

# THE ROMAN 'AQABA PROJECT: THE 2000 CAMPAIGN

*S. Thomas Parker*

## Introduction

This preliminary report summarizes results from the project's fifth season of excavation in 2000 (from May 24 to July 9, 2000), conducted under a permit from the Department of Antiquities.

The team in 2000 included 15 senior staff, 37 students, and 70 local workers. Sawsan Fakhiry, again ably served as representative of the Department of Antiquities. Other senior field staff in the field included Kim Cavanagh as photographer, David Clark as consultant for the church, Christina Kahrl as conservator, Joann McDaniel as small finds specialist, Nasser Mansour as assistant geologist, S. Thomas Parker as director, stratigrapher, and ceramicist, Megan Perry as human osteologist, John Rucker as camp manager, and Wayne Sawtell as architect and surveyor. Area supervisors were Susan Gelb (Areas O and P), Mary-Louise Mussell (Area J- east), Megan Perry (Area A), Alexandra Retzleff (Area M), Joseph Stumpf (Area K), and James Terry (Area J- west and Area T). Sarah Morgan Harvey served as assistant area supervisor for Area J- east. Senior staff not in the field in 2000 included John Betlyon as numismatist, Vincent Clark as Semitic epigrapher, William Grantham as faunal analyst, Christopher Gregg as small finds specialist, Janet Jones as glass specialist, Eric Lapp as ceramic lamp specialist and metallurgy specialist, Mary Mattocks as draftsperson, Tina M. Niemi as geologist, David Reece as shell specialist, Andrew M. Smith II as director of the survey, Michelle Stevens as lithics specialist, and Peter Warnock as archaeobotanist.

Student staff serving as trench supervisors in 2000 included Jennifer Armstrong, Stephanie Bowers, Matthew Breznai, Meredith Campbell, Sarah Campbell, Jennifer Cunningham, Collier de Butts, Elena Dodge, Benjamin Dolinka, Catherine Goodman, Diane Grubisha, Tony Hartley, Rebecca Hunter, Thomas Johnson, Christina Kahrl, Alison Kooistra, Eric Lamb, Kris Larson, Amanda Lawes, Carl Martel, Tim Miles, Robert Patterson, Kenyon Reed, Marie Sanka, Jordan Somers, Jennifer Swimmer, James Sutton Nancy Teeple, Suzanne Tiefenbeck, Genevieve Trottier, Amanda Vellia, Jessica Watkins, Walter Ward, Heather Whitman, Cheri

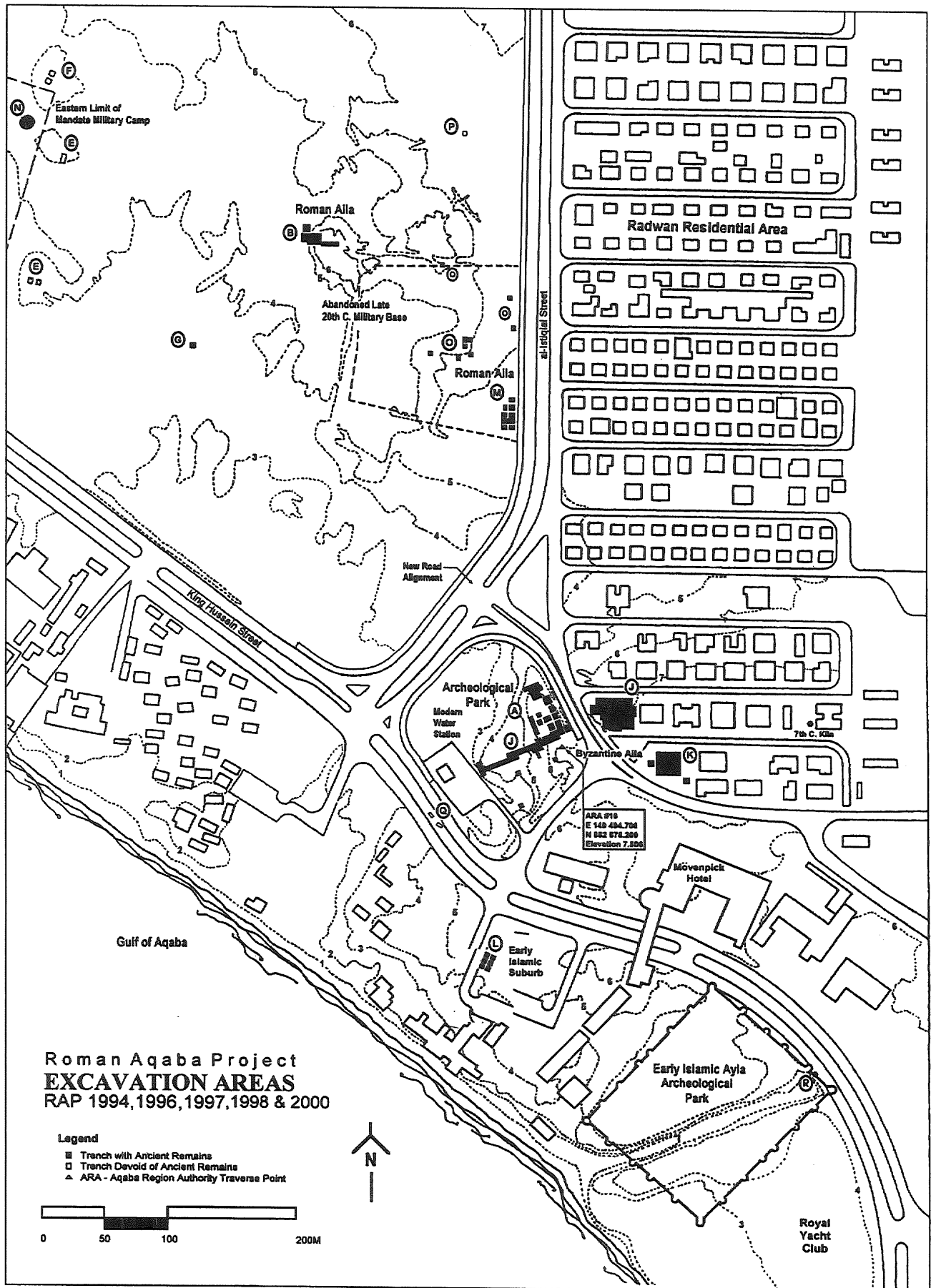
Williams and Bonnie Wright. Tom Bonhomme and Tracy McKenney were assistant architect/surveyors. Susan Gelb was pottery registrar and Sarah Campbell was assistant pottery registrar. Tony Hartley supervised field processing of faunal remains, including shell. Elena Dodge and Joseph Stumpf supervised field processing of glass.

The project is examining the evolution of the economy of Aila from the first century BC to the early seventh century AD. The project's research design includes a regional archaeological and environmental survey of the environs of Aila (completed in 1998) and excavation of Aila. Earlier reports may be consulted about the regional environment, historical sources, previous research, and the project's goals, research design, and results (Parker 1996: 232-240; 1997a: 19-26; 1997b; 1998; 1999; 2000; Smith, Niemi and Stevens 1997; Niemi and Smith 1999). The purpose of this report is merely to summarize some salient results from the 2000 season.

## Excavation of Aila

Excavation in 2000 continued mostly in existing areas that had already proved productive (**Fig. 1**). These excavation areas extended from the eastern 'Circular Area' southwards to the northern edge of Early Islamic Ayla. The one new area opened (Area R) was a sounding of the northern curtain wall of Early Islamic Ayla. The following discussion of results from each of these areas will proceed from north to south, which also corresponds roughly with the chronological order of the remains.

*Area O.* This area was opened in 1998 a short distance west of al-Istiqlāl Street atop a low mound within an abandoned military base. Its purpose was to locate the northern edge of the antiquities in the so-called 'Circular Area' and to test the assumption that structures of Nabataean/Roman Aila extended throughout the area between Areas M and B (cf. **Fig. 1**). These goals were accomplished in 1998 by five soundings (Trenches O.1-O.5) of varied dimensions scattered over a wide area period (Parker 2000: 377-378). The soundings exposed portions



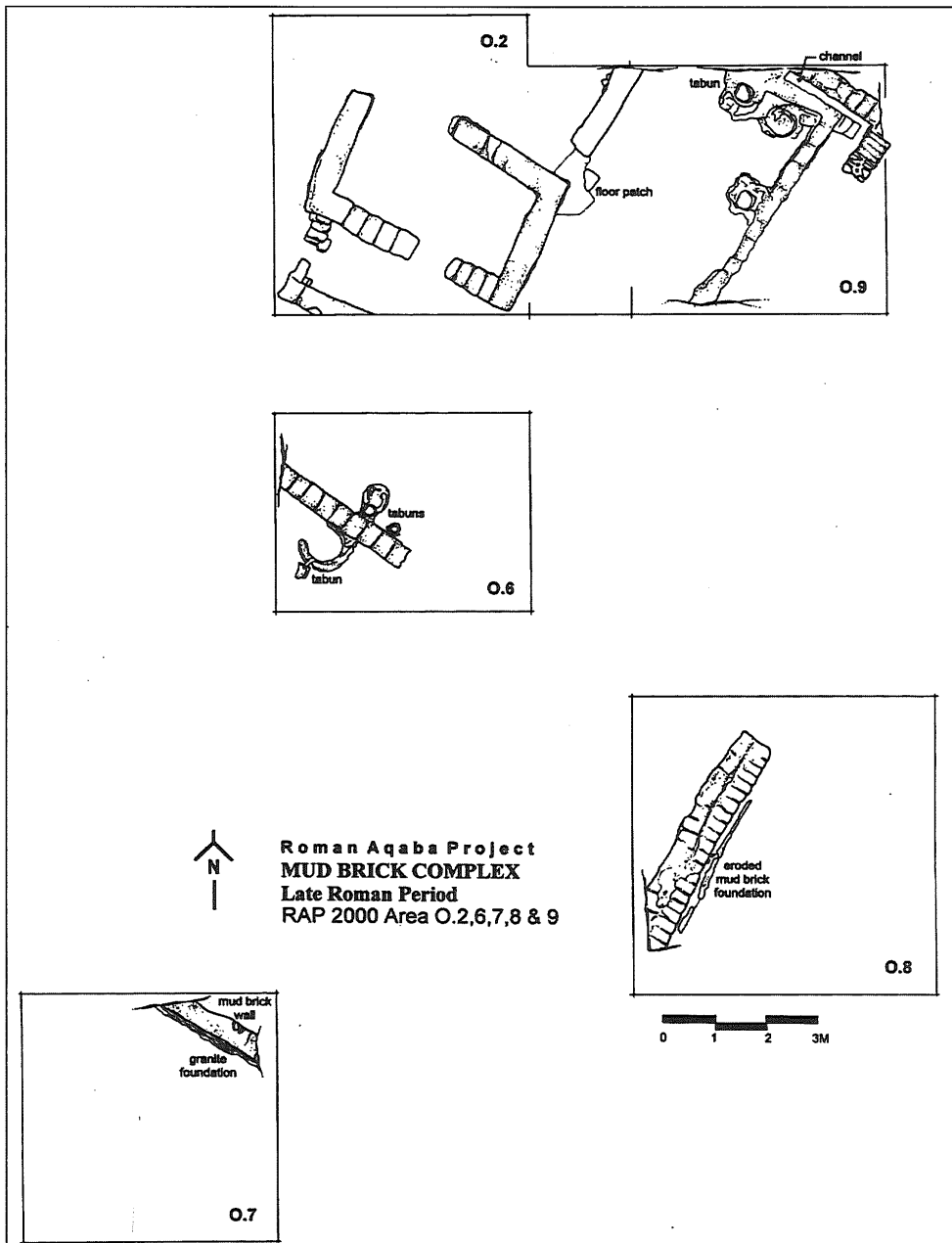
1. Excavation Areas of the Roman 'Aqaba Project, 1994-2000.

of a complex of Early Roman/Nabataean mud brick structures, apparently domestic in nature, as well as a dump of ceramic production debris. There was limited evidence from one trench (O.2) of reoccupation in the Late Roman period. The goals in 2000 were to complete a vertical section of the complex atop the mound, expose a larger horizontal sector of this complex, and determine the relationship between the Early Roman/Nabataean and Late Roman phases.

Excavation continued in Trench O.2 and four new trenches were opened (Trenches O.6-9), all located on the mound. The stratigraphic profile suggested that occupation began in the late first century BC directly atop the natural alluvial fan, with little evidence of structures. After a period of aban-

donment, a second phase of Early Roman/Nabataean domestic occupation began in the first century AD. Mud brick structures were erected and beaten earth floors were laid.

The second phase of Early Roman/Nabataean occupation was followed by a period of abandonment, without evidence of destruction, around the turn of the second century, then reoccupation later in the same century. The Late Roman occupation began with the reuse of some of the earlier Nabataean architecture as well as construction of new walls (Fig. 2). The orientation of these domestic mud brick structures closely follows those in Area M. The Late Roman occupation in Area O may be divided into up to three distinct phases, all apparently domestic in nature, as evidenced by a number



2. Plan of the mud brick structures in Area O.

of clay-lined ovens within several structures. The complex seems to have been finally abandoned by the early third century. The results suggest that this area lay near the northern edge of Roman Aila.

*Area M.* This area lies southwest of Area O and west of al-Istiqāl Street on the eastern edge of the Circular Area (Fig. 1). Excavation of seven trenches (M.1-7) in 1994-98 produced stratified evidence of Early Roman/Nabataean and Late Roman occupation in mud brick and stone structures with rich cultural remains. After the abandonment of this complex the area was used as a cemetery in the Early Byzantine period. Thus in 2000 excavation continued in five existing trenches (M.3-7) to expose more of the Early Roman/Nabataean phases and in two new trenches (M.8-9) to uncover more of the Late Roman phases.

Occupation began in the early first century AD. There was limited evidence from the first phase of occupation (ER1), mostly surfaces with flat-lying sherds and without structures. This was followed by a short period of abandonment when windblown sand accumulated over these surfaces.

In the mid-first century AD there was a major period of construction (ER2) marked by erection of mud brick houses and courtyards (Fig. 3). The walls in the southern trenches (M.5, M.9, M.6, M.7 and possibly M.4) appear to belong to the same structure, with a courtyard in M.6 leading off to the corners of two other structures to the south and southwest. Trenches M.1 and M.2 were part of a large courtyard with cooking and storage facilities. To the north is evidence for portions of two other structures. The associated installations and artifacts from this period suggest a domestic function for these buildings.

Sometime in the first half of the second century AD the ER2 mud brick houses were abandoned, although there is no sign of disaster, earthquake, or burning. The rooms were largely cleared out prior to abandonment. The southern sector of the area remained abandoned in the ensuing Late Roman 1 (LR1) period, with windblown sand accumulating in the rooms and the mudbrick walls decaying (Fig. 4). A make-shift water channel system employing reused jars was set up over the houses in M.5 and M.6. There was no new construction in M.1 or M.2, which appear to have remained as exterior spaces with natural soil accumulation. In M.4 and M.7, the ER2 structures were completely razed but were immediately built over with a new mud brick and stone house, apparently in the late second century.

In the third century (LR2), there was renewed domestic construction across Area M. The LR1

structure in M.7 and M.4 continued to be used, and some of the ER2 walls that had been abandoned in the southern sector were put back into service as the foundation levels of LR2 combined stone and mud brick walls (Fig. 5). The courtyard area in M.3, M.2 and M.1 was built over with a series of narrow mud brick walls dividing cooking areas. A household terracotta industry was possibly set up in a room extending from M.4 to M.7, but otherwise the complex seems to have been domestic in nature. There is more *in situ* material from installations in this phase and some indication that the period might have come to a violent end, perhaps in an earthquake.

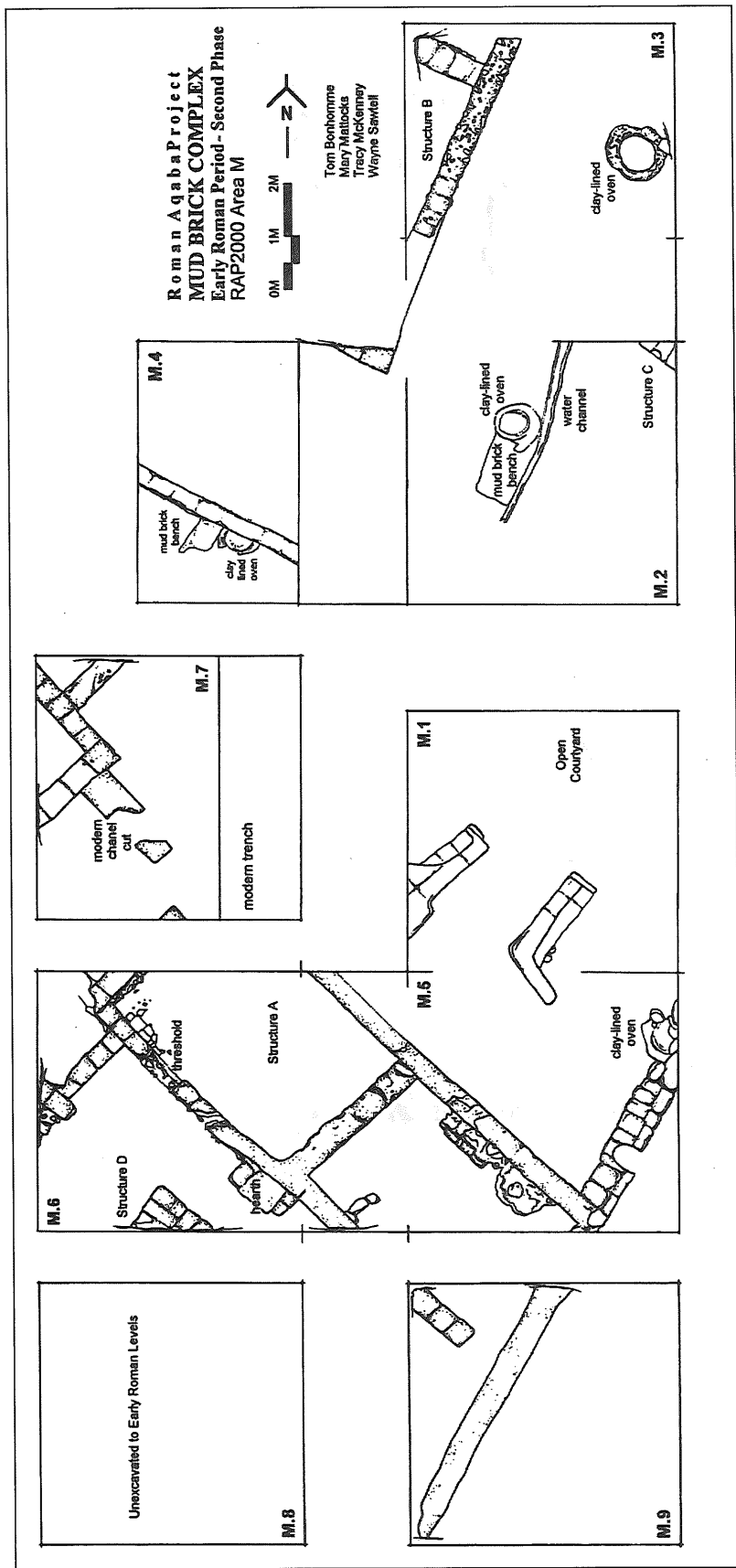
The area was nonetheless rebuilt to some degree. The end of habitation here is not well understood because the latest level of occupation (LR3), dated to the late third or early fourth century, is very poorly preserved. The stone walls and installations that survive suggest a continued domestic function for the area.

Quantities of natural clay, 359 fragments of ceramic slag, 905 kiln wasters recovered from both Areas O and M strongly suggest a local pottery industry somewhere in the vicinity in both the Early Roman/Nabataean and Late Roman periods.

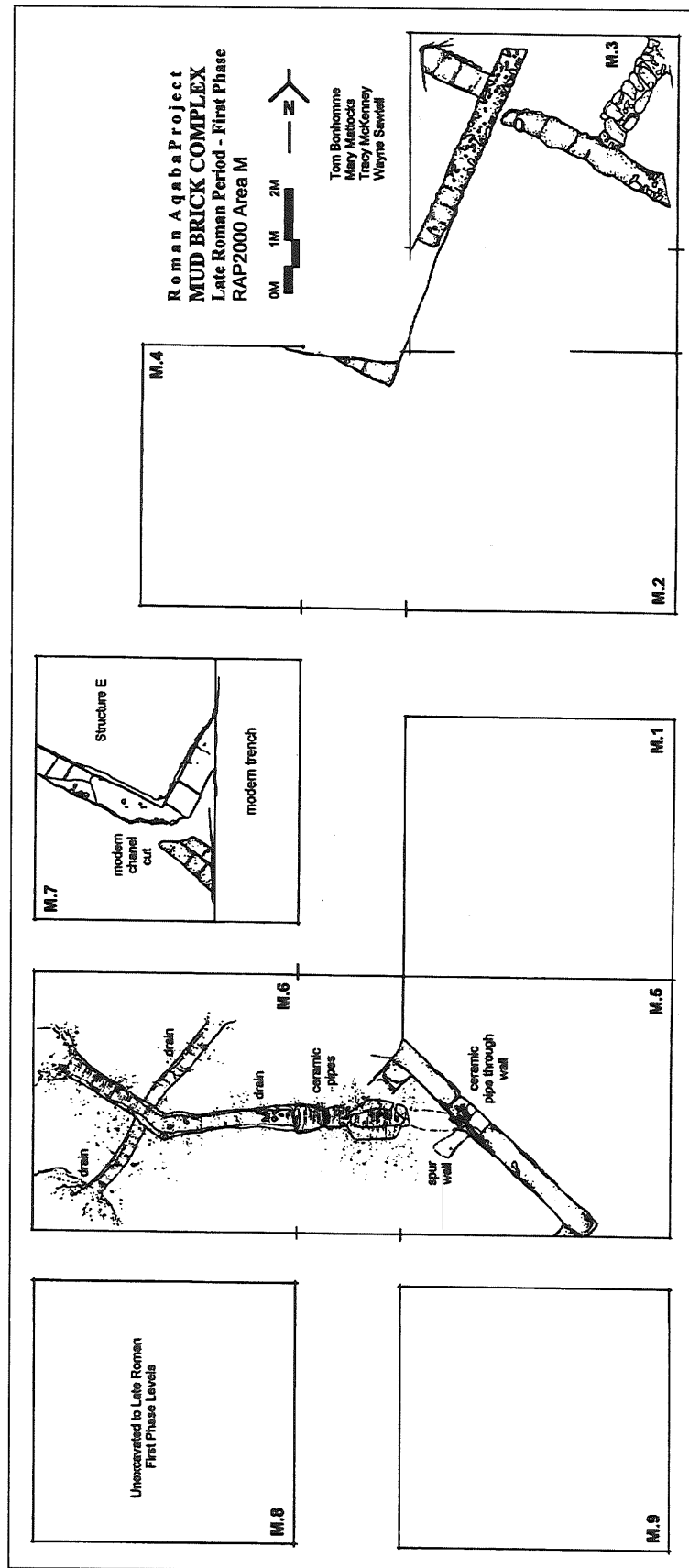
The area was apparently abandoned in the late third or early fourth century, after which it served as a cemetery. At least thirteen human burials were laid into simple pits cut into windblown sand among the abandoned mud brick structures (Fig. 6). Nearly all the individuals were oriented east-west, with the head towards the west and facing south. They constituted a mixed population of males and females of varying ages. The graves were almost completely devoid of grave goods but associated pottery suggests a fourth century date for the cemetery. The full extent of the cemetery is not known, but it clearly does not extend as far west or north as Area O. These simple pit burials, unaccompanied by grave goods, presumably represent less affluent inhabitants of Aila who could not afford the constructed mud brick tombs such as in the Area A cemetery closer to the city.

*Area A.* This area lies ca. 300 meters south of Area M and also just west of al-Istiqāl Street. Excavation in fourteen trenches (A.1-14) in 1994-98 revealed several phases of occupation extending from Early Roman/Nabataean to Early Islamic. Excavation in 2000 continued in two existing trenches (A. 2, 9) and in three new trenches (A.15-17) to further elucidate these remains.

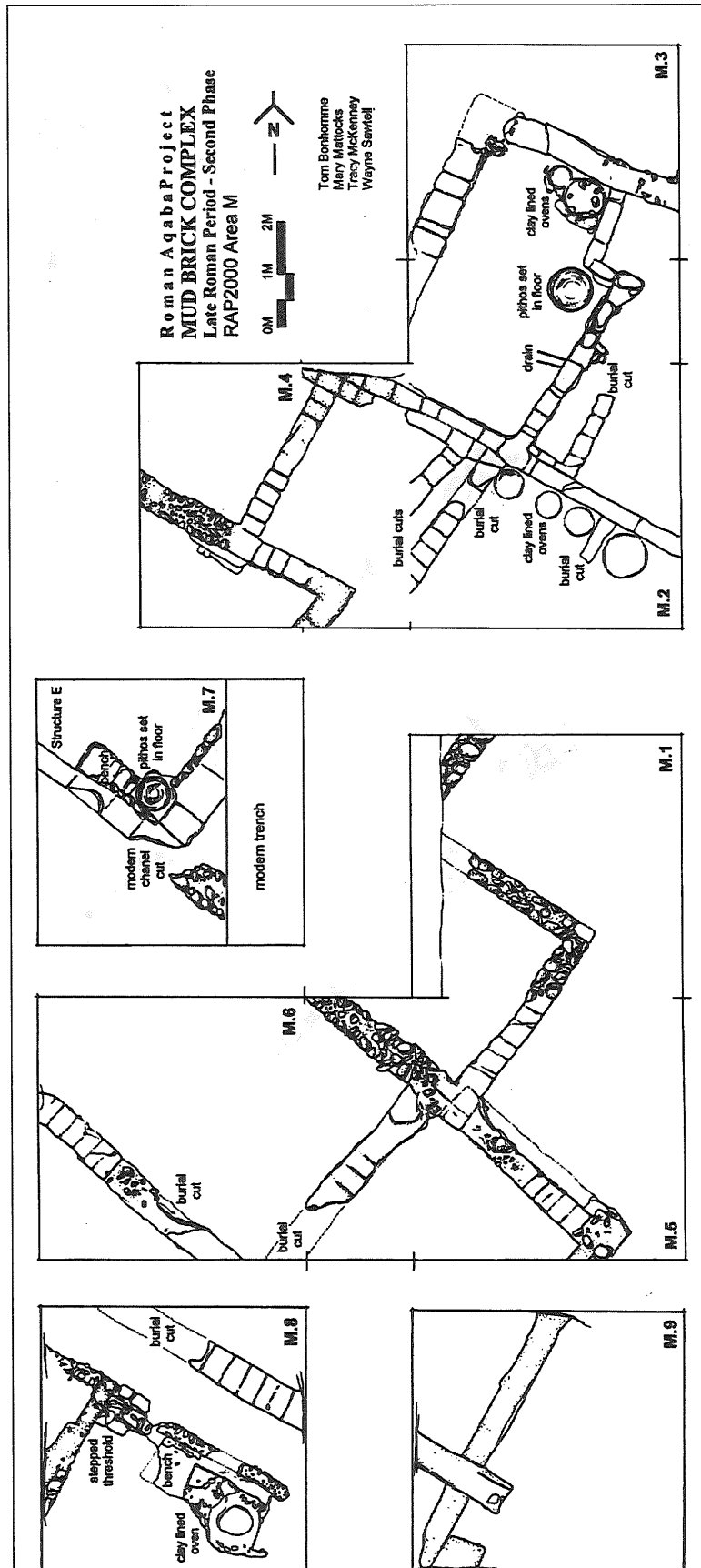
The earliest occupation encountered in Area A in 2000 was in Trench A.9, which yielded more



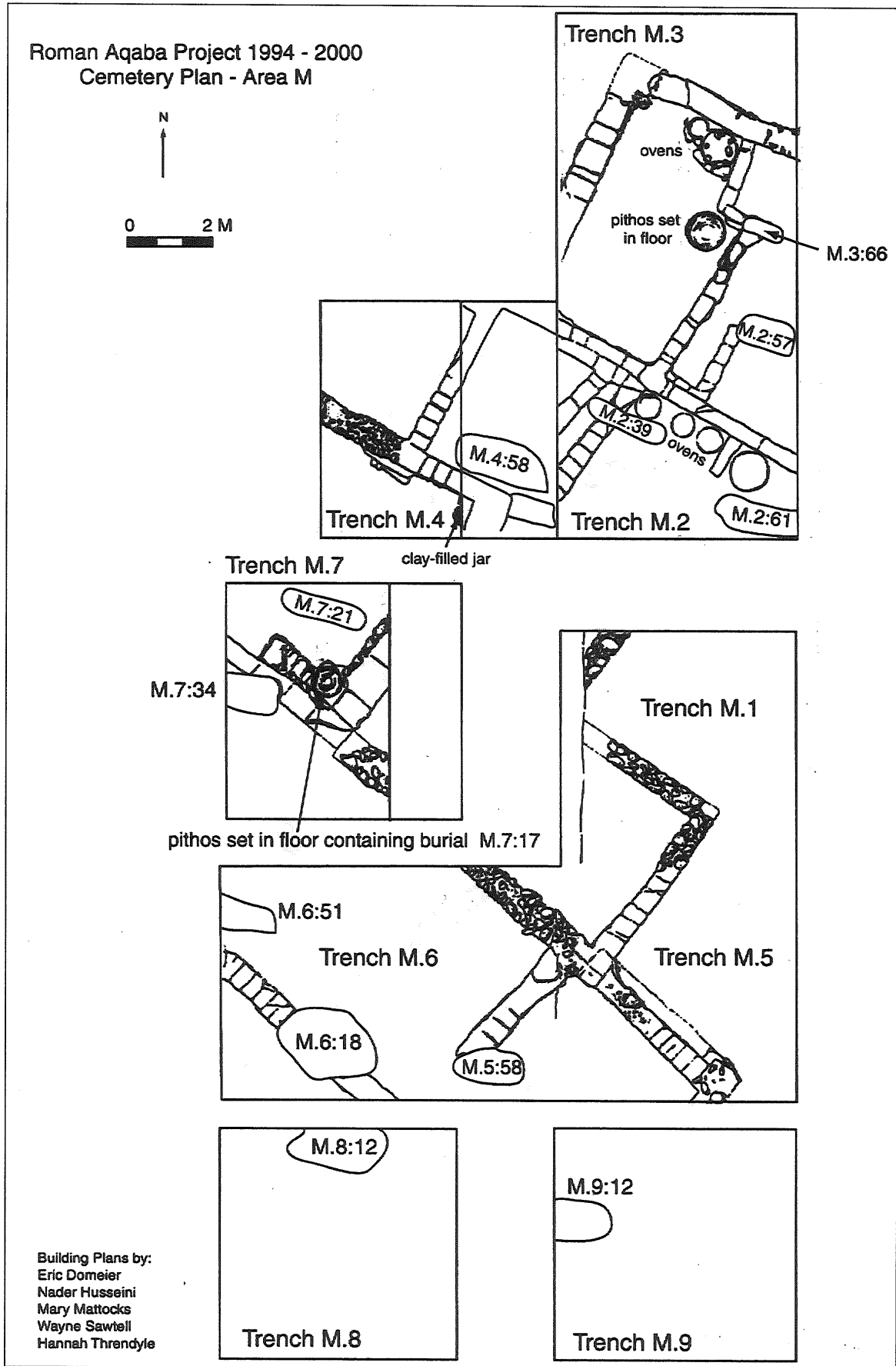
3. Plan of Area M in the Early Roman 2 phase.



4. Plan of Area M in the Late Roman I phase.



5. Plan of Area M in the Late Roman 2 phase.



6. Plan of Area M in the Early Byzantine phase, showing location of burials (by locus number, e.g. "M.8:12") intrusive through Late Roman 2 phase structures.





W with the head to the west and the face to the south. It was previously suggested that this cemetery in Area A might be associated with the monumental mud brick structure just to the east in Area J. But it now seems clear that the cemetery slightly postdates the primary destruction of this building in the late fourth century. The tombs were largely devoid of grave goods, but associated pottery sherds, coins, and stratigraphic evidence suggest a date in the late fourth and early fifth centuries for the use of the cemetery.

The abandonment of the cemetery, presumably in the fifth century, was followed by deposition of thick layers of wind-blown sand. Then, during the Late Byzantine period (sixth or early seventh century), the area south of the cemetery was reoccupied by construction of a stone and mud brick domestic complex, discovered and elucidated in 1994-98. This Late Byzantine domestic complex was apparently abandoned for about a century and then reoccupied in the late Umayyad or early Abbasid period (mid-eighth century). No further excavation was conducted within this complex in 2000.

*Area J.* This area lies along both sides of al-Istiqlāl Street (Fig. 1). The western sector of Area J is situated immediately south of Area A; the eastern sector is east of al-Istiqlāl Street. Excavation in both sectors since 1994 has revealed two major structures. The northern range of trenches east of al-Istiqlāl Street (J.1-3, 11, 19-22, 29) revealed a monumental mud brick structure. This structure clearly extended to the south, where it was cut into and partly built over by a stone curtain wall and projecting tower, part of the city wall of Byzantine Aila, in the late fourth or early fifth century, as exposed in Trenches J.4-7, 9-10, 12-18, 23-26. Deep probes against major walls of the mud brick structure in 1998 provided evidence for the date of construction at the end of the third or beginning of the fourth century.

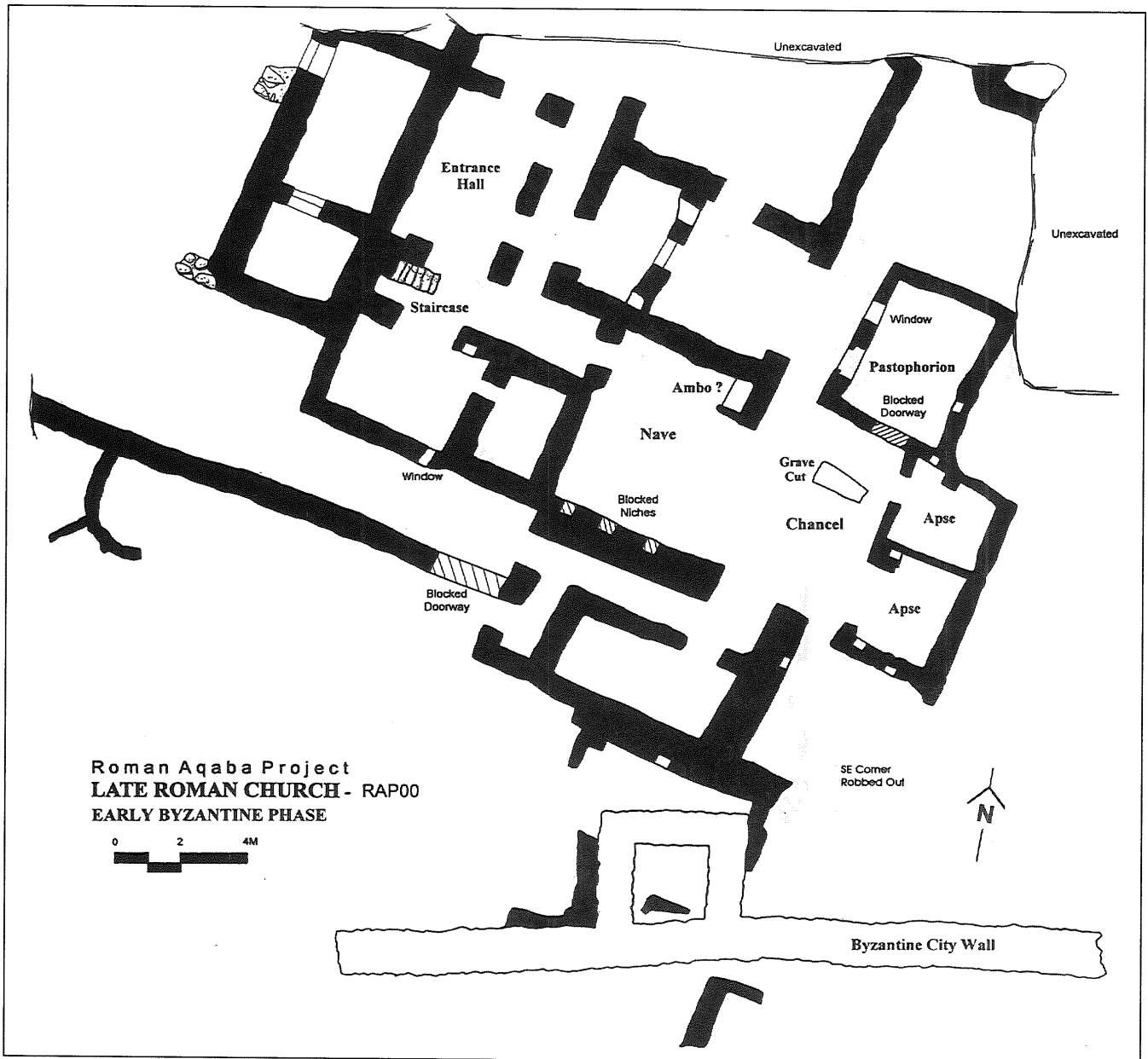
Excavation in 2000 revealed more of the overall plan and internal architectural details of the mud brick structure (Fig. 8). The central core of the building measures ca. 26m E-W by ca. 16m N-S and is oriented ESE-WNW. But there is increasing evidence of a surrounding complex of structures in all directions but the east. Most walls consist of lower courses of stone supporting upper courses of mud brick. Some walls supported arched doorways and vaults within the structure. A stone-built staircase probably was intended for access to the roof rather than a second story. The building continued to yield rich artifactual remains, including much Early Byzantine pottery (including imported Afri-

can Red Slip ware), glass (including many fragments of glass oil lamps, probably once suspended from chandeliers), several metal objects, and hundreds of coins. A major find this season was a complete rectangular alabaster plate recovered from the foundations of the structure. At least some walls were decorated with painted plaster in several colors, but fragmentary preservation as yet prohibits discernment of any images. The structure was erected about the turn of the fourth century and underwent three phases of use before its destruction, apparently in the earthquake of 363. Portions of the partially ruined structure then experienced limited domestic reuse and dumping of refuse in the late fourth and early fifth centuries, perhaps associated with construction of the adjacent city wall.

The eastward orientation of the structure, the overall plan, and some artifactual evidence (such as many fragments of glass oil lamps) all suggest that the building was designed as a Christian church. A rectangular ancient trench discovered in the putative chancel area suggests the prior burial of an important personage, presumably later removed after the building went out of use. A Christian bishop of Aila is in fact attested in documentary sources in 325. This structure, if in fact a church, seems to be the earliest known church in Jordan and possibly the oldest purpose-built church in the world.

The Byzantine city wall just south of the church also continued to be explored this season. A segment of the city wall east of al-Istiqlāl Street was uncovered in 1994. In 1996 and 1998 excavation west of al-Istiqlāl Street in Trenches J.9-18 and J.25-26 traced the city wall farther west to the modern pumping station on King Hussein Street. *In toto*, counting the segment now buried under al-Istiqlāl Street, ca. 120 meters of the Byzantine city wall of Aila have now been exposed. Excavation in Trench J.24, in the middle of the western sector of the city wall, reached its foundations, revealing that the wall here still stands over four meters high and averages 1.10 to 1.40m in width.

An interesting feature on this segment of the city wall is a large structure built against the inner (south) face. This was further elucidated in 2000 (Fig. 9). It consists of two elliptical mud brick towers connected by a mud brick wall, all erected on stone foundations set nearly as deep as the city wall itself. The elliptical towers abut the city wall. The connecting wall between the towers runs parallel to and ca. one meter south of the city wall. The space between the mud brick wall and the city wall was immediately back-filled with sand, presumably to create a rampart to defend the wall.



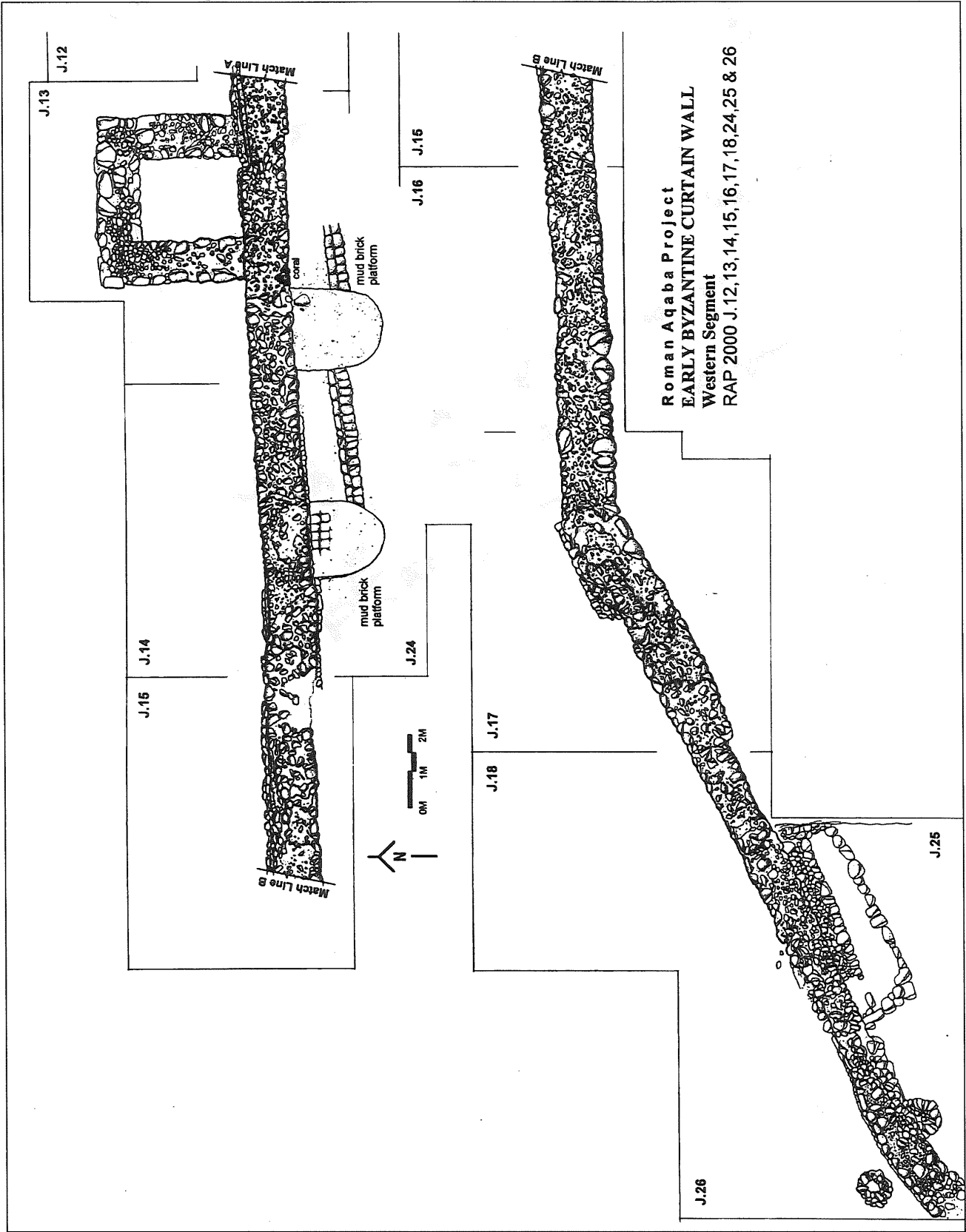
8. Plan of the Late Roman church (Early Byzantine phase).

Pottery from the foundations of this structure abutting the city wall suggests it was secondary, constructed in the late sixth century. Late in the 2000 season another similar mud brick wall was discovered extending east from the more easterly of the elliptical towers, suggesting that this interior system continued farther east.

On the northern face of the city wall in this sector in Trench J.13 is a rectangular interval tower, projecting from the north face of the wall, discovered in 1998. It is similar in size and plan to that exposed in 1994 on the eastern segment of the city wall east of al-Istiqlāl Street. Both towers were bonded to the curtain wall, lacked any entrance through the city wall, and seem to have been back-filled with sand immediately after construction,

presumably to create an elevated fighting platform. The tower in J.13 seems to have experienced some later domestic use in the Umayyad period. A doorway was cut through its eastern wall and the interior was partially cleaned out. Farther east along the city wall, just west of al-Istiqlāl Street in Trench J.23, what appears to be another projecting rectangular interval tower was discovered this season. It is spaced nearly equidistant between the two other towers. Although similar in size to the other interval towers, this newly discovered tower is exceptional by its doorway through the city wall at the ground floor level. This doorway, about one meter wide, was later blocked up with mud brick in the Umayyad period.

The Early Byzantine city wall went out of use



9. Plan of the Early Byzantine city wall (western segment) with the Late Byzantine rampart.

by the end of the Late Byzantine period (early seventh century), when mud brick and stone structures in J.9-10 were built against the north face of the city wall, obviously rendering it useless for defensive purposes. The city wall was extensively robbed in the Umayyad period, presumably for stones to build the Early Islamic Ayla.

Three new trenches were also opened in Area J south of the city wall to search for ancient occupation within the Byzantine fortifications. Excavation within two of these trenches (J.28 and J.30) revealed thick layers of fluvial and aeolian sand up to three meters in depth with no structures and minimal artifactual remains. The third of these trenches (J.27) also encountered thick sand deposition up to three meters in depth. Under the sand were remains of a stone-lined water channel and associated walls that seemed to form one edge of a well. Associated artifacts suggested that these installations date to the Abbasid period. All this suggests that the ancient remains in the area south of the Byzantine city wall and west of al-Istiqāl Street are covered by sand accumulations several meters thick. The uppermost ancient remains that do exist in this sector seem to lie at or just below the modern water table and apparently date to the Early Islamic period.

*Area K.* This area lies ca. 50m southeast of Area J in a vacant lot east of al-Istiqāl Street (Fig. 1). Eight trenches (K.1-8) were opened in 1994-98 to recover evidence of the city inside the Byzantine curtain wall. Excavation revealed significant remains of the Umayyad and Abbasid periods (late seventh to tenth centuries), including stone and mud brick structures underlying thick layers of Abbasid dump. Removal of the Abbasid domestic structures revealed substantial stone and mud brick structures of the Umayyad period. These Umayyad structures were laid out along both sides of a street that extended from northeast to southwest through Area K. The Early Islamic street continued to follow the plan of the earlier Byzantine city. By the end of the 1998 season, fifth century Byzantine levels had been reached only in small probes at deep levels in this area.

The archaeological remains in this area were faced with imminent destruction by development planned after the season. Because this is the last remaining sector of the site within the Byzantine city wall where remains of this period are easily accessible, the destruction of this area by modern development will be a major loss to the history of this important site. Therefore we removed the remaining overlying Umayyad structures (now fully documented) with mechanical equipment in order to expose a large horizontal area of pre-Islamic Aila. Six

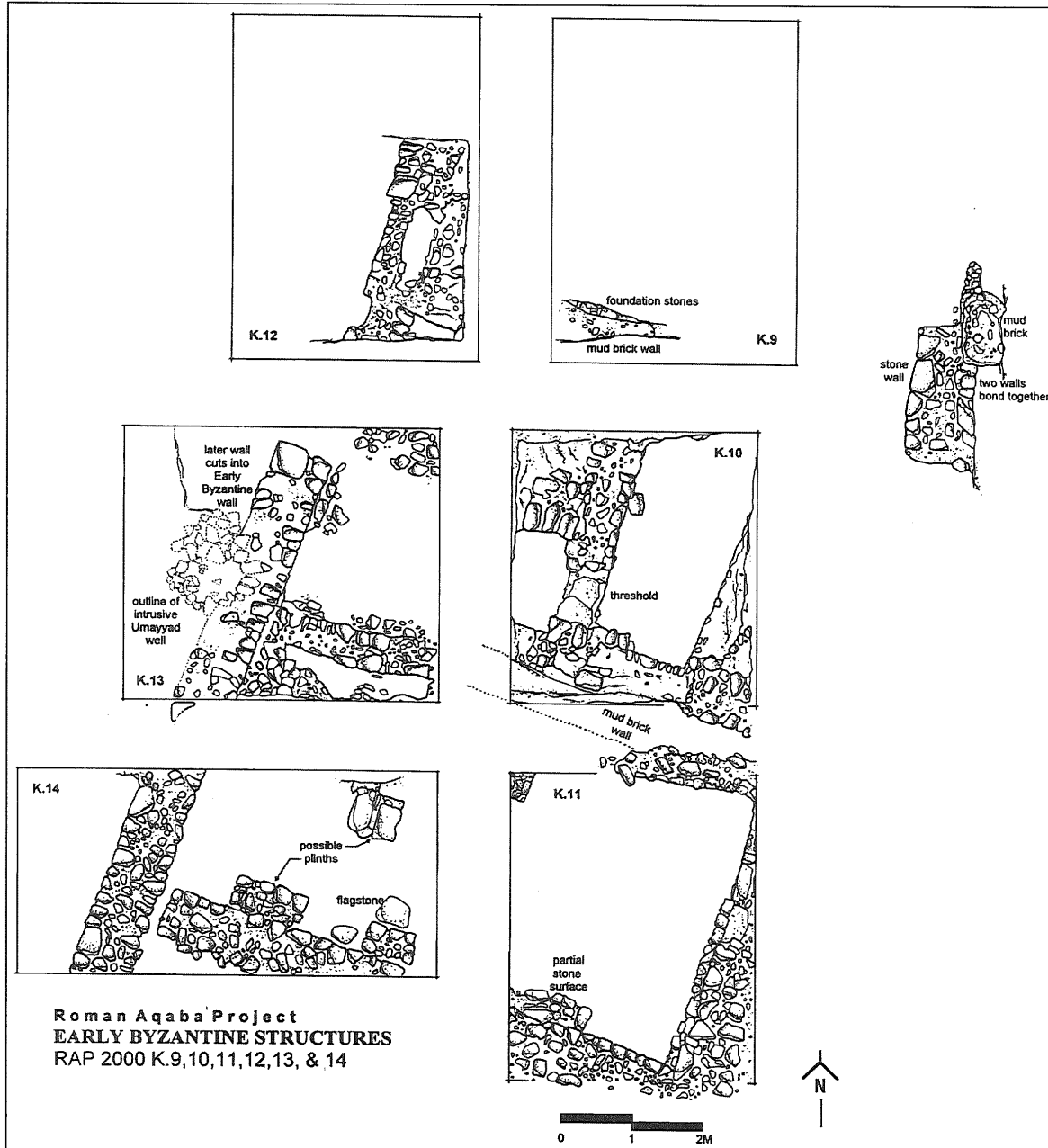
trenches (K.9-14) were laid out in a grid over the newly exposed area covering some 15.5 x 10.5m. Excavation revealed stone and mud brick structures dating to the fourth and fifth centuries (Early Byzantine) built along the east side of a street (Fig. 10). Rich artifactual remains, including a variety of imported fine wares, amphorae, and numerous coins, suggest the vibrancy of Aila's economy in this period. Deep probes in several trenches reached Late Roman (second to third century) strata before season's end. Area K has thus produced a complete stratigraphic profile of Aila's history from the second through the tenth centuries.

*Area R.* One new area was opened this season to address the ongoing scholarly debate about the date of the city wall of Early Islamic Ayla, southeast of the current project's excavation areas. The excavator of this site, Donald Whitcomb, suggested a mid-seventh century date for the foundation of Early Islamic Ayla. But he never reached the actual foundations of the city wall, being prevented by the water table. Colin Brooker and Axel Knauf, pointing to architectural parallels in several Late Roman legionary fortresses, suggested that the foundation of the fortifications of Early Islamic Ayla might actually date to the Late Roman period (ca. 300) when *legio X Fretensis* is attested at the site. In an attempt to settle this important historical question, and with the support of Dr. Whitcomb, a trench (R.1) was opened on the northern segment of the Early Islamic city wall to recover datable material from its foundations (Fig. 1). Once the wall was articulated and the water table reached, a pump was employed to permit excavation below the water table. The foundations of the city wall were exposed. Pottery from soil layers against the north face of the masonry foundations and from a soil layer extending under the foundations dated to the seventh century, confirming Whitcomb's date for the foundation of Early Islamic Ayla.

#### Analysis of Artifacts and Organic Remains

A summary of some categories of evidence was presented in a previous report (Parker 1998: 387-389). This section presents an update on various types of evidence, especially based on subsequent research.

*Archaeobotanical Evidence.* The picture here is little changed from previous reports. Despite processing of more than 1,000 soil samples by froth flotation and recovery by both sieving and manual retrieval, the quantity of botanical remains is still fairly meager. Local soil conditions are simply not conducive to preservation of botanical remains.



10. Plan of Area K in the Early Byzantine period.

The evidence recovered to date, however, is suggestive. The relative scarcity of wood (apart from palm) and the abundance of dung suggest that timber was not readily available in the local region. Palm wood and palm fronds were used for construction and fuel. Most of the remaining wood derived from shrubs still attested locally. In short the botanical evidence suggests that the local environment in the Roman and Byzantine periods was not significantly different from contemporary conditions.

Excavation of an ancient dump (Trench O.4) near the northern edge of Aila revealed rich deposits of charred pottery, ceramic slag, kiln wasters, charcoal, and other materials, reflecting ceramic production in Early Roman/Nabataean period. The

vast majority of the wood charcoal derived from palm and tamarisk, both locally available (Parker 2000: 378). Although some wild species, such as chenopods, were also exploited for fuel, dung was the principal fuel for most purposes.

Most dietary plants recovered were grains, especially barley, with some wheat attested. Other domesticates including grape, date, olive, almond, and various legumes. Assuming an environment similar to contemporary conditions, the attested grains and most of the fruits (except dates) were probably not grown locally in any significant quantity and must have been imported.

*Faunal Evidence from Area B.* This mound on the

eastern edge of the Circular Area (Fig. 1) was excavated between 1994 and 1998 (Parker 1996: 241-243; 1997a: 28-30; 1998: 378-379; 2000: 375-377). Excavation reached the alluvial fan, the natural surface that existed before human occupation, providing a complete stratigraphic profile of the mound. It was originally occupied in the Early Roman/Nabataean period, by a complex of mud brick domestic structures. These structures were abandoned in the late first or early second century AD, then filled with wind-blown sand. The mound was soon reoccupied, by new mud brick domestic structures in the Late Roman period (mid- to late second century AD). This occupation extended through three phases into the fourth century AD, or beginning of the Early Byzantine period, after which the mound was abandoned.

Recent analysis of nearly 2,000 faunal remains from this area is suggestive. Not surprisingly for a coastal site, 24.1% of the sample were fish. Excluding a mere handful of bones from other wild species (including gazelle, bird, and small mammals) and unidentified bones (15.3% of the total sample), the remaining sample consisted of 1156 bones of various domesticated animals. Of these, sheep and goat comprised about 90% of the domestic consumable animal bones, with goat outnumbering sheep by a ratio of about 5:1. Cattle comprised 14.1% of the domestic animal bones. However, it is notable that all the cattle derived from the Early Roman/Nabataean period; none derived from Late Roman or Early Byzantine contexts. Only a handful of bones derived from other domesticated animals, including camel, pig, chicken, and dog.

Given the obvious importance of sheep and goats, some further observations may be noted. First, all parts of the animal were recovered in essentially the same frequencies throughout the occupation of Area B. This suggests that whole animals were being brought to these households, rather than pre-cut portions of meat imported from elsewhere. Second, harvest profiles (i.e., age at slaughter) revealed that most animals were slaughtered at two years of age and nearly all the remainder by three years. This suggests that the main goal was meat production, not dairy or wool production, which yield different mortality curves. Third, the numeric predominance of goat over sheep, which is consistent throughout the occupational history of the area, may reflect the greater ability of goats to withstand the high temperatures and ability to forage more successfully in the arid landscape *viz.* sheep (Grant-ham 2000).

It must be stressed that these interpretations are preliminary and based on analysis of material from only one major excavation area. An important

question for future consideration is the source of these animals. It seems clear that hunting made virtually no contribution to the local diet but that both fish and marine invertebrates were important food sources throughout the history of the site.

*Coins.* Some 1,269 coins have been recovered thus far by the project. Nearly all were found in an extremely corroded condition and required extensive cleaning before analysis. Although a significant minority (32%) cannot be identified due to their poor state of preservation, most can be identified within at least broad limits. A minority can be identified precisely. The coins range in date from Nabataean issues of the first century BC to the Abbasid period (10th century AD). The coins thus constitute crucial evidence for reconstructing the economy of Aila in this period.

The complete absence of Hellenistic coins from so large a corpus suggests that the site was not established until the first century BC. Some 184 coins date to the Nabataean period, ranging from the early first century BC to the annexation of Nabataea in AD 106. There is a relative paucity of imperial Roman issues from the second and third centuries, but sufficient to suggest continued occupation of the site. The largest number of coins by far (n=551) date to the fourth century, particularly issues of the House of Constantine. Few coins date to the fifth century, none from the late fifth century. But there are some Late Byzantine coins (n=32) from the sixth and early seventh centuries. The distribution of coinage is in general accord with that from other contemporary sites in the region.

The excavations have thus far yielded only a few Umayyad and Abbasid coins and none of the later Islamic periods.

*Pottery.* Over 556,000 potsherds have been recovered thus far by the project. The vast majority are locally made coarse wares. The stratigraphic contexts associated with some 1461 fragments of ceramic slag and 1423 kiln wasters in a variety of forms suggests local ceramic production throughout from the Roman the Byzantine and into the Early Islamic periods. There is also evidence for mining natural clay in the Early Roman/Nabataean period in Area N, northwest of Aila (Parker 1998: 378). The discovery of two seventh century kilns proves the existence of local pottery production in this period (Melkawi, 'Amr and Whitcomb 1994).

Quantities of imported pottery suggest Aila's role as a nexus of commercial exchange. Aila has thus far yielded over 1700 sherds of terra sigillata



dating primarily from the first century BC to the early second century AD. The vast majority is Eastern Sigillata A, although a few sherds of Eastern Sigillata B and Cypriote Sigillata are attested. It is notable that no Western Sigillata (including Arretine) has yet been identified at 'Aqaba, since western fine ware is common at Egyptian Red Sea ports, such as al-Qūṣayr (Myos Hormos) and Berenike. Quantities of Nabataean painted and unpainted fine ware, plus a small amount of Nabataean Sigillata, also appeared in similar stratigraphic contexts. This fine ware seems to derive from Petra.

Later imported fine wares consist mainly of over 2000 sherds of Late Roman Red Wares from the third to the early seventh centuries. The vast majority of these are African Red Slip (ARS) wares, which begin appearing in quantity in the mid-third century and include both table wares and lamps. The ARS sherds comprise about 60% of the Late Roman Red Wares from the site. A distant second among the Late Roman Red Ware is Egyptian Red Slip (ERS), which appears at 'Aqaba in the fourth century, seemingly imitating ARS forms. Both types of ERS wares are attested: Egyptian Red Slip A (from the region around Aswān in Upper Egypt), including painted plates, and Egyptian Red Slip B (from various production centers along the Nile Valley). Small quantities of Phocaeian (Late Roman C) and Cypriote Red Slip (CRS) begin appearing in the fifth century. By the late fifth century it appears that the quantity of ARS had declined dramatically. So-called Byzantine Fine Ware is also attested in some quantity.

Finally, a few dozen sherds from hand-made vessels have been identified as Axumite wares from Ethiopia. These begin appearing at 'Aqaba in fourth century contexts and include red burnished bowls and jars, some also decorated with incising. A few other hand-made sherds are tentatively identified as imports from South Arabia. Fragments of a single vessel from Area K from derive from India.

The other major category of imported pottery recovered is transport jars (amphorae). Over 3,000 fragments of imported amphorae have been recovered to date at Aila. Most can be at least broadly assigned to the typology of Peacock and Williams (1986), although a minority remains to be identified.

The most abundant type of imported amphora during the Roman period at Aila is the so-called "proto-Gaza", so named because they appear to be of identical fabric to the better known Gaza amphorae of the Byzantine period. These appear in the earliest deposits at 'Aqaba in the late first century BC. Much less common among the imported Roman amphorae thus far identified at Aila are the

Dressel 2-4 amphorae. These were most often wine containers that originated in the Aegean (so-called Koan) and then were widely imitated in the western Mediterranean in the first centuries BC/AD (so-called "Pseudo-Koan", Class 10 in Peacock and Williams 1986: 105-106). Only a few dozen sherds of this type have been identified from the site and identification of their source is difficult. Most Dressel 2-4 amphorae at 'Aqaba seemingly derive from the eastern Mediterranean (including Koan, Rhodian, and Laodicean), but some appear to be Italian or western. A previously published example (Parker 1996: 244, fig. 8), originally identified as Pseudo-Koan from Italy, now more likely seems to be Koan.

Also attested but extremely rare at 'Aqaba are examples of the Peacock and Williams Class 33 amphora (originating from Tunisia and generally thought to carry fish products), Class 34 amphora (from North Africa) and Class 25 (a Spanish olive oil container; Peacock and Williams 1986: 136-140, 153-157).

Somewhat more abundant is the Class 47 ("hollow foot") amphora of the third and fourth centuries AD and possibly an Aegean wine container (Peacock and Williams 1986: 193-195).

The fourth century witnessed a dramatic increase in the number of imported amphorae at Aila. These include the Class 44 amphora, possibly an olive oil container from northern Syria, the Class 45 amphora, possibly from Asia Minor, and the Class 46 amphora ("Palestinian bag jar"; Peacock and Williams 1986: 185-192).

However, by far the two most common imported amphorae attested at Aila are the Gazan amphorae (Classes 48-49) and Egyptian amphorae (Classes 52-53). Among the nearly 500 sherds of the Gaza variety identified thus far are both the hole-mouth (Class 48) and short-necked (Class 49) varieties. Many carried wine, but others transported olive oil or sesame oil (Peacock and Williams 1986: 196-199). The most abundant amphorae by far at Aila are Egyptian. A few sherds of Egyptian amphorae appear at Aila in Roman contexts, but they only begin appearing in quantity in the fourth century. The approximately 1,600 Egyptian amphora sherds recovered to date represent just over half of all imported amphorae sherds from the excavations. These include several examples of Classes 52 and 53, both used as wine containers (Peacock and Williams 1986: 204-207). Importation of Egyptian amphorae continued into the seventh century. A small amount of Egyptian coarse ware has also been recovered at 'Aqaba.

In addition to the imported amphorae, Aila was



itself a major producer of transport jars, the so-called "Ayla-Axum amphora", in the Byzantine and Early Islamic periods. This type appears at Aila in the late fourth or early fifth century and is common through the seventh century (Melkawi, 'Amr and Whitcomb 1994). The current project has recovered thousands of fragments of these amphorae, which are attested throughout the Red Sea littoral, including Egypt, Yemen, Eritrea, and Ethiopia (Wilding 1989: 314; Hayes 1996: 159-161). Recent stratified examples from the Egyptian Red Sea port of Berenike date to the early fifth century. These jars possibly carried Palestinian agricultural products (Melkawi, 'Amr and Whitcomb 1994: 463-464).

*Glass.* Although there is as yet no evidence of glass production at Aila, thousands of glass fragments have been recovered. Some seems to be of Egyptian manufacture (Parker 1996: 252), but it now appears that the bulk of the glass is of Syro-Palestinian origin. There is also some evidence of luxury imports (Jones 2000).

*Stone.* Varieties of imported stone also reached Aila in the Roman and Byzantine periods, including basalt, marble, alabaster, steatite, limestone, and sandstone. Basalt was imported for mortars, mills, and grinders. Over 50 fragments of marble have been recovered, none from Early Roman/Nabataean contexts and nearly all from Byzantine contexts. This is in keeping with a recent study concluding that importation of marble into the southern Levant began only in the second century after the annexation the regional client states. Most of the marble at 'Aqaba appears to be architectural elements. One group of marble architectural fragments from Aila, paralleled in ecclesiastical decoration in churches at both Petra and Mount Nebo, suggests a yet to be discovered monumental church somewhere in Aila.

Some 609 pieces of steatite (schist) representing about 462 vessels have been recovered thus far by the project. Steatite vessels first appear at Aila in the early fourth century (Parker 1998: 389; 1997: 32), possibly the earliest evidence for these vessels in Jordan. The quantity of steatite, also called "soft stone" or "soapstone", increases in frequency through time and is most prevalent in the Early Islamic period, when it was also used for lamps and other types of vessels. Possible sources for the steatite artifacts include the western Arabian Peninsula and the eastern Egyptian Desert. There are quarries in Western Saudi Arabia, dating primarily to the Early Islamic Period (Al-Rashid 1986: 77; Hallett 1990: 4-10; Kisnawi *et al.* 1983: 78-79; Zarins *et*

*al.* 1980: 27-28). There are also recently discovered steatite quarries in the eastern Egyptian Desert utilized in the Early Islamic Period and possibly earlier (Harrell and Brown 2000: 39-40). Petrologic analysis of twenty-one steatite vessels from Aila as well as nine samples from the Egyptian quarries may identify the source of the artifacts. X-ray diffraction analysis of the steatite artifacts from Aila shows them to be primarily composed of varying mixtures of talc and chlorite, with most containing other minerals such as dolomite and calcite. The same items are also undergoing Inductively Coupled Plasma Mass Spectrometry analysis to determine trace element contents of the material. Together these analyses may yield important information about the composition of the steatite material and may determine which quarries were the sources of these items. Future testing of quarry samples from Western Saudi Arabia would provide additional valuable information (Grubisha 2001).

The preliminary analysis shows the steatite assemblage consists largely of charred cooking pots, about 56% of the total assemblage. Decoratively incised bowls (ca. 18% of the assemblage) may have been used as serving dishes; most lack evidence of charring. Undecorated vessels without clear evidence for charring account for approximately 21%. In addition, fragments of six lamps and three incense burners have been recovered (Grubisha 2001). Steatite is particularly useful for these types of utilitarian purposes. It withstands and conducts heat well during cooking and also maintains heat for serving food and illumination (Grubisha 2001; cf. Hallett 1990: 12; Harrell and Brown 2000: 39-40; Whitcomb 1994: 27).

## Conclusions

Obviously much analysis of the evidence recovered in the 2000 remains, but the following summary highlights some points of historical interest.

Although Aila clearly was a center of trade and industry under the Nabataeans, the relative economic importance of trade in the city's economy is unclear. There are relatively few amphorae to suggest the export of wine, oil, or other liquid commodities in this period. The significant quantities of Eastern Sigillata and Nabataean fine ware and glass was at least partly for local consumption but perhaps represents vessels broken in transit. The evidence from Nabataean Aila has thus far revealed only domestic complexes. But these lie near what was probably the northern edge of Nabataean Aila. There is increasing evidence that substantial portions of the Nabataean city may lie closer to the coast. But these now lie buried under the Late Ro-

man, Byzantine, and Early Islamic strata, specifically in Areas A, J, and perhaps K. Literary sources of this period stress the importance of Leuke Kome, now widely identified with 'Aynuna near the outlet of the Gulf of Aqaba. Ships from southern Arabia transferred their cargoes at Leuke Kome to camel caravans en route for Petra via Aila. Such cargoes, largely frankincense, myrrh, and other aromatics, might have left little trace in the archaeological record at Aila. Clearly the city already hosted several industries in this period, including pottery production, copper-working, and perhaps bone-carving.

There was more evidence of discontinuity or occupation around the turn of the second century in all three northern areas (Areas B, M, and O), when these three domestic complexes were abandoned. It remains unclear whether this widespread abandonment, without evidence of destruction, should be associated with the Roman annexation of Nabataea in 106.

Whatever the cause for the abandonment, it was seemingly brief. All the northern areas (B, M, and O) were soon reoccupied in the early second century. This again appears largely domestic in nature, although there is evidence of continued ceramic production and perhaps other industries in the vicinity. The beginning of this century also witnessed the completion of the *via nova Traiana* between 111 and 114 and the reopening of the Nile-Red Sea canal, both ordered by Trajan. The Nile-Red Sea canal enabled traffic to move from the Mediterranean, Alexandria, and Egypt to the Red Sea entirely by water. The *via nova Traiana*, with its metal surface, bridges, road stations, and Roman military garrisons, probably enhanced both the efficiency and security of commerce between Syria and Aila. Thus the second century might have begun a revival in Aila's economic fortunes. It is perhaps notable that Leuke Kome is no longer mentioned in literary sources after the first century AD.

The focus of occupation at Aila clearly shifted south in the beginning of the fourth century, when the domestic complexes in the northern areas were abandoned. Again, there is no evidence of destruction. The Area M complex was reused as a cemetery later in the fourth century.

The evidence suggests that the fourth century was a period of significant economic prosperity and development. This century began with the arrival of *legio X Fretensis* from Jerusalem. Although this unit probably no longer consisted of 5,000 or so troops typical of legions of the Principate, it still probably numbered at least 1,000 men. These troops, along with their families and other dependents, represented both a predictable influx of cash

into the local economy and a market for a variety of products. The legion also required a steady supply of food and other materials, most necessarily imported to Aila. The huge increase in Egyptian and Gazan amphorae and the quantities of African Red Slip and Egyptian Red Slip table wares at Aila in this period may in part be explained by the legionary presence, which continued for at least a century and probably longer.

Construction of the putative church in Area J ca. AD 300 also has economic implications for this period. Although there is still no proof that the mud brick structure is in fact a church, its eastern orientation, overall plan, and associated artifactual evidence still suggest that this is the most plausible interpretation. If so, it was probably erected shortly before the church building program launched by Constantine in Palestine in 325 and thus represents an entirely private initiative. It implies the existence of a local Christian community with surplus economic resources sufficient to erect this monumental structure.

In the late fourth century, the church was severely damaged, perhaps by the earthquake of 363, and then abandoned. Soon after, construction of the stone curtain wall began. The line of the new fortifications partially extended over the church, which otherwise lay outside the new city wall, perhaps explaining why the ruined church was not rebuilt. The new city wall clearly demarcated the northern urban limit of Byzantine Aila. Construction of the city wall, with its projecting interval towers, also suggests the availability of surplus economic resources (whether local, imperial, or both) and some perceived threat to the city's security in this period.

Just outside the wall a cemetery of mud brick tombs was established (in Area A) that remained in use until perhaps the early fifth century. The two Early Byzantine cemeteries in Areas A and M have now produced a total of about 45 individual skeletons. This evidence promises some insights into the demography of Aila in this period. Inside the wall, excavation in Area K revealed a sequence of occupation extending from the Late Roman period through the Early Byzantine period, when a complex of stone and mud brick structures lined a street.

Aila's prosperity in the Byzantine period was undoubtedly fueled by several factors. The legionary presence, as noted above, continued at least into the early fifth century, if not later. The city became a station for pilgrims visiting Mount Sinai as well as an episcopal see. The abandonment of the more southerly Egyptian ports — Myos Hormos by the early third century and Berenike by the early

sixth century — gave greater significance to the northern Red Sea ports, specifically Clysmā (modern Suez) and Aila. Both literary and archaeological evidence suggests that Red Sea commerce was flourishing in this period. Of special significance is the enormous quantity of amphorae produced at Aila itself and found throughout the Red Sea littoral including as far south as Axum in modern Ethiopia. Production seemingly began in the late fourth or early fifth century and continued into the Early Islamic period. Although the quantity of these jars is impressive (thousands of fragments have been recovered at Aila), their contents remain unclear. This evidence is now complemented by the Axumite pottery recovered at Aila and the eye-witness testimony of Cosmas Indicopleustes. This early sixth century Egyptian merchant visited Adulis, the port of the Axumite kingdom, and reports that the port was “much frequented by traders from Alexandria and the Gulf of Aelana” (i.e. Aila, cf. Miller 1969: 166-168).

It has been suggested that the city wall went out of use sometime in the Late Byzantine period (sixth/early seventh centuries). The most recent evidence suggests that this occurred relatively late in this period. Secure dating of construction of the mud brick rampart and elliptical towers to the late sixth century surely implies that the city wall remained in use in this period. It was perhaps not until the early seventh century that the city wall fell out of use for defensive purposes, as its exterior (north) face could be incorporated into a domestic complex in Trenches J.9-10. The city wall was then robbed more systematically for stone to build the adjacent Early Islamic Ayla later in the seventh century.

Important new evidence about the Early Islamic period was also obtained this season. The Area R sounding of Early Islamic Ayla suggests that its curtain wall was erected in the seventh century and not, as some have argued, in the Late Roman period. The deep deposits of over four meters of Abbasid and Umayyad strata in Area K clearly suggest that the Byzantine city continued to experience intensive occupation until late Abbasid times, when the sector was abandoned and used as a dump. In contrast, the project has recovered no evidence of Fatimid occupation, in line with Whitcomb's view that the Fatimid period at Ayla was one of economic decline and population contraction.

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