, we can see that during the Old Kingdom individuals were wrapped in mats and then either placed directly into a cement container or else first placed within a plain wooden coffin. During the Early First Intermediate Period, individuals were wrapped in reed mats and then either placed directly into a pit or else first placed into a plastered reed container that may or may not have been painted. During the Late First Intermediate Period, it was common for individuals at Tell Ibrahim Awad to either be wrapped in reed mats or placed on mats and buried in a pit or first placed in a plastered reed container that was painted before burial in

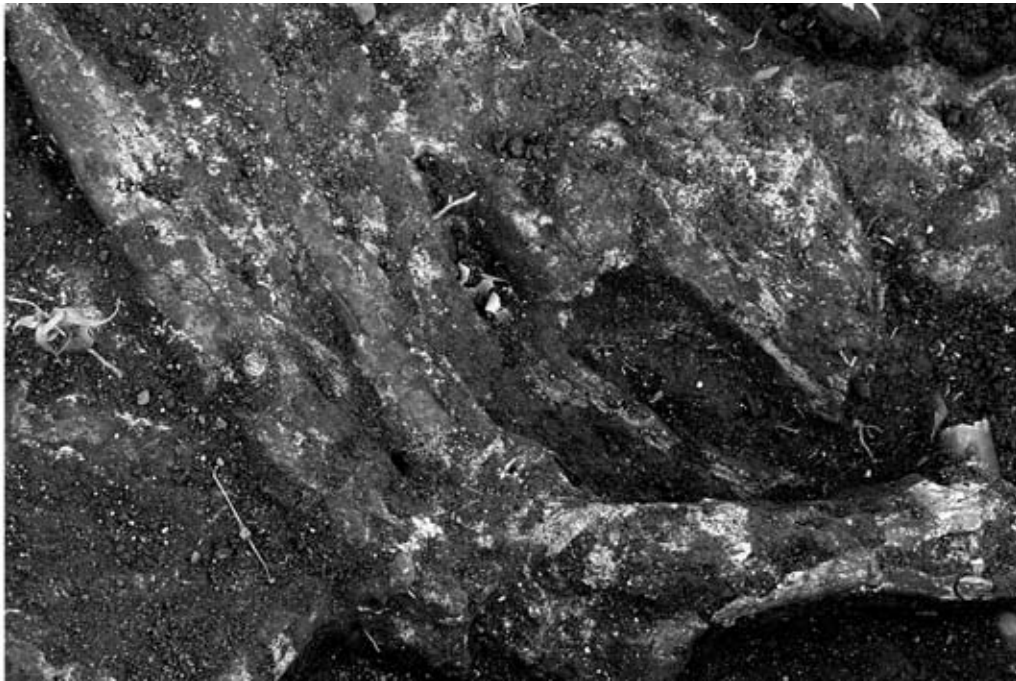


Fig. 13 Red ochre found on the bones and in the burial

the pit. During the Early Middle Kingdom, individuals were either wrapped in or placed on mats and then either directly placed in a mud brick burial or they were first placed in a plastered

reed/branch coffin and then placed within a mud brick burial (Fig. 14).

The distribution for burial types during the Late Old Kingdom (sample size of 2) was as fol-



Fig. 14 Skeleton in a mud brick burial (A 130/220, Tomb 24)

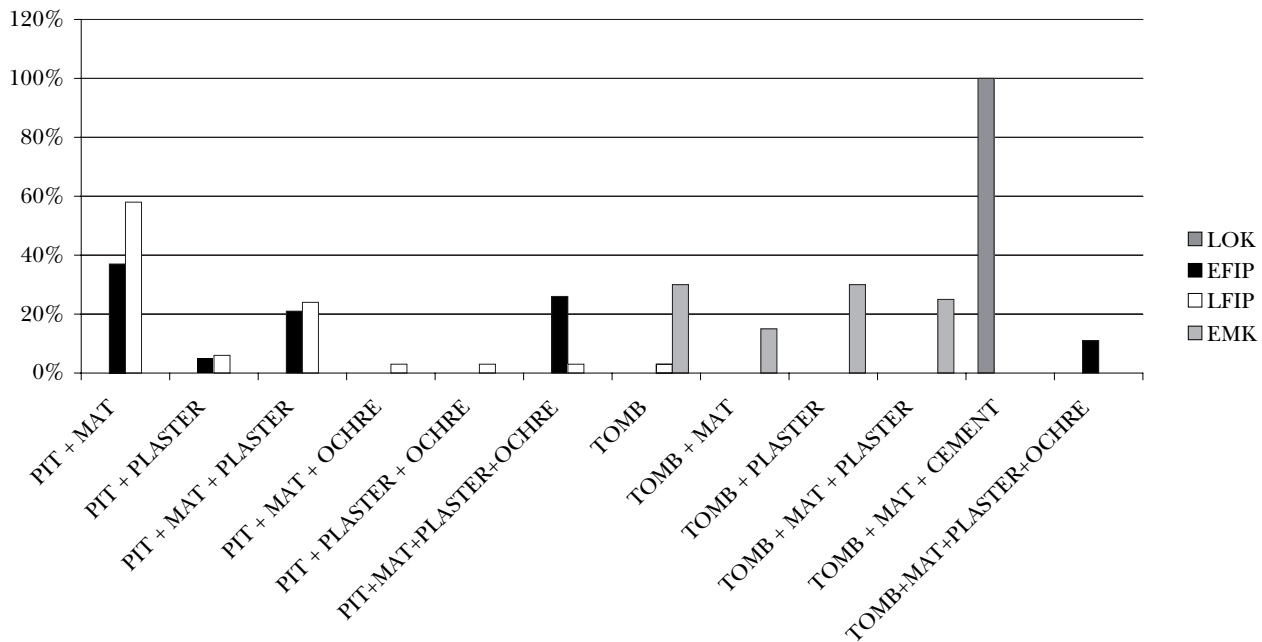


Fig. 15 Distribution of Burial Types at Tell Ibrahim Awad

lows: 100% of the burials had powder, 100% had plaster, 0% had red ochre, 100% were buried in a hard cement material, and 100% were buried in a mud brick tomb.

The distribution for burial types during the Early First Intermediate Period (sample size of 19) was as follows: 37% of the burials had only powder, 5% had only plaster, 21% had powder and plaster, and 37% had red ochre, plaster and powder on the skeleton, 0% were buried in cement, and 11% were buried in a mud brick tomb.

The distribution for burial types during the Late First Intermediate Period (sample size of 33) was as follows: 58% of the burials had only powder, 24% had powder and plaster, 6.0% had only plaster, 3% had powder and red ochre, 3% had plaster and ochre, 3% had powder, plaster and ochre, 0% were buried in cement, and 3% were buried in a mud brick burial.

The distribution for burial types during the Early Middle Kingdom (sample size of 20) was as follows: 15.0% of the burials had only powder, 30.0% had only plaster, 25.0% had powder and plaster, 0% were buried in cement, and 100% were buried in a mud brick structure.

The distributions for all time periods are shown in Figure 15.

CONCLUSIONS

The site of Tell Ibrahim Awad was used for the burial of people from the Late Old Kingdom until the

Early Middle Kingdom. Seventy four had sufficient human remains surviving to study. The cemetery was made up of males and females in fairly even proportions. The largest frequency of females died between the ages of 25 and 35, probably due to the stresses of childbirth and nursing. Males tended to have a slightly higher life expectancy than females. Because of the low percentage of infants and elderly present at the cemetery of Tell Ibrahim Awad, it appears that they were most likely disposed of elsewhere and possibly not buried. The demography of Tell Ibrahim Awad appears to indicate decent health when compared to other sites in Egypt. A large percentage of individuals from Tell Ibrahim Awad (38%) showed evidence of hypoplasias on their teeth. Those individuals with hypoplasias had a lower average age at death than those individuals who did not have any hypoplasias. The rate of hypoplasias and the average age at death indicate that the overall health of Tell Ibrahim Awad declined slightly from the First Intermediate Period to the Middle Kingdom.

Due to the paucity of funerary objects and the lack of richly endowed tombs, it appears that the people who were buried at this site represent a poor population. Burial customs changed over time from burials in cement-like coffins and mud-brick tombs to pits and then back to mud-brick burials. There appears to have been a large number of individuals who were buried in reed/branch containers that had been plastered. There was an

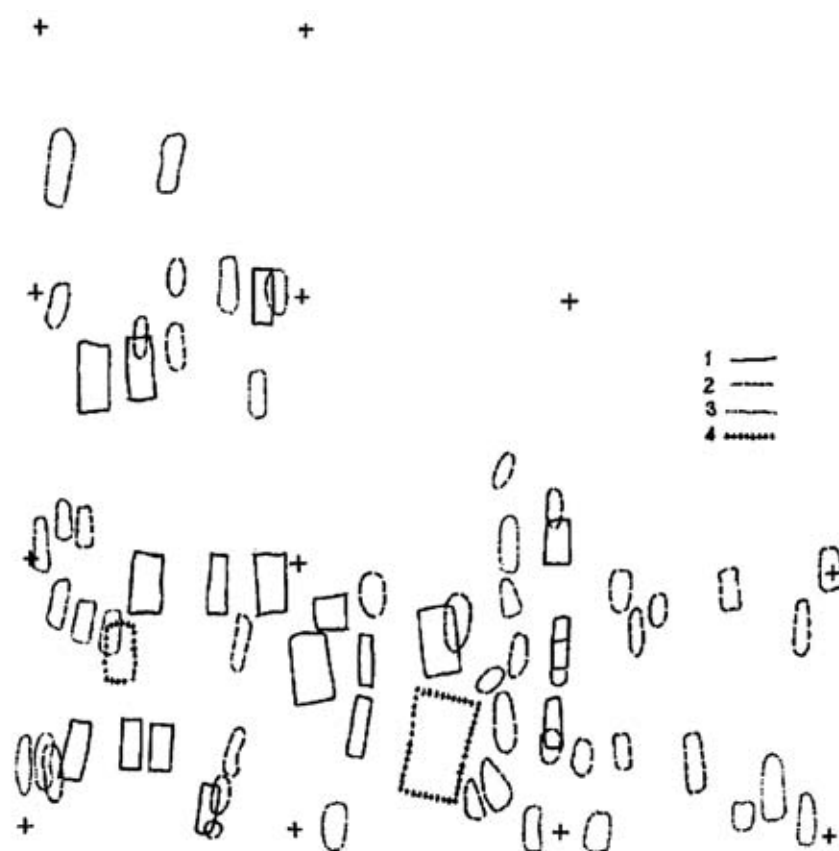


Fig. 16 Map of the Burials

increase in percentage of individuals with grave goods over time. It appears that the wealth of the village increased, while the health decreased slightly.

The Individual Tombs in the Cemetery

*The following phases can be distinguished:*⁴

1. Early Middle Kingdom: the tombs were lined with mudbricks, and originally contained plastered and painted wooden sarcophagi; plaster was all that remained after the decaying of the wood. Almost all of them contained waterjars, and in one case a scarab. Another one produced a headrest. (see Figs. 19, 36, 44)

2. Late First Intermediate Period: graves, consisting of shallow pits with a covering of reed mats. There were hardly any tomb gifts, apart from some pottery and beads and in one case a so-called button seal. (see Fig. 47)

3. Early First Intermediate Period: deeper and rectangular grave pits, lined with reed mats; and provided with plastered coffins; red pigment points at some form of decoration. The tomb gifts do not change.

4. Late Old Kingdom: brick-lined tombs occur again, as well as wooden sarcophagi, with a hard cement-like covering. No change in the tomb gifts. A reliable chronological anchor for this group was provided by a seal impression with the Horus name of Userkaf,⁵ found on a division wall in the cemetery.

The tombs of Phases 3 and 4 seem to be situated in an abandoned part of the settlement, as they were located in the middle of living quarters and even cut through walls. In several cases, tombs of Phase 1 cut through those of Phase 2.

Several DNA samples were taken, but not yet analyzed.

⁴ VAN DEN BRINK 1992. For a preliminary survey of the cemetery: VAN HAARLEM and HIKADE 2006.

⁵ VAN HAARLEM and HIKADE 2006, 389, fig. 3. Parallel in Abydos: PETRIE 1903, pl. XVI, 20.

Designations for Non-Ceramics:

running number – object designation – find number – height – width – depth – diameter – material-provenance (when appropriate, the coordinates from the north, west and the height above sea level are given, with other details) – description

Designations for Ceramics:

running number– object designation– find number – condition – height – width – length – diameter – diameter rim – diameter base – wall thickness – material⁶ – technique⁷ – bottom⁸ – hardness – surface colour⁹ – surface type – description

A 130/210, TOMB 1 (see Fig. 20)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.77 to 4.24 m. It consists of a simple rectangular mudbrick chamber, with N–S orientation; the walls were half a brick wide, 1 brick wide at the head, and preserved in 8 courses. The bricks were sand-mixed. Directly E. of the structure was a small pit with reddish burnt soil and some sherd material.

The skeleton was in a bad, fractured and pulverized condition. It was in a N–S extended supine position, and facing E. The arms were stretched tightly at the sides. There was thin white ash found above the bones, indicating the remains of a reed mat.

Based on seriated tooth wear, this male individual was 35–50 year at the time of his death. There were two sets of hypoplasias on the teeth, indicating childhood stress at ages 2.5–3.0 and 3.5–5.5 years. Of the 22 teeth recovered, there was no caries, and no signs of calculus. There were no signs of infection on the legs and arms, as well as no signs of arthritis.

There were 2 so-called water jars¹⁰ found near the head of the individual. Descriptions (see the Introduction for the designations).

A 130/210, TOMB 2 (see Fig. 21)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial, E. of Tomb 1. Height:

4.73 to 4.50 m. It consists of a simple rectangular mudbrick chamber, with N–S orientation; the walls were 1 brick wide, and preserved in 7 courses. The bricks were sand-mixed.

The skeleton was in a very bad state, with only the skull partially preserved. It was in a N–S extended position, and facing E. on its left side.

The sex was indeterminate. The epiphyses on the humeri were unfused. The third molar had just erupted, with very slight wear. Based on development and seriated tooth wear the skeleton was 16–19. There were three hypoplasias on the teeth, indicating childhood stress at 2.5–3.0, 3.0–3.5, and 3.5–4.0 years of age. Of the 23 teeth recovered, there were no signs of caries or calculus. There were no signs of infection on the arms and legs.

There was 1 water jar found near the head of the individual.

A 130/210, TOMB 3 (see Fig. 22)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.50 m. It consists of a simple rectangular mudbrick chamber, with N–S orientation; the walls were 1 brick wide at the sides, and half a brick at the head and foot end; they were preserved in 5 courses. The bricks were sand-mixed.

Here as well, the skeleton was in a bad shape. It was laid out in a N–S extended supine position, and facing E on its left side. The head was resting on the left hand.

The sex was indeterminate. The proximal tibia, as well as the distal ulna were unfused. The second molars were in the process of forming, and there was only slight wear on the second incisors and first molars. Based on serial tooth wear, the skeleton was 10–11.

There were three hypoplasias on the teeth, indicating childhood stress at 0.5–1.0, 1.0–1.5, and 2.5–3.0 years of age. Of the 5 teeth recovered, there were no signs of caries or calculus. There were no signs of pitting or porotic hyperostosis of the cranial bones, which were of the proper thickness. The vertebrae were out of alignment, and a few other bones were jumbled up.

⁶ The clays are classified according to the *Vienna System*, ARNOLD and BOURRIAU 1993.

⁷ H 1 = entirely handmade; H 2 = handmade except the rim, which was made on the wheel; W 1 = made on the slow wheel.

⁸ H = Handmade, W = wheelmade.

⁹ According to the Munsell Soil Color Charts.

¹⁰ Many parallels for these and other vessels from the tombs can be found in SEIDLMEYER 1990, *passim*.

A 130/210, TOMB 4 (see Fig. 23)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial. Height: 4.49 to 4.34 m. It consists of a rectangular shallow pit, defined by the remnants of reed mats, consisting of a white powdery material. The body was placed on a mat in a lateral N–S. extended position, facing E. It was in a bad condition, with hardly anything of the skull preserved.

The sex was indeterminate. The head of the right humerus was only partially fused. The right foot phalanges were unfused. The right pelvis was not fused at the acetabulum. The head of the right femur was not fused. Based on the epiphyseal development of the body, it was estimated to be 10–15 years old. There were no teeth recovered. There were no infections on the arms and legs. The skull was of a normal thickness with no pitting.

There were several strings of beads around the neck, and one near the humerus.

A 130/210, TOMB 5 (see Fig. 24)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.40 to 4.20 m. It consists of a simple rectangular mudbrick chamber, with N–S orientation; all walls were half a brick wide. The bricks were sand-mixed. The badly preserved female skeleton was in a N–S extended lateral position, and facing E. Based on seriated tooth wear, she was 35–50.

There was no hypoplasias on the teeth. Of the four feet recovered, there were no signs of caries, and the teeth had moderate amounts of calculus. There was no infection present on the legs or arms.

Two vessels were found directly outside the tomb; no. 1 to the S., and no. 2 at the W.-side, near the head. In all likelihood, they belonged to this tomb.

A 130/210, TOMB 6 (see Fig. 25)

Situation in the cemetery: directly to the W. of Tomb 7; see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.38 to 3.73 m. It consists of an asymmetrical rectangular mudbrick chamber, with N–S orientation, preserved at least 4 courses high. The walls were 1 brick wide, except the S. wall, which was half a brick wide. The bricks were sand-mixed. The skull was relatively well preserved, but the postcranial (male) skeleton was not. It was facing E. Strangely enough, the lower part of the skeleton was missing.

Based on seriated tooth wear, he was 50+ years of age at the time of his death. There were two

hypoplasias found, which indicate childhood stress at 2.5–3.0 and 3.0–3.5 years of age. Of the seven teeth observed, there were no caries, but a lot of calculus. Of the nine sockets observed, two of them were abscessed.

There was no evidence of osteophytosis on two vertebrae, no cribra orbitalia, no infections, no pitting of the skull, and the skull was of normal thickness.

There was one vessel included in the burial, to the east of the head beside the tomb wall.

A 130/210, TOMB 7 (see Fig. 26)

Situation in the cemetery: directly to the E. of Tomb 6; see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.38 to 3.70 m. It consists of a rectangular mudbrick chamber, with N–S orientation, and at least in 5 courses preserved. The walls must have been originally all 1 brick wide, although some bricks were reduced to half their size now. The bricks were sand-mixed. There were some remnants of reed mats in the pit and on the bones of the male skeleton, based on seriated tooth wear 25–35 years of age. The skeleton was relatively well preserved, extended on the left side, and thus facing E.

There were two hypoplasias found, indicating childhood stress at 1.0–1.5 and 2.5–3.0 years of age. Of the 20 teeth observed, there was no evidence of caries, and only a small amount of calculus.

There was no infection on the legs and arms. The skull was of normal thickness with no pitting, and no porotic hyperostosis.

There was one vessel included in the burial, to the east of the head, standing upright beside the tomb wall.

A 130/210, TOMB 8 (see Fig. 27)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial. Height: 4.50 to 3.52 m. It consists of a rectangular mudbrick chamber, with N–S orientation. The walls were 1 brick wide, except for the N.-wall, which was half a brick wide. There were traces of yellow plaster near the head, suggesting an original plaster-coated wooden coffin. There were traces of burnt loam and charcoal, and portions of the bones showed traces of burning as well. The upper half of this male skeleton, in extended supine position and facing E., was in a very bad state. The age was 35–50, based on seriated tooth wear.

There were no infections on the arms and legs. There was no arthritis on the hands or feet. There was one vessel near the head.

A 130/210, TOMB 9 (see Fig. 28)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial. Height: 4.41 to 3.95 m. It consists of an irregular, kidney-shaped pit with N-S. orientation. There were traces of yellow plaster and red ochre, suggesting a wooden coffin, coated with coloured plaster. The female skeleton was in a bad state, especially the upper half. It was in an extended supine position, aged 25–35, based on seriated tooth wear.

There were three hypoplasias on the teeth, indicating childhood stress at 2.5–3.0, 3.0–3.5, and 4.5–5.0 years of age. Of the 9 teeth observed, there were no caries or calculus. There was no infection observed on the arms and legs, nor any arthritis.

There was one vessel, positioned just outside the SW corner of the pit.

A 130/210, TOMB 10 (see Fig. 29)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial, situated partly under Tomb 5. Height: 4.10 to 4.02 m. It consists of a rectangular, very narrow and shallow N-S. pit, defined by the remnants of reed mats, consisting of a white powdery material. Additionally, fragments of yellow plaster were found, suggesting a plastered wooden coffin. There were two N-S. extended skeletons in this burial, which will be called 10 and 10A. 10 was lying on the right side oriented facing W., while 10A was on the left side, facing E. The sex was indeterminate for both 10 and 10A. Based on dental development, 10A was about 3 years of age. Based on seriated tooth wear, 10 was 35–50.

There were no signs of infection on either, but 10 had signs of arthritis on one distal phalange of the foot.

A 130/210, TOMB 11 (see Figs. 10, 30)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial. Height: 4.25–3.85 m. It consists of a rectangular, very narrow and elongated N-S. pit, defined by the remnants of reed mats, consisting of a white powdery material. Additionally, fragments of yellow plaster and red ochre pigment (near the legs and on the arms) were found, suggesting a plastered and painted wooden coffin.

The male skeleton was in an extended N-S position on its right side, facing W. Based on seriated tooth wear, he was 50+ of age. There were no hypoplasias observed. Of the twelve teeth observed, there were no caries, and only slight calculus buildup. There were no signs of infection

observed on the arms and legs, as well as no signs of arthritis. Two vessels were found in an extension of the pit, N. of the skull.

A 130/210, TOMB 12

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 burial, situated partly under Tomb 11. Height: 4.09–3.75 m. It was a rectangular N-S. pit, defined by the white remnants of reed mats, and additionally provided with many fragments of yellow plaster and some red ochre pigment. The bones were in such a poor condition, that it was difficult to distinguish them from the plaster.

The male skeleton was in an extended position on its left side, facing E., and 25–35 years of age, based on seriated tooth wear.

There were two hypoplasias observed, indicating childhood stress at 1.5–2.0 and 2.0–2.5 years of age. Of the sixteen teeth observed, there was no sign of caries or calculus. There were no signs of infection observed on the left humerus or right femur, as well as no signs of arthritis.

A 130/210, TOMB 13

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial, situated partly under Tomb 5. Height: 4.13–4.02 m. It was an irregular oval pit, with some remains of yellow plaster.

The female skeleton was lying in a flexed position on her left side, facing E. It was either a child or a small adult, but the age was indeterminate as there were no teeth recovered. The bones that were present were unable to provide conclusive age estimation. There were no signs of infection on the arms and legs, as well as no signs of arthritis.

A 130/210, TOMB 14

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 or 3 burial. Height: 4.00 m. It was an irregular, disturbed pit; only a few small bone fragments and some teeth were recovered. Based on seriated tooth wear, this indeterminate skeleton was 25–35.

Of the seven teeth observed, there were no signs of hypoplasias or caries. There were moderate amounts of calculus found on the left mandibular second incisor. There were no signs of infection or arthritis on the humerus.

There were some remains of disintegrated reed mats near the bones.

A 130/210, TOMB 15

Situation in the cemetery: see the plan, Fig. 16. It was situated partly under the MK temple temenos

wall. This was a Phase 3 burial. Height: 3.81–3.73 m. It was an approximately rectangular, narrow pit, lined with disintegrated reed mats. The male skeleton was in an extended position, lying on the left side facing E. Based on seriated tooth wear, the age was 35–50.

Of the eleven teeth observed, there were no signs of hypoplasias or caries. There were only slight amounts of calculus observed. There were no signs of infection on the arms and legs, as well as no signs of arthritis on the metatarsals.

A 130/210, TOMB 16 / 18

Situation in the cemetery: see the plan, Fig. 16. The tomb was in a very disturbed state. It was probably a Phase 3 pit burial, lined with disintegrated reed mats, but surrounded or cut by contemporary or later brick walls, of which some were tempered with an extraordinary amount of crushed shells. Height: 3.81–3.64 m. The male skeleton might have been buried in a flexed position, 35–50 years of age.

Of the five teeth observed, there were no signs of hypoplasias or caries. There was only a slight indication of calculus. There were no signs of infection on the legs, as well as no signs of arthritis on the metatarsals.

A 130/210, TOMB 17

Situation in the cemetery: see the plan, Fig. 16, due E. of a N–S wall. It was a Phase 3 burial, a rectangular N–S pit, with extensive hard and thick plaster remnants, especially at the sides, which probably once covered a wooden coffin, and disintegrated reed mat material. Traces of red ochre suggest a decoration.

The male skeleton was in a N–S extended position, lying on the left side and facing E. Based on seriated tooth wear, the age was 35–50. Of the twenty-eight teeth observed, there were no hypoplasias or caries. There was a moderate amount of calculus on the teeth. The majority of the bones were observable, and there were no signs of infection or arthritis.

A 130/210, TOMB 19

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 burial. Height: 3.28–3.05 m. The rectangular pit was NNW–SSE oriented, with a cement-like, thick plaster remains and some red ochre, suggesting an originally plastered and decorated wooden coffin. Disintegrated reed mats were also present.

The extended male skeleton was facing E.; based on seriated tooth wear, 25–35 years of age.

There was one hypoplasia present, indicating childhood stress at 2.5–3.0 years of age. Of the twenty teeth observed, there were no caries, and light to moderate amounts of calculus. There were no signs of infection on the legs and arms, as well as no signs of arthritis. There was a perimortem break on the midshaft of the right tibia.

A 130/210, TOMB 20 (see Figs. 17, 31)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 4 burial. Height: 3.22–2.84 m.

It was a rectangular N–S. pit, with many remains of a cement-like thick plaster on the sides, with clear rim fragments and impressions of wood grain, and on the bottom, suggesting a plastered wooden sarcophagus.

The female skeleton was in a semi-flexed position on its left side. Based on the presence of osteoporosis in the legs, she was 50+ years of age at the time of her death. No teeth were recovered



Fig. 17 130/210, Tomb 20

with this skeleton; there was some thinning of the bones, most likely due to osteoporosis.

A 130/220, TOMB 1

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 burial, Height: 4.83 to 4.67 m. It consists of a simple rectangular mudbrick chamber, with NNW–SSE orientation; the walls were 1 brick wide, and the bricks were sand-mixed. One piece of plaster beside the femur suggests a plastered wooden coffin. There were remains of a hearth directly S. of the tomb.

The male skeleton was in an extended position on the left side, facing E. Based on seriated tooth wear, the age was 20–25. Of the eleven teeth recovered, there was no indication of hypoplasias, caries, or calculus.

There were no signs of infection on the arms, legs, or ribs. Neither were there signs of arthritis on the knee, ankle, hip, carpals, metacarpals, phalanges, elbow, or on the articular facets of the thoracic vertebrae.

A 130/220, TOMB 2

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial, cut by Tomb 1. Height: 4.68 to 4.56 m. It was an approximately rectangular, shallow N–S. pit, defined by the white remnants of reed mats. Some plaster was found as well.

The female skeleton was oriented facing up. It was in a supine position with the right arm on the pelvis and the left arm on the side. Based on seriated tooth wear, the age was 20–25.

Of the twenty-nine teeth observed, there were no signs of hypoplasias, caries, or calculus.

There were no signs of infection on the arms or legs, as well as no signs of arthritis on the shoulder or tarsals.

A 130/220, TOMB 3

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial, cut by Tomb 12 at the feet, and itself cutting through a small part of Tomb 7. Height: 4.81 to 4.73 m. It was unclear whether this was a brick burial or whether the tomb cut into an earlier wall. It was a rectangular N–S pit; the female skeleton was in an extended position on the left side, facing E. Based on seriated tooth wear, the age was 20–25. Of the twenty-six teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the arms or legs, as well as no signs of arthritis on the left knee.

A 130/220, TOMB 4 (see Fig. 32a.1, b)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial, the E. part of a double N–S oriented rectangular brick tomb, the W. counterpart being Tomb 5. Height: 4.84 to 4.54 m. It cuts through Tomb 7. The walls were 1 brick wide, including the separation wall with Tomb 5. The material was sand-brick. There were many fragments of plaster found in the shape of a rectangle surrounding the skeleton, definitely suggesting a plaster-coated wooden coffin. Decayed reed mat material was present as well. The female skeleton was in an extended position, lying on the left side and facing E. Based on seriated tooth wear, the age was 25–35 year. There were three hypoplasias found on the teeth, indicating childhood stresses at 1.5–2.0, 2.0–2.5 and 2.5–3.0 years of age. Of the twenty-three teeth observed, there were no indications of caries or calculus. There were no signs of infection on any of the long bones, as well as no signs of arthritis on the hands or feet.

There was one shell near the head, and one vessel in the NE corner, standing upright.

A 130/220, TOMB 5 (see Fig. 32a.2, b)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial, the W. part of a double N–S oriented rectangular brick tomb, the E. counterpart being Tomb 4. height: 4.84 to 4.64 m. The S. part was disturbed by an earlier sounding. The walls were 1 brick wide, including the separation wall with Tomb 4. The material was sand-brick. There are some plaster remains. The female skeleton was in an extended position, face up. Based on seriated tooth wear, the age was 25–35 year. There was one hypoplasia found, indicating a childhood stress at an age of 1.5–2.0. Of the nine teeth observed, there were no signs of caries or calculus. There were no signs of infection on the arms or legs, as well as no signs of arthritis on the hands or knees.

There was one shell near the head, and one vessel in the NE corner, standing upright.

A 130/220, TOMB 6 (See Fig. 33)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.80 to 4.67 m. It consists of a approximately oval N–S pit, defined by the remnants of reed mats. The male skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at the time of death was 50+.

Of the thirteen teeth observed, there were no signs of hypoplasias or caries, and moderate amounts of calculus. There were no signs of infection on the skull, arms, or legs. There were no bones able to be observed for arthritis.

There was one jar in the pit, N. of the head.

A 130/220, TOMB 7 (see Fig. 34)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial, partially cut by Tomb 3 and 4/5. Height: 4.72 to 4.62 m. It was a large rectangular N-S brick tomb; all surviving walls were half a brick wide, preserved in only 1 course. The material was sand-brick. There were traces of yellow plaster in a straight line E. of the body, indicating the remains of a plastered wooden coffin. Although the tomb was cut just below the knees, the lower legs have been preserved under Tomb 4/5 completely untouched. The scapula of a goat or sheep was found on the E. wall, and some animal bones nearby.

The male skeleton was in an extended position on its left side, facing E. based on seriated tooth wear, the age at death was 25–35. There was one hypoplasia found, which indicates a childhood stress at 2.0–2.5 years of age. Of the thirty teeth observed, there were no signs of caries or calculus. There were signs of infection on the distal foot phalanges. There was a destructive lesion leaving only a lattice of heavy trabeculae on the second phalange. There was also a dimple in the middle of the articular surface. There were no signs of infection on the scapula, but there were two large sesimoid bones found on the tarsals.

The right femur was missing; the right tibia and ulna were present. The acetabulum was carefully excavated, and was found to be empty and intact. This means that the femur had been removed on purpose. The bones of the right hand were found 10 cm lower than the radius and ulna. This indicates that on one point the right hand was lying on something where the right femur should have been, but then it decayed.

There were two vessels, one in the NW and one in the NE corner of the tomb.

A 130/220, TOMB 8 (see Fig. 33)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, partially cut by Tomb 14. Height: 4.67 to 4.64 m. It was an approximately oval, NNW-SSE pit, lined in the E. by some reed mat remains. The skeleton, of which the sex was indeterminate, was lying in a some-

what flexed position on its left side, facing E. It was in a very bad state of preservation, making analysis only partially possible. Based on tooth eruption, the age at death was 12–15 years.

There was one hypoplasia on the teeth, indicating a childhood stress at 1.5–2.0 years of age. Of the ten teeth observed, there were no signs of caries or of calculus. There were no signs of infection on the right humerus or on the skull, which were the only bones to be observed adequately. The skull was of a normal thickness.

Some beads were found in the vicinity of the neck.

A 130/220, TOMB 9 (see Figs. 18 & 35)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial, largely cut by Tomb 15. height: 4.71 to 4.53 m. It was probably a N-W brick burial, half a brick wide at the sides and 1 brick wide at the head end. The material was sand-brick. Some traces of decayed reed mats were preserved along with some plaster fragments. Only the male skull was still in place. Based on seriated tooth wear, the age at death was 20–25. Of the three teeth observed, there were no indications of hypoplasias, caries, or calculus. However, there was an additional circular cusp in the middle of the maxillary right third molar. There were no signs of infection on the skull.

There was a headrest found under the skull.



Fig. 18 Headrest

A 130/220, TOMB 10

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial. Height: 4.69 to 4.59 m. It was a brick tomb, NNW–SSE oriented. The walls were half a brick wide; they were sand-bricks. The female body was lying in an extended position on the left side, facing E. The bones were disturbed, but it was an adult, based on a fused proximal tibia, but as there were no observable teeth, it was impossible to be more specific. There were no signs of infection on the humerus or femur.

A 130/220, TOMB 11

Situation in the cemetery: see the plan, Fig. 16. Possibly originally a Phase 1 Burial, twinned with Tomb 12. Only preserved in a single N–S wall, 1 brick wide, height 4.67 to 4.56 m. Material: sand-bricks. Contents otherwise have completely disappeared; maybe not a tomb at all?

A 130/220, TOMB 12

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial, possibly originally twinned with Tomb 11, and cutting through the feet of Tomb 3. Height: 4.65 to 4.53 m. The tomb was N–S oriented, with the W & E-walls 1 brick wide, and the S-wall half a brick. The N-wall was missing. There were traces of reed mat remains and yellow plaster. The skeleton, of which the sex was indeterminate due to the poor preservation of the bones, was in an extended position on the left side, facing E. Based on seriated tooth wear, it was 35–50 years old.

Of the twelve teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the femur or tibia; however, only fragments of these bones could be observed due to the poor preservation.

A 130/220, TOMB 13 (see Fig. 36)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.67 to 4.43 m. This was a roughly oval, N–S pit burial, defined by the white remnants of decayed reed mats. The female skeleton was lying in a supine position on the left side, facing E. Based on seriated tooth wear, the age at death was 20–25 years of age. There were three hypoplasias found, indicating childhood stress at 1.0–1.5, 2.0–2.5, and 2.5–3.0 years of age. Of the twenty-five teeth observed, there were no signs of caries or calculus. There were no signs of infection present either.

There was one bead found in the chest area.

A 130/220, TOMB 14

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, partly cutting into Tomb 14. Height: 4.67 to 4.64 m. This irregular pit burial was roughly N–S oriented, but there was no way of knowing which way the head faced, nor which way it was positioned because of the poor preservation of the bones. That was why the sex was unknown. Based on one epiphyseal fragment, one tooth fragment, and thin cranial bones, it was estimated that the age at death was 7–9 years. There were no bones able to be used for analysis of infection.

Some white traces point to the presence of reed mats.

A 130/220, TOMB 15 (see Fig. 35)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, cutting through Tomb 9. Height: 4.46 to 4.27 m. This was an approximately rectangular N–S pit burial, defined by remnants of decayed reed mats. Some plaster remains were left as well, pointing to a possible plastered wooden sarcophagus.

The male skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 25–35. Of the fifteen teeth observed, there were no signs of hypoplasias, caries, or calculus. One interesting thing to note was that the third molars were congenitally absent. There were no signs of infection on the humeri, radii, ulnae, femora, or tibiae.

Some faience beads were found in the neck area.

A 130/220, TOMB 16

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, cutting through an E–W wall. Height: 4.40 to 4.02 m. This was an approximately rectangular N–S pit burial, defined by thick layers of white reed mat remains and plaster. The skeleton, of indeterminate sex, was lying in an extended position on its left side, facing E. The second molar of this individual was completely erupted; however, the long bones epiphyses were unfused as well as all phalanges, metacarpals, metatarsals, and the pelvis. Based on this, the age at death was approximately 16 years of age.

There was one hypoplasia present, indicating childhood stress at 2.0–2.5 years. Of the twenty-seven teeth observed, there were no signs of caries or calculus. There were no signs of infection on the long bones.

A 130/220, TOMB 17

Situation in the cemetery: see the plan, Fig. 16. This was a probably a Phase 2 Burial, of which the whole upper part of the body has disappeared. The outline of this probably oval N-S pit was defined by white reed mat traces. It was probably lying in an extended position on the left side, facing E. The sex of this fragmentary skeleton could not be determined. There were no teeth found with this burial, but based on the bones, the skeleton most likely belonged to an adult.

There were no signs of infection on the tibiae.

A 130/220, TOMB 18

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.53 to 4.43 m. This was a rectangular N-S. pit burial, defined by white reed mat remains.

The female skeleton was lying in an extended position on its left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. Of the four teeth recovered, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the tibiae.

A 130/220, TOMB 19 (see Fig. 19)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.46 to 4.29 m. The approximately rectangular N-S pit was lined with reed mat remains and bordered in the SW by a fire pit. The female skeleton was lying in a flexed position on the left side, facing E. Based on seriated tooth wear, the age at death was 20–25 years.

Of the twenty-seven teeth found, there were no signs of hypoplasias, caries, or calculus.



Fig. 19 30/220, Tomb 19

There were no signs of infection on the tibiae or femora.

A 130/220, TOMB 20

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.07 to 3.83 m. The N-S pit was quite rectangular, with extensive plaster remains indicating a plaster covered coffin, and traces of reed matting. The female skeleton was lying on the left side, with the legs slightly bent, facing E. Based on seriated tooth wear, the age at death was 35–50 years.

Of the eleven teeth found, there were no signs of hypoplasias, caries, or calculus; however, three teeth were lost ante mortem.

There were no signs of infection on the tibiae, femora, vertebrae or radius.

A 130/220, TOMB 21

Situation in the cemetery: see the plan, Fig. 16. This appeared to be not a tomb at all.

A 130/220, TOMB 22

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.31 to 4.08 m., cutting through an EW-wall. It was a rectangular N-S pit, displaying thick layers of reed mat remains. The female skeleton was lying in a flexed position on the left side, facing E. Based on seriated tooth wear, the age at death was 35–50 years. Of the three teeth recovered, there were no signs of hypoplasias, caries, or calculus. With the exception of the patella, the bones were too fractured and mineralized to check for infection. There were no signs of infection on the patella.

A 130/220, TOMB 23 (see Fig. 37)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.07 to 3.85 m. It was an oval, N-S. pit with some edge fragments of the plaster, originally covering a now decayed wooden coffin. The female skeleton was in a supine position on its back, face up. Based on seriated tooth wear, the age was 50+ at the time of death. Of the three teeth observed, there were no signs of hypoplasias or calculus. The mandibular third left molar had caries, as well as the mandibular third right molar. There was a large abscess on the mandibular left first premolar. There was arthritis on the distal phalanges of the hand, but none on the vertebrae. There were no signs of infection on the long

bones. There was, however, an old cut mark on one of the middle hand phalanges. The feet were missing.

There was one vessel W. of the head.

A 130/220, TOMB 24 (see Figs. 14 & 38)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 4 Burial. Height: 3.81 to 3.10 m. The tomb walls were one brick wide, except the S.-wall, which was half a brick, and preserved in four courses. Inside was a smaller, rectangular N-S pit, coated with thick, cement-like plaster, which was also encasing some of the bones.¹¹ This suggests a plastered wooden coffin with a lid. There were also reed mat remains.

The male skeleton was found in an extended position on the left side, facing E. based on seriated tooth wear, the age at death was 25–35 years.

Of the thirty teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones, but signs of arthritis in the distal phalanges of the feet.

A 130/230, TOMB 1 (see Fig. 39)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 burial. Height: 4.71 to 4.45 m. It was an approximately rectangular NNW-SSE pit with some traces of decayed reed mats. The male skeleton was found in an extended position on the left side, facing E.

Based on seriated tooth wear, the age at death was 50+ years. There were two hypoplasias found, indicating childhood stress at 1.0–1.5 and 2.0–2.5 years of age. Of the nineteen teeth recovered, there were no signs of caries or calculus. There were no signs of infection on the long bones.

There was a ring found on the right hand.

A 130/230, TOMB 2

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.86 to 4.80 m. It was an approximately rectangular N-S pit, lined with decayed reed mats.

The female skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. Of the twelve teeth found, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones.

A 130/230, TOMB 3

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.91 to 4.74 m. It was an approximately rectangular N-S pit, lined with decayed reed mats, and disturbed in the N.

The skeleton of indeterminate sex was lying on its back. There were no teeth recovered with this skeleton, but based on the long bones, this body probably belonged to an adult. There were no signs of infection on the tibiae or femora.

A 130/230, TOMB 4 (see Fig. 40)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.72 to 4.58 m. It was a large, approximately rectangular NNE-SSW pit, lined with reed mat remains. The female skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. Of the three teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the tibiae or femora.

The bones and the area around them were stained with red ochre pigment, possibly the remains of paint on the reed mats.

A number of beads were found in the pelvis area.

A 130/230, TOMB 5

Situation in the cemetery: see the plan, Fig. 16. This was a Phase ? Burial. Height: 4.72 m. Of the skeleton, only a partial humerus and some skull fragments, including teeth, were preserved, so nothing can be said about orientation and sex. Decayed reed mats were present, however.

Based on seriated tooth wear, the age at death was 25–35 years. There was one hypoplasia found, indicating childhood stress at 1.5–2.0 years of age. Of the eight teeth preserved, there were no signs of caries or calculus. The poor preservation of the bones makes it impossible to determine any infection, arthritis, or trauma.

A 130/230, TOMB 6

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.40 to 4.02 m. This was a rectangular NNE-SSW pit, defined by reed mat remains. The female skeleton was lying in an extended position on the right side, facing

¹¹ VAN HAARLEM and HIKADE 2006, 392, pl. I.

W. Based on the development of the long bones, as there were no teeth present, it was an adult.

There were no signs of infection on the left femur, right radius, right ulna, the tibiae, or on the fibulae.

A 130/230, TOMB 7

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.67 to 4.58 m. It was an oval pit, defined by reed mat remains. The female skeleton was placed in a flexed position on the left side, facing E., with the hands in front of the face. Based on seriated tooth wear, the age at death was 35–50 years.

There were no signs of hypoplasias, caries, or calculus on the two molars that were found. The right mandibular canine, first and second premolar, and first molar were all lost ante mortem; the remainder were lost post mortem.

The bones of this burial were very much flattened, so there was not enough material to observe for signs of pathological conditions.

A 130/230, TOMB 8

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.52 to 4.15 m. It was a rectangular N–S pit, lined with reed mats, and with an extension to the S. which contained animal bones, possibly from a food offering. The pit contained two superimposed male skeletons, A on top of B. Both were lying in an extended position on their left sides, facing E. The age of A at death was 25–35, based on seriated tooth wear. Of B no teeth were preserved, but due to the fusion of the long bones, it was definitely an adult. A had one indicator of childhood stress at 1.5–2.0 years of age; of the thirteen teeth observed, there were no signs of caries or calculus. There were no signs of infection on any of the long bones present.

A 130/230, TOMB 9

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, cutting through an EW-wall. Height: 4.52 to 4.02 m. This was a rectangular NNE–SSW pit, defined by reed mat remains and with some yellow plaster and red pigment, indicating a plaster covered and painted wooden coffin, now disintegrated.

The male skeleton was in an extended position, lying on its left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. There were two major episodes of childhood stress indi-

cated on the teeth at 1.0–1.5 and 2.0–2.5 years of age. Of the ten teeth observed, there were no signs of caries or calculus. There were no signs of infection on the arms and legs, nor any signs of arthritis on the head of the right humerus.

A 130/230, TOMB 10

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.43 to 4.30 m. This was a rectangular NNE–SSW pit, defined by reed mat remains. The skeleton, of undetermined sex, was lying in an extended position on its left side, facing E. based on seriated tooth wear, the age at death was 35–50 years.

Of the four teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection observed on the long bones (femur) or the cranium.

A 130/230, TOMB 11 (see Fig. 41)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.48 to 4.09 m. It was an irregular N–S pit, partly defined by reed mat remains. The male skeleton was lying in an extended position with the right hand on the chest area, on the left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. Of the eleven teeth observed, there were no signs of hypoplasias or calculus. The mandibular right second molar was destroyed by dental decay. There were no signs of infection or arthritis on the long bones.

Two vessels were found at the N. side of the pit.

A 130/230, TOMB 12

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.12 to 3.64 m. This was a deep, rectangular NNE–SSW pit, lined with decayed reed mats. Traces of plaster and red ochre suggest an original wooden coffin, plastered and painted. The male, extended skeleton was originally on the right side, but had slumped back; the face was to the E. The age at death was 35–50 years.

Of the twenty-one teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones. The finger bones had rugged muscle attachments, but there were no signs of arthritis.

A 130/230, TOMB 13 (see Fig. 42)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.06 to 3.67 m.

This was a deep, rectangular N–S pit, lined with decayed reed mats. The skeleton was lying in a supine position, facing up, though it probably rolled there from the left side. The sex of the skeleton was indeterminate. Based on the development of the epiphyses and the eruption of the teeth, this individual was about 4 years of age. There was one episode of childhood stress indicated by the teeth, at 2.5–3.0 years. Of the thirteen deciduous teeth observed, there were no signs of caries or calculus. There were no signs of infection or arthritis on the long bones.

Two beads were found in the neck area.

A 130/230, TOMB 14

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 3.38 to 3.36 m. This was an oval N–S pit, defined by reed mat remains. The male skeleton was lying in a very tightly flexed position, with the knees under the chin, lying on the left side, facing E. It might have been a long time after death before it was buried to achieve this position. Based on seriated tooth wear and the fusion of the distal femur, the age at death was 25–35 years. Of the three teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection or arthritis on the distal femora, as far as could be observed on the poorly preserved bones.

A 140/210, TOMB 1 (see Fig. 43)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial. Height: 4.82 to 4.70 m. This was a rectangular N–S mudbrick tomb, 1 + ½ brick wide at the W. side (except at the NW corner, where it was 1 brick; the additional ½ brick wall was at a lower level), 1 brick wide at the other sides. Two courses of bricks were preserved. The material was sand-brick. There were traces of reed mats; a plastered wooden coffin seems to be possible. The male skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 35–50 years. There were two indications of childhood stress at 2.0–2.5 and 3.0–3.5 years of age. Of the seven teeth observed, there were no signs of caries or calculus. There were no signs of infection on the humerus, radius, or ulna.

There was one scarab found at the left hand and one vessel in the NW corner.¹²

A 140/210, TOMB 2 (see Fig. 44)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial. Height: 4.84 to 4.45 m. Narrow, rectangular N–S mudbrick tomb; walls 1 brick wide, material sand-brick. Traces of plaster indicate a lime plastered coffin, now decayed. The male skeleton was in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 35–50 years. Of the ten teeth observed, there were no signs of hypoplasias, caries, or calculus. Only the skull of this skeleton could be observed for infection. There were signs of cribra orbitalia in the orbits in the form of large pits.

There was one vessel found just outside the tomb, leaning against the NE corner. It was possible that there was no room inside the coffin and thus the tomb for this object.

A 140/210, TOMB 3 (see Fig. 45)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, cut by Tomb 2. Height: 4.80 m. It was a more or less rectangular N–S pit, with decayed reed mat traces present. This burial contained two skeletons. Both were lying in an extended position on their left sides, facing E. 3A was female; based on seriated tooth wear, the age was 25–35 years. The EU indeterminate d skeleton 3B was 3.0–3.5 years of age at the time of death, based on tooth eruption. There were no signs of hypoplasias, caries, or calculus on the teeth of either skeleton, nor were any signs of infection or arthritis present in any of the two.

There was one vessel in the NE corner.

A 140/210, TOMB 4 (see Fig. 46)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.80 to 4.72 m. It was a rectangular N–S pit, with plaster remains at the sides, indicating a decayed wooden coffin. The female skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the beginning of the eruption of the third molars, and the fusion of the long bones, the age at death was approximately 15–17 years. There were two hypoplasias found on the teeth indicating childhood stress at 4.5–5.0 and 5.5–6.0 years of age. Of the five teeth observed, there were no signs of caries, but all of the teeth had calculus on them.

¹² VAN DEN BRINK 1992, 47. Closest parallel: PETRIE, *i.a.*, 1923, pl. LXV, no. 323. Date: late Dyn. 12.

Some beads and a button seal with a stylized human figure¹³ were found on the body, as well as a vessel just N. of the pit; probably because there was no room inside the coffin.

A 140/210, TOMB 5

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial. Height: 4.79 to 4.37 m. It was a rectangular, N-S mudbrick tomb; the sides were 1 brick wide, except the E.-side, which was half a brick. Preserved in 5 courses. The material was pure Nile clay. The skeleton, of undetermined sex, was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 50+ years.

Only the maxillary right first premolar was observable. It was worn down to only a few mm of enamel. There were no signs of caries or calculus on this tooth.

On the observable bones, there were no signs of infection.

A 140/210, TOMB 6 (Fig. 47)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase ? Burial. Height: 4.60 m. Due to heavy disturbance of the tomb, it was not clear whether a line of bricks found beside it belong to it; only the legs were preserved. There were red ochre stains on them and traces of plaster, so the body was probably placed in a plastered and painted coffin. It was probably lying in an extended position on the left side, facing E. Sex and age could not be determined, but the legs did not have any signs of infection.

There was one vessel in the N.-part of the burial, probably belonging to it.

A 140/210, TOMB 7

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.53 to 4.35 m. This was a small, oval N-S pit, lined with traces of decayed reed mats. The body was lying in an extended position on the left side, facing E. Based on the eruption of the teeth, the age at death was 6 years and the age of children is not possible to determine. There were three indicators of childhood stress at 2.0–2.5, 3.0–3.5, and 4.5–5.0 years of age.

A 140/210, TOMB 8

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.44 to 4.34 m. This was an irregular N-S pit, lined with traces of decayed reed mats. The body, of undetermined sex, was lying in an extended position on the left side, facing E. based on tooth eruption and fusion of the bones, the age at death was probably 5 years. There was one indication of childhood stress at 1.5–2.0 years of age, but no signs of caries or calculus.

There were no signs of infection on the tibiae, fibulae, or skull.

A 140/210, TOMB 9 (see Fig. 47)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.29 to 3.88 m. This was an oval NNW-SSE pit; the somewhat deviating orientation is probably due to the situation of the pit between older walls. It was lined with decayed reed mat remains, and some red ochre was present as well. The female skeleton was lying in an extended position on its left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. Of the nine teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones.

There was one bead in the neck area.

A 140/210, TOMB 10

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial, situated partly under Tomb 5, but not disturbed by it. Height: 4.19 to 3.99 m. It was an approximately rectangular N-S pit tomb, lined by reed mat remains. There were significant traces of red ochre present, as well as some plaster. The female skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 25–35. There were two hypoplasias found on the teeth, indicating stress at 3.0–3.5 and 4.0–4.5 years of age. Of the twenty-six teeth observed, there were no signs of caries, yet there was calculus found on most of the teeth. There were no signs of infection or arthritis on the long bones.

¹³ BRUNTON 1928, pl. XXXIV, no. 228. Also WIESE 1996, pl. 48 (nos. 991, 997–999). For the shape: WIESE 1996, 59 (pl. 13), no. 14a.

A 140/220, TOMB 1

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 1 Burial. Height: 4.95 to 4.86 m. It was a rectangular N-S brick tomb. The E. and W. walls were 1 brick wide, the N. and S. walls half a brick. The material was mudbrick. Traces of decayed reed mats were present, as well as plaster remains, pointing to a decayed plastered coffin. The male skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 50+ years.

Of the eight teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones, nor signs of arthritis on the shoulder, hands, or feet.

A 140/220, TOMB 2

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial, situated partly under Tomb 1, but not disturbed by it. Height: 4.87 to 4.78 m. It was an approximately oval N-S pit, lined by reed mat remains. Traces of plaster suggest a decayed wooden coffin, covered with plaster. The male skeleton was lying in an extended position on the left side, facing E. Based on seriated tooth wear, the age at death was 35–50 years. Of the ten teeth observed, there were no indications of hypoplasias, caries, or calculus. There were no signs of infection on the long bones, nor signs of arthritis on the hands.

A 140/220, TOMB 3

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 2 Burial. Height: 4.55 to 4.30 m. It was an approximately oval N-S. pit, lined with reed mat remains. The male skeleton was lying in a slightly flexed position on the left side, facing E. Based on seriated tooth wear, the age at death was 50+ years. The only tooth recovered was a maxillary premolar that was worn down to the rim. There were no signs of hypoplasias, caries, or calculus on the tooth recovered, nor were there signs of infection or arthritis on the long bones.

A 140/220, TOMB 4

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.22 to 4.07 m. This was a rectangular N-S pit, with extensive reed mat and plaster remains, indicating a plastered wooden coffin. The female skeleton was lying in an extended position on the right side, with the face down; probably originally facing the

E. Based on seriated tooth wear, the age at death was 25–35 years.

Of the thirty-two teeth observed, there were no signs of hypoplasias or caries. There was some calculus found on the buccal side of the molars. There were no signs of infection on most of the long bones; however, the tibiae did have some rounded striations, indicating some sort of periosteal reaction.

A 150/210, TOMB 1

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.68 to 4.64 m. This was a disturbed, probably originally oval N-S pit, with reed mat and plaster remains, and some ochre fragments. The skeleton of indeterminate sex was lying on the left side with the femora crossed. Most of the upper part of the body was gone. Based on the fact that the metatarsals were still unfused, this individual was most likely 10–16 years of age at the time of death. There were no teeth preserved; no signs of infection on the tibiae, or arthritis on the toes.

A 150/210, TOMB 2

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.08 to 3.93 m. This is a rectangular N-S pit, lined with reed mat remains and with large quantities of plaster inside and just N. of the pit, indicative of a plaster covered coffin. The female skeleton was lying extended on the left side, facing E. Based on seriated tooth wear, the age at death was 35–50 years. The size of this individual was rather small for the age. Of the eighteen teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the long bones, nor were there signs of arthritis on the cervical vertebrae, shoulder, or hands.

A 150/210, TOMB 3 (see Fig. 48)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 4.06 to 3.83 m. This was an approximately rectangular N-S pit, lined with decayed reed mats and with large patches of plaster and red ochre in it, indicating a plastered and painted wooden sarcophagus. The male skeleton was lying in an extended position, facing E. Based on seriated tooth wear, the age at death was 35–50 years. Of the twenty-three teeth observed, there were no signs of hypoplasias, caries, or calculus. There were no signs of infection on the tibiae, femora, or the

right humerus, nor were there signs of arthritis on the hands and feet.

There were a number of beads found in the burial.

A150/210, TOMB 4 (see Fig. 49)

Situation in the cemetery: see the plan, Fig. 16. This was a Phase 3 Burial. Height: 3.88 to 3.40 m. It was a rectangular N–S pit with reed mat remains, plaster and red ochre fragments, indicative of a plastered and painted coffin. The male skeleton was lying in an extended position on the

left side, facing E. Based on seriated tooth wear, the age at death was 25–35 years. There were two large episodes of childhood stress at 2.5–3.0 and 4.0–4.5 years of age. Of the thirteen teeth observed, there were no signs of caries or calculus. There were no signs of infection on the long bones, or signs of arthritis on the feet, wrists, elbows, or shoulders.

There were two vessels in a separate small pit near the NE corner; both contained fish bones. Beads comprising 2 necklaces were found around the neck.

Photographs by J. Kelder, R. Leenheer and J.C. Rose. Inking by J. Kelder and E.A.M. van Tol-Sinnige. The scale indications beside the pottery vessels are all 10 cm., unless stated otherwise.

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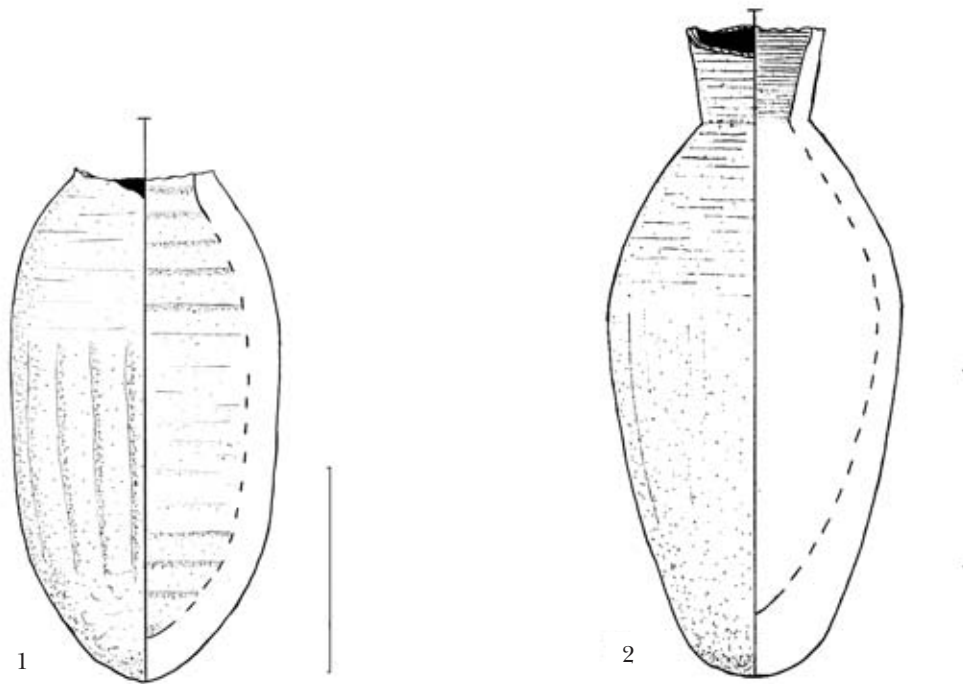
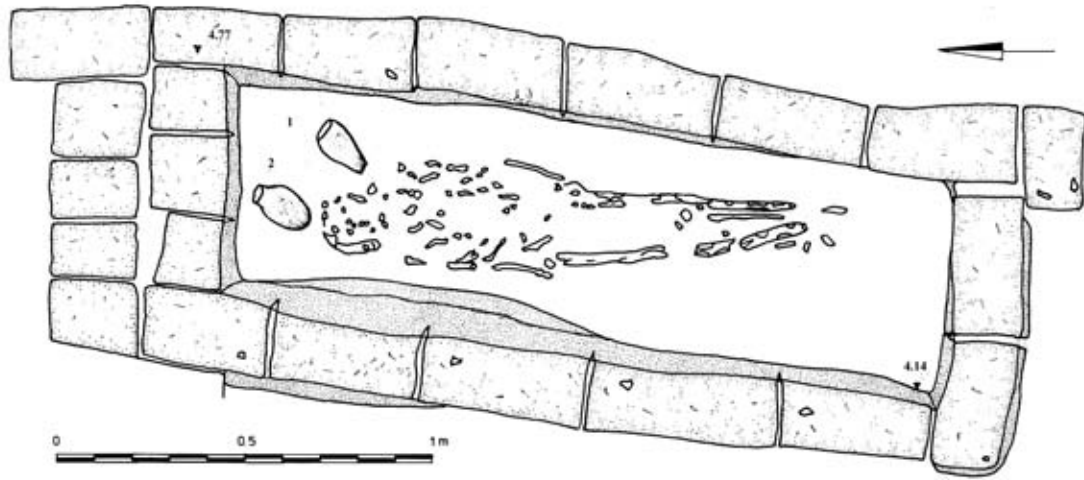
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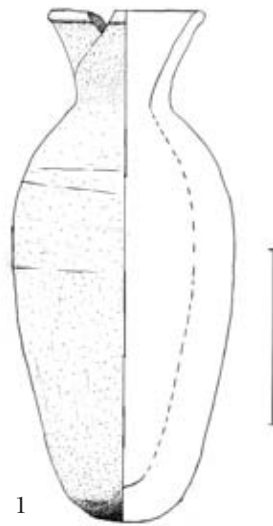
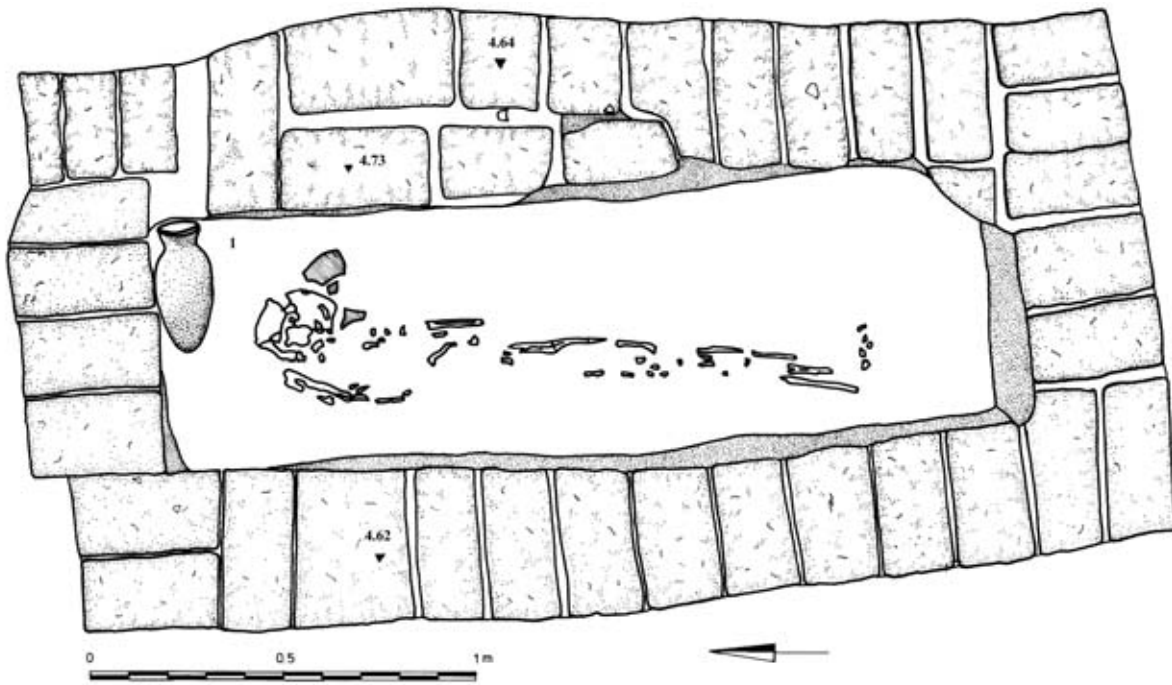
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No. 1: A 130/210	jar	12/1	> ½	25.5	-	-	13.0	-	-	2.0
I C	H 2	scraped	soft	10 R 4/8	slip	Neck missing; roundbottom; scrape marks on lower part				
No. 2: A 130/210	jar	12/2	> ½	33.7	-	-	15	-	-	2.0
I C	H 2	scraped	soft	10 R 4/6	slip	Rim damaged; round bottom; scrape marks on lower part				

Fig. 20* A 130/210, Tomb 1

* For designations see p. 172



No. I: A 130/210	jar	41	> ½	29.5	-	-	12.5	-	-	2.0
I B 1	H 1	scraped	hard	10 R 5/4	self-slip	Round bottom; scrape marks on lower part				

Fig. 21 A 130/210, Tomb 2

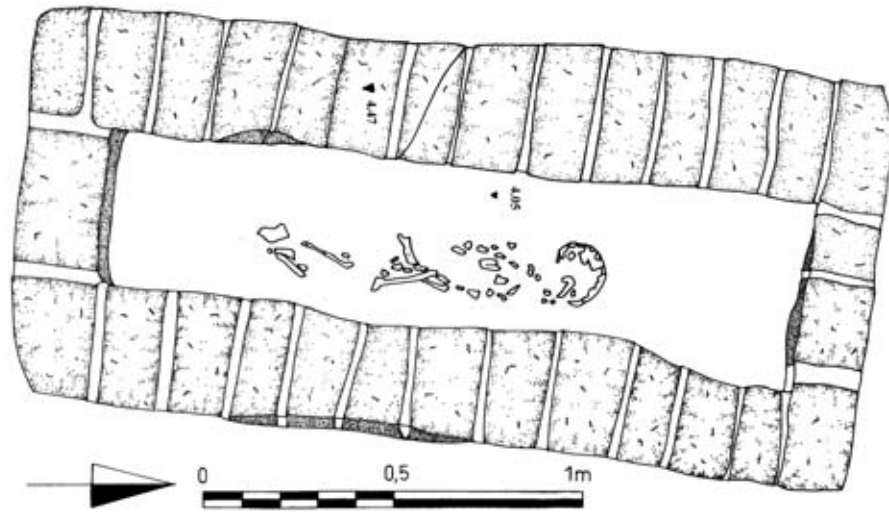
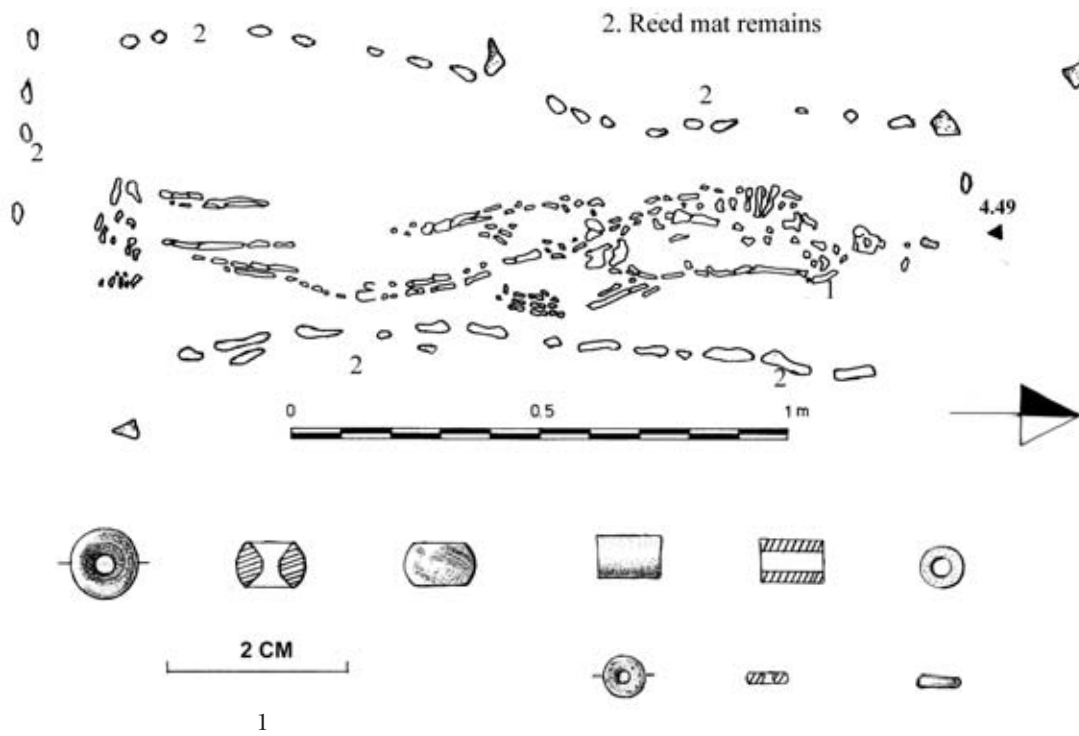
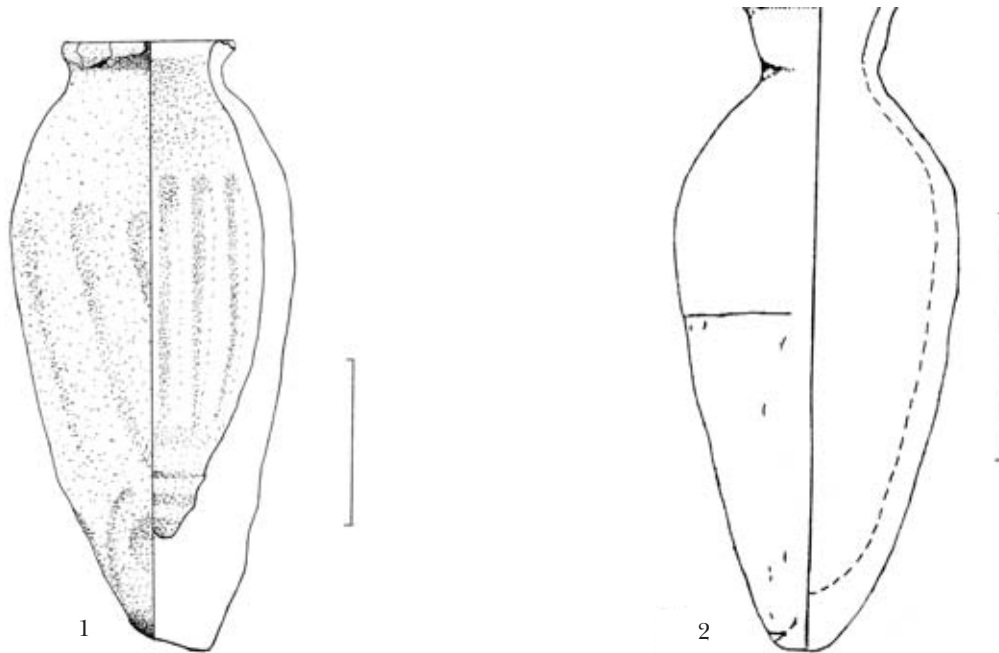
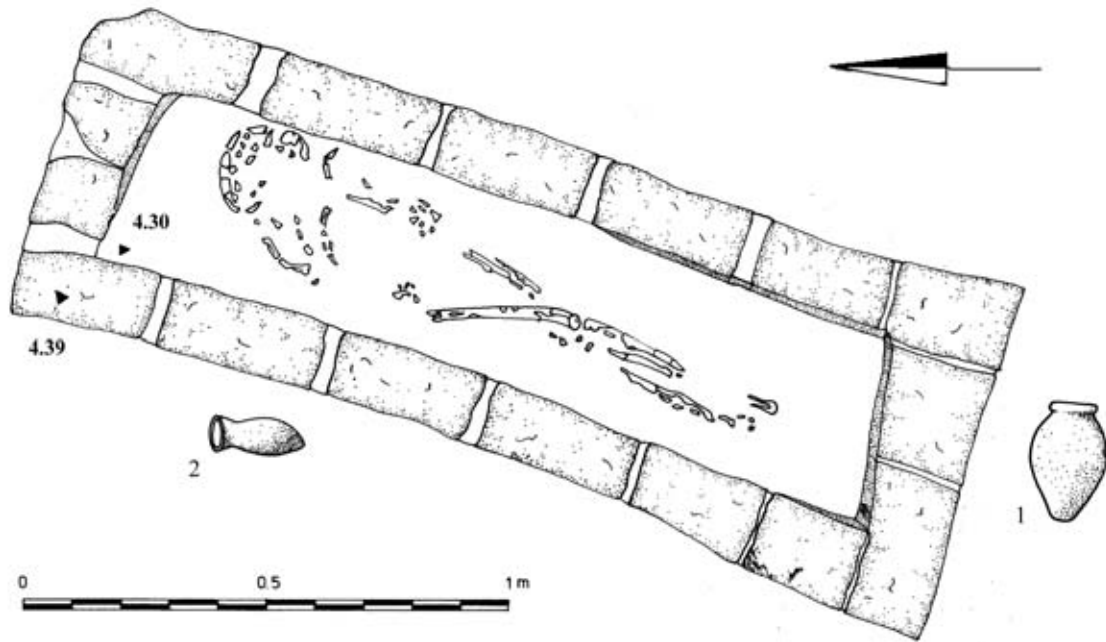


Fig. 22 A 130/210, Tomb 3



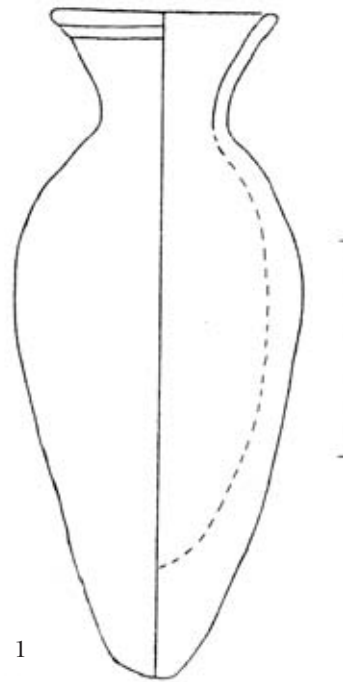
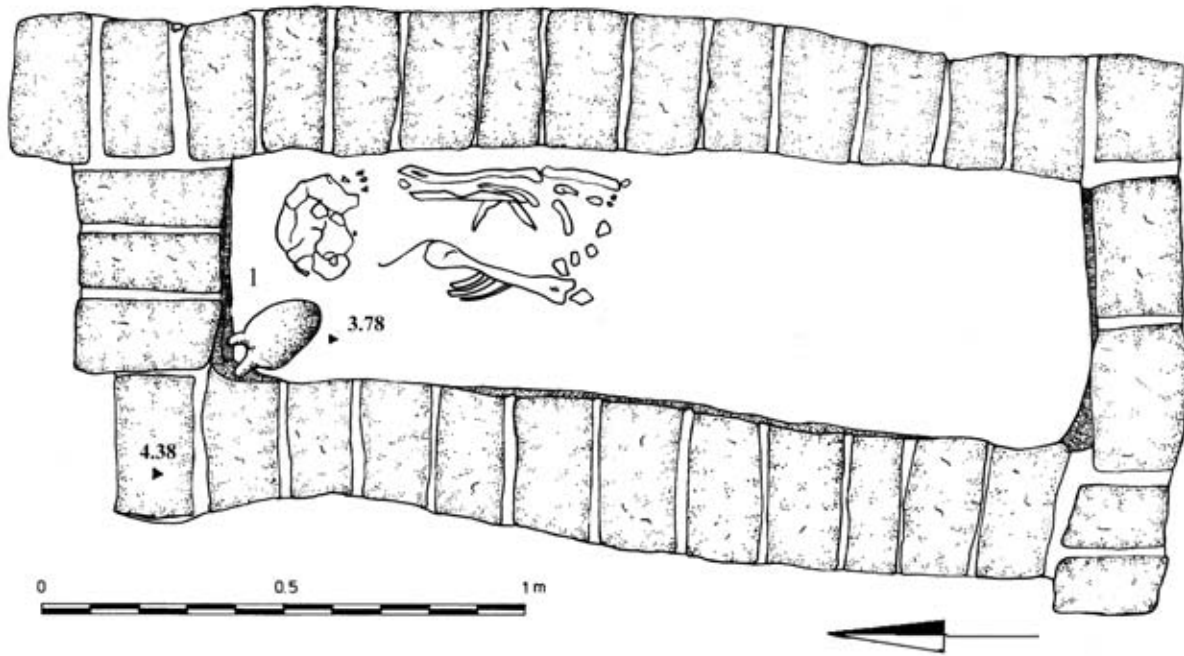
No. 1: A 130/210	beads	40	0.11	-	-	0.4-0.7	-	-	0.4-0.77
faience and carnelian		around the neck of the individual		a. 1 round bead; b. 1 tubular bead; c. 437 complete and 72 broken disk-shaped beads					

Fig. 23 A 130/210, Tomb 4



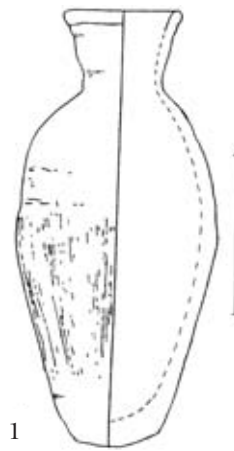
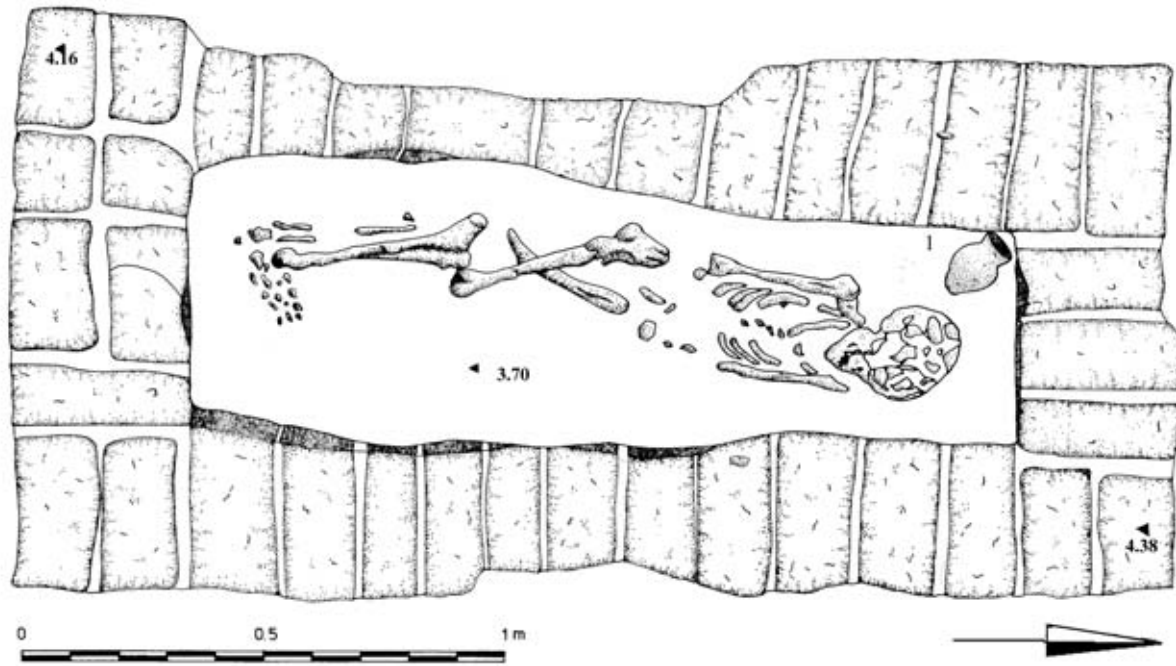
No. 1: A 130/210	jar	14	complete	28.5	-	-	12.3	7.3	-	0.7
I B 1	H 2	H	medium	2.5 YR 5/6	self-slip	Round bottom				
No. 2: A 130/210	jar	42	> 1/2	36	-	-	17	10	-	1.0
I C	H 1	H	medium	10 R 6/6	wash	Pointed jar; finger impressions on the surface				

Fig. 24 A 130/210, Tomb 5



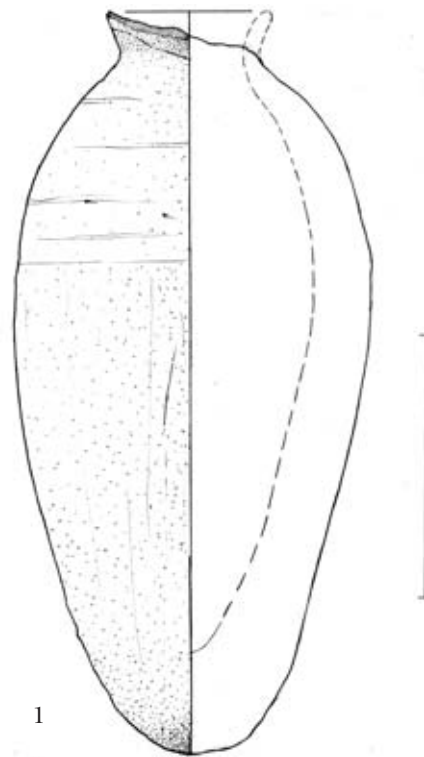
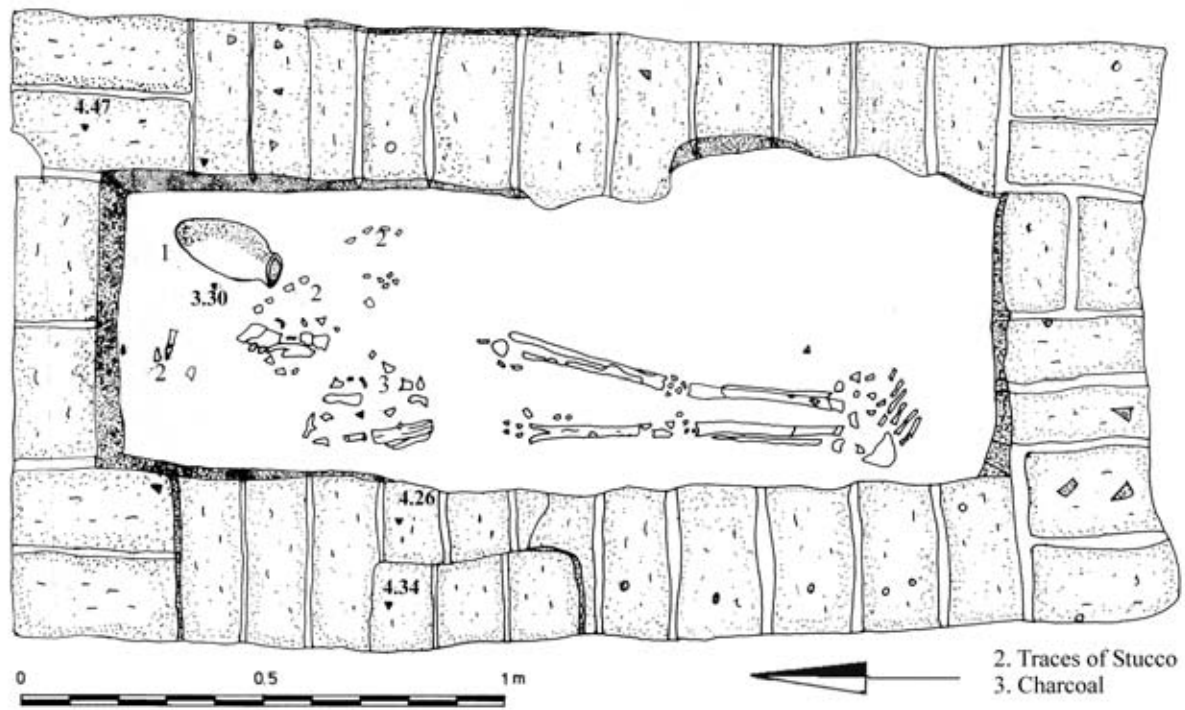
No. 1: A 130/210	jar	27	> ½	28.5	-	-	12.3	9.6	-	-
IB 2	H 2	H	soft	10 R 4/6	slip	Round bottom, surface very worn				

Fig. 25 A 130/210, Tomb 6



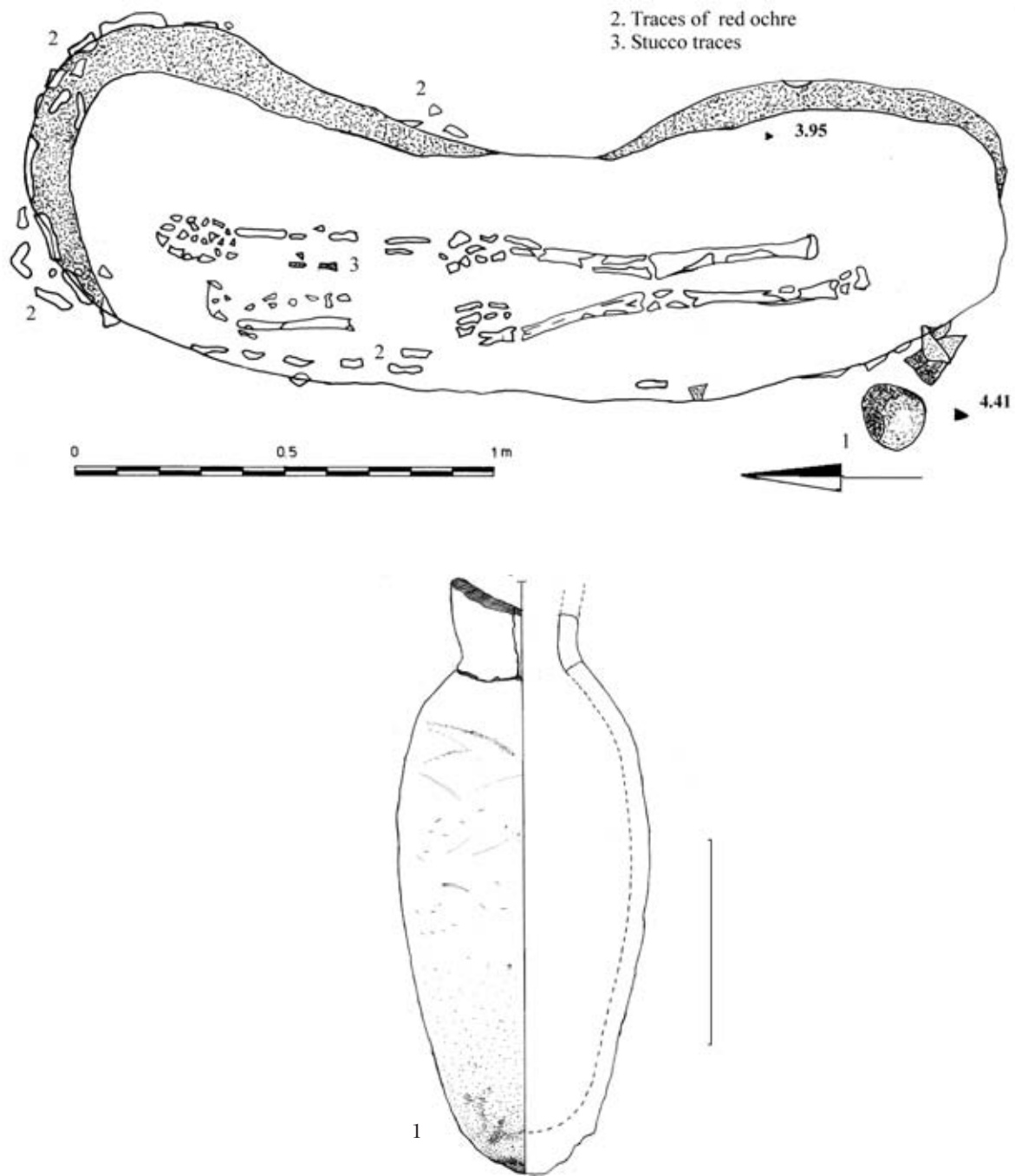
No. 1: A 130/210	jar	28	complete	28	-	-	13.0	8.0	-	1.0
1 B 1 H 2	H	hard	10 R 5/6	self-slip	Round bottom; vertical scrape marks. black stains					

Fig. 26 A 130/210, Tomb 7



No. I: A 130/210	jar	43	> 1/2	28	-	-	14.0	5.0	-	1.0
I B 1	H 2	scraped	hard	10 R 5/6	self-slip	Scrape marks visible; white crusts and black stains on one side				

Fig. 27 A 130/210, Tomb 8



No. 1: A 130/210	jar	37	> ½	28.1	-	-	12.1	7.0	-	1.0
IB 1	H 2	scraped	soft	7.5 YR 7/6	slip	Pointed jar; scrape marks and worn surface				

Fig. 28 A 130/210, Tomb 9

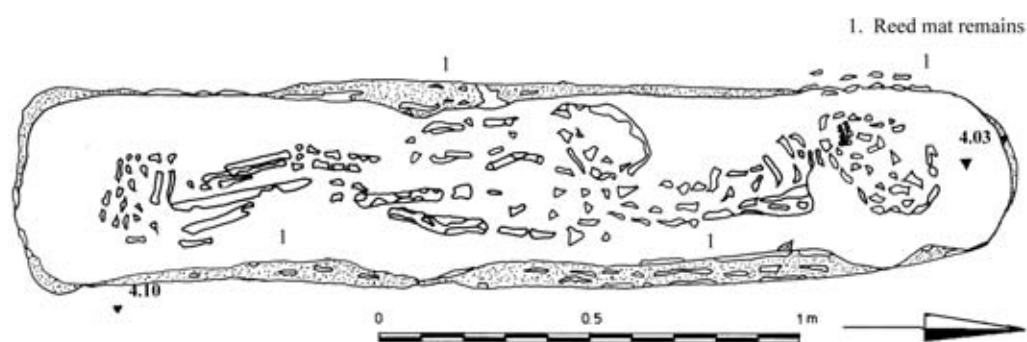
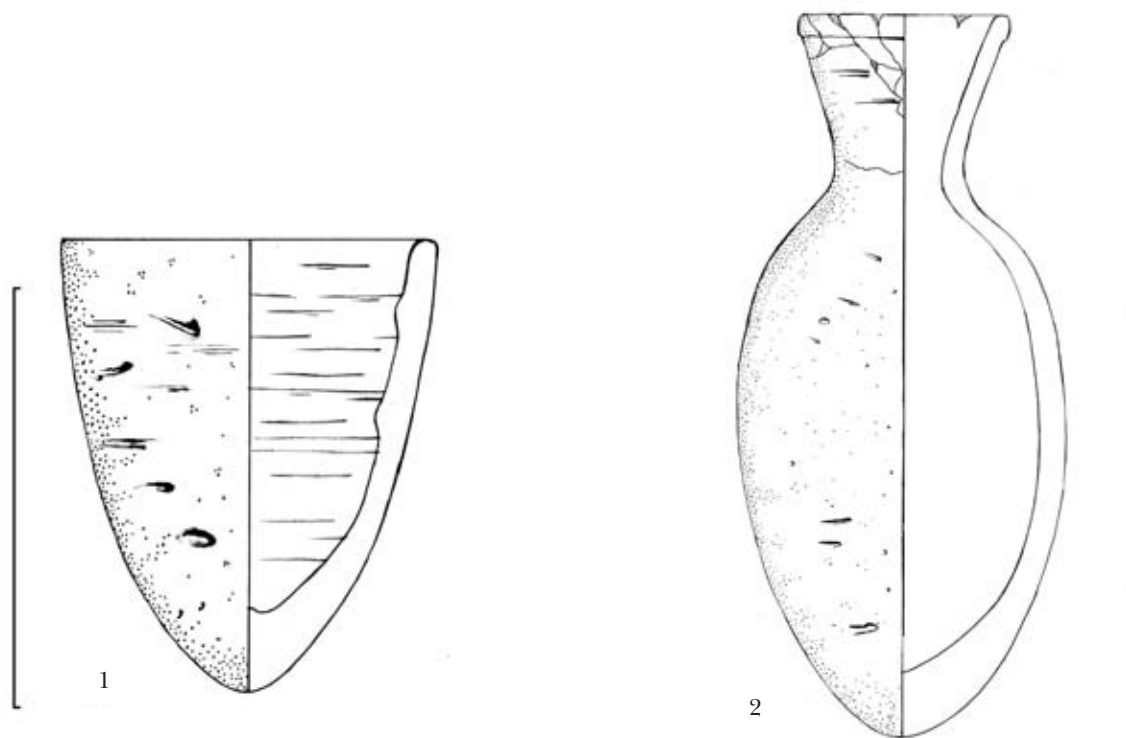
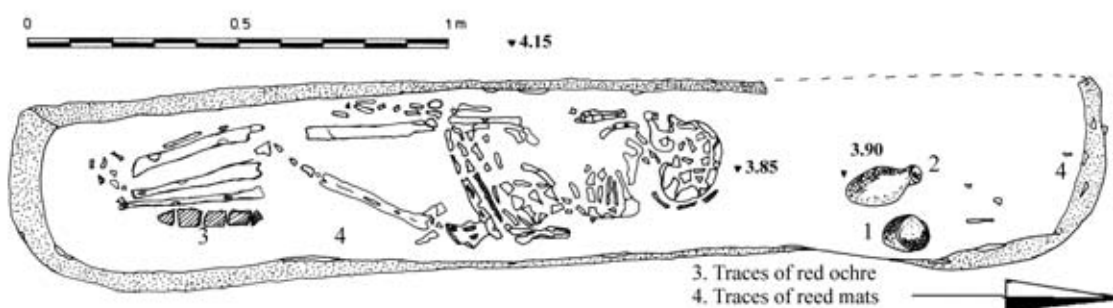


Fig. 29 A 130/210, Tomb 10



No. 1: A 130/210	cup	60	complete	10.8	-	-	8.8	-	-	0.7
I B 1	H 2	H	soft	10 R 4/6	slip	Conical shape with pointed bottom; somewhat irregular				
No. 2: A 130/210	bottle	61	complete	25.7	-	-	14.5	-	-	7.6
I B 1	H 2	scraped	soft	2.5 YR 5/4	slip	Water bottle type, with vertical scrape marks				

Fig. 30 A 130/210, Tomb 11

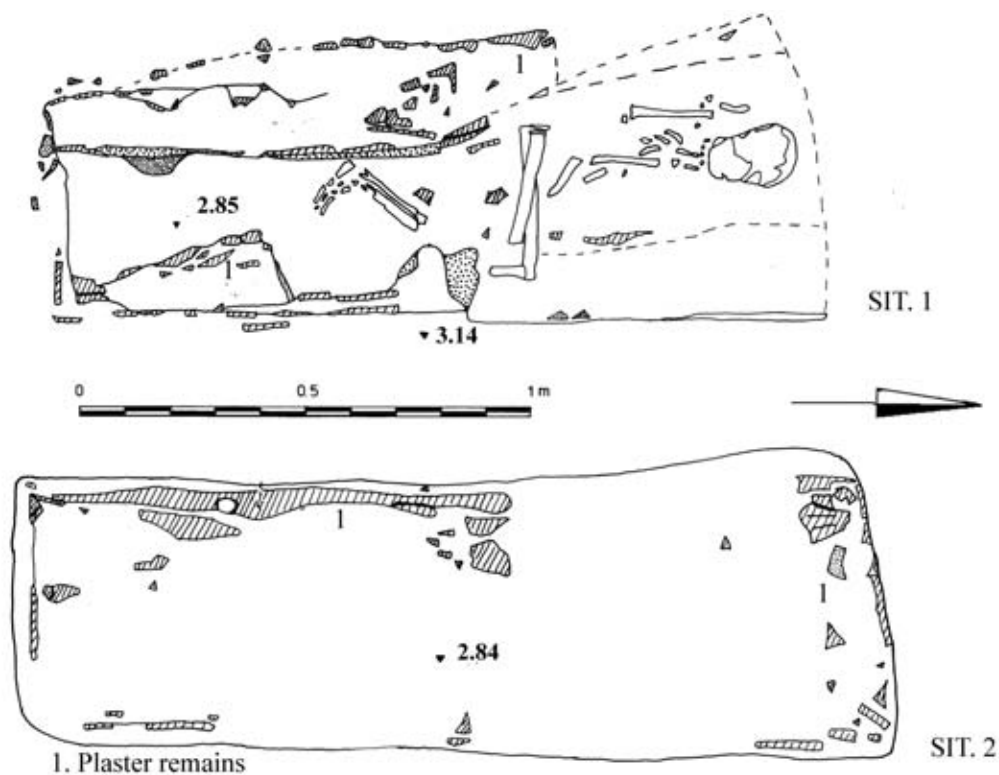
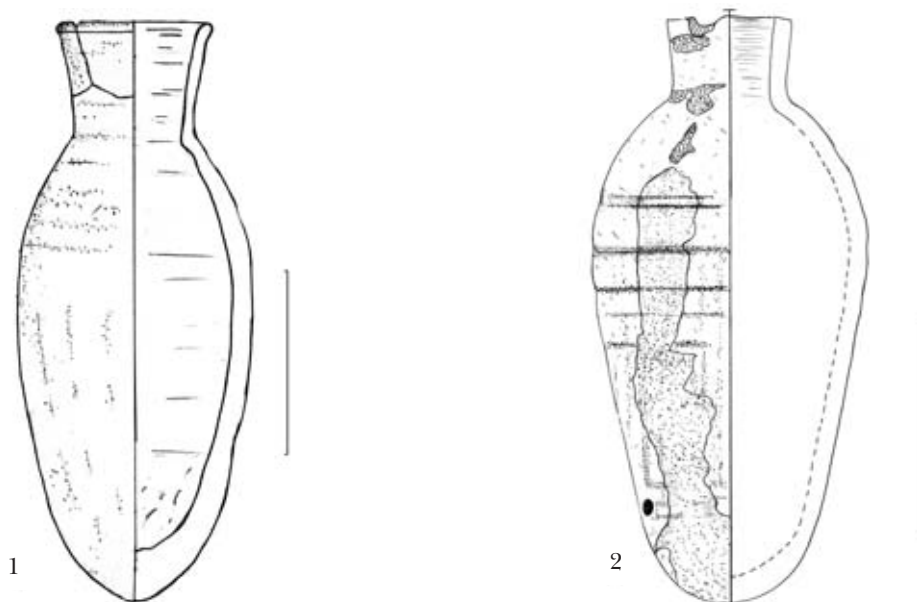


Fig. 31 A 130/210, Tomb 20



No. 1: A 130/220	bottle	3	complete	31.6	-	-	12.5	8.0	-	0.8
I B 2	H 2	H	soft	10 R 5/6	slip	Elongated ovoid body, wide flaring rim with narrow neck; crusted				
No. 2: A 130/220	bottle	8	> ½	29.7	-	-	16	-	-	0.8
I B 2	H 2	H	soft	10 R 4/6	slip	Flaring rim with narrow neck				

Fig. 32a A 130/220, Tombs 4 & 5

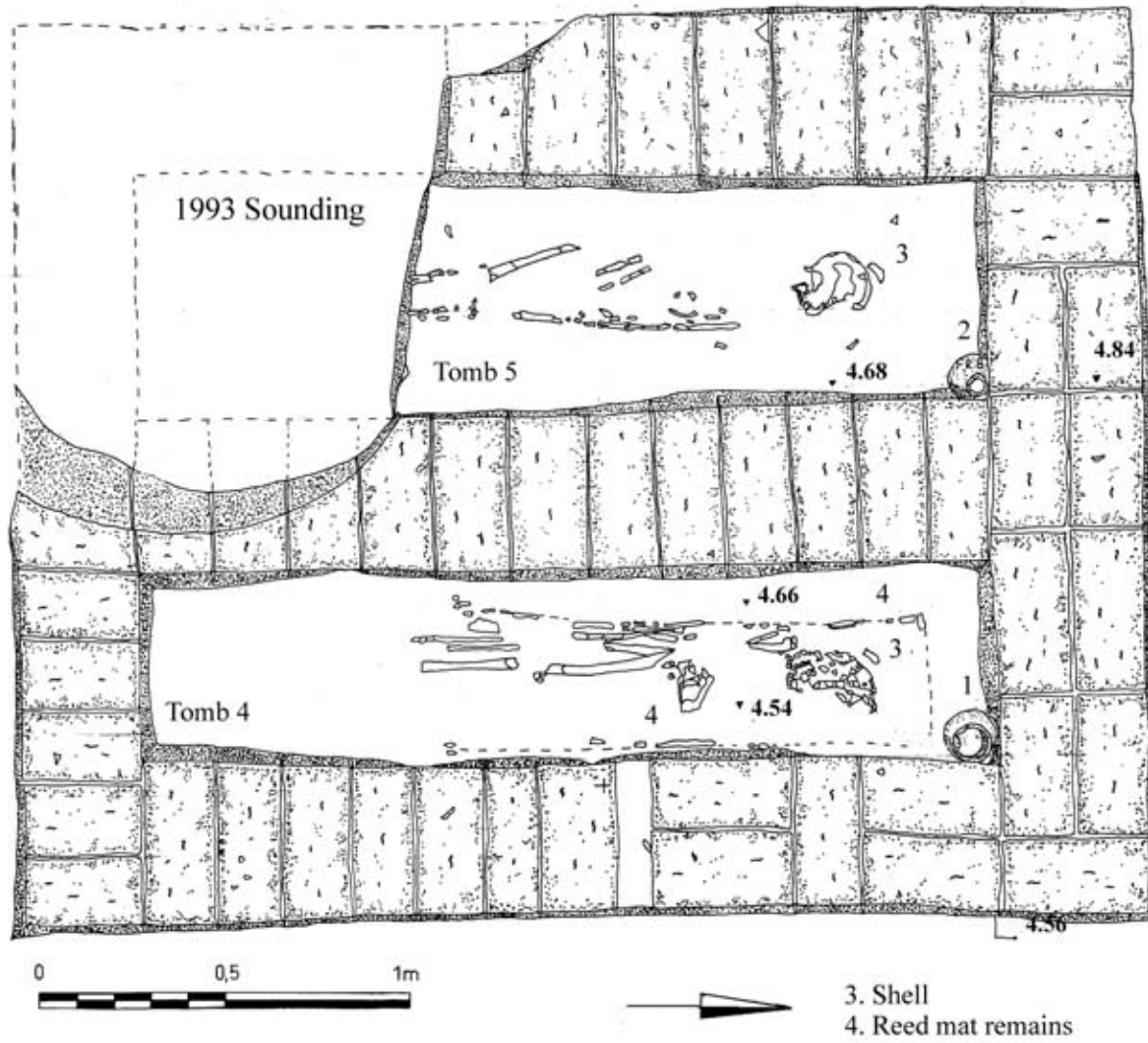
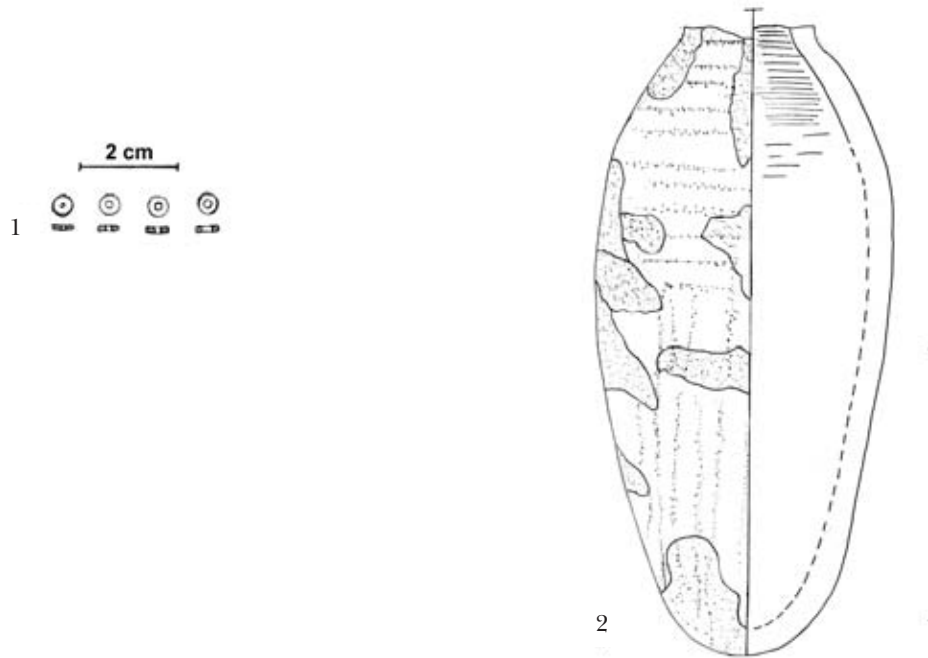
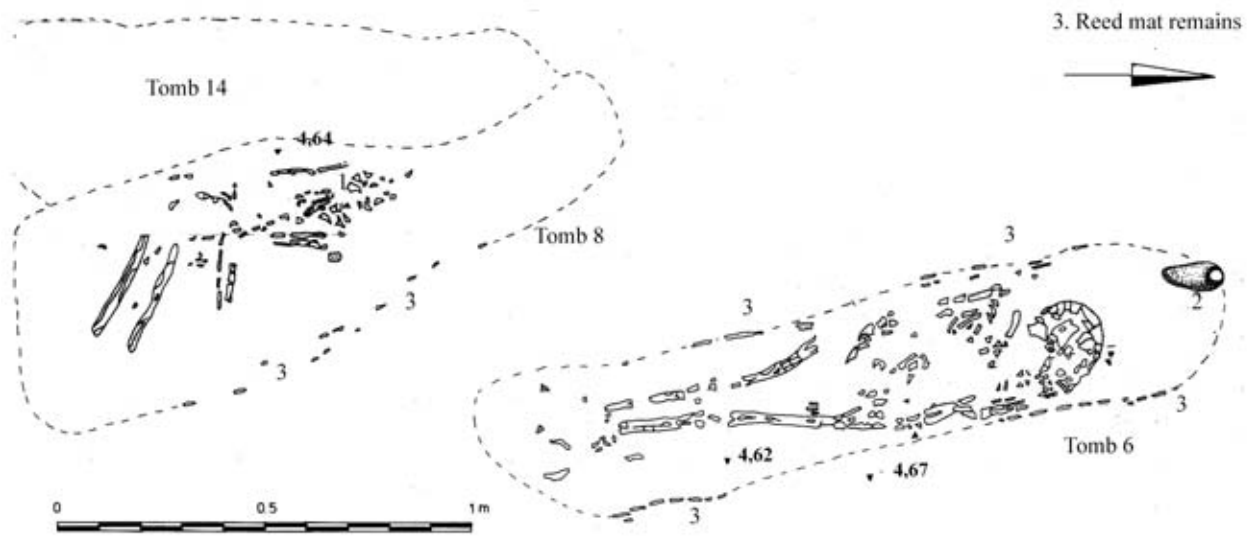


Fig. 32b A 130/220, Tombs 4 & 5



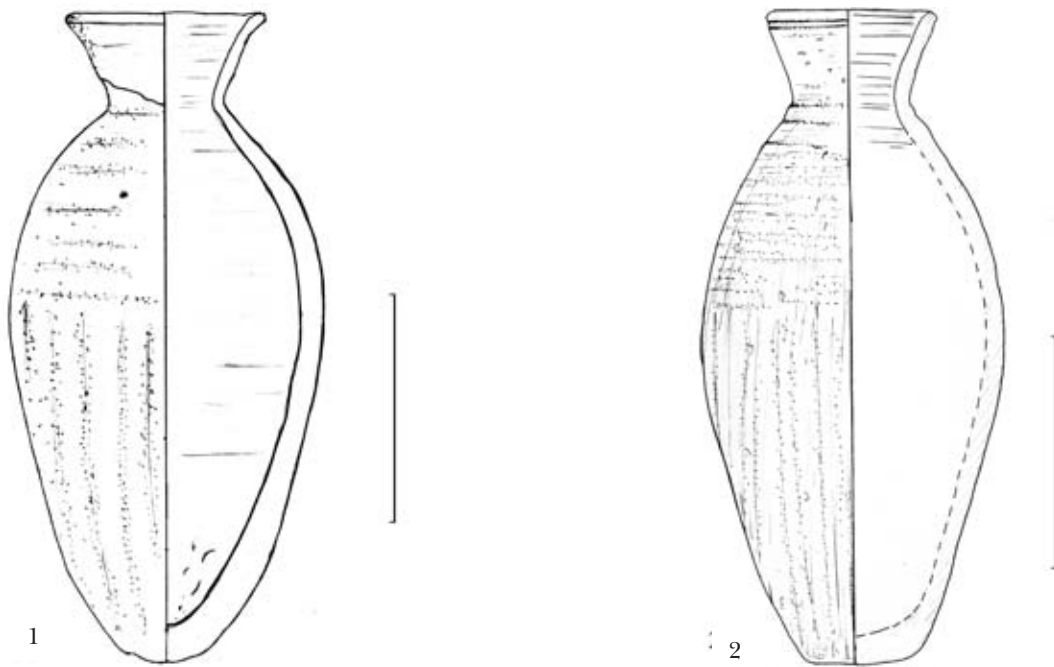
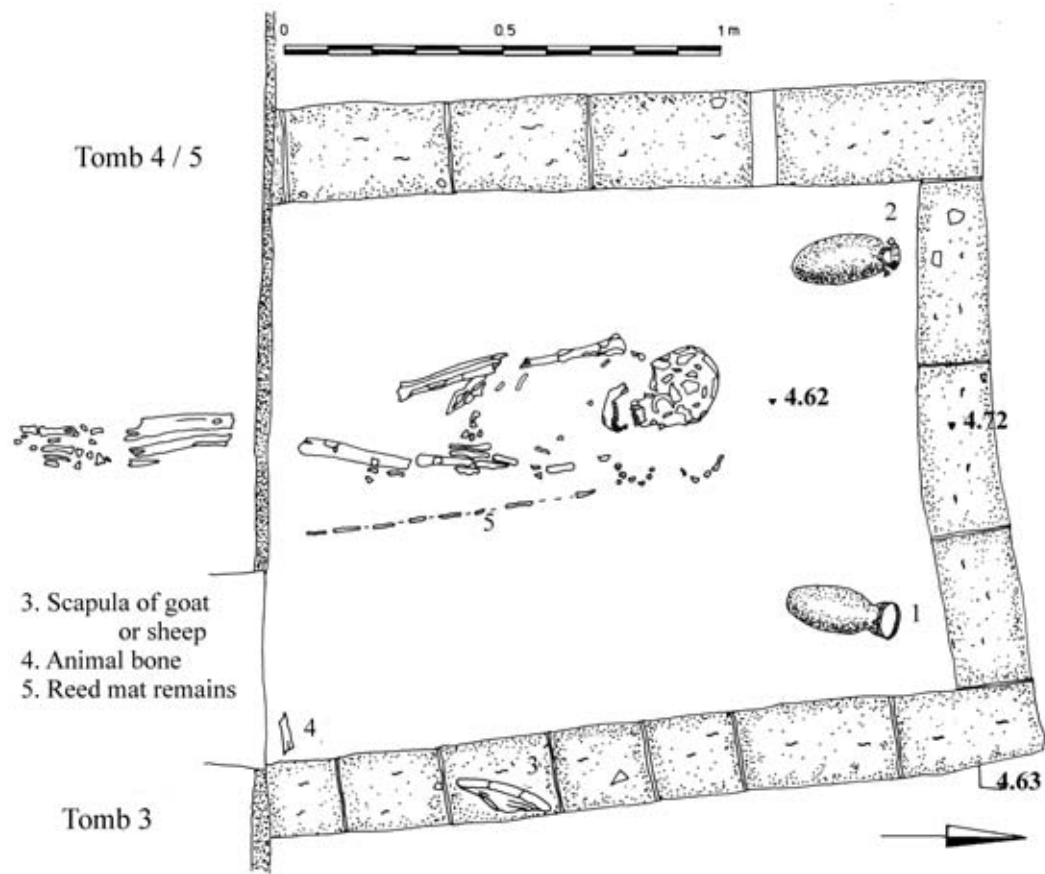
No. 1: A 130/220	bottle	5	> ½	23.5	-	-	11.5	-	-	0.7
I B 2	H 2	H	medium	10 R 5/6	slip	Flaking surface; traces of use				

A 130/220, Tomb 6

No. 1: A 130/220	beads	24	0.1	-	-	0.2					
faience	around the neck of the individual worn disk beads										

A 130/220, Tomb 8

Fig. 33 A 130/220, Tombs 6 & 8



No. 1: A 130/220	bottle	17	complete	28.9	-	-	13.5	8.5	-	0.8
IB 1	H 2	H	soft	10 R 5/6	slip	Vertical scrape marks on the lower				
No. 2: A 130/220	bottle	18	complete	29	-	-	12.5	8.0	-	0.6
IB 1	H 2	H	hard	10 R 5/6	slip					

Fig. 34 A 130/220, Tomb 7

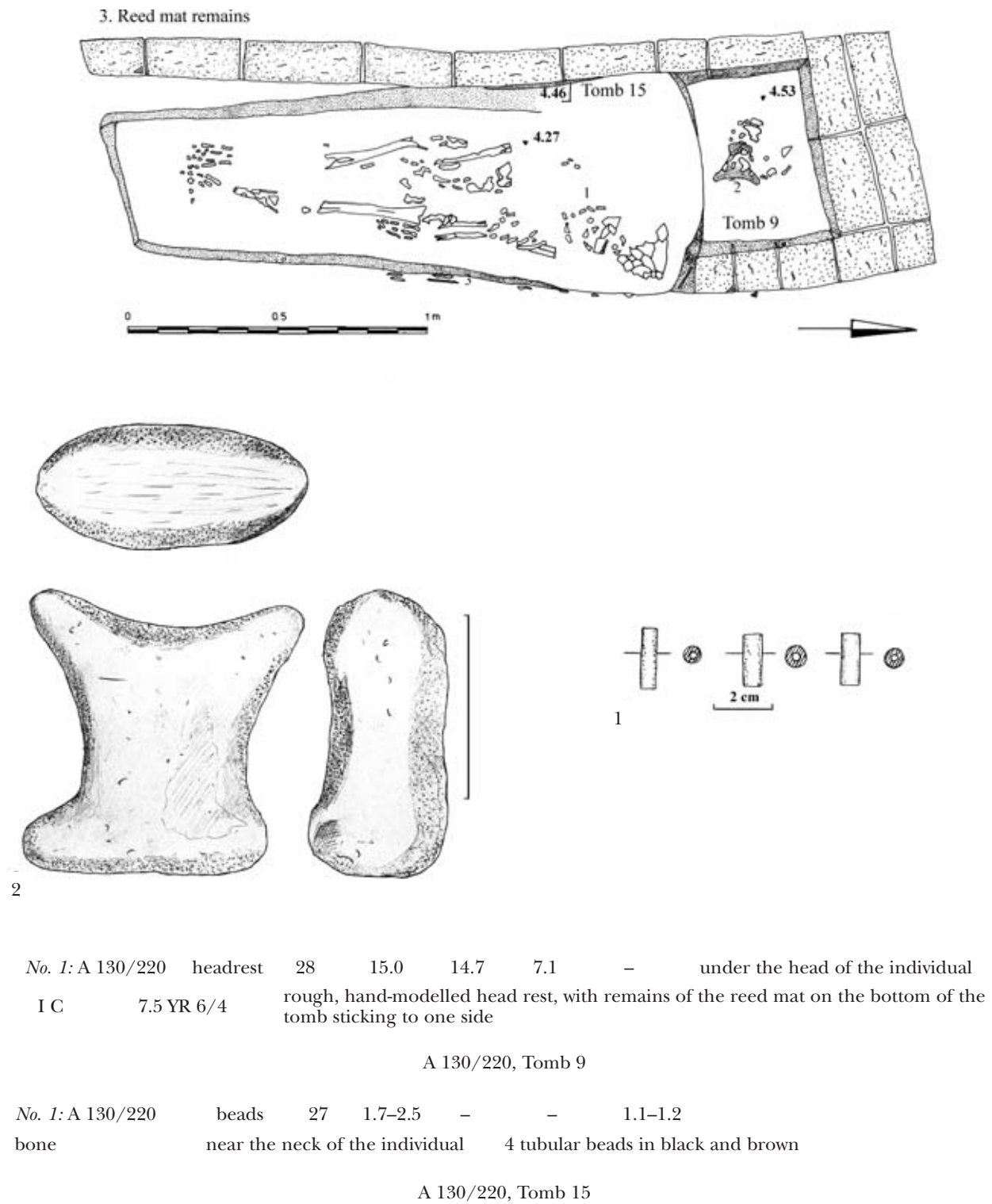
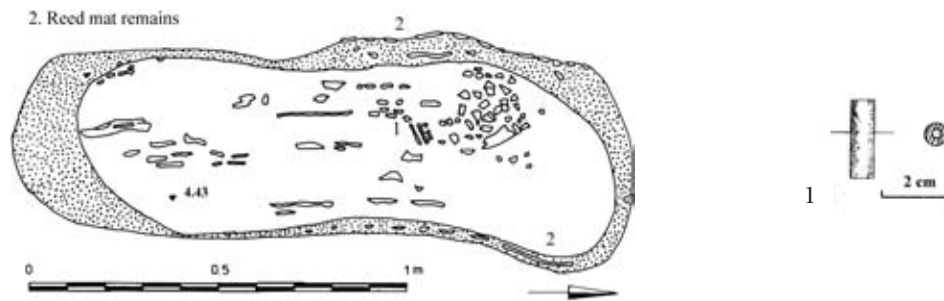
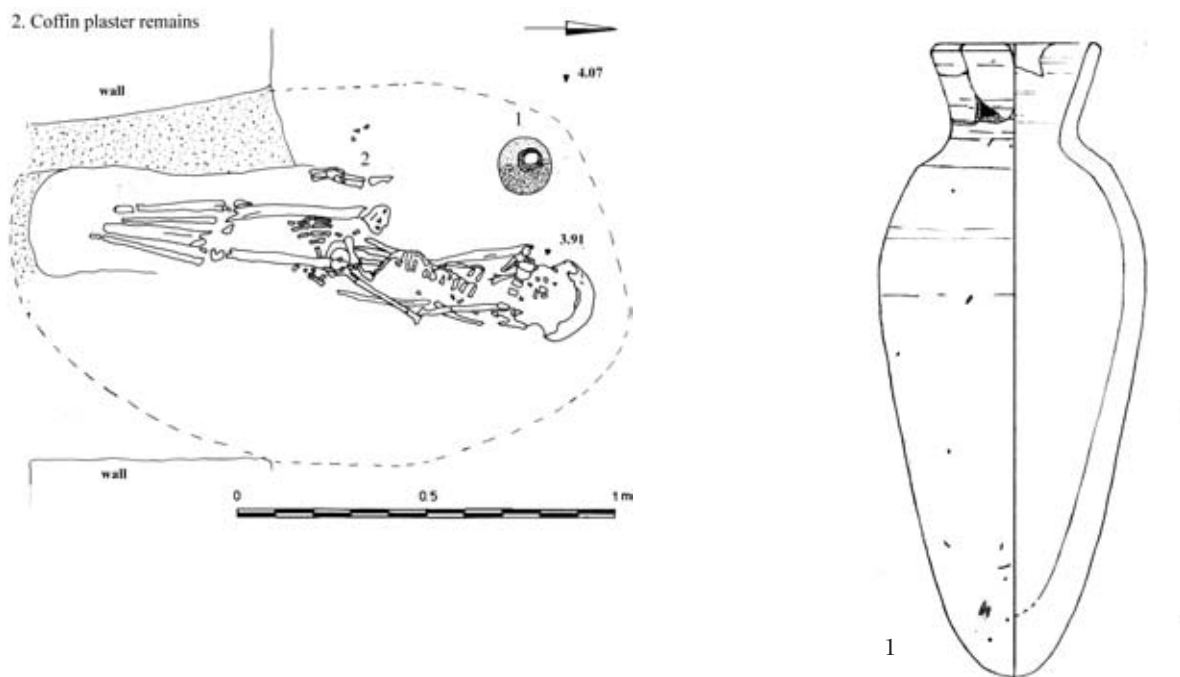


Fig. 35 A 130/220, Tombs 9 & 15



No. 1: A 130/220 bead 25 2.3 - - 0.6
 bone near the neck of the individual tubular bead in black and red

Fig. 36 A 130/220, Tomb 13



No. 1: A 130/210 jar 87 complete 31.1 - - 13 8.8 - 0.7
 I B 2 W 1 H medium 2.5 YR 5/6 slip 'Water bottle' with flaring rim and round bottom

Fig. 37 A 130/220, Tomb 23

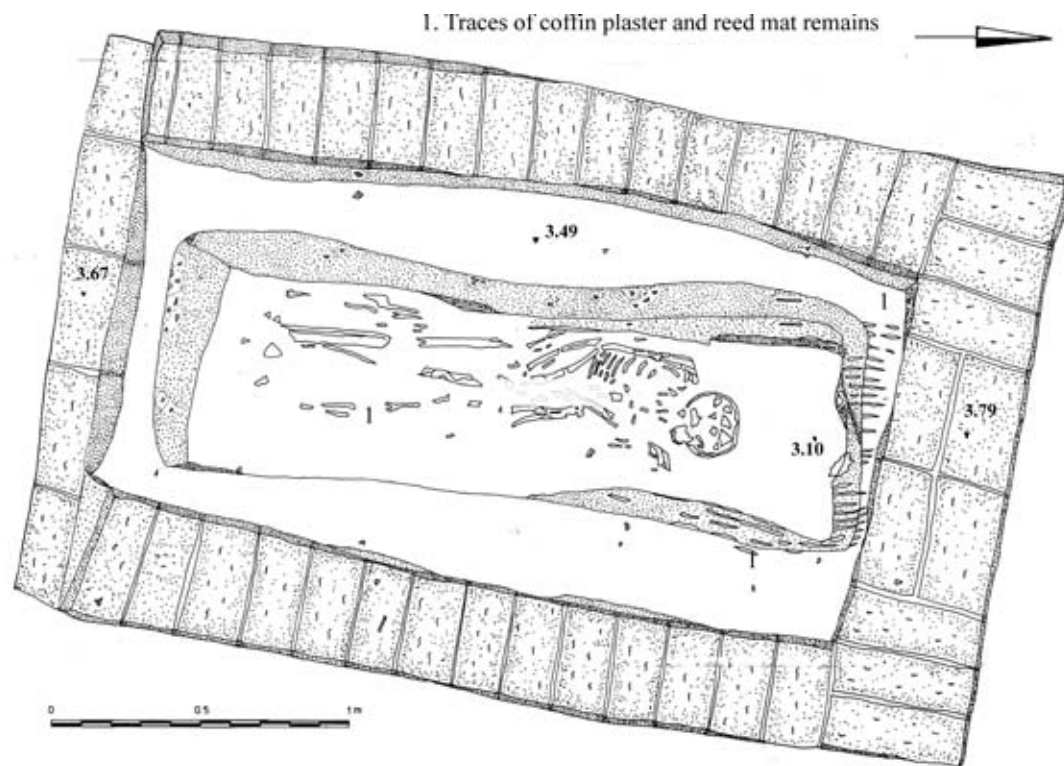
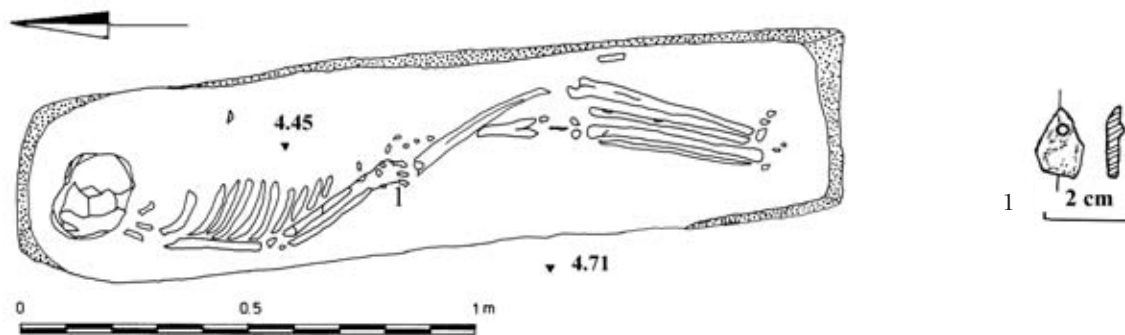
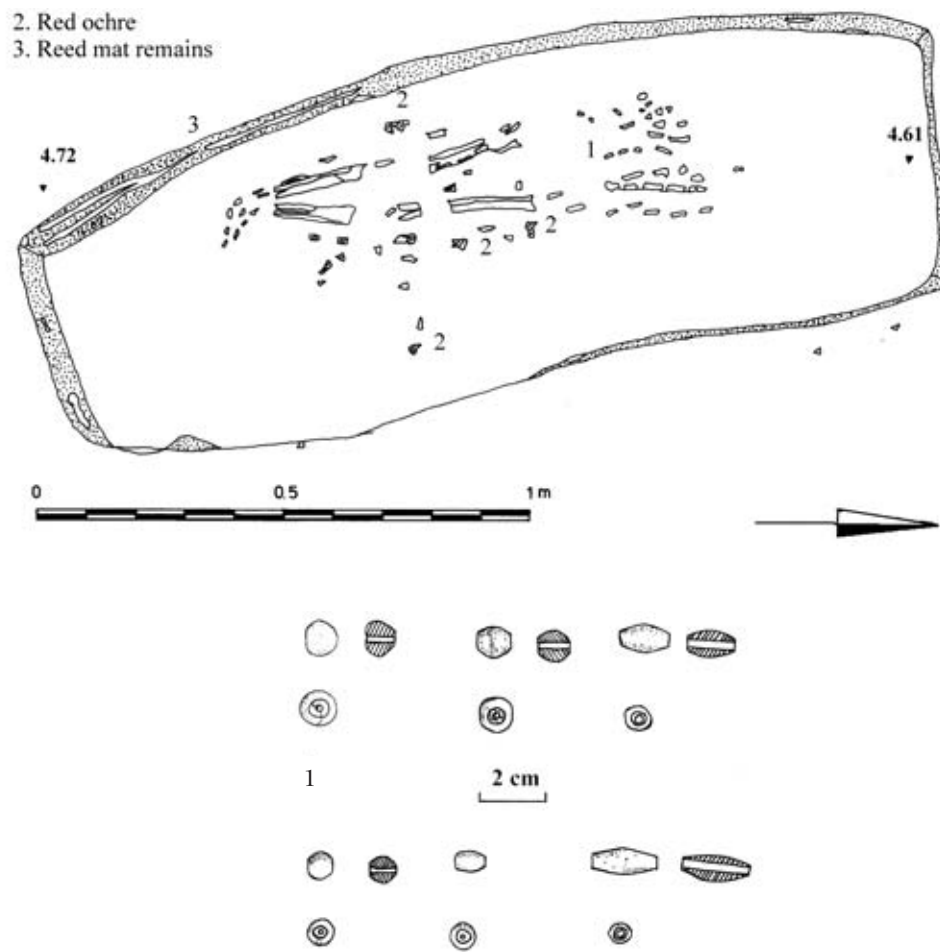


Fig. 38 A 130/220, Tomb 24



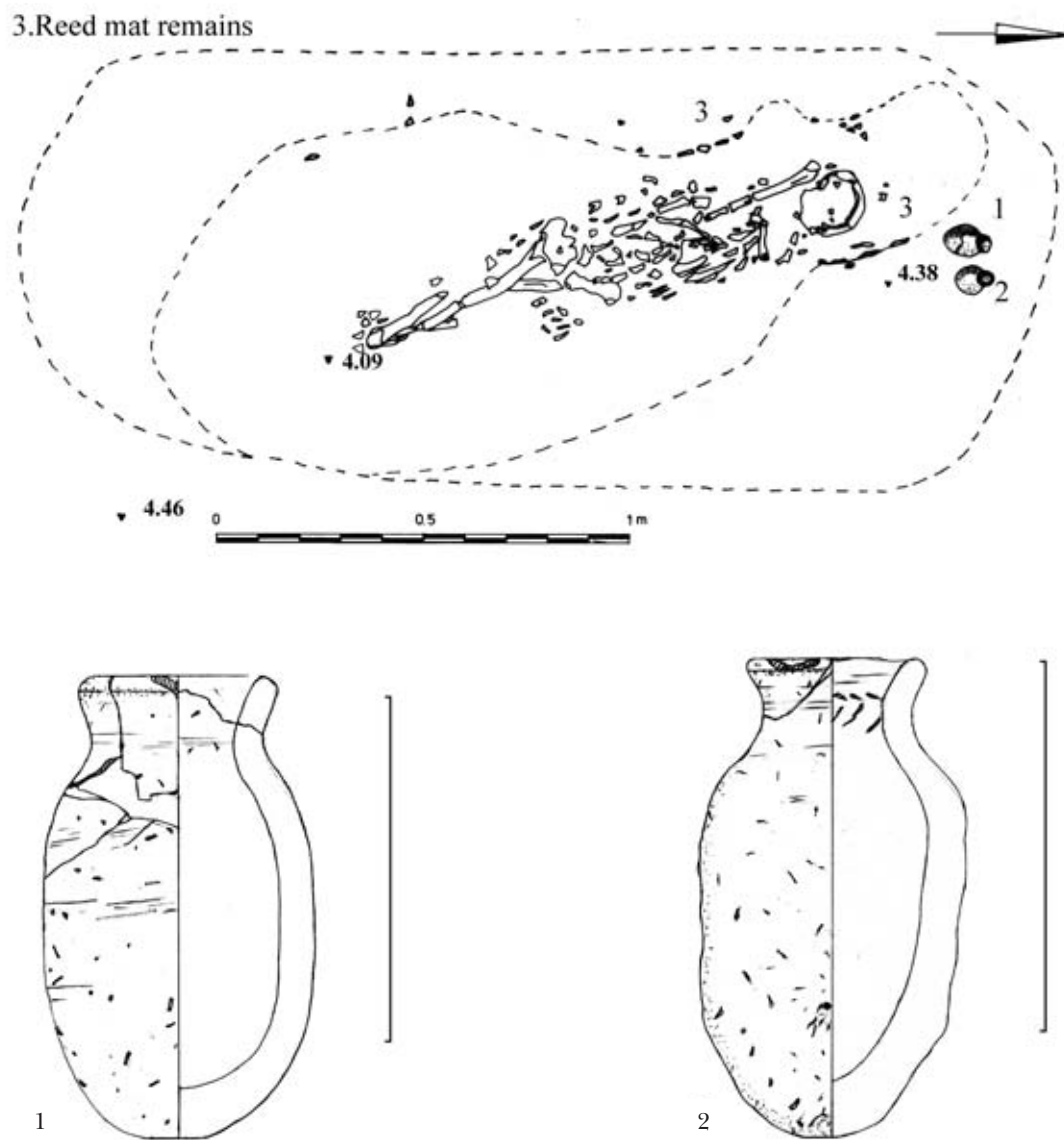
No. 1: A 130/230 ring bezel 4 1.1 1.6 0.2 -
 bronze on the ring finger of the right hand lozenge-shaped, unadorned bezel, one tip broken off; corroded

Fig. 39 A 130/230, Tomb 1



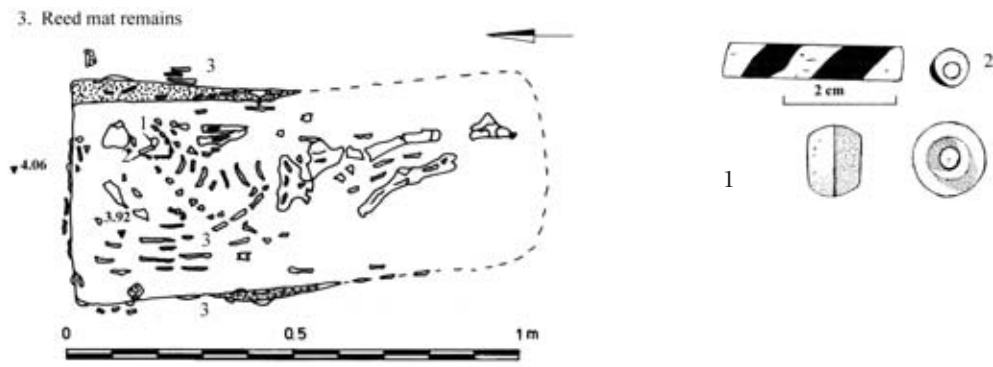
No. 1: A 130/230 beads 10 7 globular faience beads (0.9–1.0) 1 ovoid faience bead (1.3–0.9)
 1 convex bone bead (0.9–0.7) 2 small biconical faience beads (1.4–0.8) 3 big biconical faience beads (1.9–0.7)
 1 big biconical bone bead (2.1–0.7) near the pelvis of the individual

Fig. 40 A 130/230, Tomb 4



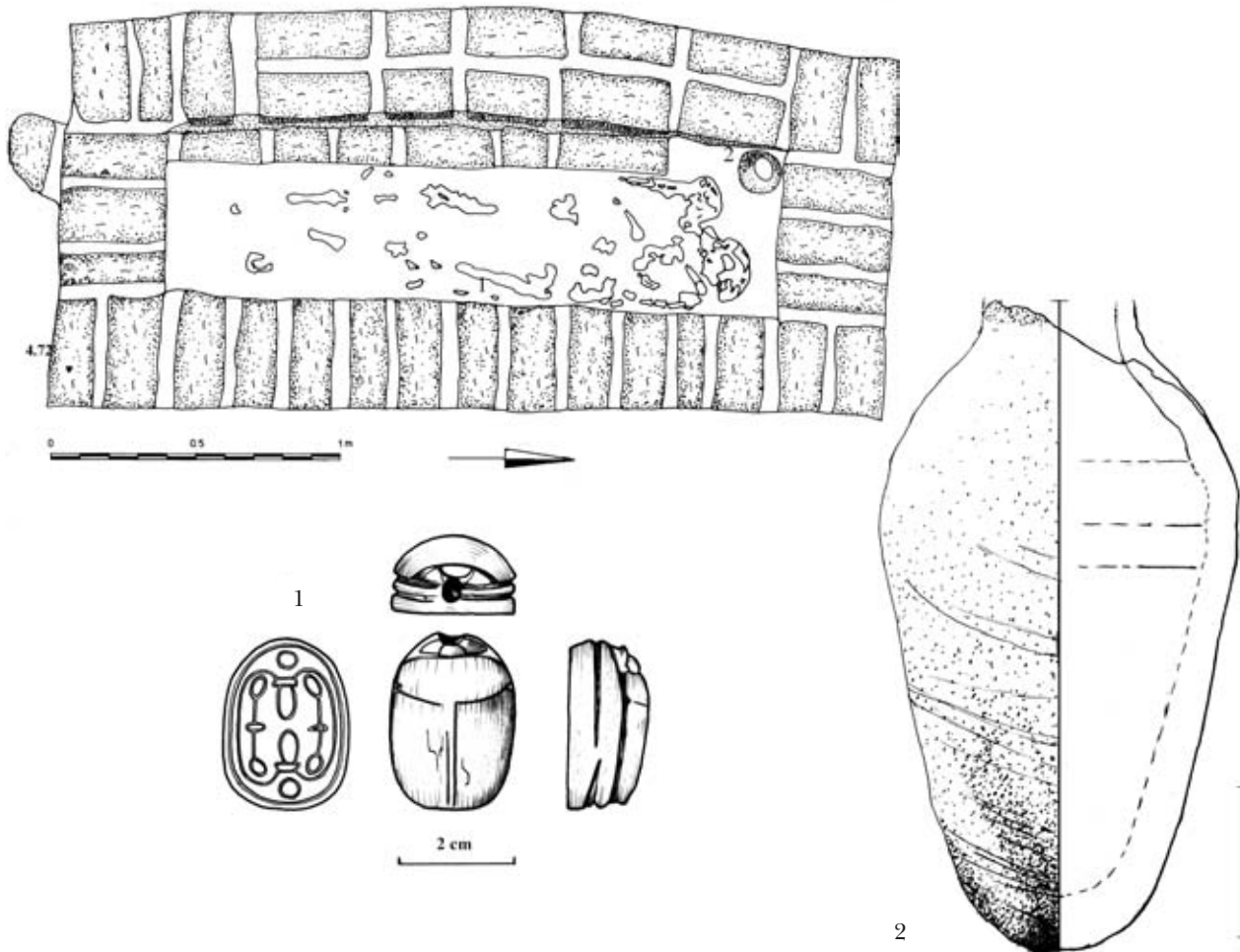
No. 1: A 130/230	jug	36	complete	13.4	-	-	7.4	5	2.5	0.8
I B 1	H 2	scraped	soft	5 YR 6/6	slip	Round bottom (but can stand upright), flaring rim. Curious coating inside, probably due to contents				
No. 2: A 130/230	jug	37	complete	12.9	-	-	7.3	4.9	-	0.7
I B 1	H 2	H	soft	5 YR 5/6	slip	Round bottom with flaring rim; fish and rodent bones found within				

Fig. 41 A 130/230, Tomb 11



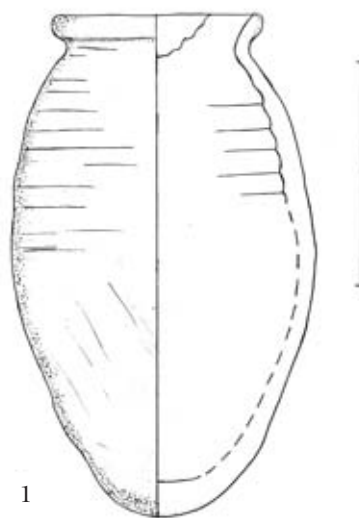
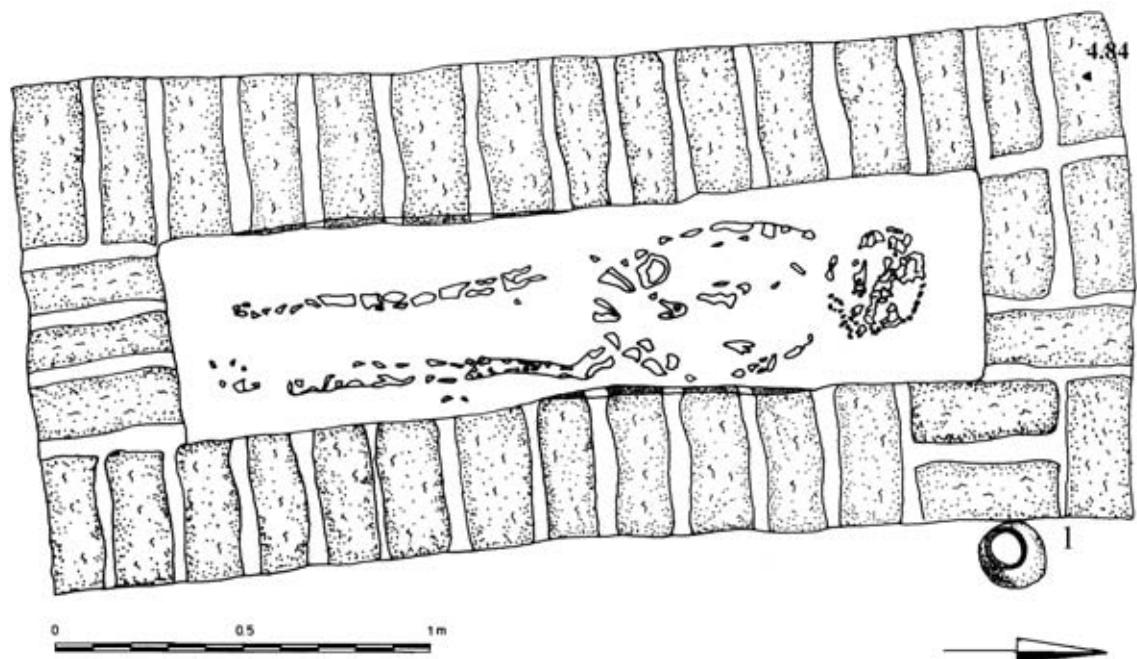
No. 1: A 130/230	bead	51/1	0.9	-	-	1.3
	carnelian	1	biconical squat bead, slightly			chipped
No. 2: A 130/230	bead	51/2	3.2	-	0.7	
	bone		near the neck of the individual			spiral decoration in brown

Fig. 42 A 130/230, Tomb 13



No. 1: A 140/210	scarab	7/2	1.5	1.1	0.7	-			
	steatite		on the left hand of the individual						scarab with (probably) <i>htm</i> -decoration ¹²
No. 2: A 140/210	jar	7/1	-	complete	21.0	-	-	12.0	-
IB 2	H 1	H	soft	2.5 YR 56/6	self-slip				Round base with scrape marks and finger impressions

Fig. 43 A 140/210, Tomb 1



No. 1:	A 140/210	jar	10	complete	22.6	-	-	13.3	9.1	-	-	0.6
I B 1	W 1	scraped off	hard	5 YR 5/4	slip	Round bottom						

Fig. 44 A 140/210, Tomb 2

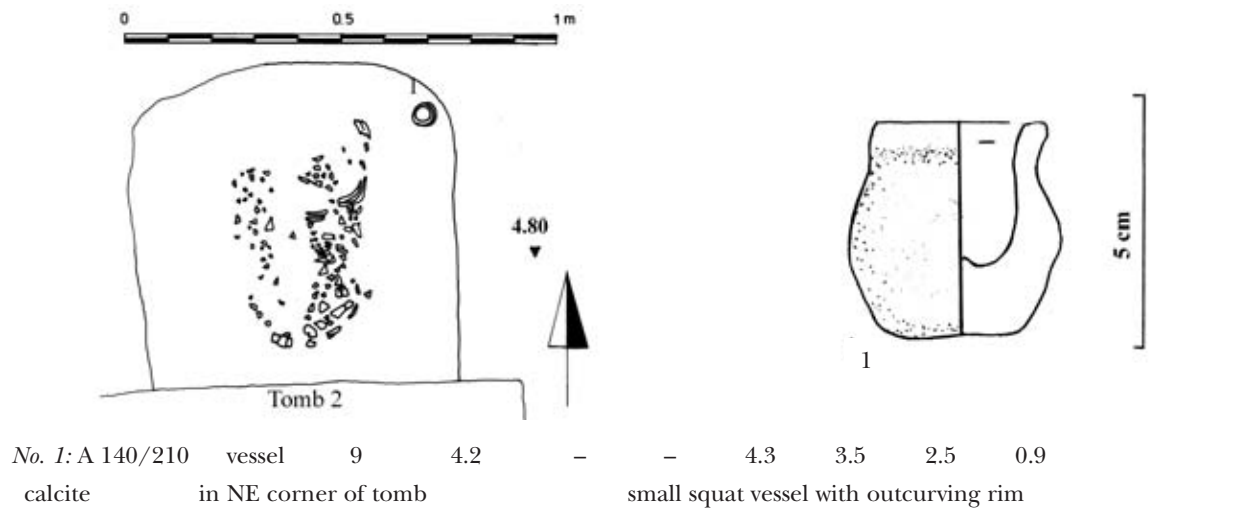


Fig. 45 A 140/210, Tomb 3

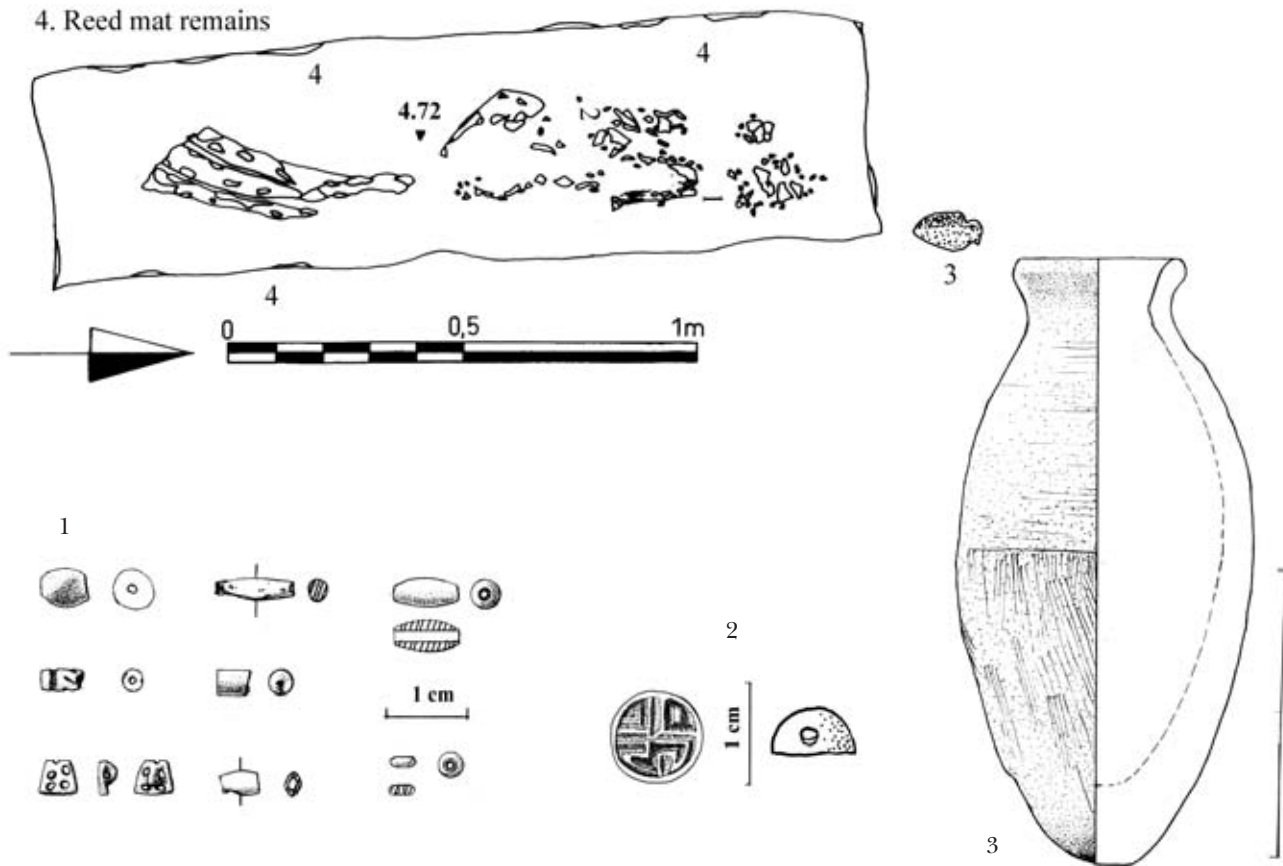
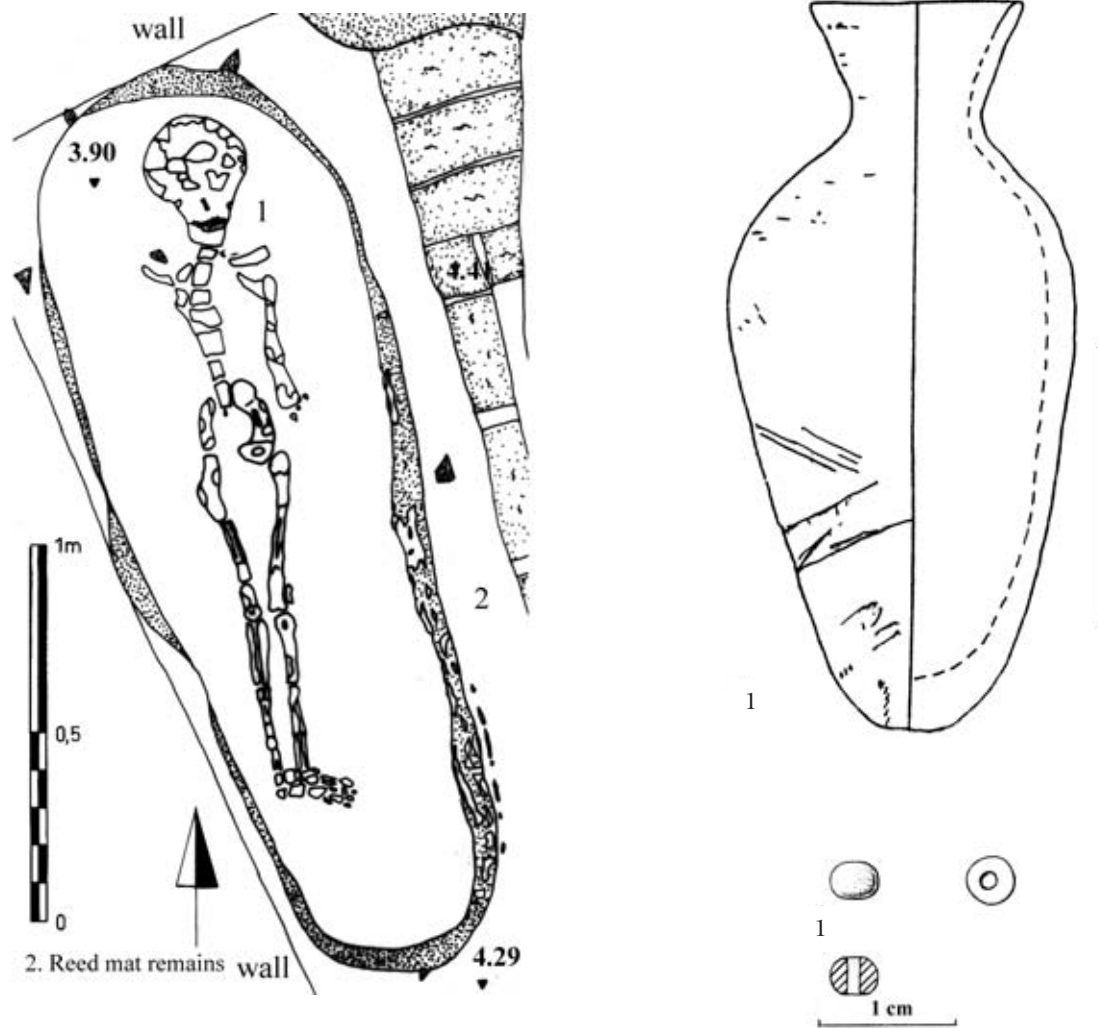


Fig. 46 A 140/210, Tomb 4



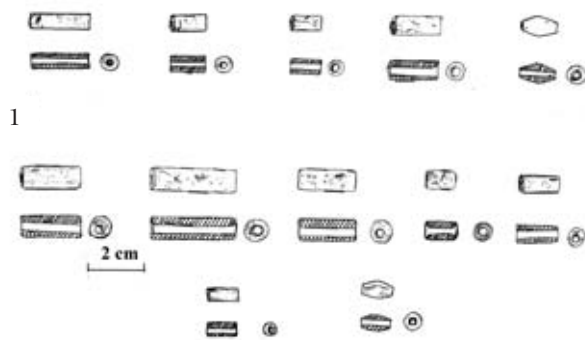
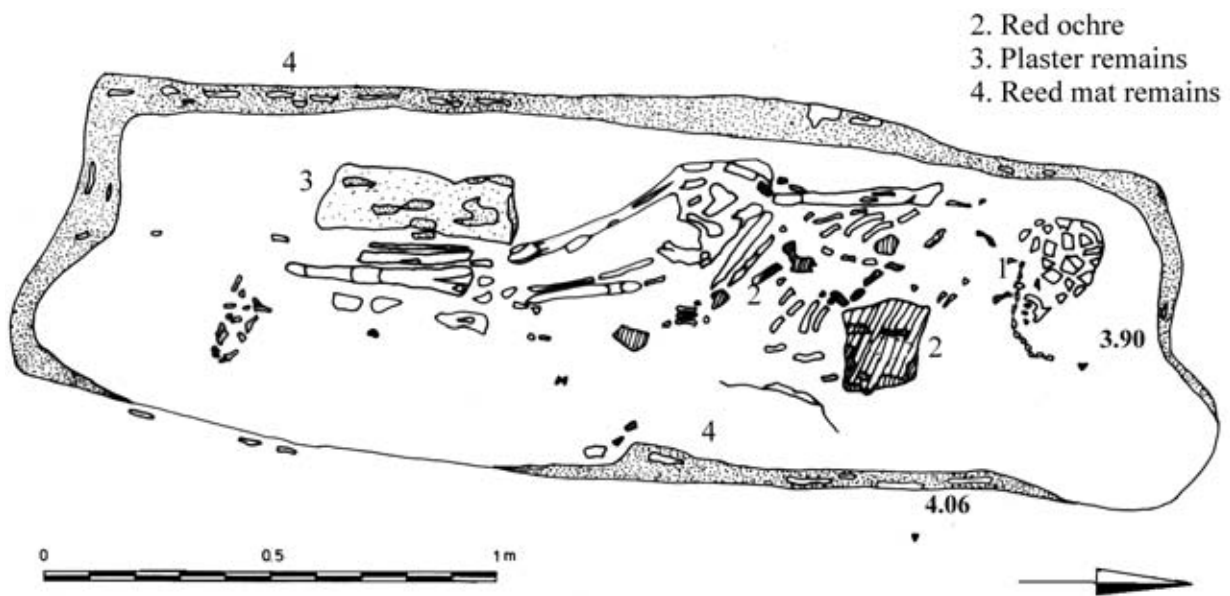
No. 1: A 130/210 jar 24 complete 26.9 - - 12.5 7.7 - 0.6
 I B 1 H 2 scraped off medium 5 YR 5/6 natural round bottom

A 140/210, Tomb 6

No. 1: A 140/210 bead 63 0.9 - - 0.6
 faience under the chin of the individual globular bead

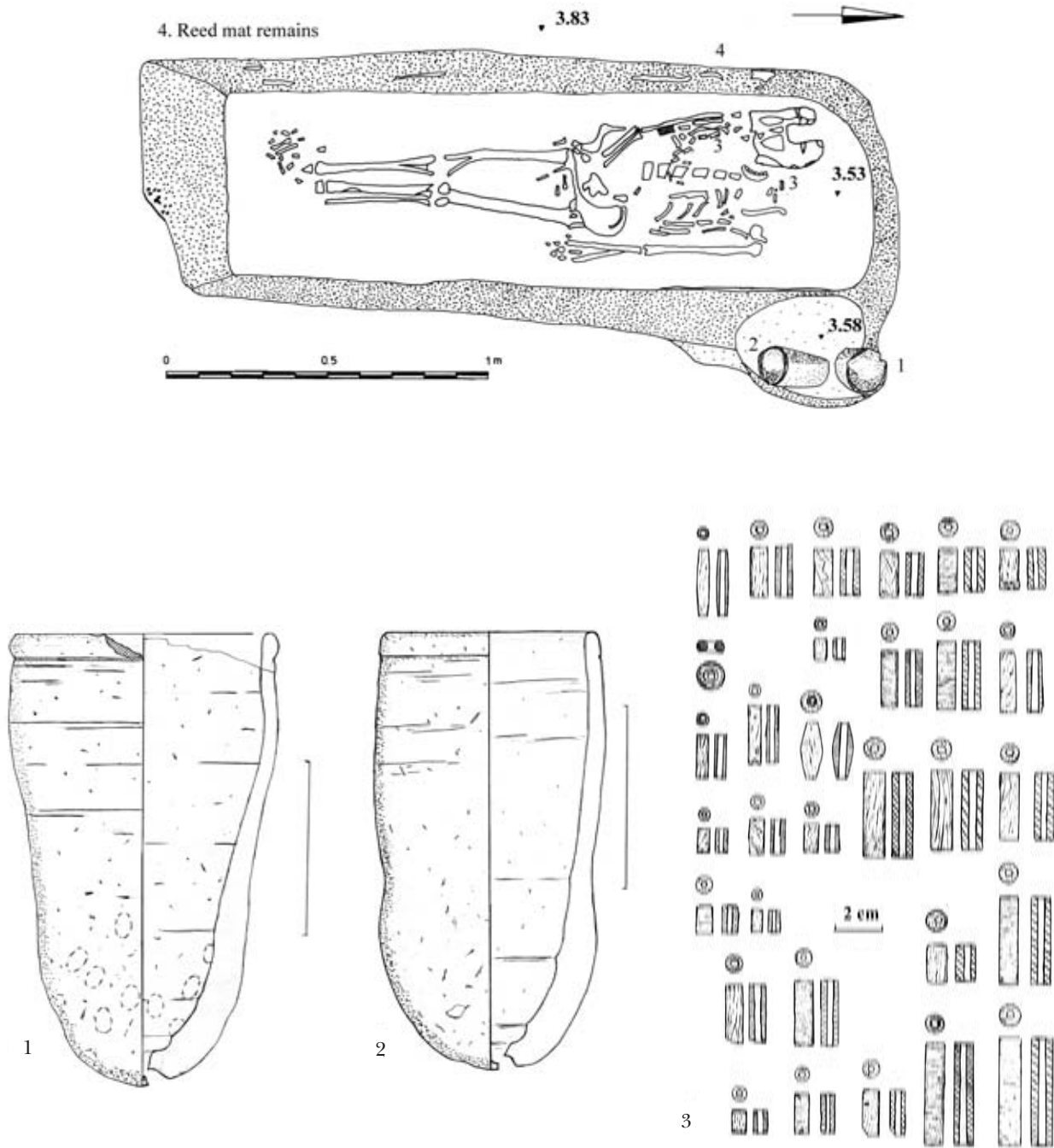
A 140/210, Tomb 9

Fig. 47 A 140/210, Tombs 6 & 9



No. 1: A 150/210 beads 18 3 barrel-shaped beads (1.2/0.6) 10 tubular beads (1.0–3.0/0.5–0.8)
bone under the chin of the individual in 1 necklace

Fig. 48 A 150/210, Tomb 3



No. 1: A 150/210	jar	38	complete	26.5	-	-	13.3	12.4	-	0.7
I B 2	H 2	H	medium	2.5 YR 5/6	slip	Round bottom with intentional hole; slightly concave in the middle				
No. 2: A 150/210	jar	39	complete	24.3	-	-	12.5	11.7	-	0.8
I B 2	H 2	H	medium	2.5 YR 5/4	slip	Round bottom with intentional hole; slightly concave at about 1/3 from the bottom				
No. 3: A 150/210	beads	40	1 biconical bead (2.4/0.9)		1 disk-shaped bead (0.5/1.2)					
bone	35 tubular beads (4.7-0.7/1.0-0.5)	near the neck of the individual in 2 necklaces, partly embedded in the bones								

Fig. 49 A 150/210, Tomb 4