

# MARINA EL-ALAMEIN

## EXCAVATION REPORT, 2005

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in collaboration with

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*The excavations of the Polish Archaeological Mission at the site of Marina el-Alamein took place from March 7 to April 11, 2005.<sup>1</sup>*

*The team focused its activities on further excavations of the architecture around the main square (forum) in the central part of the site (for a map of the site, see reports in earlier volumes of PAM). The shops in the southeastern corner of the square, uncovered last year, were now completely excavated and the trench moved eastwards to uncover more rooms. On the other side of an alley that runs alongside these shops to the south, the complex of the civic basilica was explored still further, uncovering a passage to the west with an important inscription.*

*Concurrently, explorations continued of the mausoleum-hypogeum Tomb 21, uncovering the main burial chamber, as well as doing additional work on the collapsed façade of the mausoleum. The work in this tomb remains to be completed.*

*A full anthropological study of the skeletal remains from the main burial chamber of Tomb 21, as well as from Tombs 29 and 30, excavated in the previous season is reported on in the Appendix to this report.*

1 The team, directed by Prof. Dr. W.A. Daszewski, comprised Dr. Grażyna Bąkowska, Mrs. Iwona Zych, archaeologists; Mr. Artur Błaszczyk, architect; Ms Joanna Lis, conservator. Prof. Dr. Maria Kaczmarek, anthropologist, and Ms Urszula Wicenciak, ceramologist-documentalist, took part in the work for two weeks. Dr. Grzegorz Majcherek briefly examined the pottery from the season. The SCA was represented by Mr. Ahmed Mohamed Amin.

The Mission would like to express its gratitude to the SCA authorities, especially the Secretary General, Dr. Zahi Hawass, and Dr. Abdel Maqsud, Director General of Lower Egyptian Antiquities, for their understanding and comprehensive assistance throughout the season.

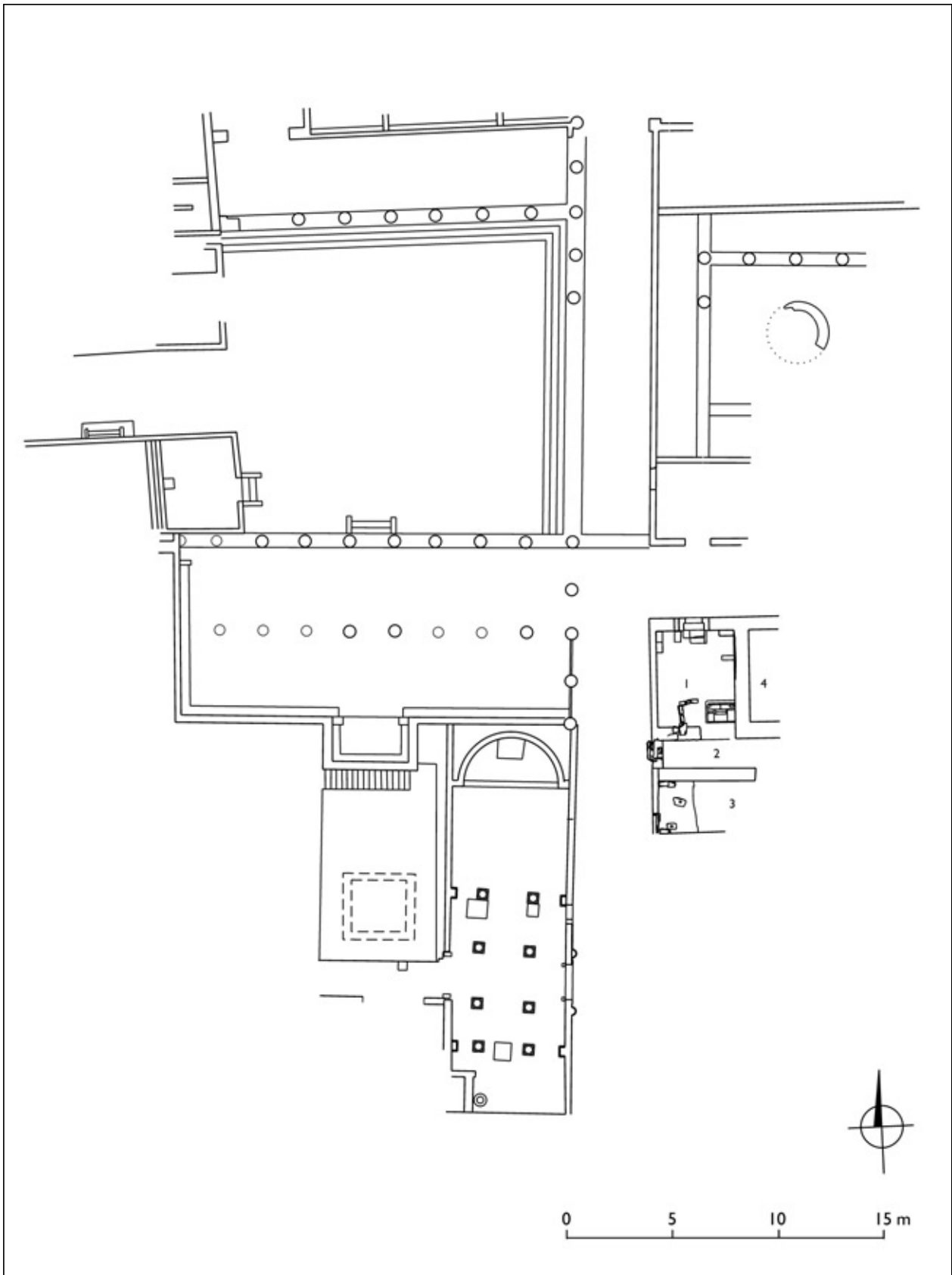


Fig. 1. Area of the Town Square. General plan following excavations in 2005  
(Drawing A. Błaszczuk)

## TOWN CENTER

The present excavation was concentrated on investigating the southeastern corner of the Town Square (Forum) and the structures located on either side of a street running southward, opening off a paved street that led east from the South Portico of the main square [Fig. 1].<sup>2</sup>

## ROOMS 1-4

In the previous season, the mission had succeeded in clearing rooms 1-3, lining the eastern side of the southbound street. Work in room 1 had stopped on a layer of stone blocks evidently belonging to the tumbled walls of the building. Removal of

the first layer of blocks coming from the upper parts of the walls of the room, revealed an underlying layer of blocks. These proved to be the collapsed west wall of the room, which had folded westward. All the elements were lying in order, including a doorway (1.10 m wide, c. 1.95 m high), which had been carefully blocked when a kitchen facility was installed in the western part of this room [Fig. 2].

The kitchen installation found in this room ran the entire length of the west wall [cf. Fig. 2]. Its introduction blocked access to the door in the west wall, changing the functional arrangement of the room, which



Fig. 2. Collapsed west wall of room 1, blocks and doorway found *in situ*; the kitchen installation seen in the foreground (Photo W.A. Daszewski)

2 Cf. W.A. Daszewski et al., *PAM XVI, Reports 2004 (2005)*, 89-92; for earlier work in this area, see *PAM XIV, Reports 2002 (2003)*, 59 and Fig. 14.

from then on had to be entered from the street running alongside its northern façade. The installation consisted of a fireplace, 1.50 m long and 0.60 m wide, which was constructed of mud brick and stone, taking advantage of the three steps leading from the original floor level to the blocked door. Flanking it on the north was a stone platform 1.60 m long and 0.60 m wide. The compartment to the south was of the same width as the fireplace and 1.40 m long. The fill contained a worn bronze coin, some pottery, a lamp fragment and animal bones. The remains found *in situ* in the fireplace included, beside pottery, a 'Frog'-type lamp and glass-bottle rim, animal bones, an ostrich shell, and the broken shells of two hen eggs.

The eastern wall of room 1, made of small flat stones (instead of the ashlar blocks used in the outer northern wall) was now fully cleared. It separated the room from the next unit (room 4) to the east. The corner, where this wall joined the south wall (of similar construction), was occupied by a set of compartmented shelves [Fig. 3], part of which had been uncovered in the previous year. The overall height of this structure, which stood with its back against the south wall, was 1.34 m, its width 1.37 m. It reached 0.20 m below the paving of the room. The lower compartments of the structure were 0.75 m high and 0.95 m deep. In front, they were lined with upright slabs rising some 0.10 m above the floor. The upper shelves were

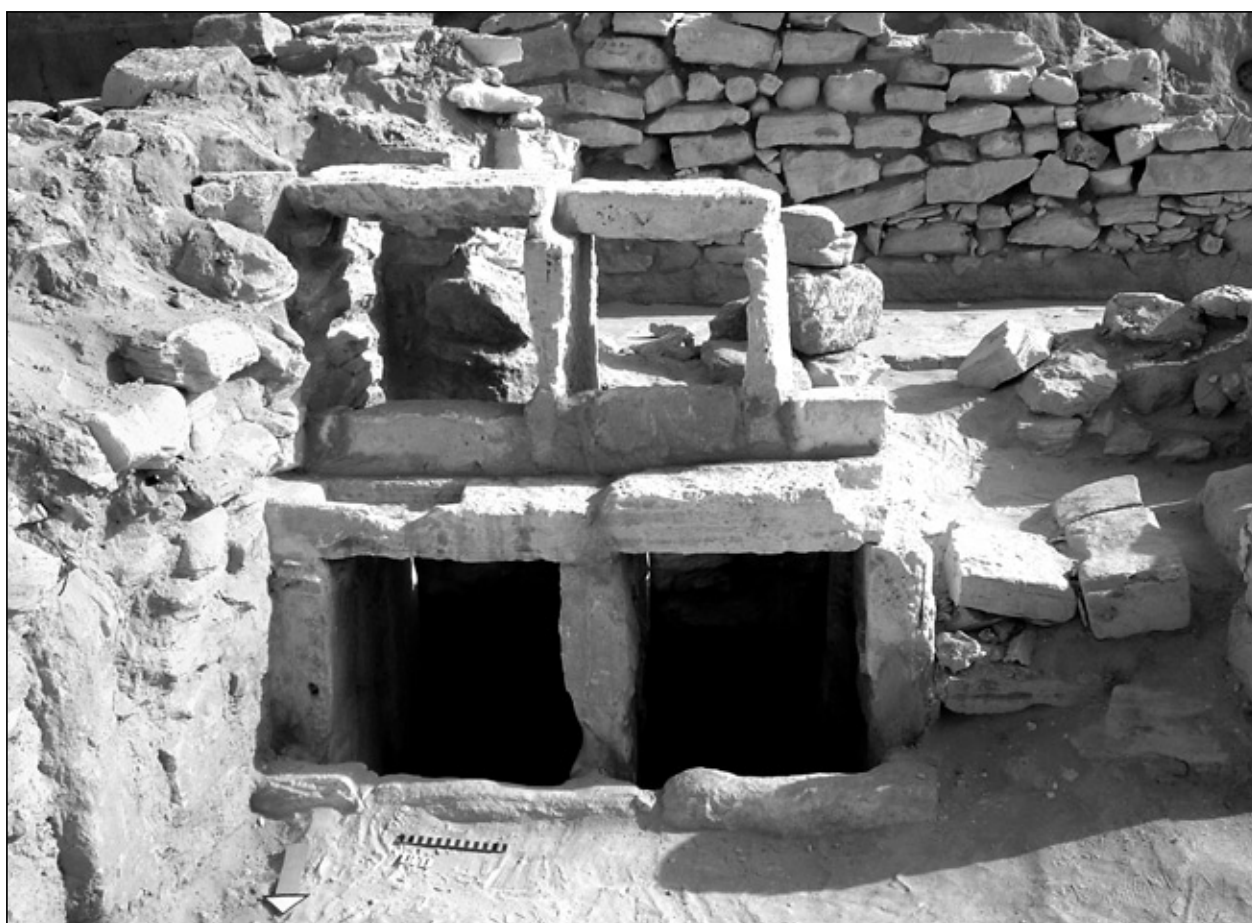


Fig. 3. Shelves in the southeastern corner of room 1, after reconstruction in the 2005 season (Photo W.A. Daszewski)



0.50 m high and 0.57 m wide and had small basins cut into the stone ledge projecting in front of them. All the compartments were plastered inside. Pot stands were found inside the lower compartments. The assemblage apparently corresponds to the original occupation of the room, which had been dated in the previous season to the late 1st-early 2nd century AD on the grounds of coins and pottery. The pottery from the lower compartments is of late 1st century date.<sup>3</sup>

More of the northern façade of this building was cleared with further excavation to the east of a stretch some 7.50 m long of the E-W paved street.

The next room to the south of room 1, partly cleared last year, proved to be not so much a room as a paved passage (1.60 m wide) running further east and disappearing into the present wall of the trench. A ceramic drainpipe was discovered set vertically in the thickness of the wall and emptying into a channel (discovered previously) that led out into the southbound street.

The limits of room 4 were identified and the excavations proceeded to clear the top of the layer of debris filling the room.

#### CIVIC BASILICA

Work was also undertaken in the area of the public edifice situated directly behind the South Portico of the forum. Excavations were extended to the south of the limited area cleared during rescue work on the site in 1987.<sup>4</sup>

The rectangular structure is 5.58 m wide and 15.56 m long [Fig. 4]. The northern end of the building (which was uncovered during earlier work) comprises a square area (c. 5 m to the northern pair

of *antae*) ending in a semicircular apse (2.46 m deep), built into the squared northern end of the structure. A high podium (0.85 by 1.22 m; max. 1.33 m high) stood in the apse against the wall. At present, there is no floor in the apse, but traces on the wall can be read as evidence of a pavement which was raised one step (c. 0.20 m) above the rest of the room. The entire building was paved with a floor of limestone slabs [Fig. 5].

Two rows of four columns each ran the length of the building, leaving a passage 1.90 m wide down the center. The distance from the walls to the column bases ranges from 1.07 to 1.14 m. Piers (of unequal size), built at a later time (very likely due to quake-related damage) against the south side of the northernmost pair of columns, appear to have had the purpose of buttressing them against collapse. The spaces between the three northernmost pairs of columns equaled 2.12 m; the last pair was at a distance of 1.48 m, leaving 2.80 m to the south wall. The column bases measured 0.52 m in width on average. Between the southernmost pair of columns, there was a square podium (0.79 x 0.82 m, preserved height 0.68 m). A second pair of *antae* was observed lined up with the southernmost pair of columns.

In the southwestern corner of the structure, the mouth of a cistern (c. 0.70 m in diameter) was located, the well-head projecting 0.15 m above the floor.

An entrance, 1.40 m wide, framed by half-columns, was located in the east wall of the structure, leading down a few steps to the southbound street separating the basilica from the row of rooms discovered on the other side. Door sockets (0.14 x 0.23 m) inside the entrance on either side are proof

<sup>3</sup> All pottery determinations kindly provided by Dr. Grzegorz Majcherek.

<sup>4</sup> Cf. W.A. Daszewski, "Témoignage de l'urbanisation ...", *BSFE* 132 (1995), 19-20.

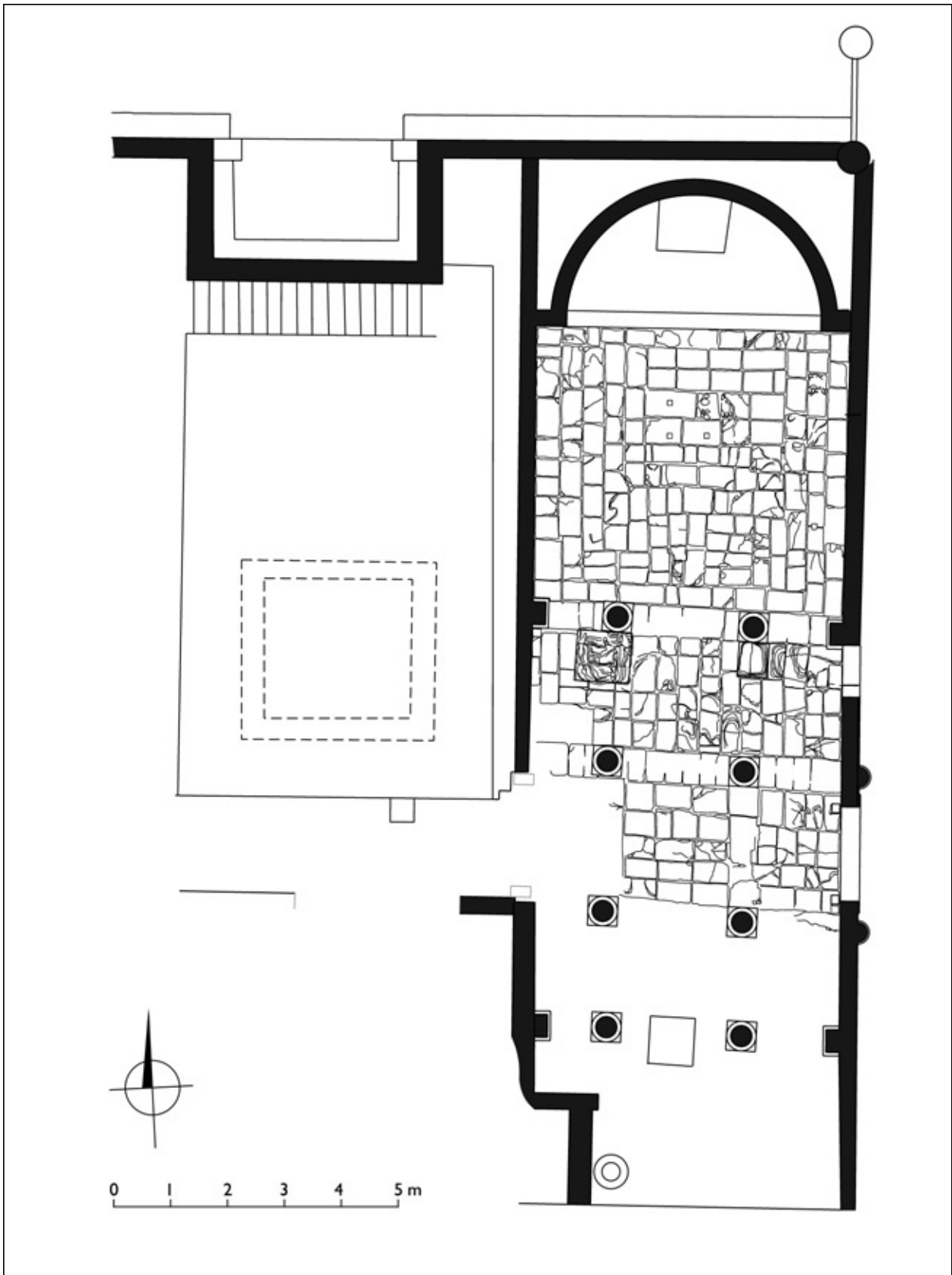


Fig. 4. Civic basilica. Detailed plan of the public building including rooms to the west, state after the 2005 season (Drawing A. Błaszczuk)



*Fig. 5. Civic basilica. General view from the entrance toward the north with the apse at the back (Photo G. Bąkowska)*





*Fig. 6. Corinthian capital in stuccowork on limestone core, after provisional protection in 2005  
(Photo W.A. Daszewski)*

of an inward-opening double-winged door. Another narrower door (0.70 m wide) was found in the same east wall, directly to the north of the main entrance. It was also entered up a set of steps.

The layer of rubble lying directly on the pavement in this part of the structure yielded fragments of tumbled column shafts and a Corinthian capital rendered in stucco (with traces of red pigment on two pieces) on a limestone core [Fig. 6]. (This was protected on the spot, see below). Finds of architectural members (stone Corinthian capital, damaged cornice blocks, column drums with plain white stucco still preserved occasionally, two of these with mason's marks, dressed stone blocks) were ample in the rubble in this part, as were broken marble tiles of mostly gray color with evidence of mortar on many of them. Two worn Roman-period coins were found on the pavement.



*Fig. 7. Entrance to the passage with an inscription on a pedestal against the north wall, view from the basilica entrance in the southeast (Photo W.A. Daszewski)*



## ROOM WITH INSCRIPTION

Opposite the eastern entrance, in the western wall of the civic basilica, there was another doorway (1.75 m wide, 1.64 m between the doorjambs) leading to a passage or room (?) paved with broken tiles of gray marble [Fig. 7]. A double set of sockets testifies to the presence of another double-winged door.

A masonry pedestal (presumably for a statue; three small pieces of white-marble sculpture were found in the fill nearby) was discovered built against the northern wall of this space, c. 1.50 m into the room. It was 0.68 m wide, projecting 0.40 m from the wall, and 1 m high. A marble slab with an inscription was set into the front. The slab was 1.5 cm thick. Only the lower 26 cm of the marble slab survive, preserving

three full lines and a fragmentary fourth line of text in Greek [Fig. 8]. The text was of religious or honorific character. The surviving part contains a dating formula, which was read by Dr. Adam Łajtar from Warsaw University as:

{ - - - }. *Under Titus Flavius Titianus, Praefect of Egypt, in the 14th year of the Lord Hadrian, Hathyr 20 (= 15 November 129 AD).*<sup>5</sup>

Actually, the name of the prefect of Egypt had been erased from the inscription, suggesting that he had become the object of *damnatio memoriae*. The inscription from Marina is the only source so far to indicate that Titus Flavius Titianus, whose term in office as prefect of Egypt was the longest, fell into disgrace with the Emperor at the end of his life.



Fig. 8. Pedestal bearing an inscription with the dating formula of the Prefect of Egypt Titus Flavius Titianus (AD 129) (Photo W.A. Daszewski)

5 For the Greek text and discussion, cf. A. Łajtar, "Four inscriptions from Marina el-Alamein", *JJP* XXXV (2005), 100-103.

## NECROPOLIS

## TOMB 21

Excavations of Tomb 21 in the necropolis area were continued. The aboveground mausoleum of this tomb had been excavated in the previous season, completing some earlier clearing work done by the Egyptian Antiquities Organization. While the present work was concentrated on clearing access to the underground burial chamber, a detailed study was also conducted of the architectural elements forming the façade of the structure.

Another capital of the newly recognized Marina type<sup>6</sup> was discovered, constituting a pair to the one found last year; the two had framed the main entrance to the portico. The remaining columns of the portico were in the Ionic order: capitals and half-capitals were discovered in the debris in front of the tomb.

In the western end of the portico, the structure proved to be almost completely destroyed, the northwestern corner of the stylobate having been removed down to the first course of foundation blocks in effect of modern building development work in the late 1980s (rubbish dump reaching 1.70 m below the portico pavement).

Following the destruction of the mausoleum façade in an earthquake sometime in the end of the 2nd century AD (the tomb itself must have continued to be used, although most likely not the mausoleum), the structure appears to have undergone some sort of restoration. This occurred not earlier than in the 4th-5th century to judge by the ceramic evidence. The architectural members lying in the rubble in front of the

tomb were salvaged (but without touching the entablature which remained buried in the sand farther to the north) and used to build haphazard walls to enclose the space inside the portico. Evidence of reuse in the 5th century was also discovered in the staircase, where it opens into the courtyard, about 2.30 m below the top of the staircase walls. The excavations have yet to be completed in this area.

The sand from the courtyard (which measures 5.58-5.80 m NS by 5.23-5.35 m EW inside the inner ledges; 6.93-7.14 m NS x 6.54-6.68 m EW when the perimeter walls are included) was removed down to a level about 3.50 m below the preserved tops of walls, revealing a stone ledge all around and also giving access to the burial chamber. Repairs to the courtyard walls were observed all along this ledge, especially on the east and south. A trench was dug in the southern of the rooms lining the east wall of the courtyard on ground level in order to study the foundations. The rooms proved to be built concurrently with the courtyard wall.

The staircase leading from the back of the mausoleum building to the north side of the hypogeum's courtyard, was cleared down to the presumed 5th-century reuse level all along its length. The east wall of stone blocks rises all the way up to ground level virtually intact, while the west wall has collapsed in the central part right down to bedrock (c. 4-5 courses of blocks). Some of the architectural members found in the rubble here appear to have been dragged to the spot from other parts of the structure,

6 The type is commonly known in the literature as 'Nabatean' or 'pseudo-Nabatean', cf. W.A. Daszewski, "Nouvelles recherches sur la côte Nord de l'Égypte. Un type méconnu de chapiteaux", *EtTrav* XV (1991); a growing body of evidence has opened the way to the suggestion that the type actually evolved somewhere on the north coast of Egypt (cf. R. Czerner in *PAM XVI, Reports 2004* (2005), 119-120).

perhaps during the 4th-5th century reuse of the tomb. The inside of the corridor walls still preserves a thick layer of coarse gritty grayish-white plaster, surviving in fairly good condition.

The burial chamber, which opens off the south side of the courtyard, was entered through a doorway 1.98 m wide, much wider than is the rule in tombs of this type [Fig. 9]. Double, mortared sockets in the top of the sides of the doorway indicate the existence of a door of some kind. The chamber, which is not a fully regular rectangle (5.56 m EW by 6.36-6.51 m NS), was 3.60 m high. In the middle of the south wall an exedra was cut (also lop-sided: 3.15 to 3.70 m EW by 2.96-3.24 m NS) [Fig. 12]. Its floor is raised 0.14 m above the floor of the main chamber, and its height is 3.20 m. The entrance to this exedra was framed by shallow *antae* with small square sockets in the sides and three more above the lintel for some kind of closing and perhaps for hanging garland decoration. Inside the exedra, there were two big loculi (1.30 m wide by c. 1 m high, 2.25-2.30 m deep) in the south wall and a smaller niche (0.65 m wide by 0.75 m high, 1.11 m deep) in the east wall. Plastering on the side walls and in the floor in front of the south wall is suggestive of additional loculi, which were not, however, investigated this year. In the main chamber, there were three regular loculi (c. 0.78 m wide by 0.89 m high, 2.10-2.20 m deep on average) in the east wall and one in the south wall, cut in the top tier. In the west wall, by the northwestern corner of the chamber, four regular loculi were cut in two tiers [Fig. 10].

On the ceiling in the southwestern corner of the main chamber, a drawing of a winged solar disc with *uraei*, sketched in bootblack, was noted.

Altogether, there were 33 burials made in this chamber, of which 21 skeletons were examined by the Mission's anthropologist. Most of the burials had been mummified. Four of the mummies had gold leaf amulets inserted in the mouth. In at least two cases, there was evidence of mummy portraits painted on very thin panels of wood and placed on the faces of the mummies.<sup>7</sup> These were degraded beyond recognition, the wood having decomposed completely and the painting ground surviving in narrow curling strips [Fig. 11]. The age at death of the adult individuals ranged from 25 to 45 years; there were also four children, including a baby of 9 months. A number of the skeletons revealed interesting evidence of bone pathology (for details, see below, Appendix).

#### TOMBS 29 AND 30

The skeletal material from Tombs 29 and 30, which had been excavated in the 2002 and 2004 seasons respectively and left *in situ*, was now studied anthropologically. In Tomb 29, 19 skeletons were examined, including an interesting case of two male burials in a wooden coffin, and in Tomb 30 (including auxiliary grave G 15), a few burials, both complete and disturbed (cf. Appendix).

#### AREA OF T 1 BURIAL COMPLEX

Following the restoration of tomb T 1K in the previous season, it now became pos-

7 One such portrait has been recovered from the mausoleum-hypogeum T.6 in Marina, cf. W.A. Daszewski, "Mummy portraits from Northern Egypt. The necropolis in Marina el-Alamein", in: Portraits and Masks, ed. M.L. Bierbrier (British Museum Press 1997), 59-65.



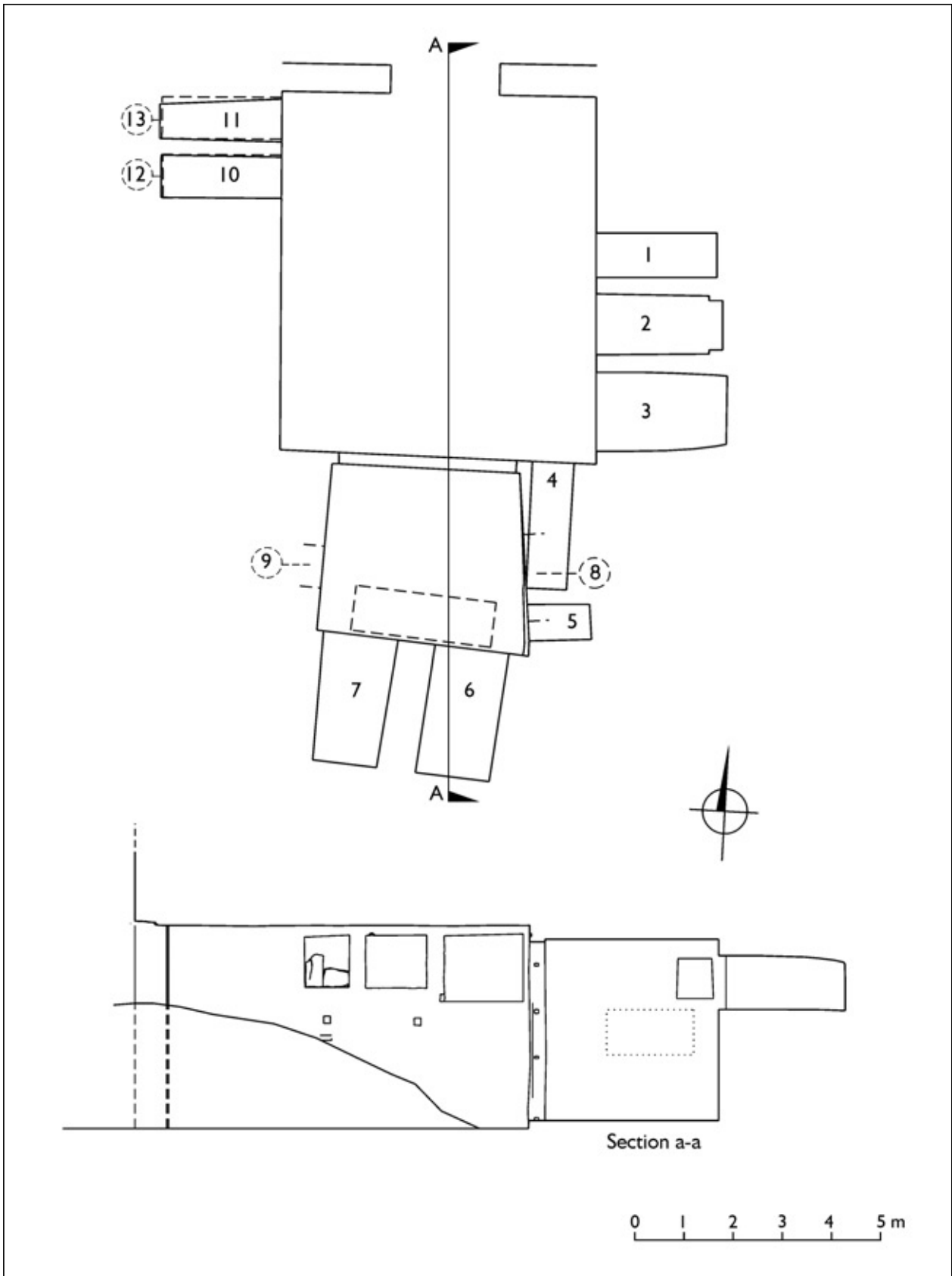


Fig. 9. Plan and long section through the burial chamber of Tomb T 21, after the 2005 season (Drawing A. Błaszczyk)



*Fig. 10. The burial chamber of Tomb T 21, view of the loculi in the northwestern corner (Photo W.A. Daszewski)*



*Fig. 11. Child burial in loculus 5 of the burial chamber in T 21. Note remains of mummy portrait (Photo W.A. Daszewski)*



*Fig. 12. Burial chamber of Tomb T 21, view of the south side with the exedra niche (Photo W.A. Daszewski)*

sible to explore two auxiliary graves, of poorer members of the family or servants, belonging to this part of the necropolis. The graves had been located previously, about 2-3 m northeast of T 1K. Grave G4, generally oblong in shape, is 3.10 m long and 1.80 m at the widest, suggesting that it was a double grave; its height is 0.40-0.60 m. Situated 0.20 m south of this

grave is a similar grave (G16), also oriented E-W, 2.20 m long and 1.40 m wide at the widest; its height is 0.40-0.45 m. The graves were not opened.

Between the two graves, at the east end, a presumed child burial (no bones were preserved) in an amphora was discovered. The amphora, broken off at the shoulders, had been set upside down.

## CONSERVATION WORK<sup>8</sup>

Two Ionic column capitals and fragments of fluted shafts made of lime stucco on a limestone core from the South Portico (southwestern end) were protected and restored in preparation for display in the future site museum.

The multi-member limestone columns discovered in 2004<sup>9</sup> were coated with whitewashed lime plaster, in which the fluting was rendered. The same technology was used for the Ionic capitals. After the excavations these elements had been covered with plastic foil and sand for on-the-spot protection. The foil did not bear up to the climatic conditions of winter on the Mediterranean coast of Egypt, but fortunately in March 2005 the elements were still in good repair.

There were three fragments of columns made up of constituent drums: a shaft with preserved length of 0.90 m and circumference of 0.90 m; a shaft together with capital 0.66 m long and circumference of 1.58 m and another shaft with capital of the same circumference, but shorter, just 0.54 m long. The limestone drums were joined by lime mortar with fine filler. The coating of the stone comprised two layers: an inner layer of coarse lime plaster with quartz (sand) and ceramic filler, and an outer one,

much finer in texture, without evident filler (pure lime mortar perhaps). The fluting was rendered in this outer layer; the concave sections were 5-6 cm wide separated by a relief strip c. 1 cm wide. The whitewash coats – there were at least two – were white or pale cream in color. Having been toppled in an earthquake, the shafts had broken to pieces, particular drums becoming separate. In the case of these surviving elements, they were still held together by the stuccowork, even though, they had cracked and been delaminated in places, and had also separated from the limestone core. The stucco coating was delaminated and covered with salt efflorescence. This had furthered the distortion of the plaster, which presented many blisters and voids between surfaces and the core.

The architectural elements were first cleaned with mechanical means. Every stage of the work was photographed and documented. The remains of painting layer (of red color) on the surface of the capitals were consolidated with a 5% solution of PRIMAL E330 in water. Delaminated fragments of the plaster coating were also consolidated and the voids between layers filled with 5-10% solutions of PRIMAL E330 in water and a 10% solution of polyvinyl

<sup>8</sup> Remarks based on a report by J. Lis.

<sup>9</sup> Cf. *PAM XVI*, op. cit., 86-89, Figs 15,16.



acetate in water. Sections of the lime plaster coating separated from the limestone core were attached with 25% polyvinyl acetate. A 5-7% solution of PRIMAL E330 in lime-water was injected into narrow cracks and specially drilled small holes in the surface of the plaster. A mixture of PRIMAL E330 and whitewash was injected into the bigger pockets and between delaminated layers of plaster. The biggest pockets in the plaster coating and losses of mortar joining the limestone drums were filled with lime-cement mortar prepared in limewater with a 3% addition of PRIMAL E330 (1 unit hydrated lime + 1 unit white cement + 3 units desalted quartz filler + 3% PRIMAL E330). The edges of the plaster coating on the shaft surface were reinforced with bands of the same kind of lime-cement mortar as described above. The surface of the columns was desalted with compresses

of water-soaked cellucotton and subsequently impregnated twice with FUNCOSIL KSE 300E.

Once the conservation treatment had been completed, the fragments were raised to upright position and set up on the pavement of the South Portico [Fig. 13]. All the protected and conserved architectural members were placed for storage under a specially designed wooden construction [Fig. 14]. The effectiveness of this structure in protecting stone and plaster elements, easily eroded in the specific climatic conditions of the seaside site, will be tested over the coming winter season.

The same procedures were applied to various fragments of architectural stucco decoration originating from pseudo-Corinthian capitals and cornices, and fragments of plaster bearing painted decoration. One such Corinthian capital



*Fig. 13. Two Ionic column capitals and fluted shafts rendered in stuccowork on a limestone core, from the South Portico, after conservation (Photo A. Błaszczuk)*

with the decoration rendered in stucco, found in the ruins of the civic basilica during the present excavations, was cleaned and protected provisionally on the spot. Delaminated fragments of the decoration were protected with gauze attached with 5% polyvinyl acetate. An appropriate construction of cardboard and stones was built around the capital on location.

A provisional restoration of one of the benches on lion's feet lining the back wall of the South Portico was accomplished in preparation for the actual procedures to be carried out later in the season by the Marina el-Alamein Preservation Mission.<sup>10</sup>

The stone shelves in room 1 in the shop in the southeastern corner of the main

square<sup>11</sup> were dismantled, the missing elements restored and the construction re-erected in its original location [cf. above, *Fig. 3*]. One of the horizontal limestone slabs had to be replaced with new stone and two of the supports had to be reconstructed. A lime-cement mortar with PRIMAL E330 (composition as above) was used for the purpose of bonding the structure.

In Tomb 29, the top of the stone offering table in front of the central loculus in the south wall was also protected and the edges reinforced. Small losses of the surface were filled with lime putty mixed with PRIMAL E330. Reinforcing impregnation was made with silico-organic preparation FUNCOSIL KSE 300E.



*Fig. 14. Wooden construction set up above the preserved architectural members for protection in storage on the site (Photo W.A. Daszewski)*

10 The form of the bench was suggested by Prof. W.A. Daszewski. For the results of the conservation work, see below, p. 109 and Fig. 11.

11 Cf. *PAM XVI*, op. cit., 90, 92 and Fig. 20.

## APPENDIX

HUMAN SKELETAL REMAINS  
FROM TOMBS 21, 29 AND 30

Maria Kaczmarek

The aim of the anthropological study is usually twofold: to describe the range of morphological variation (based on cranio-metrics, odontometrics and osteometrics) and to identify skeletal and dental diseases among ancient people.

The sample under study comprised 53 burials of both sexes and varied age at death [see *Table 1*]. The funeral niches contained mostly double or multiple burials. Single burials were the exception (e.g. burials in loculi situated on the east wall of Tomb 21 or in Tomb 29). In multiple burials, the dead were usually laid out next to one another, but in some cases they were deposited in two or even three layers. All but a number of the subadult burials were mummified, but the mummification varied widely both in the quality of the original treatment and the state of preservation. There were mummies accurately wrapped in bandages forming a rhomboid pattern on the surface (subadult burials from loculus 5, Tomb 21) and furnished with portraits (burials from loculus 5, Tomb 21, cf. above, *Fig. 11*). Some dead were buried in wooden coffins (male burials from Tomb 29), but the majority were not. High salinity and humidity caused the rapid decay of the bodies resulting in their very poor state of

preservation with only the bones surviving and in very fragile condition at that. Additionally, some burials were badly damaged by plunderers who had cut off the heads from the body and dislocated the bones. For these reasons, the present analysis cannot hope to be complete (see *Table 2*).

The dead were laid on their back in supine position with arms resting along the body and hands either crossed on the womb or extended along the body. No gender-specific arrangement of the hands was observed. In Tomb 21, one of the burials lay face down. The orientation of the burials followed the rule of the head being situated toward the entrance of the burial niche.

While the excavated burials consisted of males, females and subadults, male burials outnumbered female ones, reflecting perhaps some characteristic of the funerary rites of these people. The sample, however, is not a representation of a panmictic population and conclusions should be drawn with care.

The demographic characteristics are shown in *Table 1*, where the distribution of the dead according to sex and age at death is given.<sup>12</sup> In Tomb 29, there were 13 individuals: nine males, two females, one with a 4-6 month-old baby laid on the

12 Sex and age at death were assessed in compliance with J.E. Buikstra, D.H. Ubelaker, Standards for data collection from human skeletal remains. Proceedings of a seminar at the Field Museum of Natural History organized by Jonathan Haas, *Arkansas Archeological Survey Research Series 44* (1994).



## MARINA EL-ALAMEIN

## EGYPT

Table 1. Sex and age at death of the burials from Tombs 21, 29 and 30

No	TOMB	LOCULUS	BURIAL	SEX	AGE at death (in years)
<b>Tomb 21</b>					
1.		Loculus 1	Burial 1	Male	25-30
2.			Burial 2	Male	30-40
3.		Loculus 5	Burial 1	Unknown	2-3
4.			Burial 2	Unknown	6-9 months
5.		Loculus 6	Burial 1	Male	25-35
6.			Burial 2	Male	45-55
7.			Burial 3	Male	25-35
8.			Burial 4	Unknown	2
9.		Loculus 7	Burial 1	Female	30-40
10.			Burial 2	Female	25-30
11.			Burial 3	Male	35-45
12.			Burial 4	Unknown	Unknown
13.			Burial 5	Unknown	8
14.			Burial 6	Unknown	8
15.			Burial 7	Male	35-44
16.			Burial 8	Male	35-44
17.		Loculus 10	Burial 1	Male	30-40
18.			Burial 2	Unknown	Newborn
19.		Loculus 11	Burial 1	Male	30-35
20.			Burial 2	Unknown	12
21.		Loculus 12	Burial 1	Male	40-45
22.		Loculus 13	Burial 1	Male	20-30
<b>Tomb 29</b>					
23.		Loculus 1	Burial 1	Male	50-60
24.			Burial 2	Male	50-55
25.			Burial 3	Male	45-50
26.			Burial 4	Female	35-40
27.			Burial 5	Male	20-30
28.		Loculus 2	Burial 1	Female	25-35
29.			Burial 2	Unknown	4-6 months
30.		Loculus 3	Burial 1	Male	30-35
31.		Loculus 4	Burial 1	Male	25-35
32.			Burial 2	Female	25-35
33.		Loculus 5	Burial 1	Male	20-30
34.		Loculus 6	Burial 1	Male	40-45
35.		Loculus 7	Burial 1	Unknown	2-3

## Tomb 30

36.	Loculus 1	Burial 1	Male	35-45
37.		Burial 2	Female	Adult
38.	Loculus 2	Burial 1	Male?	18
39.		Burial 2	Unknown	16-18
40.		Burial 3	Male	Adult
41.	Loculus 3	Burial 1	Male	35-45
42.		Burial 2	Female	40-50
43.		Burial 3	Male	Adult
44.		Burial 4	Male	30-40
45.		Burial 5	Male	30-35
46.	Loculus 4	Burial 1	Male	Adult
47.		Burial 2	Male	Adult
48.		Burial 3	Male	Adult
49.		Burial 4	Male	Adult
50.	Loculus 5	Burial 1	Male	35-40
51.		Burial 2	Female	40-45
52.		Burial 3	Unknown	3
53.		Burial 4	Unknown	Adult

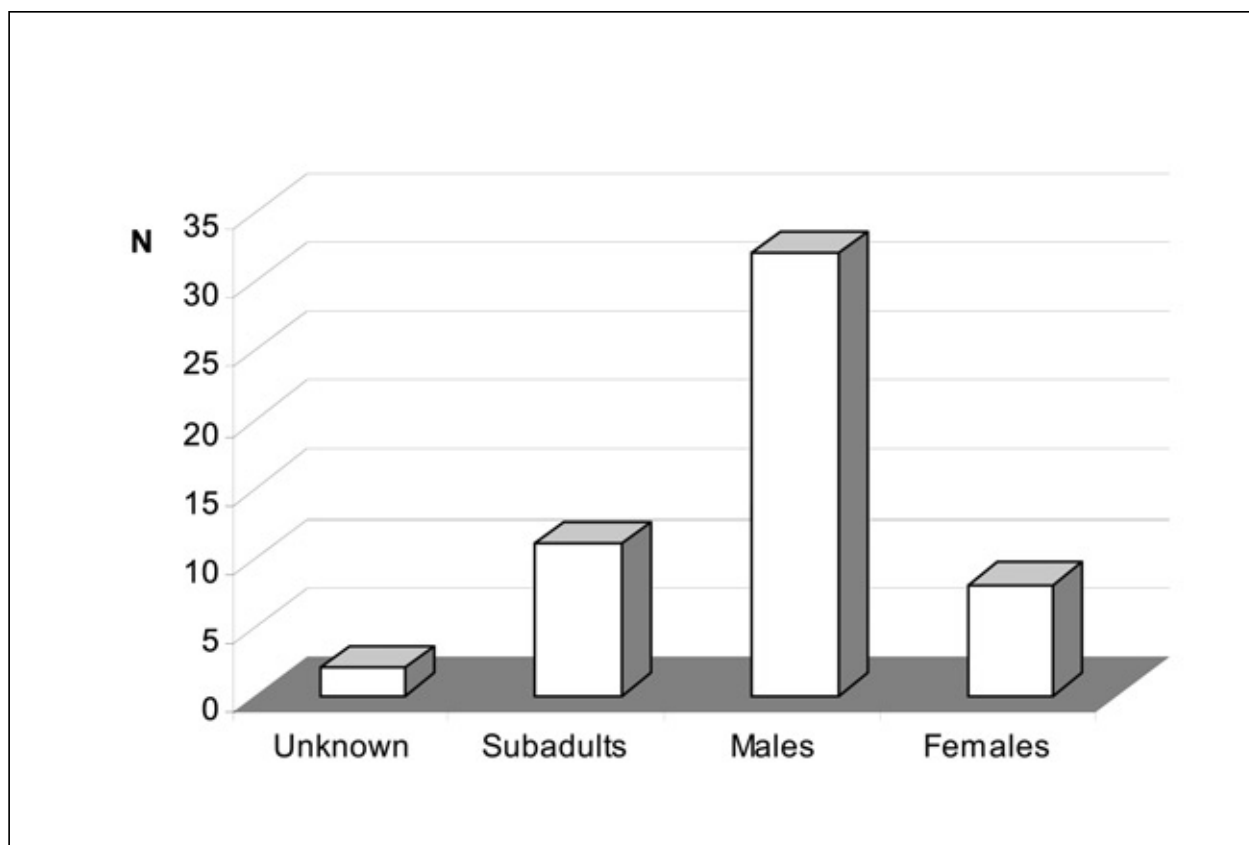


Fig. 15. Distribution of subadult, male and female burials in the sample

Table 2. The range and average values of selected cranial and long bones diameters in males and females (in mm)

CHARACTERISTIC	MALES				FEMALES			
	N	X	Min	Max	N	X	Min	Max
Head Length (g-op)	12	191.6	184	203	2	175.5	167	184
Head Breadth (eu-eu)	12	141.5	132	150	2	136	135	137
Occipital Breadth (ms-ms)	12	102.9	99	107	2	91.5	90	93
Basion-Bregma Height (ba-b)	9	139	134	152	2	129.5	124	135
Min Frontal Breadth (ft-ft)	11	93.4	88	107	1	91		
Bizygomatic Diameter (zy-zy)	12	133.5	126	137	2	126		
Bigonial Diameter (go-go)	9	97.2	88	108	2	94.5	86	103
Morphological Face Height (n-gn)	11	114.7	100	138	1	108		
Upper Face Height (n-pr)	14	70.2	56	77	1	60		
Eye Socket Height	13	34.5	30	39	2	35.5	35	36
Eye Socket Width	13	39.1	36	44	2	40	37	43
Maxillo-Alveolar Length (ol-sta)	6	50.0	46	54	1	44		
Maxillo-Alveolar Breadth (ecm-ecm)	10	63.4	59	66	2	60.5	60	61
Mandible Body Length (go-gn)	12	83.5	51	93	2	80.5	78	83
Chin Height (gn-id)	12	32.0	28	37	2	28	26	30
Left Femur Bicondylar Length	17	448.5	405	461	5	389.8	349	417
Left Tibia MaxLength	12	374.4	347	407	2	338.2	326	351
Left Humerus Max Length	11	325.2	294	364	3	286.3	282	291
Left Radius Max Length	10	248.0	230	262	2	217.5	212	223
Left Ulna MaxLength	6	267.7	253	281	2	238.5	233	244

chest. Seven subadult burials were found in Tomb 21. Their age at death ranged from 6-9 months to 8 years. Of the eighteen burials excavated in Tomb 30, 17 were of adults and one of an adolescent (16-18 years old). Considering subadults, the majority of them died at the age of 2-3 years, the age of weaning. They were buried either separately (case of loculus 5 in Tomb 21, where two children, an infant of 6-9 months and a child of 2-3 years, had been buried together) or together with a female burial, presumably the mother.

Considering the figures in *Table 1*, one sees that male burials outnumbered female ones. The number of subadult burials is also



*Fig. 16. Ankylosing spondylitis of spine and probable rheumatoid arthritis and severe exostosis of sternum (Tomb 21, loculus 7, burial 3 in situ) (Photo I. Zych)*

lower as compared to the actual mortality rate known for this period [*Fig. 15*]. Male age at death ranged from 20 to 60 years, whereas that of females was 25-35 years. Males tended to live longer than females, a phenomenon caused by the high rate of female mortality at childbirth. In our sample, however, two females survived to the age of 50. Lifespan expressed in terms of average adult age at death, 37.8 years for men and 35.6 for women, did not reveal a considerable difference. Should it be taken to mean that only elderly women were buried in the excavated tombs?

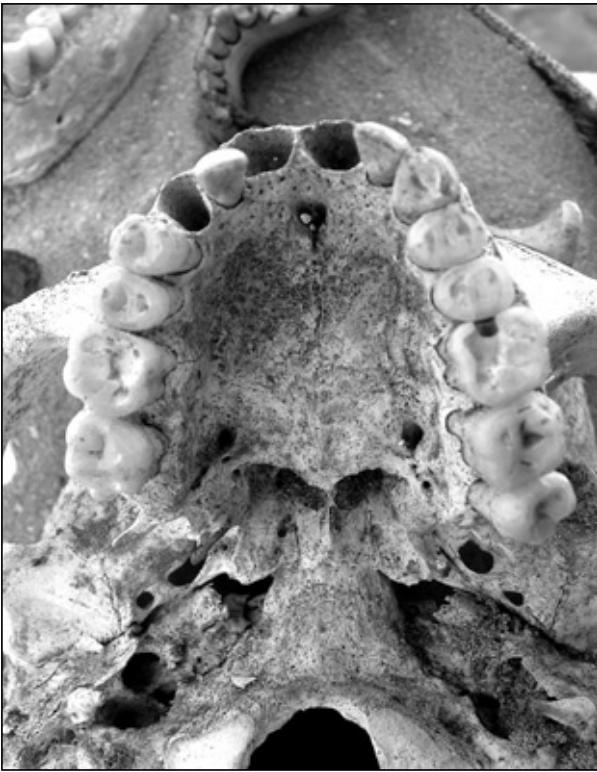
Data for the cranial and long bones measurements presented in *Table 2* reveal great individual variability. The average lifelike physical appearance can be described for males as 172 cm tall, long-sized head (Cephalic Index 73.8 *Dolichokranium*) and medium-width face (Total Facial Index 85.8 *Mesoprosopus*) and for females as 159.9 cm tall, medium-sized head (Cephalic Index 77.5 *Mesokranium*) and medium-width face (Total Facial Index 85.7 *Mesoprosopus*).

Examples of very severe skeletal diseases were in abundance,<sup>13</sup> including rheumatoid and degenerative arthritis, ankylosing spondylitis of the spine, rickets resulting from vitamin D deficiency, age-related degenerative changes of the spine.

In some burials from Tomb 21, ankylosing spondylitis (AS) and rheumatoid arthritis (RA) were identified. The simultaneous presence of the two diseases suggests a relationship between the two, but the definition of the actual relationship is still open. Indeed, the pathologic changes in the active phase of AS are practically identical with those of rheumatoid arthritis. Ankylosing spondylitis is known as a progressive

13 Skeletal disease identification resources: D.J. Ortner, W.J. Putschar, *Identification of Pathological Conditions in Human Skeletal Remains* (Washington & London 1997); *The Cambridge Encyclopedia of Human Paleopathology*, eds A.C. Aufderheide, C. Rodrigues-Martin, O. Langesjoen (Cambridge University Press 1998).





*Fig. 17. Interproximal carries in the first upper permanent molar (Tomb 21, Loculus 11, burial 1) (Photo A. Błaszczyk )*



*Fig. 18. Enamel hypoplasia on upper and lower permanent teeth (Tomb 21, loculus 11, burial 2) (Photo A. Błaszczyk)*



*Fig. 19. Cribra orbitalia in a child's eye sockets (Tomb 21, loculus 7, burial 5) (Photo U. Wicenciak)*

inflammatory disease of unknown etiology, primarily affecting the diarthrodial joints of the spine, costovertebral joints, and sacroiliac joints. In our sample, it is manifested as extensive calcification of anterior longitudinal and some adjacent spinal ligaments. Disk edge elevations generate a bamboo-like appearance. Rheumatoid arthritis is a generalized connective tissue disease of unknown etiology with most significant involvement of joints. The disease manifests itself in adult and juvenile form. Degenerative arthritis is the most common of all articular diseases. This disease develops on the basis of ageing changes and degeneration of articular cartilage. Many examples of this disease were recorded in our sample [Fig. 16].

Dental diseases were very common in the present sample. Dental attrition, known as tooth-to-tooth wear, is one of

several regressive changes in dental hard tissues that are generally associated with the ageing process. Attrition appears to have played a major initiating role in periapical and periodontal abscess formation, root caries, antemortem tooth loss and temporomandibular joint disease [Fig. 17].

Markers of environmental stress such as *cribra orbitalia* and enamel hypoplasia were common in our sample as well [Figs 18,19]. It has been suggested that *cribra orbitalia* may result from insufficient nutrition and chronic inflammation, whereas enamel hypoplasia is the term applied to a defect in the structure of tooth enamel resulting from a body-wide, metabolic insult sufficient to disrupt ameloblastic physiology. Through EH (epidermolytic hyperkeratosis) one can observe the long-term consequences of metabolic stress.

