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Short fieldwork report

Human remains from 'Marea'/Philoxenite, Egypt, 2021–2022

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'Marea' is an archaeological site located on the shore of the Lake Mariout (30.995°N, 29.656°E), c. 35km east of Alexandria. It owes its modern name ('Ruines de Marea') to Mahmoud el-Falaki, an erudite astronomer, who published a map of Alexandria and its environs in 1866 (el-Falaki 1866). The ruins were first investigated between 1977–1979 by Alexandrian archaeologist Fawzi el-Fakharani, who unearthed a double baths complex, a coastal street, and a mill. In 2000, Hanna Szymańska and her team (an archaeological mission of the Polish Centre of Mediterranean Archaeology of the University of Warsaw and the Cracow Archaeological Museum) launched an excavation on the site, continued by the mission headed (since 2018) by Tomasz Derda.

The site was built according to a uniform urban plan implemented—as archaeology indicates—from the mid-6th century CE on (Gwiazda 2023; Gwiazda & Derda 2021; Kutiak 2025) to manage the stream of pilgrims coming by water from Alexandria and heading for the sanctuary of St Menas (Abu Mena), located c. 18km to the south (Rodziewicz 2010).

On the basis of hagiographic sources related to the pilgrimage centre at Abu Mena, the site may be identified with the ancient Philoxenite (Derda & Gwiazda 2025), a toponym derived from the name of Flavius Theodorus Philoxenus Soterichus, consul in 525 CE (Derda 2025). A number of monumental buildings were erected in the city in the 6th century CE, including two complexes of large baths (only 200m apart), a large mill and, above all, a great basilica with a transept measuring 51m by 49m, making it the second largest ancient Egyptian church known to us; only the basilica in Abu Mena is a few meters longer. The streets were given a monumental character, especially the N-S street leading from the basilica on the northern promontory to the southern baths and the waterfront street north of the other bath complex (Gwiazda & Derda 2021, Kutiak 2025).

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The history of the Byzantine town, however, began in the fifth century CE. On the northern promontory—later occupied by the Great Basilica—the first church was erected: a three-aisled basilica without a transept (Babraj et al. 2020). This church may have formed part of the settlement founded by Philoxenus and named after him (Wipszycka 2025). The location selected for the construction of the first church had remained unused for approximately 200 years. Until the third century, more precisely until the 230s CE, the area had been devoted to large-scale amphora production, as evidenced by a pottery kiln discovered beneath the apse of the Great Basilica, east of the baptistery of the Old Church. In the immediate vicinity of the Great Basilica lies a pier—the longest of the four surviving piers at 'Marea'/Philoxenite—which appears to have been constructed during the period when the amphora production complex was in operation.

The necropolis hill is situated outside the dense urban area, separated from the town by the low rubblework wall built on the slope of the natural rock hill. The functional identification of this district is attested by cut-in stone caves, used as mass graves in the Byzantine period.

During recent excavations at Marea, human remains were found in four contexts: (1) two rock-cut chambers with multiple burials south of the city (Grave 1 and Grave 2), (2) two regular single inhumations in Room 44 (the southern chapel of the Great Basilica, adjacent to the baptistery) in the city centre, with complete and articulated skeletons, (3) wide bone scatter in Area N1, and (4) an isolated infant right temporal bone in Area MT, Sector 1, stratigraphic unit 2 (**Figure 1**). As exploration of Grave 2 has not been completed, this report does not cover this context, focusing on preliminary interpretation of the other assemblages.

Research on human remains was done between 18–27 October, 2022 in the storage room of the site. Lower parts of two skeletons found in Room 44 were unearthed and studied in October 2023. All elements were identified, described and measured using the standard protocols (Buikstra & Ubelaker 1994; Steckel et al. 2006), with some modifications (Sołtysiak et al. 2019).

Grave 1. Elements from Grave 1 were retrieved and stored in 15 bags, representing many commingled skeletons. Here only the preliminary estimation of the minimum number of individuals (MNI) and the most likely number of individuals (MLNI) as well as the distribution of sex and age-at-death is presented.

In total, 35 femoral fragments were identified and the MNI counted for their proximal ends is 10, including six subadults and four adults. The MLNI value, calculated using Chapman's formula (Nikita & Lahr 2011), is 15 for femoral subtrochanteric areas (four left, four right and two pairs). Subadult age-at-death was estimated using vertical diameters of femoral heads (Rissech et al. 2008) and five individuals ranged between 8 and 12 years, while one was much younger (1–2 years

old). Among four adult individuals, three were likely females and one individual was indeterminate based on the maximum femoral head diameter (Sołtysiak 2010). However, measurements of other elements indicate that also at least one male skeleton was present in the assemblage. Six left and two right lower dentitions and a fragment of right maxilla were preserved; the age-at-death pattern, estimated using dental devel-

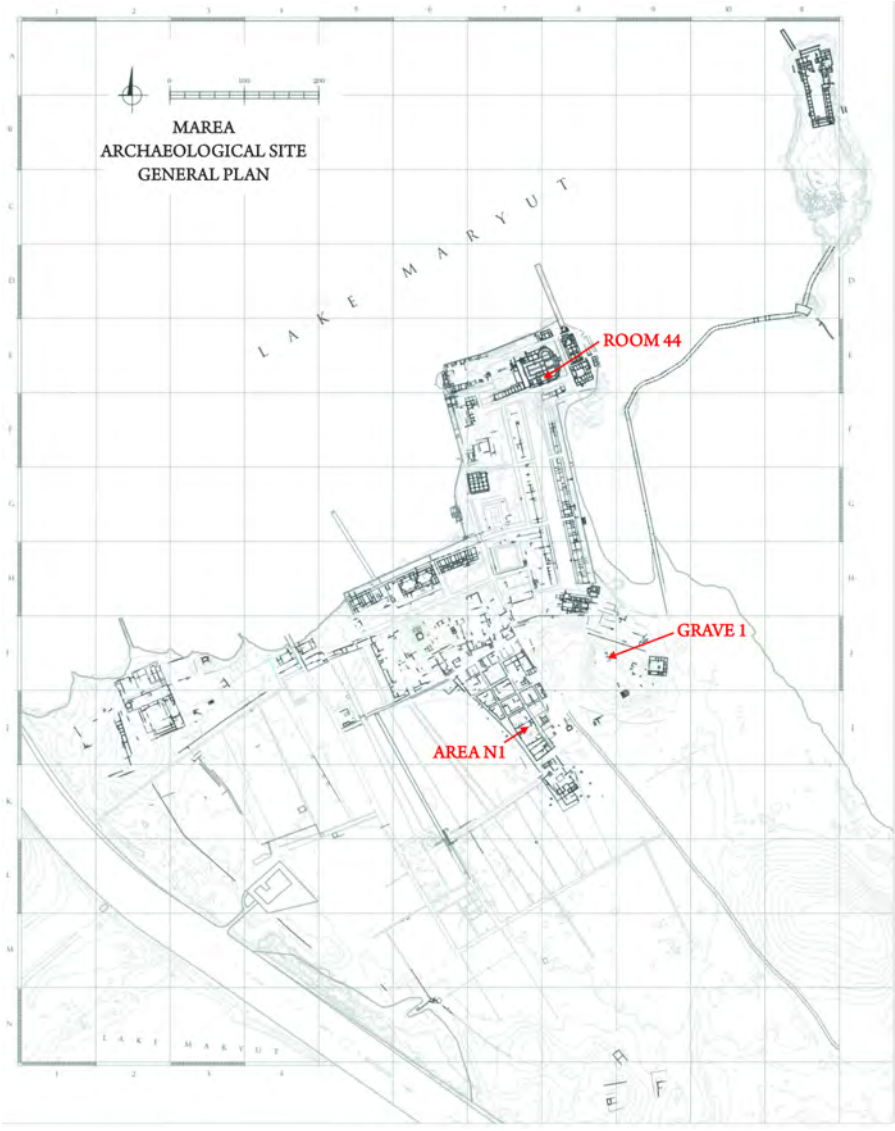

Figure 1. The plan of the archaeological site of Marea. Drawing by A.B. Kutiak and P. Zakrzewski.

opment and eruption sequence (AlQahtani et al. 2010), looks different, with three infants (9 months, one and two years old) and one older child (7 years old) together with two mature adults (age-at-death indicated by high degree of dental wear and ante-mortem tooth loss) and one young adult represented by the maxilla.

Combining all these estimates, the assemblage includes at least three infants, at least five individuals 8–12 years old, and at least five adults, including three females, one male, and an individual of indeterminate sex, with combined MNI = 13 and MLNI = 15. The age-at-death of adult individuals was relatively high, as indicated by many instances of the degenerative joint disease observed in the assemblage. Although the number of individuals is low, the high proportion of older children as compared to infants and adult individuals seems to indicate that the assemblage represents a catastrophic age-at-death pattern and not a regular attritional cemetery, although problems with assessing the demographic profile using commingled human remains in a secondary deposit should be acknowledged (Sołtysiak 2013).

Room 44. Two burials, located approximately 140cm apart, were discovered beneath the floor of Room (Chapel) 44 of the Great Basilica. Both skeletons rested on the remains of walls associated with the southern entrance to the atrium of the Old Church, a structure identified beneath the Great Basilica. The grave was cut to a depth of 120cm below the basilica floor and measured approximately 190cm×190cm in plan.

The funerary structure abutted the foundation of the western wall of the chapel, although its placement appears incidental and unrelated to the architectural layout of Room 44. At floor level, the grave was sealed by a marble slab 90 cm wide, set into the pavement without mortar. This slab was most likely reused and originally formed part of the central nave pavement of the basilica. The stratigraphy of the grave cut differs significantly from that recorded elsewhere beneath the chapel floor, indicating disturbance and reworking of deposits associated with the insertion of the burial. The upper part of the southern burial (Skeleton 2) was additionally covered by limestone slabs measuring 0.80m×0.46m, which were probably reused paving elements originating from a street in use during the basilica's period of operation.

The burials were first identified during the 2022 excavation season, when the upper portions of both skeletons were uncovered. The bodies were oriented on a southwest-northeast axis, with the heads facing southwest. The upper part of Skeleton 1 was covered by two fragments of decorated marble slabs, likely originating from the basilica's cancelli, and traces of burial pits were observed in the profile at that time.

Excavations in Room 44 continued in the following season, leading to the exposure of the remaining skeletal elements. Due to the homogeneous character of the fill layers (Layers 5 and 7), associated with post-abandonment phases of both the Old Church and the Basilica, it was not possible to clearly distinguish the outlines of the

burial pit fills. An additional fragment of a marble slab was found above Skeleton 1. Both burials were placed on the upper surfaces of demolished brick walls belonging to the operational phase of the Old Church: Skeleton 2 was deposited on the crown of Wall 4, while Skeleton 1 rested on Wall 5 (**Figures 2** and **3**).

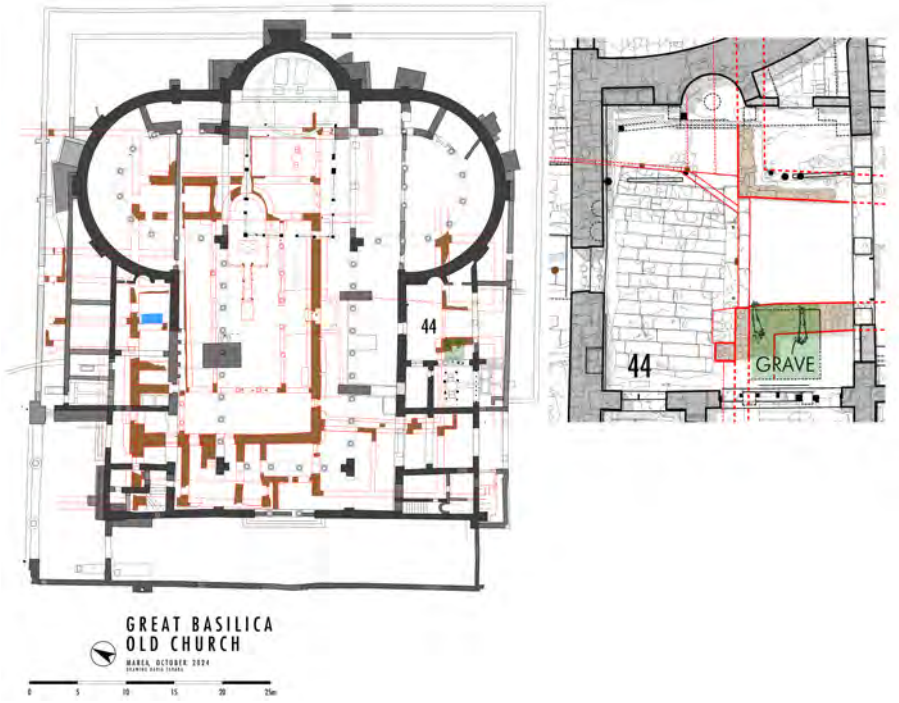

Figure 2. Left: the Great Basilica (shown in black), the Old Church, and the associated structures (shown in brown). Right: Room 44 (chapel), showing the location of the two burials. Drawing by D. Tarara.

Figure 3. Schematic cross-section of Room 44 and the atrium of the Old Church. Drawing by D. Tarara.

Skeleton 1 was laid supine, with the left hand placed on the left pelvic bone; the position of the right hand could not be determined. Beneath the skeleton, a very thin (c. 1cm), dark brown layer was recorded, interpreted as a trace of organic material, possibly a board or mat on which the body had been placed. Isolated pottery sherds and a fragment of marble were found in the immediate vicinity of the burial. Skeleton 2, located further south, was also deposited supine; in this case, the left arm lay alongside the body, while the right hand rested on the right pelvic bone. A similarly thin layer of dark brown soil was observed beneath this individual.

The chronology of both burials is indicated by finds recovered from the backfill. A bronze coin dated to the 7th century CE (identified by Piotr Jaworski), discovered in Grave 2 during the 2022 season, provides a terminus post quem for the burial. Furthermore, the presence of marble slabs above Skeleton 1, interpreted as reused elements of the basilica's cancelli, suggests that the interments took place in the final phase of the basilica's use or shortly after its abandonment.

Skeleton 1 was fairly well preserved, especially in the upper part, including distorted cranium with left side preserved only in small fragments, slightly damaged mandible, fragmented ribs, cervical, thoracic and lumbar vertebrae, and middle part of the sternal body. The ends of both clavicles were present, but without midshafts. From the right scapula, only the area of glenoid fossa was well preserved, with small fragments from the other parts of this element. The right humerus and ulna were almost complete, with slight damage only on the medial aspect of the distal humeral end and at the proximal ulnar epiphysis. The proximal 2/3 of the radius was present as well. The left upper extremity was much less complete, with only the upper part of the glenoid fossa, damaged humeral head and small fragments of the humeral midshaft together with very fragmented ulna and radius being present. The lower part of the body was represented by large fragments of femora and almost complete (although damaged) tibiae and fibulae. Hand and foot bones were relatively complete, but the pelvis was represented only by small fragments from the left ilium and ischium.

Sex assessment of the individual was difficult due to the damage of pelvis. Cranial sex indicators were ambiguous (nuchal crest 4, right mastoid process 3, glabella 2 and asymmetrical supraorbital margins: left 4 and right 2), but the long bones were gracile (vertical diameter of the humeral head 40.5mm, midshaft diameters 15.1mm×21.3mm, maximum diameter of the femoral head c. 42mm) and therefore the skeleton belonged more likely to a female than to male individual. Most teeth were slightly worn: anterior dentition 2–3 in 8-grade scale (Smith 1984), first molars 3–5 in 10-grade scale (Scott 1979), second molars 2–4 in 10-grade scale, which indicates that the individual was a young adult. This estimation of the age-at-death is corroborated by the low degree of cranial suture obliteration and complete lack of degenerative joint disease in preserved articular surfaces.

No pathological conditions were recorded in the preserved elements. There were no clear hypoplastic lines on enamel, except very slight defects on RCx, LM_2 and LM_3. No dental caries nor periodontal disease was observed in 24 preserved teeth and 27 tooth sockets. The stature of this individual may be estimated using the maximum length of humerus and it is 157.4±2.7cm using a formula for ancient Egyptian females (Raxter et al. 2008).

Skeleton 2 was better preserved than Skeleton 1, with heavily fragmented skull, relatively well preserved cervical, thoracic and lumbar vertebrae, complete sternal body and a fragment from the manubrium, most ribs in tiny fragments, both clavicles without midshafts, right scapula roughly complete but very fragmented, the left one represented only by the coracoid and fragmented acromion. The upper extremities were relatively well preserved, with complete right humeral midshaft and fragmented ends, complete right radius and ulna with a small fragment missing near the distal end and large portions of midshafts from the left side. There were also most carpals, metacarpals and hand phalanges from both sides. Pelvic bones, both femora, tibiae and fibulae were originally complete, but fragmented. Also, the foot bones were fairly well preserved.

The skeleton belonged to a male individual, as indicated by pelvic and cranial sex indicators (right ventral arc, subpubic concavity and ischiopubic ramus ridge; nuchal crest 5, right mastoid process 5, left supraorbital margin 5, mental eminence 5) and by the size of long bones (diameters at radial midshaft: 14.9mm×19.1mm and at the maximum prominence of the ulnar interosseus crest: 16.7mm×21.5mm, maximum diameter of the right femoral head: 47.9mm; circumference at the nutrient foramen of tibia: 100.5mm). Although anterior teeth were not heavily worn (1–4 in 8-grade scale), the wear of all three molars was moderate and relatively similar (4–6 in 10-grade scale), suggesting non-abrasive diet and therefore low rate of lifetime wear progress. All preserved cranial sutures were completely obliterated and degenerative joint disease in vertebral neural arches was relatively advanced (3/18 articular surfaces in cervical vertebrae, 4/19 in thoracic vertebrae and 3/7 in lumbar vertebrae). Also, the first metacarpal was very deformed by advanced degenerative joint disease (**Figure 4**) with an initial stage of this condition also observed at the distal femoral articular surface. All this suggest that this individual was likely a mature adult.

Apart of the degenerative joint disease, an area of almost completely obliterated porosity was observed in the occipital bone close to lambda and a well-obliterated irregular fracture at the sagittal sulcus above lambda (**Figure 5**), which both may be related to non-lethal episode of inter-personal violence (cf. Sołtysiak 2017). Linear enamel hypoplasia was present in all canines and some teeth were asymmetrical, which indicates some degree of a childhood stress. No carious pits were noted in any of the 32 preserved teeth, but some calculus was present in anterior dentition. L5 was at least

partially sacralized, but only a fragment was retrieved. The stature of this individual may be estimated using the maximum length of radius and tibia; it is 169.0±3.7cm (radius) or 170.1±3.0cm (tibia) using a formula for ancient Egyptian males (Raxter et al. 2008).

Area N1. Human bone scatter was found in Sectors 10 (stratigraphic units 3 and 20), 11 (stratigraphic unit 1) and 11/12 (stratigraphic unit 19). The architectural remains excavated in this area consist primarily of the so-called "extramural" church (**Figure 6**), dated to the second half of the 6th century CE. Most probably during the

Figure 4. Degenerative joint disease at the distal end of the first metacarpal, Skeleton 2 from Room 44. Scale bar 1cm. Photograph by A. Sołtysiak.

Figure 5. Obliterated fracture at the parietal bones, Skeleton 2 from Room 44. Scale bar 1cm. Photograph by A. Sołtysiak.

reign of Heraclius (610–641 CE) its original L-shaped structure was expanded and at a later stage, the church was incorporated into a larger complex that could be a monastery or pilgrims' hostel (Derda & Zakrzewski 2025).

The contexts S.U. 3 and 14, unearthed in Sector 10 (the baptistery), consisted respectively of a thin accumulation layer above the floor and the fill of a shallow pit. Both appear to represent a post-occupational phase of the church, after it had ceased to fulfil its original function but prior to its final destruction. This phase corresponds to a period when the formerly rich decorative elements and architectural details had already been dismantled and removed from the site. By contrast, contexts S.U. 1 and 19 were uncovered just beneath the topsoil layer, at the top of the destruction deposit, in the only partially excavated Sectors 11 and 12, which constituted small rooms located directly adjacent to the baptistery but belonging to the later complex mentioned above. In the case of the human remains found in Sector 10, these were widely dispersed across the excavated area, whereas those from Sectors 11 and 12 were unearthed along the eastern external wall of the two rooms.

Both adult and subadult elements were present there, with clear over-representation of minor bones, namely foot and hand bones (including carpals and tarsals), vertebrae, and teeth. No single fragment of a long bone was retrieved and crania were represented only by two tiny fragments of a subadult parietal bone. The minimum

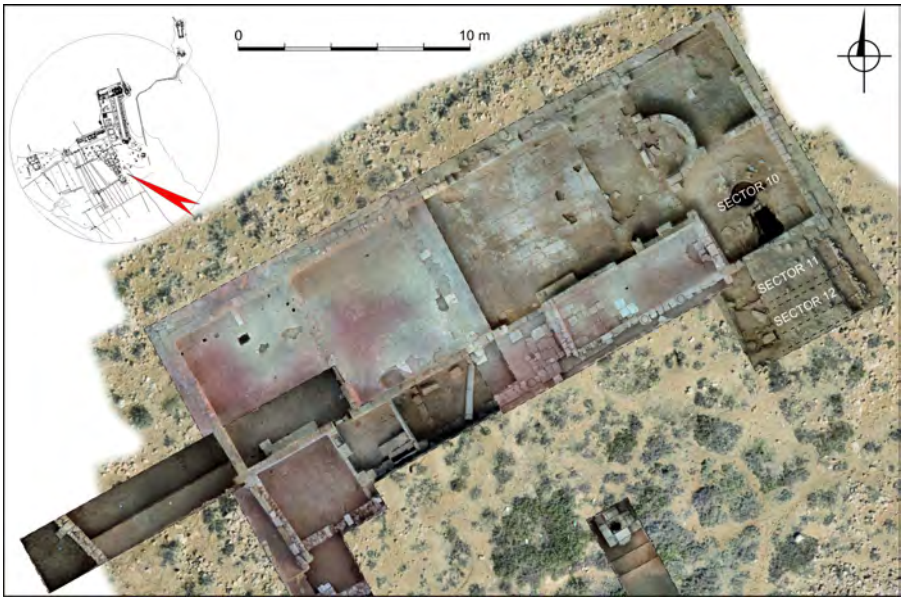

Figure 6. Orthophotogrametric image of the remains of Church N1 with inset location. Photograph by M. Gwiazda and P. Zakrzewski.

number of individuals is three including two adults (based on the number of right lower second premolars) and one infant older than perinate, but no older than two years (age-at-death estimated using general bone size; thoracic vertebrae were still not fused). The general distribution of elements is shown in **Table 1**.

Table 1. Distribution of human elements in Area N1. S – sector, SU – stratigraphic unit.

Elements	S10 SU3	S10 SU14	S11 SU1	S11/12 SU19
Infant – cranial fragments			2	
Infant – scapula (fragments)			1	
Infant – vertebral segments		4	2	
Infant – rib fragments			2	
Infant – carpals / metacarpals / phalanges	1	1	1	
Infant – tarsals / metatarsals / phalanges		1		
Adults – mandible (fragments)				1
Adults – scapula (fragments)			1	
Adults – rib fragments		1		
Adults – carpals / metacarpals / phalanges		3	3	4
Adults – patellae			1	
Adults – tarsals / metatarsals / phalanges			4	4
Adults – teeth	1	7	1	
Total	2	17	18	9

The assemblage was very small and eroded, but some pathological conditions may have been observed. In Sector 11 a quite robust left navicular was found, with a large lesion on its medial aspect (**Figure** 7), which is consistent with a stress fracture that is usually associated with a high level of physical activity (Khan et al. 1994). In one tooth (RP_1) a clear hypoplastic line was present and in 2/9 (22.2%) teeth initial carious lesions were observed, with slight enamel damage and dark spots. In both teeth (RM_2 and RP_2) the carious lesions occurred on the medial side of the crown.

The distribution of elements in the bone scatter suggests that they may represent bone fragments and teeth overlooked during removal of skeletons to a secondary con-

Figure 7. Lesion in the left navicular, Area N1, Sector 11, stratigraphic unit 1. Scale bar 1cm. Photograph by A. Sołtysiak.

text, although their broad distribution does not indicate that the primary burial was located in Area N1.

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