THE ROMAN 'AQABA PROJECT: THE 1996 CAMPAIGN

by

S. Thomas Parker

Introduction

The second campaign was conducted from May 16 to July 4, 1996 under a permit from the Department of Antiquities.

The field team consisted of 16 staff members, 32 students, and 75 Jordanians: Sawsan Fakhiry, Inspector of the 'Aqaba Region, again participated as representative of the Department of Antiquities. Other senior field staff included Christopher Gregg as assistant small finds specialist, Nelson Harris as assistant camp manager, Mary Mattocks as landscape architect, Joann McDaniel as small finds specialist and registrar, Tina M. Niemi as geologist, S. Thomas Parker as director, stratigrapher, and ceramicist, Megan Perry as human osteologist, John Rucker as camp manager, Colleen Shannon as architect and surveyor, Andrew M. Smith II as director of the survey, Jonathan Tedder as photographer, and Peter Warnock as archaeobotanist. Area supervisors were Jeff Blakely (Area B), Mary Louise Mussell (Area J), Megan Perry (Area A), Alexandra Retzleff (Area M), and Joseph Stumpf (Area K). Senior staff not in the field in 1996 included John Betlyon as numismatist, Vincent Clark as Semitic epigraphist, Dorianne Gould as a small finds specialist, Janet Jones as glass specialist, David Reece as shell specialist, Michael P. Speidel as classical epigraphist, Michelle Stevens as lithics specialist, and Michael Toplyn as faunal analyst. Blakely also offered invaluable assistance in field analysis of the ceramics.

Student staff serving as trench supervisors included Jennifer Beaver, Claudia Christen, Nathan Craig, Elena Dodge, Susan Gelb, Catherine Goodman, Geri Greenspan, John Haynick, Susan Hull, Kristine Johnson, Ellen Kenney, Klaus Krohn, Joanne Laird, Christopher Lambert, Elizabeth Ann Pollard, Kimberly Mastenbrook, Linda McRae, Shannon McCormick, Erko Mikkola, Sarah Morgan, Kim Nguyen, Jane Oltmann, Brian Overton, Michael Orr, Kenyon Reed, Angela Roskop, and Chaffee Viets. Sabina Mirabelli was assistant architect/surveyor. Carol Frey, James Christian Giercke, and Heather Walters served on the survey. Elizabeth Ann Pollard was pottery registrar. Claudia Christen supervised field processing of faunal remains, including shell. Elena Dodge and Joseph Stumpf supervised field processing of glass.

Regional Survey

Although the project's main focus is the classical period, all sites of all periods were recorded.

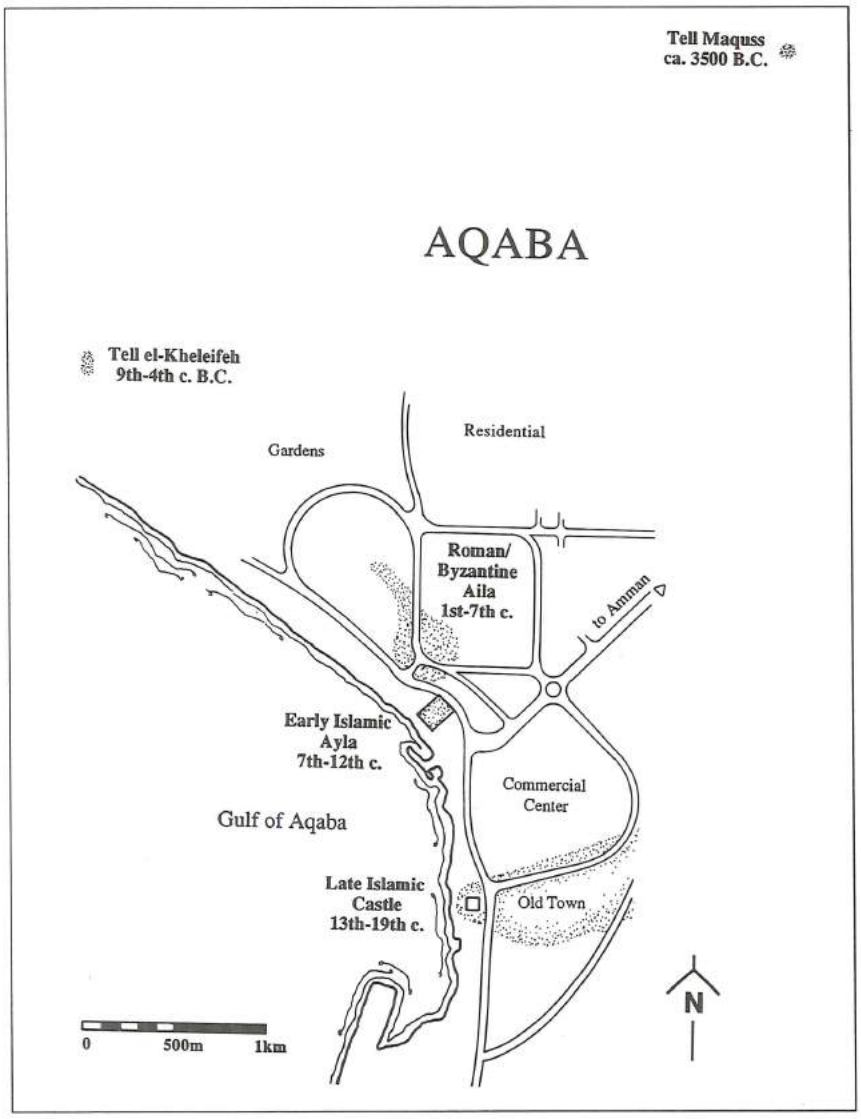
In 1996 another 73 archaeological sites were recorded by the survey. The number of sites recorded during the first two seasons now totals 234. Of the 73 new sites visited in 1996, 39 yielded pottery sherds, 23 produced lithics, and 17 yielded both sherds and lithics from the surface. Some 25 sites produced no surface artifacts. In 1996 the periods best represented in preliminary analysis of the collected artifacts were Chalcolithic/Early Bronze (31 sites) and Early Roman/Nabataean (15 sites). There was much more limited evidence for other periods, including Neolithic, Byzantine, and Early Islamic. These sites are diverse in nature, ranging from isolated graves to large cemeteries and from single stone rings to complexes of structures. A structure near the mouth of Wādī al-Yutm apparently was designed to monitor traffic moving along

the *via nova Traiana* north of Aila.

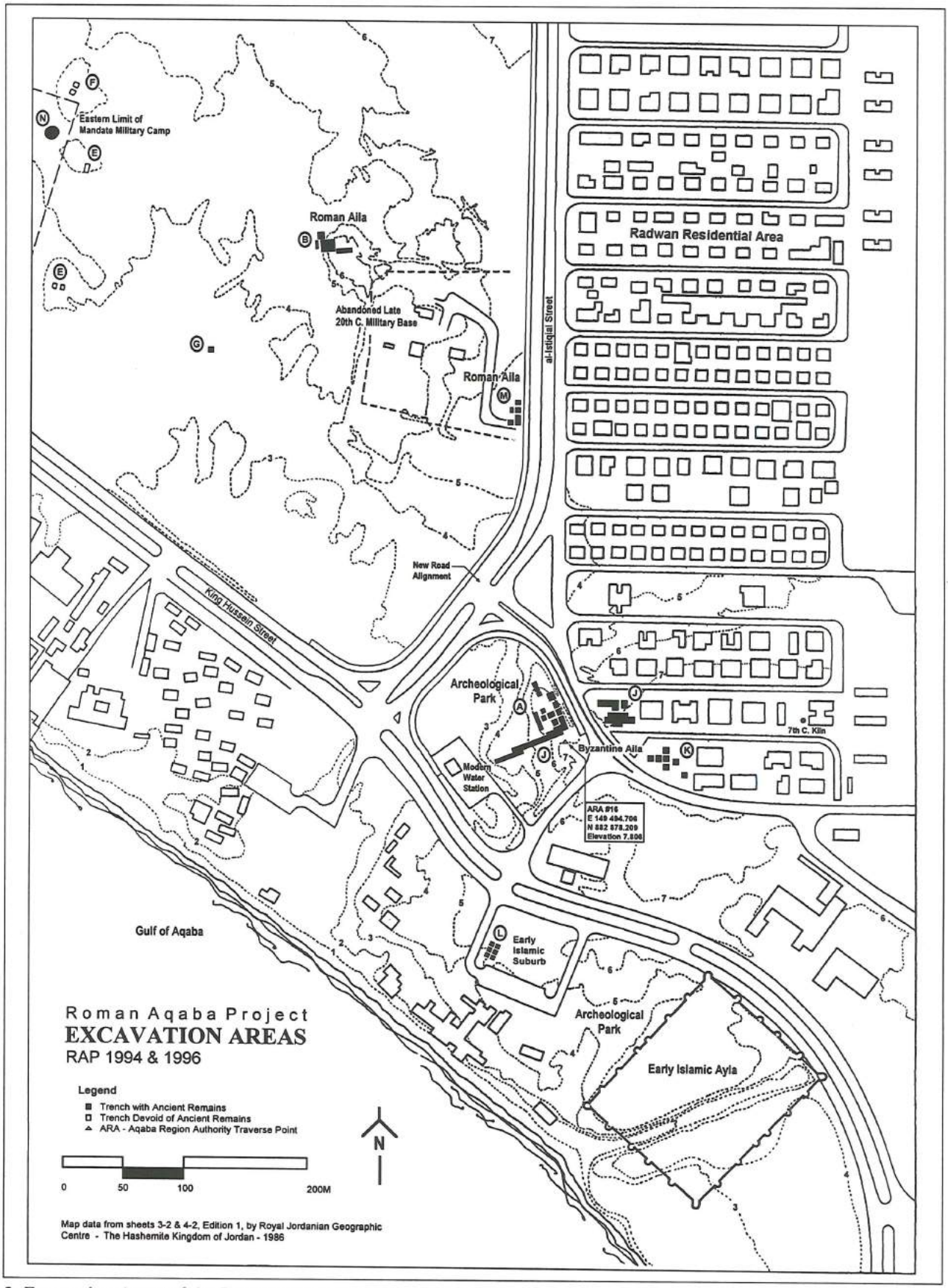
The principal Iron Age and Persian period site visited was Tall al-Khalayfi (Fig.1), from which a surface ceramic sample of 824 sherds was collected. Analysis of the pottery supported Pratico's suggested date for the site, that is with occupation beginning in Iron IIB/C and continuing through the Persian period. Although only four sherds were dated Hellenistic, these included a stamped Rhodian amphora handle. This was notable in light of another Rhodian amphora handle dated ca. 200 BC from the surface of al-Khalayfi (Pratico 1993: 62). This suggests some kind of occupation at al-Khalayfi continuing into the early Hellenistic period (332-63 BC), especially since the current excavations of Aila have thus far yielded no evidence earlier than the first century BC.

Excavation of Aila

Excavation in 1996 continued in all six areas which had proven productive in 1994 (Fig. 2). These excavation areas extended from the Circular Area to near the beach, just west of Early Islamic Ayla. The only new area opened (Area N) was a geological probe in the central Circular Area, which yielded some important archaeological evidence. The following discussion of these excavation areas will proceed from north to south, which also corresponds roughly with the chronological order of the remains.



1. Map of the modern city of 'Aqaba, with ancient and medieval archaeological sites.



2. Excavation Areas of the Roman 'Aqaba Project, 1994-1996.

Area N and the Circular Area. Because the 'Aqaba Regional Authority intends to develop the Circular Area, the search continued for evidence of cultural remains to guide development in this area. In 1994 a series of soundings (Areas C, D, E, F) and trenches excavated by mechanical equipment to a depth of up to 3.5 m had failed to recover ancient remains. But scatters of Roman pottery over the surface of the Circular Area and excavation of a mud-brick slump in one mound (Area G) suggested the possibility of significant ancient remains in the Circular Area. Further, excavation in 1994 of a mound (Area B) near the eastern edge of the Circular Area had yielded mud-brick structures and other evidence of the Early and Late Roman periods (Parker 1996: 241-43).

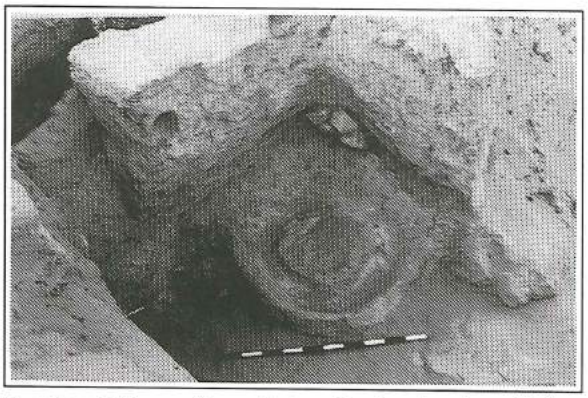
Therefore, and in light of impending development, more probes were excavated by mechanical equipment in the Circular Area. Probes of the northern Circular Area revealed alluvial fan sediments apparently sterile of human occupational remains, although it is possible that these lie at greater depths (i.e. more than 2-3m below the modern ground surface). It now seems that, as Meloy suspected, most if not all the mounds of the Circular Area contain remains of ancient structures.

After abandonment the collapsed remains trapped wind-blown sand which covered and created the mounds. The low-lying areas between the mounds seem devoid of structures. But microscopic analysis of sample sediments revealing tiny fragments of charcoal, shell, bone, and possibly mud-brick, suggest redeposition or coeval deposition of cultural material. Some of these deposits may be agricultural soils.

A large existing bulldozer trench excavated up to 3 m in depth by others was studied by cutting back its existing balk sections (Area N). Here were several thick beds of natural clay with evidence of mining in antiquity. A pottery sample of ca. 1,000 sherds from these clay pits was entirely Early Roman/Nabataean. This evidence, combined with the ceramic slag and Early Roman/Nabataean kiln wasters from Area M discussed below, suggests that these clay beds were exploited for a local pottery industry in the Early Roman period.

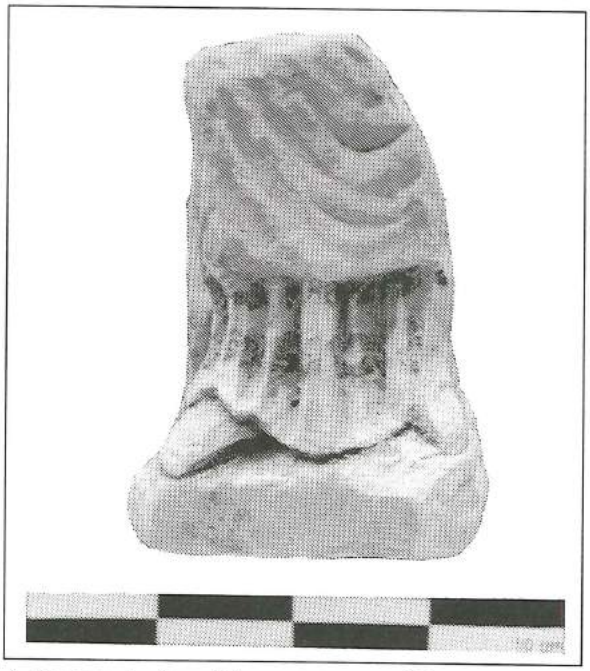
Area B. In 1994 this mound in the eastern Circular Area produced evidence of Late Roman mud-brick structures, with hints of an earlier (Early Roman/Nabataean) phase. In 1996 excavation continued in all three trenches opened in 1994 (B.1-3) and in three new trenches (B.4-6). These six trenches were laid out to complete an E-W section through a large portion of the mound. All six trenches reached the natural alluvial fan, thus providing a complete profile of occupation of the mound. It was originally occupied in the Early Roman/ Nabataean period, when mud-brick structures, apparently domestic in nature, were constructed in the first century AD. Some walls were standing nearly 2 m high in places. Pottery included 247 sherds of terra sigillata, mostly Eastern Sigillata A. These structures were abandoned in the late first or early second century AD, then quickly filled with wind-blown sand.

The mound was soon reoccupied in the Late Roman period, perhaps as early as the mid- to late second century AD, when new mud-brick structures were erected. Some were founded on wind-blown sand, others atop the surviving walls of the Early Roman/Nabataean period. During three phases of Late Roman occupation the original structure was expanded twice by adding rooms to the southern end of the complex, creating a building of at least three rooms by the end of this period (see the plan in Parker 1996: 242, Fig. 5). Late Roman occupation in Area B also witnessed intensive baking activity, as evidenced by many ovens (*ṭawābīn*) and the foundations of two circular installations interpreted as foundations for flour mills (Fig. 3). Among the



3. Foundation of a plastered circular installation (flour mill?) in the corner of a room in Trench B.1. View to SE (photo by Jonathan Tedder). B69-6.

more significant finds was a painted sandstone statuette of a Roman matron (Fig. 4), apparently of local manufacture. The statuette is Roman provincial in style and seems to date to the late second or early third century. Occupation clearly extended into the fourth century, as reflected by a handful of African Red Slip sherds and a few fourth century coins recovered near the surface. Two sixth century coins (one unstratified) from Area B in 1994 might suggest some human presence in the Late Byzantine period, but the absence of sixth century pottery from Area B suggests the coins are stray finds. Area B was then largely abandoned until disturbed by modern military trenching.



4. Fragment of sandstone statuette of Roman matron from a Late Roman context in Area B. Traces of red paint are visible on the lower drapery (photo by Jonathan Tedder). B87:20-25.

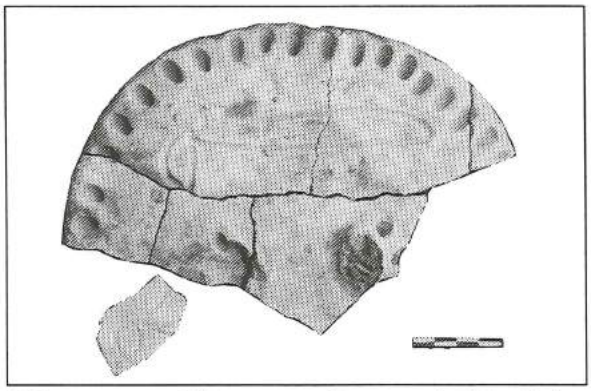
Area M. This lies on the west side of al-Istiklāl Street on the eastern edge of the Circular Area (Fig.2). Excavation of three trenches (M.1-3) in 1994 revealed a mud-brick complex with rich cultural remains. Occupation began in the Early Roman /Nabataean period and continued in the Late Roman period, perhaps with an intervening period of abandonment (Parker 1996: 243-44).

Whereas work in 1994 produced a vertical stratigraphic profile of occupation in this area, excavation in 1996 aimed for horizontal exposure, specifically to elucidate the plan of the later (Late Roman) occupation. Therefore this area was expanded to six trenches (M.1-6; cf. Fig. 5). Excavation suggested that the Late Roman complex was founded after a period of abandonment of at least the southern portion of the Early Roman/Nabataean complex (M.1, M.5, M.6), perhaps in the second century. The Late Roman structures extended throughout Area M and seemingly beyond. The walls were mostly mud-brick, with some use of stone. Some walls were built of both brick and stone, with stone masonry courses atop mud-brick, such as the wall extending from M.1 into M.5. Several *ṭawābīn* were excavated, including a line of four such ovens built against a wall in one trench (M.2). An important discovery was a jar filled with natural clay (like that from Area N described above) in the east balk of trench M.4 (Fig. 5). This, combined with much ceramic slag and kiln wasters, suggested the continuation of local pottery production in the Late Roman period. A complete wheel-made lamp and several other Egyptian lamp fragments (so-called 'frog lamps') attest connections with Egypt in this period. A notable find was a mirror handle of iron and

ivory, clearly an import. Occupation seems to have ended in the fourth century AD as attested by a few African Red Slip sherds and fourth century coins found at or near the surface. Later several intrusive human burials were laid into pits among the mud-brick structures.

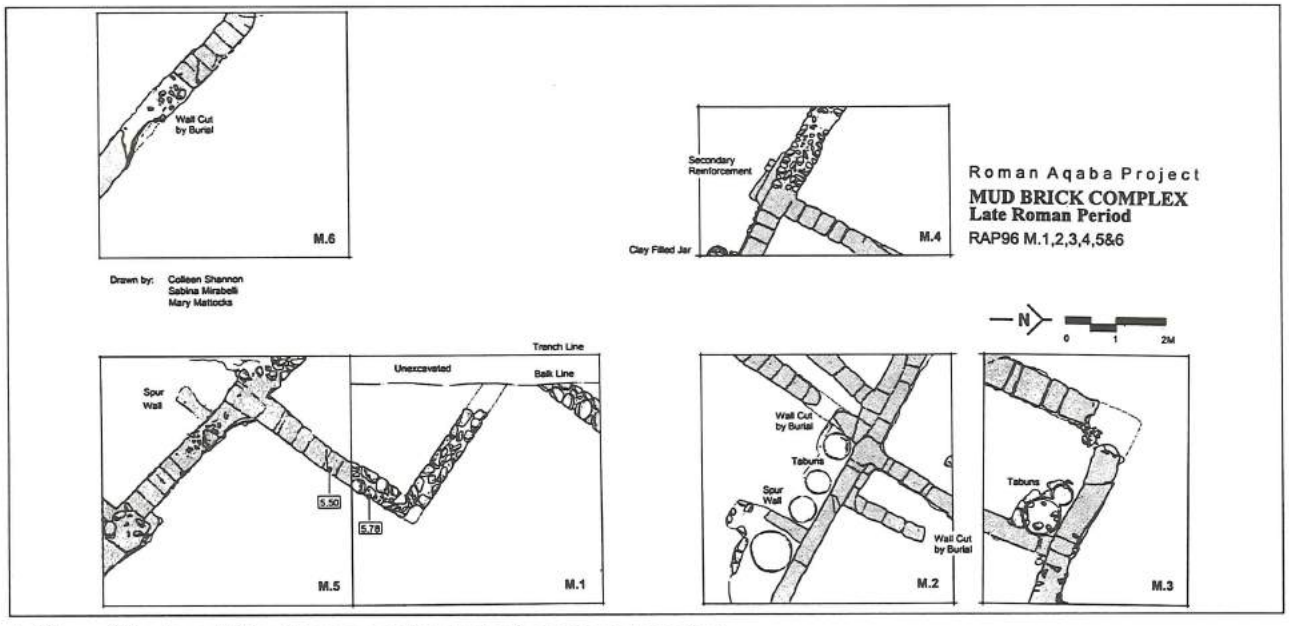
Area A. This lies ca. 300 m south of Area M and also just west of al-Istiklāl Street (Fig. 2). Excavation in nine trenches (A.1-9) in 1994 had revealed several phases of occupation extending from Late Roman to Early Islamic. Excavation in 1996 continued in three of the 1994 trenches (A.1, 8, 9) and in three new trenches (A.10-12) to further elucidate these remains.

The earliest evidence of occupation in Area A in 1996 was again from A.8, one of three trenches (A.8-10) opened in the bottom of a cut excavated by mechanical equipment in 1994. A.8 yielded Late Roman domestic evidence, including two L-shaped stone walls, a *ṭābūn*, and a clay-built coping structure, apparently for storage. Among the notable finds was a ceramic lid decorated with two incised phalli (Fig. 6). About half the lid was recovered lying face down in a *tābūn*, where it was deposited after being



6. Reconstructed fragments of a ceramic lid with incised phalli from Trench A.8 (photo by Jonathan Tedder).

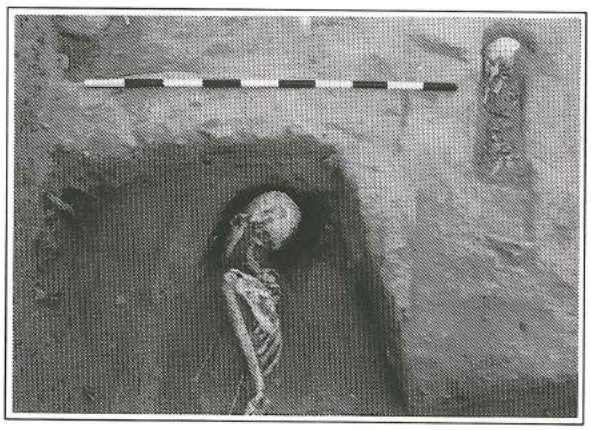
broken. It is of coarse fabric, hand-made, and probably of local origin. It is especially intriguing because of the apotropaic role of the phallus in Roman art. The lid might have originally sealed a large storage vessel whose contents were thought protected by the apotropaic qualities of the phalli. Excavation in A.8 reached the water table, where pottery from the deepest excavated locus suggested a transition from the Late Roman to Early Roman periods (second century AD). More stratified remains may well lie under the water table. Trench A.8 is thus far the only sector of the southern excavation areas (Areas A, J, K, and L) to yield stratified evidence of Roman occupa-



5. Plan of the Area M building complex in the Late Roman period.

tion.

In Trenches A.9-10 just to the north is a cemetery of the fourth century AD, overlying the Late Roman occupation described in A.8 above. Three simple mud-brick tombs, each with a single articulated skeleton, were excavated in 1994. In 1996 eight more tombs were excavated, for a total of eleven excavated tombs to date (Fig. 7). Two more tombs in the balk between trenches A.8 and A.9 remain unexcavated. Most of the tombs were constructed as follows: A vertical shaft ended in a pit with walls ca. 0.70 m deep. The lower walls of the shaft were lined with mud-brick to create a cist, with no prepared floor. The corpse then was placed in the cist. In some cases a mud-brick cap was built over the cist before the tomb shaft was back-filled. In one case the corpse was placed in a pit sealed by a mud-brick cap but lacking mud-brick walls. In three other cases the decea ed were simply placed in simple pits without any structure. Preliminary analysis of skeletal remains suggests that the burials included two infants, two children, and seven adults. The cemetery population included three males, two females, and the rest of indeterminant sex. The tombs were largely devoid of grave goods, although associated pottery sherds and several coins support a fourth century date. Most of the tombs were oriented E-W on the same orientation as the contemporary mud-brick structure (church?) just to the east in Area J (discussed below). Thus it is tempting to associate this cemetery with the putative church.



7. Two of the tombs from the 4th century cemetery in Area A. The upper right skeleton is a four year old child. The lower right skeleton is an adult male. View to west (photo by Jonathan Tedder).

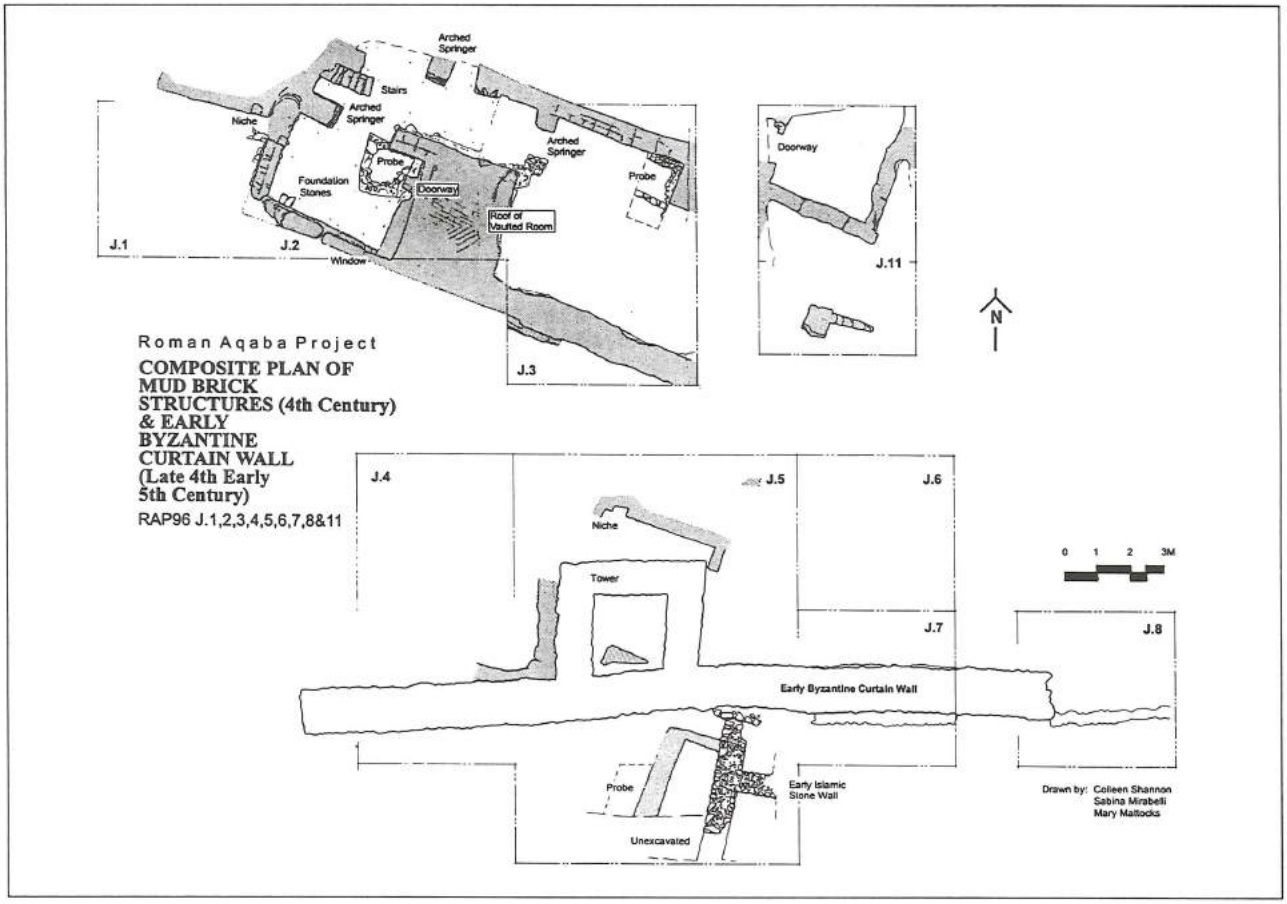
The abandonment of the cemetery in the fourth century AD was followed by the deposition of thick layers of wind-blown sand. Then, during the Late Byzantine period (sixth/early seventh centuries), the area south of the cemetery was reoccupied by construction of a stone and mud-brick domestic complex, first discovered and elucidated in 1994 in Trenches A.1-7. In 1996 the stratigraphic relationship in Area A between the Late Roman/Early Byzantine phases in A.8-10 and the Late Byzantine/Early Islamic phases in A.1-7 was clearly defined by excavation of Trench A.11, located between these two sectors of Area A. 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). In 1996, excavation of this complex was confined to Trenches A.1 and A.12, primarily to understand its relationship with the stone-built structures just south in Area J (J.9-10), discussed below. Among the finds from A.1 was a miniature ceramic comic actor's mask (Fig. 8). The mask derived from a Late Byzantine context but may be earlier in date.

Area J. This area is located along both sides of al-Istiklāl Street (Fig. 2). The western sector lies immediately south of Area A; the eastern sector lies east of al-Istiklāl Street. Excavation began in the eastern sector in 1994 in Trenches J.1-8, where two major structures were discovered. The northern range of trenches (J.1-3) revealed a massive mud-brick structure of the Early Byzantine period (fourth century AD). This structure clearly extended to the south, where it was cut into and partly built over

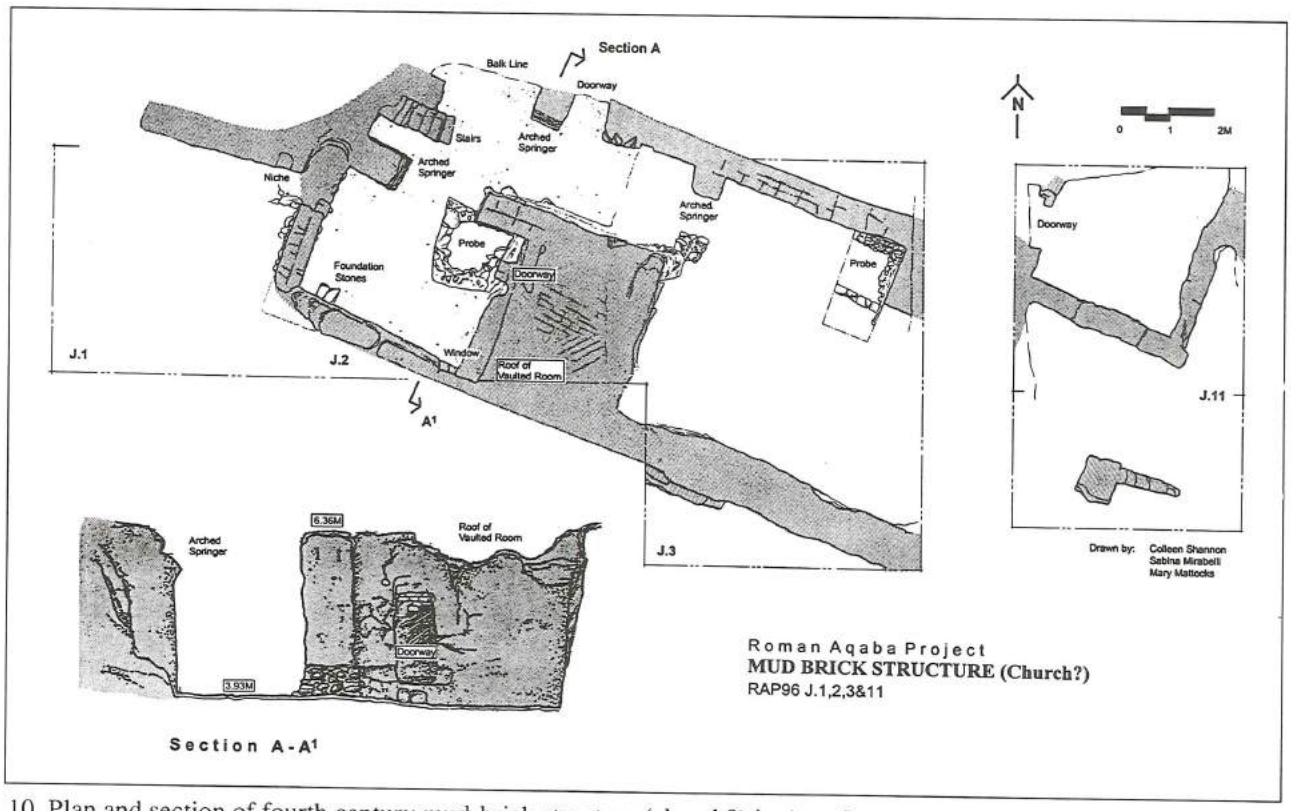
8. Miniature Comic actor's mask of handmade ceramic from Area A (photo by Jonathan Tedder).

by a stone curtain wall and projecting rectangular tower in the late fourth or early fifth century, as exposed in Trenches J.4-7 (Fig. 9). This seems to be the city wall of Byzantine Aila. Late in the 1994 season two additional trenches (J.9-10) were opened west of al-Istiklāl Street to trace the city wall westwards. These trenches revealed more of the Late Byzantine/Early Islamic domestic complex uncovered in Area A but failed to find the westward extension of the city wall. Thus, the goals in 1996 were to uncover more of the massive mud-brick building, identify its function, and continue to trace the city wall west of al-Istiklāl Street.

Excavation in 1996 revealed more of the plan and architectural details of the mud-brick structure in J.1-3 and in J.11, opened farther east along the line of J.1-3 (Fig. 10). Further, excavation in J.5 along the south face of the later city wall revealed that the mud-brick structure had once extended south of the later city wall. The mud-brick structure now seems to have measured at least ca. 22 m E-W by ca. 20 m N-S, oriented along an E-W axis. Some walls supported arched doorways and there was also evidence of vaulting within the structure. A



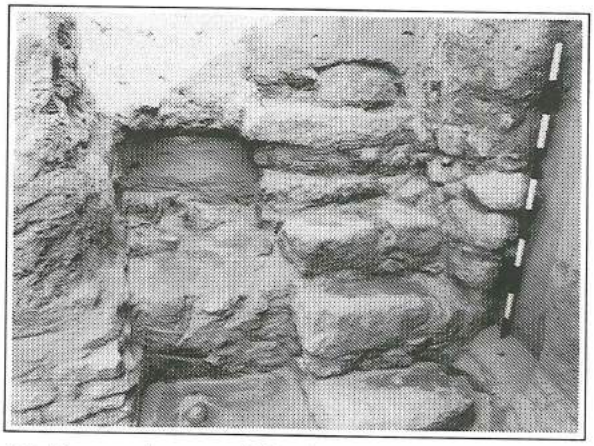
9. Composite plan of mud-brick structures (fourth century) and Early Byzantine Curtain Wall (late fourth/early fifth century).



10. Plan and section of fourth century mud-brick structure (church?) in Area J.

stone-built staircase in J.2 suggested the possibility of a second story (Fig. 11). The building yielded rich artifactual remains, including African Red Slip fine ware, fragments of glass lamps, metal objects, and over 100 coins. Some walls were decorated with painted plaster. The original floors seemed to have been largely robbed out, but appeared to have been composed of pavers of a concrete-like composite. The building seems to have been destroyed in the late fourth century, perhaps in the 363 earthquake. The partially collapsed walls were then quickly covered by wind-blown sand.

All this evidence, combined with the eastward orientation of the structure and associated cemetery in Area A, suggests that it was designed as a Christian basilica. Parallels for similar mud-brick Christian basilicas are known from Egypt. Many sherds of imported Egyptian amphorae from both the mud-brick structure and associated cemetery attest connections with Egypt and may even imply the presence of an Egyptian Christian community at Aila in the fourth

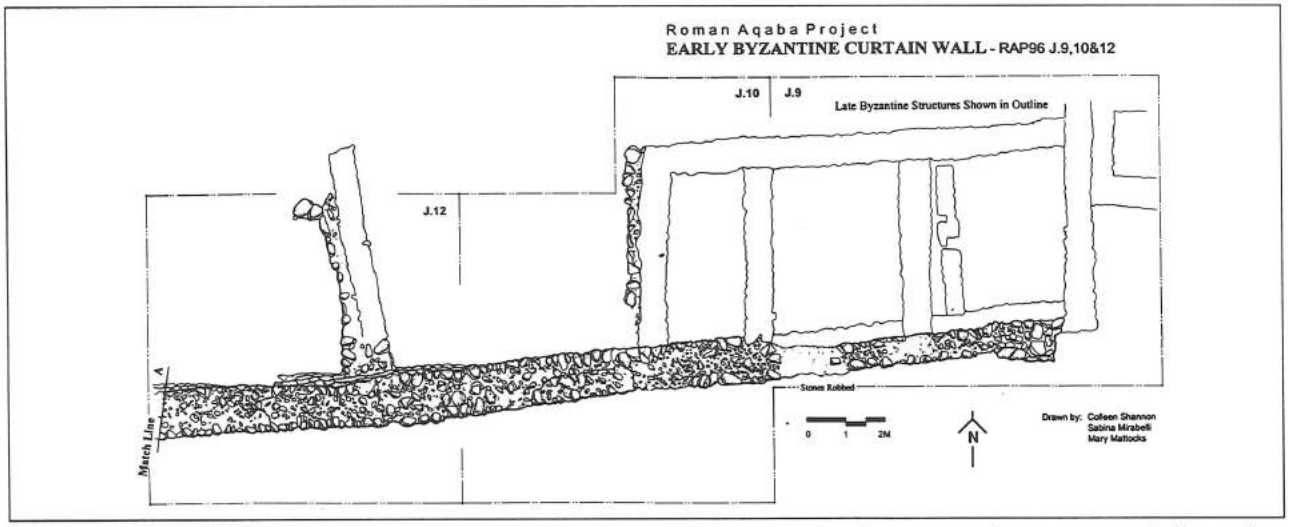


11. Stone staircase within the mud-brick structure in Area J. View to NW (photo: Jonathan Tedder).

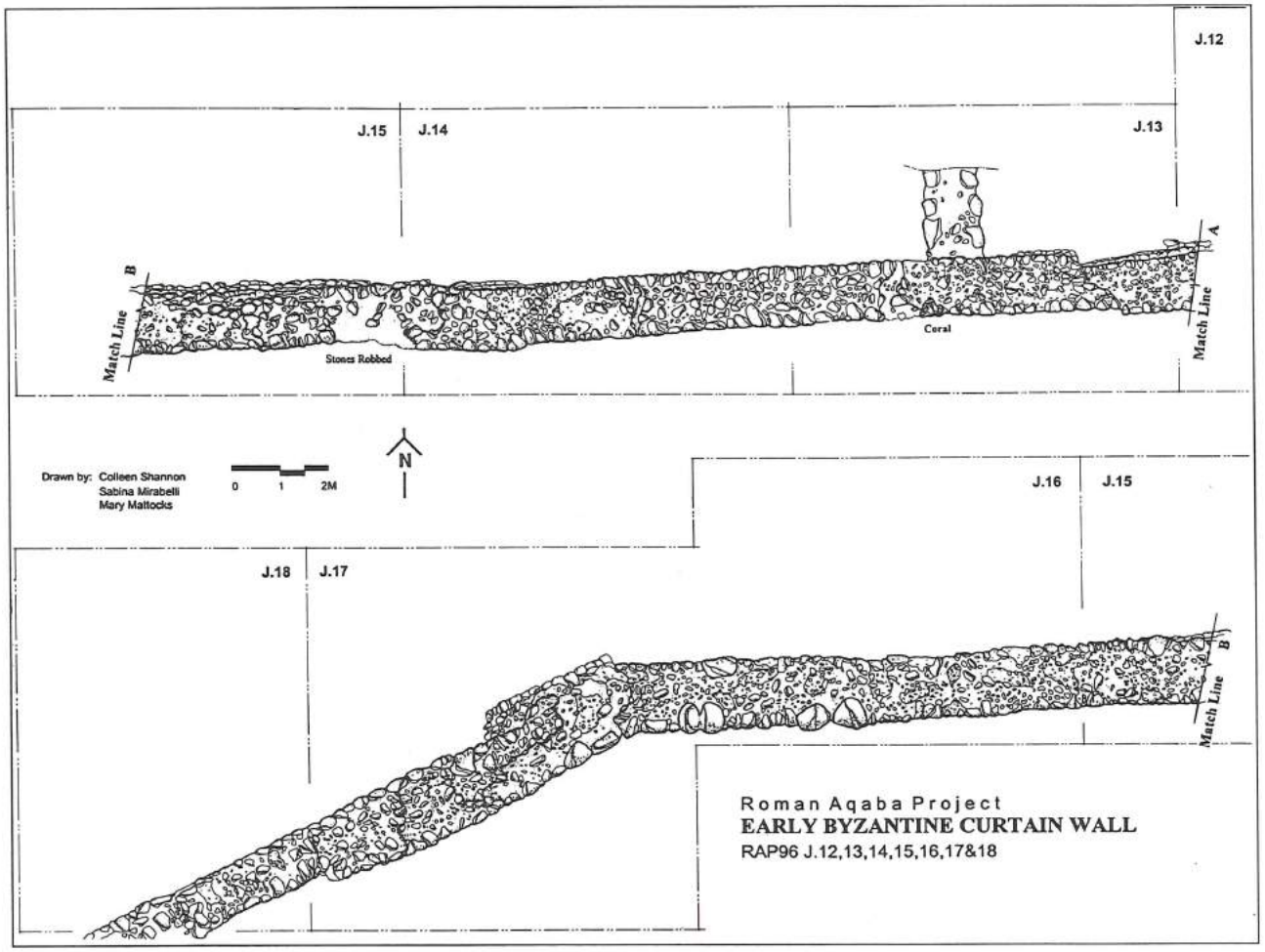
century. A bishop of Aila is attested in documentary sources in 325. If this structure is in fact a church (and this remains unproven), it is the earliest church yet known in Jordan and one of the earliest known in the world.

A ca. 30 m. segment of the Byzantine city wall east of al-Istiklāl Street was uncovered in 1994. This season excavation continued west of al-Istiklāl Street in Trenches J.9-10 (opened in 1994) and in Trenches J.12-18 (opened in 1996) west of

J.10. Excavation in J.9-10 revealed that the Late Byzantine/Early Islamic stone building had been partially built over and against the earlier city wall (Fig. 12). The city wall was then traced another 50 m to the west, nearly to the modern pumping station on King Hussein Street by season's end (Fig. 13). The wall was built mostly of mortared gran-



12. Plan of the Early Byzantine curtain wall in trenches J.9, 10, and 12. The Late Byzantine structures built against the north face of the earlier curtain wall are show in outline.

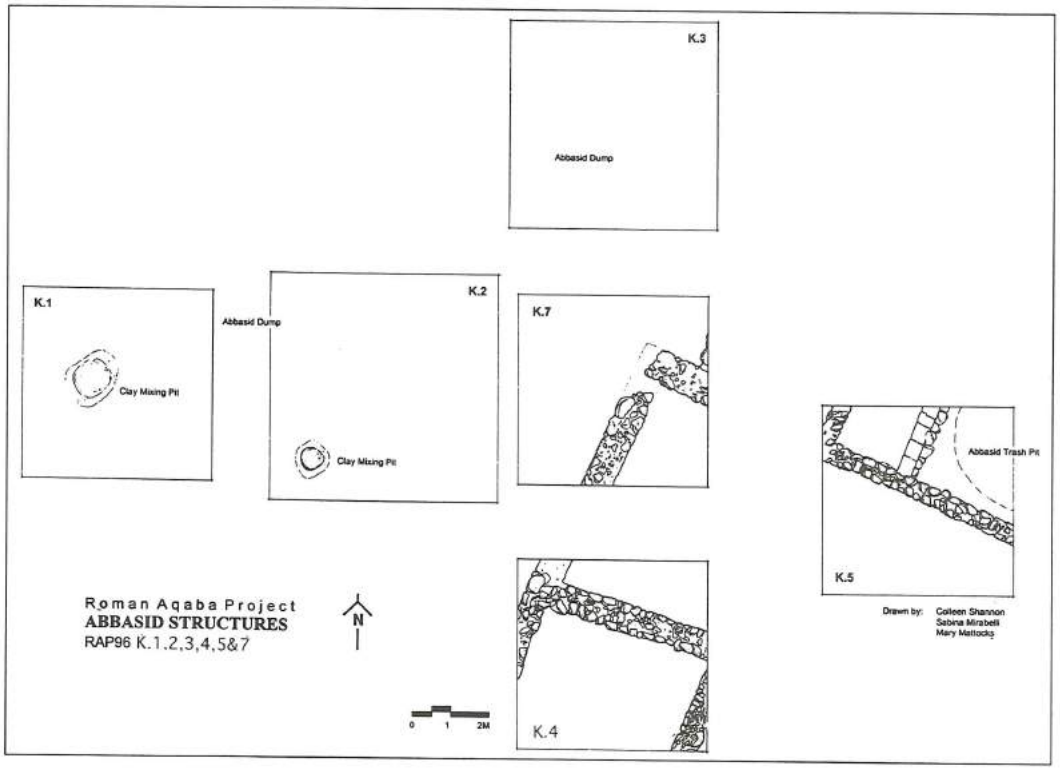


13. Plan of the western extension of the Early Byzantine curtain wall in trenches J.13 through J.18.

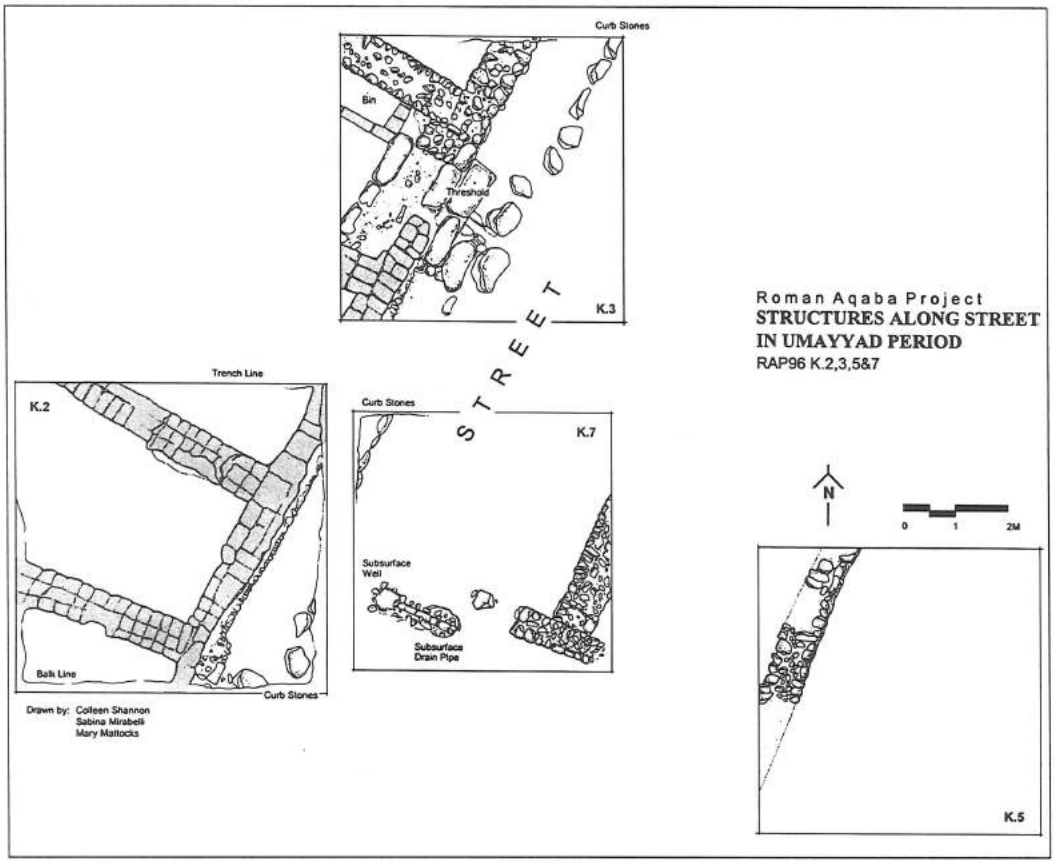
ite, with some diorite and occasional chunks of coral. It averages 1.10 to 1.40 m in width and is preserved up to 1.50 m in places. Two perpendicular walls abutting and projecting from the north face of the curtain wall were partially exposed and may be remnants of interval towers, like that uncovered east of al-Istiklāl Street in 1994. But more excavation is required to test this suggestion. The wall extended west through Trenches J.9-10 and J.12-16 for ca. 50 m, then began to curve towards the south in Trenches J.17-18 for another ca. 10 m. In toto, counting the segment now buried under al-Istiklāl Street, the line of the Byzantine city wall has now been traced for over 100 m. The city wall went out of use in the Late Byzantine period, when mud-brick and stone structures in J.9-10 were built against the north face of the city wall. The wall was extensively robbed in the Umayyad period.

Area K. This lies ca. 50 m southeast of Area J in a vacant lot east of al-Istiklāl Street. Six trenches (K.1-6) were opened in 1994 to recover evidence of the Byzantine city. Excavation in 1994 instead revealed significant remains of the Umayyad and Abbasid periods (late seventh to tenth centuries AD). Excavation continued in four of these trenches in 1996 (K.2-5) and in one new trench (K.7) opened within the square formed by K.2-5. In 1994 excavation revealed stone and mud-brick structures underlying thick layers of Abbasid dump (Fig. 14). Removal of the Abbasid structures, apparently domestic in nature, was completed this season. This revealed substantial stone and mud-brick structures occupied in the Umayyad period (Fig. 15). These structures were laid out along both sides of a street that ran northeast to southwest through Area K. The street was once paved by cobbles, although most of these had been subsequently robbed. The northwest side of the street was demarcated by a string of irregular granite monoliths closely spaced to separate the street from the buildings. Under the street level was a stone-lined well fed by a ceramic drain-pipe extending from the southeast side of the street.

Beneath the street several significant ob-



14. Plan of the Abbasid structures in Area K.



15. Plan of structures occupied during the Umayyad period along a street in Area K.

jects were recovered from Umayyad contexts (late sevent/early eighth centuries AD). These included a large fragment of a Byzantine cross carved on a slab of marble, perhaps part of a chancel screen (Fig. 16). Also from this context was an Arabic ostracon written in black ink on both sides of a sherd, the text of which survives largely, although not entirely, intact. The following summary is based upon a report submitted by F. Imbert, who kindly examined photographs of the ostracon (Imbert 1997). Side A appears to be a personal message from a certain Ḥassān to someone named Ḥusayn. Both men were clearly Muslims but cannot otherwise be identified. Side B, only partially decipherable, appears to be a Muslim invocation. The ostracon is dated on paleographic grounds to ca. AH 50-100 (ca. AD 670-718), which agrees closely with its stratigraphic context.

16. Fragment of a Byzantine cross carved on a marble slab, perhaps originally part of a chancel screen (photo: Jonathan Tedder).

Although pre-Islamic levels were not reached in Area K before season's end, these will likely be encountered next season, particularly since the area lies just inside the Byzantine city wall. In fact, the foundations of the buildings along the street

have not yet been reached and these may date to the Byzantine period. It is noteworthy that the street and its associated structures are aligned on the same axis as the mud-brick structure in Area J, securely dated to the fourth century.

Area L. This lies ca. 200 m south of Area K and less than 100 m from the modern shoreline. Six trenches (L.1-6) were opened in 1994 to locate ancient harbor facilites. These trenches uncovered a domestic complex dating to the late Abbasid period (tenth century AD). In 1996 excavation was limited to two of these trenches (L.2, L.5) to determine the depth of the Islamic remains and reach pre-Islamic levels. Excavation was halted in Trench L.5 at a depth of ca. 2 m while still within the Abbasid stratum. But Trench L.2, excavated as a deep sounding, penetrated through the Abbasid stratum and deep within the Umayyad stratum, reaching the modern water table at a depth of over 4 m below the modern surface. The sounding reached seventh century levels before excavation was halted by the water table. Despite the restricted area of excavation, Area L yielded rich artifactual remains, including glazed pottery from Ḥijāz, Egypt, and Iraq, glass, fragments of steatite vessels, basalt mortars and grinding stones, and many animal bones, especially fish. This new evidence, combined with recent soundings by Sawsan Fakhiry between Area L and the western wall of Early Islamic Ayla, suggests the presence of an extensive extramural settlement in the Early Islamic periods. It is possible that the Byzantine city extended this far south, as the quantity of Byzantine pottery increased at deeper levels of the sounding.

Analysis of Artifacts and Organic Remains

Archaeobotanical Evidence. These remains were recovered by hand during excavation, soil sieving, and flotation of soil samples. About 500 soil samples were processed for botanical remains during the first two seasons. Although soil conditions at 'Aqaba are not conducive to preservation of botanical remains, more remains were recovered in 1996, supplementing the evidence from 1994 (Parker 1996: 251).

The relative scarcity of wood (apart from palm) and the abundance of dung suggest that timber was not readily available in the local region. Although some wild flora, such as chenopods, were also exploited for fuel, dung was the principal fuel for most purposes. Some palm wood was used for construction and fuel. Most of the remaining wood derived from shrubs. In short the botanical evidence suggests that the local environment in the Roman and Byzantine periods was not significantly different from contemporary conditions. Most dietary plants recovered were grains, especially barley, with some wheat attested. The first evidence of several other domesticates was recovered in 1996, including date, olive, almond, and various legumes, along with more evidence of grape.

Faunal Evidence. Thousands of animal bones were recovered in 1996, with caprines forming the overwhelming majority of domesticates. Camel bones again formed a significant minority of the corpus, with small numbers of cattle, pig, and chicken. Preliminary analysis of the 1994 caprine remains suggest a model of importation from external sources for urban consumption, rather than exploitation of locally raised herds (Parker 1996: 251-52). Hunting made little contribution to the local diet. Both fish and marine invertebrates were important food sources. The thousands of marine shells recovered derive from only a few species, particularly *Tectus dentatus* (toothed topshell), *Pinctada margaritifera* (pearl oyster), *Tridacna* (giant clam), *Strombus* (stromb or lineated conch), various species of *Cypraea* (cowries), and coral. Most shells pro-

bably represent food refuse, although some were holed for use as ornaments and others were worked into implements. Some *Pinctada* shells may have been used for inlay.

Pottery. Over 130,000 ceramic artifacts were recovered in 1996, mostly pottery sherds from excavation. The vast majority were locally made common wares. Recent excavation of seventh century kilns proves the existence of local pottery production in this period (Melkawi, 'Amr, and Whitcomb 1994). The recovery of ceramic slag and kiln wasters in a variety of forms from Roman and Byzantine contexts suggests local ceramic production in these periods. The evidence from Area N for mining raw clay during the Early Roman/Nabataean period is cited above.

Quantities of imported pottery suggests Aila's role as a nexus of commercial exchange. Aila has thus far yielded over 800 sherds of terra sigillata (mostly Eastern Sigillata A) dating primarily to the first centuries BC and AD. Much Nabataean painted and unpainted fine ware was also recovered in similar contexts. So-called Cypriote Sigillata, although rare, was also present. Later imported fine wares include over 760 sherds of Late Roman Red wares and Byzantine wares dating from the third to the early seventh centuries. African Red Slip (ARS) wares are the earliest attested and the dominant imported fine ware from the third through fifth centuries. Egyptian Red Slip (ERS) pottery was imported to the site in some quantity beginning in the fifth century, when the amount of ARS begins to decline. Small quantities of Phocaean (Late Roman C) and Cypriote Red Slip (CRS) begin appearing in the fifth and sixth centuries respectively. By this time it appears that all four types of imported fine wares (ARS, Phocaean, ERS, and CRS) competed in the local market until the Muslim conquest. Two sherds tentatively identified as painted Jerash Bowls also appeared in 1996, the first attestation of this ware south of the al-Karak plateau. Finally a few sherds of hand-made vessels, tentatively identified as imports from south Arabia, also appeared in 1996.

The other major category of imported pottery recovered is 'transport jars' (amphorae). Nearly 1,000 fragments of imported amphorae have been recovered from Aila thus far. Most have been assigned to the classification system developed by Peacock and Williams (Peacock and Williams 1986). From the earliest period in the city's history, a few more sherds of the Class 10 amphora were recovered, in addition to the largely reconstructable example found in 1994 (Parker 1996: 244, Fig. 8). These appear to be wine containers from the western Mediterranean of the first centuries BC/AD (Peacock and Williams 1986: 105-06). From the Late Roman period, more than two dozen sherds of the Class 47 amphora have been recovered. This vessel dates primarily to the third and fourth centuries AD and possibly carried Aegean wine (Peacock and Williams 1986: 193-95). Other Late Roman and Byzantine period amphorae attested at Aila include Class 44, possibly an olive oil container from northern Syria, and Class 45, possibly from Asia Minor (Peacock and Williams 1986: 185-90). Many sherds of the classic Palestinian bag jar (Class 46) have also been recovered (Peacock and Williams 1986: 191-92).

By far the two most common imported amphorae attested at Aila in the Byzantine period are the famous Gaza wine jars (Classes 48-49) and Egyptian amphorae (Classes 52-53). Nearly 200 sherds of the Gaza variety have been identified thus far, including both the hole-mouth (Class 48) and short-necked (Class 49) versions. Although many of these vessels almost certainly carried wine, recent analysis also suggests that some transported olive oil or sesame oil (Peacock and Williams 1986: 196-99). The most abundant imported amphorae at Aila are Egyptian. Over 400

sherds have been identified to date, including examples of Classes 52 and 53. Both are thought to be wine containers (Peacock and Williams 1986: 204-07). These first appear at Aila in the fourth century and continued to be imported into the seventh century at least.

The above discussion excludes several thousand fragments of so-called "Ayla-Axum amphorae", which were produced locally in the seventh century (Melkawi, 'Amr, and Whitcomb 1994), if not earlier. These jars are attested throughout much of the Red Sea basin, including Egypt, Yemen, Eritrea, and Ethiopia. Recent stratified examples from the Egyptian Red Sea port of Berenice date to the early fifth century (Hayes 1996: 159-61). Thus it is notable that this type of amphora also first appears at Aila in fifth century contexts and is common thereafter. The original contents of these jars remain unknown. It has has reasonably been supposed that Palestinian agricultural products carried on land to Aila, then transferred to these amphorae for sea transport farther south (Melkawi, 'Amr, and Whitcomb 1994: 463-64).

Glass. Thousands of fragments of glass have been recovered from Aila, but there is as yet no evidence of local glass production. 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. Perhaps the most significant of these are three fragments from Area M of a cylindrical cup, decorated with stylized wreaths and palm leaves in relief. Similar cups also often contain Greek inscriptions, although none survives on these three fragments. Although these derive from a Late Roman context, they are dated on stylistic grounds to the early first century AD and may come from Sidon (Stern 1995: 98-99).

Stone. Varieties of imported stone also reached Aila in the Roman and Byzantine periods. Some 20 fragments of marble, mostly architectural elements, were recovered in 1996. Basalt was imported for mortars, mills, and grinders. Steatite (schist) vessels, probably from the Arabian peninsula, were imported beginning in the fourth century as cooking bowls and later also as lamps and other types of vessels. Objects of alabaster, limestone, and sandstone are also attested.

Metals. Hundreds more fragments of copper and bronze were found in 1996, supplementing the large corpus of over 500 items from 1994 (Parker 1996: 253). This evidence, combined with more remains of copper ore, copper slag, and iron slag, provide further evidence of metal-working at Aila in the Roman and Byzantine periods. Much of this copper probably derived from the mines of Wādī 'Arabah, where intensive exploitation apparently resumed after the Roman annexation of Nabataea in 106 (Hauptmann and Weisgerber 1987; 1992; Rothenberg 1993). The most common metal artifacts were nails, mostly iron. Interestingly, the few fragments of lead recovered all derive from Roman contexts. For reasons that remain unclear, lead is entirely absent in Byzantine and later contexts.

Conclusions

The following are some preliminary remarks about the history and economy of Aila in light of this new evidence. There is substantial evidence for a flourishing Nabataean settlement by the first century BC, including domestic and possibly industrial occupation in Areas B and M. There is clear evidence of ceramic production in this period, apparently Nabataean common wares. There are also hints of possible agricultural activity in low-lying portions of the Circular Area among the structures now buried by sand. How far south the Nabataean settlement extended is unclear. The deepest lev-

els reached in Area A suggest possible Nabataean occupation in this sector. Fine table wares from the eastern Mediterranean, wine amphorae from the western Mediterranean, and luxury glass from Phoenicia all attest to Aila's extensive commericial contacts in this period.

The Late Roman period (second to early fourth centuries) seems to reflect conditions of prosperity, no doubt aided by completion of the *via nova Traiana* in 111-114. Extensive domestic occupation is attested in Areas A, B, and M, including installations for grinding flour (Area B) and ovens for baking bread (in Areas A, B and M). A portion of the Area M complex may have served industrial purposes, including manufacture of pottery. The Nabataean ceramic tradition continues into this period, although degeneration of the painted fine ware is apparent. Importation of terra sigillata ceases, although precisely when is unclear. Importation of fine table ware from north Africa (African Red Slip) begins in the third century. Class 47 amphorae, possibly reflecting importation of Aegean wine, begin appearing in small numbers in the third century.

The fourth century clearly marks a turning point in the history of Aila. The domestic and industrial complexes in the northern sector of the site (Areas B and M) were permanently abandoned. There seems no obvious explanation for this abandonment other than the continued process of site migration from northwest to southeast that is apparent as early as the fourth century BC with the abandonment of Tall al-Khaylayfī (Parker 1997b). Although admittedly fragmentary, the evidence suggests that the focus of settlement shifted several hundred meters to the south. A large public building (church?) was erected in Area J and an adjacent cemetery established in Area A. The presence of a bishop by 325 must also have had economic implications for the city. The *legio X Fretensis* was transferred from Jerusalem to Aila. This unit by then may have numbered only 1,000 - 2,000 troops, the estimated strength of contemporary frontier legions. This force, plus the soldiers' families and camp followers, must have represented a sudden substantial increase in the city's population with some impact on the urban economy. The legionary presence guaranteed a regular influx of cash into the local economy and served as a major market for diverse products and services.

The quantity and diversity of various artifacts at Aila are suggestive of the city's far-flung commerical connections in the Byzantine periods. These extended from the western Mediterranean to southern Arabia and probably beyond. Although Aila's long-range commercial network in luxury products had long been known from literary sources, RAP has greatly expanded the list of known imports and exports to include fine ware pottery, wine, oil, glass, metals, and various kinds of stone. Egyptian and Gaza amphorae now begin to appear in large quantities, suggesting importation of wine and other agricultural commodities from Egypt and Palestine. Importation of African Red Slip pottery continues. Recovery of kiln wasters of fourth century vessels suggests that local pottery production continued. Notably, the Nabataean ceramic tradition seems to have largely disappeared by the fourth century, a phenomenon noted elsewhere in parts of the former Nabataean kingdom (Villeneuve 1990: 375; Parker 1987b: 529-37). This contrasts sharply with evidence from Petra of the Nabataean ceramic tradition continuing into the sixth century ('Amr 1991).

Recent analysis of the remains of fish sauce (garum) in a ceramic vessel from an early fifth century context at Petra suggests its contents derived from the Red Sea (Studer 1994). This garum, if not actually produced at Aila, probably passed through the port en route to Petra. Most fish remains re-

cently studied from both Petra and several Byzantine forts in southern Palestine also derived from the Red Sea (Lernau 1986; Desse-Berset and Studer 1996). Again, these fish products either reflect Aila's own fishing industry or probably transited through Aila.

In the late fourth century the mud-brick complex (church?) in Area J and its associated cemetery in Area A were abandoned, apparently after some sort of destruction. It is tempting to associate this event with the earthquake of 363, particularly since the latest associated coins thus far identified date to the later years of Constantius II (337-361). Soon thereafter, in the late fourth or early fifth century, the stone curtain wall partially cut through and built over the mudbrick building, which quickly filled with wind-blown sand. The curtain wall appears to have been built hurriedly and rather haphazardly, without regard to the existing Byzantine urban grid. Its construction may have been a response to the threat posed by the revolt of Mavia, during the reign of Valens (364-378), the major Saracen incursion reported in 410, or some other emergency in this period (Parker 1986: 143-47). The location of the city wall, well south of the now abandoned structures in Areas B and M, provides further evidence for the shift of the central focus of the Byzantine city to the south.

The subsequent history of Aila in the later Byzantine period (late fifth to early seventh century) is obscured by the fact that much of Byzantine city now underlies massive Early Islamic occupation. Continued economic prosperity is suggested by quantities of imported goods, such as fine tableware pottery from North Africa, Asia Minor, Cyprus, and Egypt. Importation of amphorae from Egypt and Palestine also continued. By the early fifth century Aila seems to have been producing its own transport containers (the so-called "Ayla-Axum amphorae"). These reached the entire length of the Red Sea and lend support to the picture of vigorous commercial activity in literary sources. The pilgrim traffic to Mt. Sinai probably increased demand for goods and services in the city.

The city wall seems to have gone out of use by the sixth century, when domestic structures were erected against its northern face in Area J. The neglect of the city's defenses may relate to the disappearance of Aila's garrison legion, still attested at Aila in the early fifth century but apparently long gone by the arrival of Muslim forces in 630. Although there is no direct evidence, the legion possibly disappeared about 530, when Justinian demobilized many of the Roman frontier forces and abandoned many forts along the eastern frontier (Parker 1986: 151-54; 1987a: 822-23).

The transition to Muslim rule was peaceful. And, despite the foundation of the new Early Islamic Ayla nearby ca. 650, the results from Area K suggest that the Byzantine town continued to flourish through the Umayyad period (661-750). Extensive robbing of the Byzantine city wall in the seventh century was presumably for construction of Early Islamic Ayla. The Late Byzantine domestic complex in Area A was abandoned. Yet there are signs of renewed vitality in what was now essentially a suburb of Early Islamic Ayla. The Byzantine domestic complex in Area A was reoccupied in the eighth century. Similarities in alignment between the structures exposed in Area J (the possible church) and Area K suggest that the basic plan of the Byzantine city survived through the Umayyad period and even into the early Abbasid period. But by the 10th century it appears that all these areas (A, J, K, and L) had been largely abandoned and were being used as dumps. There was no evidence of Fatimid occupation.

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Bibliography

'Amr, K.
1991 Preliminary Report on the 1991 Season at Zurrabah. *ADAJ* 35: 313-23.

Desse-Berset, N. and Studer, J.
1996 Fish Remains from ez-Zantur (Petra, Jordan). Pp. 381-87 in R. A. Stucky (ed.) *Petra. Ez-Zantur: Ergibnesse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992. Terra Archaeologica.* v. II: Monographien der Schweizerisch-Liechtensteinischen Stiftung für Archäuologische Forschungen im Ausland (SLSA/FSLA). Mainz: Von Zabern.

Hauptmann, A. and Weisgerber, G.
1987 Archaeometallurgical and Mining-Archaeological Studies in the Area Feinan, Wadi 'Arabah (Jordan). *ADAJ* 31: 419-31.
1992 Periods of Ore Exploration and Metal Production in the Area of Feinan, Wadi 'Araba, Jordan. Pp. 61-66 in *SHAJ* IV Amman: Department of Antiquities.

Hayes, J. W.
1996 The Pottery. Pp. 147-178 in S. E. Sidebotham,, and W.Wendrich, (eds), Berenike '95. *Preliminary Report of the Excavations at Berenike (Egyptian Red Sea Coast) and Survey of the Eastern Desert.* Leiden: School of Asian, African, and Amerindian Studies.

Imbert, F.
1997 Analyse épigraphique et paléographique d'un ostracon trouvé à Aqaba (Jordanie). unpublished manuscript.

Khouri, R. G. and Whitcomb, D. S.
1988 'Aqaba: *Port of Palestine on the China Sea.* Amman: Al Kutba.

Lernau, H.
1986 Fishbones excavated in two late Roman-Byzantine castella in the southern desert of Israel. Pp. 85-102 in D.C. Brinkhuizen, and A.T. Clason, (eds), *Fish and Archaeology. Studies in osteometry, taphonomy, seasonality and fishing methods.* BAR Int. Ser. 294. Oxford.

Melkawi, A., 'Amr, K. and Whitcomb, D. S.
1994 The Excavation of Two Seventh Century Pottery Kilns at 'Aqaba. *ADAJ* 38: 447-68.

Parker, S. T.
1986 *Romans and Saracens: A History of the Arabian Frontier.* ASOR Dissertation Series 6. Winona Lake, IN: Eisenbrauns.
1987a History of the Roman Frontier East of the Dead Sea. Pp. 793-823 in S. T. Parker, (ed.), *The Roman Frontier in Central Jordan: Interim Report on the Limes Arabicus Project, 1980-1985,* 2 vols. BAR Int. Ser. 340. Oxford.
1987b The Pottery. Pp. 525-619 in Parker 1987a.
1996 The Roman 'Aqaba Project: The 1994 Campaign. *ADAJ* 40: 231-57.
1997a Preliminary Report on the 1994 Season of the Roman 'Aqaba Project. *BASOR* 305: 19-44.
1997b Human Settlement at the Northern Head of the Gulf of 'Aqaba: Evidence of Site Migration. Pp. 189-93 in *SHAJ* VI Amman: Department of Antiquities.

Peacock, D. P. S. and Williams, D. F.
1986 *Amphorae and the Roman Economy: An Introductory Guide.* New York: Longman.

Pratico, G. D.
1993 *Nelson Glueck's 1938-1940 Excavations at Tell el-Kheleifeh:* A Reappraisal. ASOR Archaeological Reports 3. Atlanta: Scholar's Press.

Rothenberg, B.
1993 Timna. Pp. 1474-86 in E. Stern, (ed.) *The New Encyclopedia of Archaeological Excavations in the Holy Land,* vol. 4, Jerusalem: IES.

Smith, A. M. II, Stevens, M. and Niemi, T. M.
1997 The Southeast Araba Archaeological Survey: A Preliminary Report on the 1994 Season. *BASOR* 305: 45-71.

Stern, E. M.
1995 *Roman Mould-blown Glass. The First through Sixth Centuries.* Rome and Toledo: L'Erma di Bretschneider and Toledo Museum of Art.

Studer, J.
1994 Roman Fish Sauce in Petra, Jordan. Pp. 191-96 in W.Van Neer, (ed.), *Fish Exploitation in the Past. Proceedings of the seventh Meeting of the ICAZ Fish Remains Working Group.* Annales du Musée Royal de l'Afrique Centrale, Sciences Zoologiques 274. Tervuren.

Villeneuve, F.
1990 The Pottery from the Oil-factory at Khirbet edh-Dharih (second Century A.D.). A Contribution to the Study of the Material Culture of the Nabataeans. *Aram* 2: 367-84.

Whitcomb, D. S.
1987 Excavations in 'Aqaba: First Preliminary Report. *ADAJ* 31: 247-66.
1988 A Fatimid Residence in 'Aqaba, Jordan. *ADAJ* 32: 207-24.
1989a Evidence of the Umayyad Period from the 'Aqaba Excavations, pp. 164-84 in, M. A. Bakhit and R. Schick. (eds.) *The Fourth International Conference on the History of Bilad al-Sham during the Umayyad Period. Proceedings of the Third Symposium 2-7 Rabi' I* 1408/24-29 October 1987. vol. 2. Amman: University of Jordan.
1989b Coptic Glazed Ceramics from the Excavations at 'Aqaba, Jordan. *Journal of the*

American Research Center in Egypt 26: 167-82.

1989c Mahesh Ware: Evidence of Early Abbasid Occupation from Southern Jordan. *ADAJ* 33: 269-85.

1993 The Fourth Gate at Ayla: A Report on the 1992 Excavations at 'Aqaba. *ADAJ* 37: 533-47.

1994 *Ayla: Art and Industry in the Islamic Port of 'Aqaba*. Chicago: Oriental Institute of the University of Chicago.

1995 The Miṣr of Ayla: New Evidence for the Islamic City. Pp. 277-88 in *SHAJ* V. Amman: Department of Antiquities.