

THE ROMAN STREET OF THE PETRA PROJECT, 1997 A PRELIMINARY REPORT

by

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The Roman street Project organized by the American Center of Oriental Research (ACOR) under the direction of Pierre M. Bikai, was carried out in Petra between March 5 and July 3, 1997. The author directed the fieldwork. The staff included Jeanette Lindblom, Erko Mikkola, Jan Vihonen, and Vesa Putkonen, all students of archaeology or architecture from Finland. Up to thirty local workmen were employed at the site.

The purpose of the project was to enhance the touristic attraction of Petra and to explore the city's urban history by exposing a part of the civic center. Specific research issues included the dating and phases of use of the colonnaded street and the associated entities which include the portico, the grand stairway, and the other structures in the area. To this purpose, the remains of three rooms, located at the eastern end of the colonnaded street and on its southern side, were excavated. These rooms are situated directly to the west of the stairway which leads up to the so-called Upper Market. Two more rooms were fully exposed to the east of the stairway. Judging from their location in the city center, all five rooms, as well as the other enclosed spaces whose entrances opened on the portico of the street, must have been commercial establishments such as shops or taverns. The project included total clearance of the stairway, the associated sidewalk, and the street's pavement in the area of the excavated shops. Also, the secondary structures located on the pavement of the portico were studied and fully recorded. The second phase of the project, to be conducted later in the 1997, will include the anastylosis of the exposed

entities, and the conservation of the extant walls. The excavation, clearance and consolidation of the area provided a wealth of archaeological material which will permit a better understanding of Petra's phases of development. These activities also greatly enhance the architectural panorama of the city center and create an optimal visual background to the colonnaded street itself.

colonnaded streets were a well-established feature in many cities in the Eastern Mediterranean during the Classical and Byzantine periods. Despite a popular opinion that this architectural type developed mainly for aesthetic reasons, colonnaded streets played an important role in the political, economic, and social life of ancient cities. Being usually the main, or one of the main thoroughfares, colonnaded streets were associated with the most important commercial and social establishments in ancient cities, such as temples, markets, baths, theaters, taverns and shops. In Petra, the capital of the Nabataean kingdom and subsequently the most important city, if not the capital, of the Roman Province of Arabia, the colonnaded street is the main east-west axis, sometimes awkwardly referred to as *cardo maximus*. In addition to the magnificent rock-cut façades, the colonnaded street is one of the main witnesses of Petra as the once grandiose city of Arabia. This urban character of Petra is still inadequately addressed through archaeological exploration which in the past mainly concentrated on spectacular, but isolated monuments.

Previous Exploration and Interpretation

Throughout this text, the designation

'Room', followed by a Latin numeral (I-XXX), is equivalent to 'Shop', or 'Door' which provides entry to a specific enclosed space. All these rooms are located on the southern side of the colonnaded street. They are separated from the street by a spacious sidewalk, over 5 m wide, which ends with a two-stepped stylobate for the southern colonnade. The portico wall which contains doors into the shops, extends from the so-called South Nymphaeum in the east to the Temenos Gate in the west, and includes two stairways; the western one which leads up to the Great South Temple, and the eastern one which provides access to the Upper Market. Although a more detailed description will have to await an intensive exploration of the central and western parts of the portico wall, it appears that the shops are clustered in three distinctive groups, roughly corresponding to the structures located behind them and farther south, that is the Lower, Middle and Upper Markets. There is a substantial, almost 6 m wide gap in the portico wall, which separates the western from the central cluster of shops. The exact number of separate units is unclear at this moment, but probably amounts up to 30 room spaces. It is possible that some of the entities were, in fact, empty spaces between rooms, and/or small stairways leading up to the southern area. Currently, most of the doorways are either blocked by stone tumble, or have been intentionally blocked in the past, using column drums and ashlar. The blockings are often partial, thus leaving a smaller entry to the rooms. The inner (southern) walls of the shops are well defined in the eastern and western clusters.

The southern side of the colonnaded street in Petra has already been subjected to archaeological exploration. During the years 1955-57, the Department of Antiquities of Jordan had cleared the area south of the Wādī Mūsa depression revealing some 240 m of the well-preserved pavement of the

main street, from the Nymphaeum in the east to the Temenos Gate of the Qaṣr al-Bint temple in the west. That clearance project, directed by the late Diana Kirkbride, was associated with the uncovering of the southern sidewalk, the portico wall with its doors, and the remains of later secondary structures on the pavement of the portico, which had often encroached upon the street itself (Kirkbride 1960). One of the most important inscriptions ever found in Petra, that which mentions Petra as the *metropolis* of Arabia, and dates to AD 114 (Bowersock 1983: 84-85, n. 28), was found during this clearance. Three large fragments of that inscriptions were scattered on the lower steps of the stairway, or in front of it. The inscription which also preserves the name of C. Claudius Severus, the first governor of the Roman province of Arabia, was thought to have belonged to a monumental arch which once stood in the front of the stairway. In 1960, the Department of Antiquities re-erected a handful of columns in the southern portico of the colonnade.

Petra Parr's important excavations in 1958-1964 of some structures facing the street, gathered information about the date and phases of the street's use (Lankester Harding 1958:13; Parr 1960, 1970). The work initially concentrated on the northern side of the street, facing the wadi, where the previously removed pavement allowed for exposing the early phases of the street's existence. Series of small rooms and a two-storey high building were also explored there. Later, the work expanded into the south side of the street to expose a complete cross-section of the street and the entities on either side of it. A large portion of the interior of one of the shops was fully excavated at that time. Although the final publication of that project still awaits completion, a thorough stratigraphic description of the deposits on the south side has already been published (Parr 1970: 352-381). In total, Parr has distinguished 18 phases of de-

velopment, occupation, and disuse on the south side of the street. The initial period featuring small buildings of simple construction and plans (Phases I-VIII) was followed by the considerable expansion at the site marked by the monumental design of the portico wall and the rooms accessed through the doors in that wall (Phase IX).

That expansion was dated by Parr to the period following the accession to the Nabataean throne by the King Aretas IV (9 BC-40 AD). The stone pavement on the street was laid out later (Phase XIII), that is sometime after AD 76, according to numismatic evidence (Parr 1970: 369-70). The excavations also revealed a series of gravel-surfaced roadways which antedated the pavement of the colonnaded street. The solid foundation of the latter, over a meter and a half deep, clearly cut through these roadways. The post-AD 76 date and the appearance of "Roman workmanship and design," prompted Parr to lean toward the early post-annexation (AD 106) period for the construction of the paved street (1960: 130). This was also supported by the numismatic material found underneath the sidewalk, which did not include coins later than the fourth quarter of the first century AD. Incidentally, Kirkbride suggested the *ante quem* date of AD 114, for the colonnaded street, based on the aforementioned Trajanic inscription which presumably belonged to an arch in front of the stairway to the Upper Market. Her argument was that the arch could not have been erected beside an unpaved street (1960: 119-120).

Judith McKenzie, while rejecting Kirkbride's argument, and generally agreeing with the dating by Parr, suggested a possibility of an even earlier date, that is *terminus post quem* of 9 BC for the construction of the paved street (1991: 35-36). Both scholars differ as to which deposit should be considered a foundation trench for the paving, and through which strata that trench had been cut. That early date was recently

contested by Parr on the basis of the stratigraphic analysis, and the comparative material of architectural designs from elsewhere in the Near East (1996: 65, 67). The issue remains unresolved since Parr's conclusions were obviously based on the stratigraphic information prior to that published in 1970. Regardless of this dispute, there are some other issues which were not adequately addressed yet. For example, equally important are the temporal variations in spatial associations of the portico wall once it was constructed. Since the blocks of the colonnade's stylobate appear to overlay the edge of the street's pavement, the colonnade and the paved sidewalk appear to have been constructed at the time, or slightly after the street was paved. Following the dating and analysis presented by Parr, these two elements would have come into being in or after AD 76. What remains unknown is the appearance of the space directly north of the portico wall during the time when the gravelly roadways preceded the paved street, but after the construction of the portico wall, that is sometime in the early to mid-first century AD, according to Parr. From his description it appears that the monumental design of the portico wall and the rooms beyond it, was, at that time, not associated with a colonnade or a paved sidewalk, although Parr vaguely mentions "another terrace wall" to have been located somewhere north of the portico wall (1970: 363-64; also Fig 1, trench 35).

Most recently, M.S. Jourowsky's excavations of the Great South Temple have contributed to the discussion concerning the architectural development of the street complex, by fully exposing the Propylaea steps which lead from the sidewalk up to the lower temenos of the temple. The preliminary observation stemming from that research concludes that the Propylaea steps in their extant form represent a rebuilding of the original access to the temple, probably at the time or slightly later than the paving

of the colonnaded street (Joukowsky 1994: 309-311; 1996: 180-181).

This short recapitulation of the current interpretations sufficiently demonstrates the lack of consensus concerning not only the absolute dating of the colonnaded street design, but also the relative dating of its components. The entire complex appears to be a composite design of different aggregates which could have come into existence anytime between the end of the first century BC and the early second century AD.

The disastrous earthquake which affected Petra on May 19, AD 363 (Russell 1980), would have spelled the end to some of the shops, or at least seriously limited their function. The shop excavated by Parr was definitely abandoned then, displaying a layer of destruction debris - Phase XV (Parr 1970: 366-368). The street appears to have been only partially cleared after the earthquake, and following was an encroachment of private structures into public space (Parr 1970:351;1986:196). Secondary walls were erected between the portico columns, using earlier construction material such as column drums, and even inscribed blocks, while the connecting cross-walls created small spaces on the sidewalk, probably used as shops. Some of these simple structures extended well out into the street, as in the example presented by Kirkbride (1960: 117-119; plate VII.1). The existence of these secondary structures, often referred to as the "Byzantine shops," may indeed indicate that the main shops behind could have been either filled up by the collapse, or intentionally blocked and abandoned, either fully or only partially. Intentional blocking seems also to have been made across the stairway leading up to the Great Temple.

This image of affairs as shown in the colonnaded street area and postulated for the period following the earthquake of AD 363, was previously interpreted as the indication that Petra was neither economically nor socially able to fully recover from that di-

saster, although it continued its existence as an urban center (Fiema 1991: 144-48). Indeed, one may view this situation as representing a decline in municipal standards, which continued in Petra throughout the fifth and sixth centuries AD. However, recent studies advocate caution in the interpretation of Byzantine urbanism, pointing to its close association with considerably changed socio-economic and cultural patterns of the Byzantine period. These patterns reflect a reality different from that represented by the norms of classical aesthetics and orderliness. Especially Late Byzantine urbanism signalizes the transformation of the standards of urban design and existence from these embodied by classical *polis* to these of Near Eastern *madina* (Kennedy 1985: 162, 176). Features of Late Byzantine urbanism - the encroachment of private structures into public space, blocking and/or disuse of earlier public buildings, abandonment of whole areas within city limits, spontaneous development of suburbs, massive reuse of construction materials, and disappearance of certain civic institutions - are all well-attested in the urban contexts of the Near East, especially in the sixth century AD and later (Tsafirir and Foerster 1994). It is then debatable whether the urban features observed in the Byzantine Petra or elsewhere may be considered as realistic diagnostics of the economic standing of a city. Similarly, and in the same context, the information derived from the recently discovered Petra Papyri, which indicates relative prosperity among some of Petra's citizens in the sixth century, and the existence of local fiscal administration (Koenen 1996), should be treated with caution. The economic standing or well-being of certain citizens should not be automatically equalized with the state of the economic affairs of Petra as an urban center.

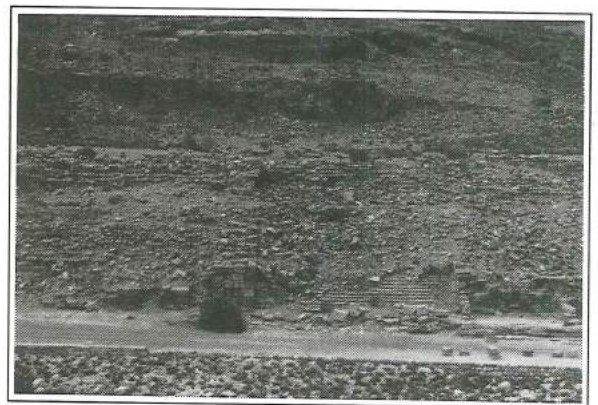
The final demise of the shops along the colonnaded street, and of urban Petra, are shrouded in uncertainty. The British ex-

cavations recovered a series of silting and stone collapses (Phases XVII-XVIII) which had covered both the original shop space as well as the secondary structures on the sidewalk (Parr 1970: 369). The precise dating of these tumbles could not be determined. While another earthquake, that of AD 551, was in the past postulated to have effectively ended the existence of the city (Russell 1985: 45), the overall impact of that disaster on Petra remains largely unproven. The city continued throughout that century, as evidenced through the Petra Papyri. Furthermore, the recent excavations of a Byzantine church with the mosaic floors, indicate that the occupation of the complex, although non-ecclesiastical, would have continued for some time also during the seventh century AD (Fiema, forthcoming).

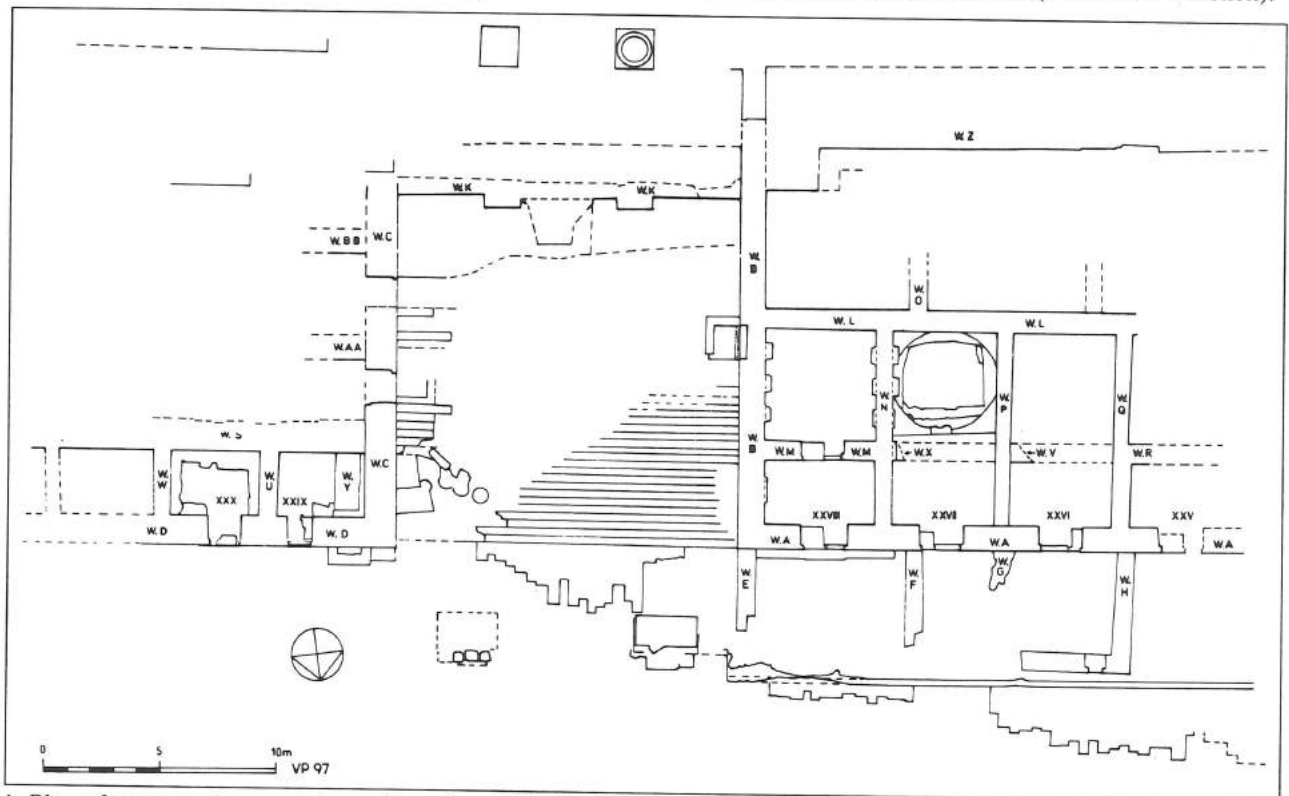
RSP Excavation Site

The work of the Roman street Project concentrated on the southern side of the colonnaded street, and included roughly half of the eastern cluster of rooms (XXVI -

XXX), as well as the grand stairway situated between Rooms XXVIII and XXIX (Fig. 1). The preliminary studies were conducted on behalf of ACOR by the author in 1993, and later by Chrysanthos Kanellopoulos (1996), the architect of the project. Before the excavation work began, the site has been surveyed and thoroughly photographed (Fig. 2). Since the general extent of the relevant rooms could only be roughly outlined, the excavations first proceeded in a wide-exposure manner over the entire area. Once the delimiting walls of the



2. The area before excavation (Photo: Jan Vihonen).



1. Plan of excavated area of shops (Drawing: Vesa Putkonen).

rooms were exposed, the work was continued using the non-arbitrary excavation units, that is the room spaces. The main lapidarium for architectural elements was established on the southern bank of the Wādī Mūsa depression, while lapidaria for ashlar were temporarily set on the lower embankment wall, and behind the Nymphaeum. The entire site has been divided into three main areas of excavations, clearance or intensive prospection. These are the following:

Stairway the main, central feature of the excavated area. It also included the landing space in front of the stairway, and the remains of two large pedestals for the postulated arch.

Area South located south of the extant portico wall (A) and west of the stairway. As mentioned above, this area has been later subdivided into the excavation units corresponding to the spaces of Shops XXVIII-XXVI.

Area East located east of the stairway. This area was only partially cleared, with the exception of fully excavated Shops XXIX-XXX located on its northern side.

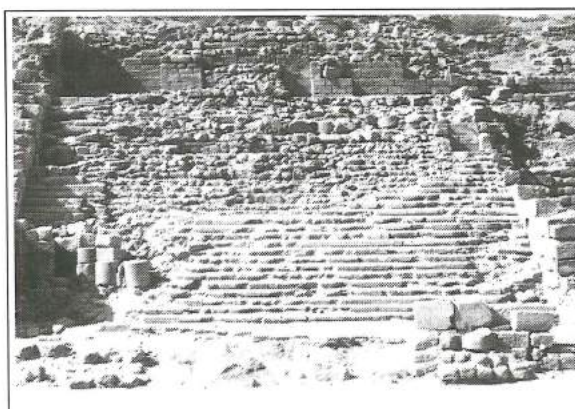
The entire excavated or cleared area measures ca. 40 (E-W) x 20 (N-S) m. The depth of removed deposits ranged from ca. 6 m in the southern part of Room XXVIII to less than 0.5 m of wind-blown accumulation cleared from the portico's pavement.

The Stairway

The stairway (see Fig. 2), contained between Walls B, C, and K, is 14.65 m wide (E-W) in the north and ca. 14.75 m at the top. The difference in the absolute level between the pavement at the foot of the stairway, and the wide landing which stretches across the top of the stairway, just below Wall K, exceeds 7 m. Wall K features four pilasters – two smaller and two larger ones. A colonnaded entrance portico (Upper Propylaea) to the Upper Market is situated above this wall. At the present, the portico consists of two large square plinths of the

stylobate, which correspond to the larger pilasters in Wall K. A column base still rests upon the western plinth. The Upper Market is probably a large artificial plateau, ca. 55 m square, held in place by series of massive retaining walls on the northern side, such as Walls Z and BB.

The initial work concentrated on the full clearance of the stairway (Fig. 3). Several very large architectural elements, including drums and capitals from the colonnade or propylaea of the Upper Market, have been removed from the surface. The removal of surface deposits of soil and small stones revealed that the limestone steps were preserved only in the NW quadrant of the staircase's space, and partially in the central area. Most of the courses of steps seem to have somewhat slipped off their original position, and they often slightly tilt downward. That may be due to the slope thrusts, but may be intentional and related to the noted northward inclination of the pavement located in front of the stairway (Kannelopoulos 1996: 7). Farther up, in the central-south and southern parts, the flagstones of the steps were absent, and not even a single fragment was found there *in situ*. Evidently, the steps suffered serious damage by stone material which tumbled down from the Upper Market area. But the complete absence of steps or fragments in that area of the stairway may also indicate that the slabs had been intentionally removed in antiquity before the collapses. The removal would



3. Stairway after clearance (Photo: Jan Vihonen).

have started at the top and continued downward, but the reason why that activity was not completed is unknown. This removal revealed the stone and mortar/sand bedding for the flagstones of the steps. In many places, the bedding still preserves the grades of steps.

No traces of intermediate landings which would stretch across the stairway, have been noted. The only exception is the uppermost area which abuts Wall K and stretches from Wall C to Wall B. No pavement is preserved there, but the area is occupied by a layer of small flat stones tightly embedded in the surface, which must have served as a substructure of the actual pavement. The main feature of that landing is a platform or "podium" built of irregular stones and boulders, but laid in rough courses. The podium is centrally situated, just in the front of the part of Wall K which is flanked by the two larger pilasters. The platform which tightly abuts the wall, may be a substructure build-up for a flight of steps which were narrower than the overall width of the stairway. If so, the stairway at its top would have been reduced to a central, steep flight of steps, maximum 4 m wide, which led directly to the Upper Propylaea. That discovery would solve the previously observed phenomenon that "the steps [of the stairway - ZTF] lead up at too shallow an angle to reach the great platform at the top in the required distance." (Kirkbride 1960: 122, also Kanellopoulos 1996: 7-8).

The clearance of the stairway also revealed the remains of three small landings which facilitated the access to the second storey rooms situated to the west of the stairway, and to the gallery-like spaces to the east of it. Two east landings are located against Wall C, corresponding to the two doors in this wall. These landings have the appearance of rectangular spaces which interrupt the grading of the steps but still integrate with the overall design. Both landings seem to have had flights of small steps

which led up directly to the doors. The third (west) landing is located against the single door in Wall B. This landing consists of the flat paved area surrounded on two sides by low walls. These walls were also integrated with the stairs, with the entire landing having an appearance of a "sunken" space within the stairway. There is little doubt that the east upper door and the single west door which were accessed from these landings, had been already blocked in antiquity. The east door preserved a layer of small irregular stones laid directly upon the surface on which the threshold was originally placed. As for the west door, one large ashlar still stood in the doorway. The lower east doorway and the associated landing are very poorly preserved.

Surprising is the asymmetrical relationship and construction differences noted between the west and the east landings. Notable is also the difference in construction of Walls B, C, and K which limit the stairway. Wall B (east face) is built with ashlar of roughly uniform size (ca. 0.8 x 0.5 m on average), which display tightly spaced, "Nabataean" diagonal dressing. Its average width is ca. 1.1 m. Wall C is made of very huge blocks with irregularly dressed or embossed faces, which often approach the size of ca. 1 x 0.6 m. In the area of Room XXIX, the width of Wall C exceeds 1.4 m. The ashlar of Wall K are relatively smaller than those from Wall B, and of a very heterogeneous manner of dressing.

The structure of the stairway can be restored on the basis of the evidence yielded by the excavations. It is unknown whether the extant stairway was preceded in date by another structure of this kind, but this hypothesis seems to be less likely and largely deprived of supporting evidence. Probably, the natural slope (bedrock?) in the area had been roughly "shaved off," before the construction began. Any areas with natural cavities and depressions would have been filled up with soil and stones. Then, the main base

of the substructure of the stairway had been imposed upon the slope. This base consists of several very large "steps," each at least 1 m wide and less than 1 m high. These steps appear as low walls gradually superimposed on the slope, and made of boulders, ashlar, reused drums, and capital elements, all bonded by mud mortar. The spaces between the walls were filled up with stone debris, and flattened. This substructure was superimposed by the series of small steps made of irregular but relatively flat stones bonded by blueish grey mortar. The small steps which are ca. 0.22 to 0.26 m high, and up to 0.38 m in depth, are the direct bedding for the flagstone steps. The latter, made of limestone slabs, are up to 0.4 m wide and ca. 0.14 to 0.16 m high.

Several secondary installations have been found in the stairway area. Particularly, the eastern side of the stairway is poorly preserved and in much worse state than its western counterpart. While the steps are still preserved there, these are much tilted downward, and often broken. It is then not accidental that a substantial retaining installation was found located in the NE corner of the stairway. The installation is ca. 3.85 m long and at least 1.4 m high. It can be described as the east-to-west barrier made of several column drums set one upon the other in pairs, and capped by large stones which include ashlar, a cornice and two voussoirs, the latter probably belonging to an arch which had presumably been located in front of the stairway. The eastern end of the barrier leans against Wall C. Since the natural deterioration and damage is much more evidenced on the eastern side of the stairway, the barrier might have been erected to prevent the stone and soil material to tumble farther down and upon the street. Of interest is the fact that the barrier appears to have been dug into the stairway, that is the flagstones of the steps, and the elements of the substructure seem to have been removed or washed away prior to the

construction of the barrier. The remains of small obscure walls or structures located directly to the north of the barrier, may have belonged to the installation.

A similar installation but less defined occupied the central-southern area. That stone barrier (Wall J) made of irregular stones laid in two rough courses, was fully recorded and then dismantled since it hampered the progress of excavations. Most probably, Wall J is a relatively modern structure. Somewhat directly above it, the remains of a water channel were discerned. The channel passed E-W across the stairway and into Area South. The construction of the channel is exceedingly simple; basically a shallow trough-like depression in ground, sometimes lined up with clay. Some sections of that conduit were carried upon a frame made of stones. Local informants confirmed that the channel installation is modern (early 20th century), and that it probably runs from the vicinity of the Theater westward up to the area of the Great South Temple.

The landing in the front of the stairway seems to be of the same width as the combined sidewalk and the stylobate in front of the shops. Its pavement is preserved only on the west side, abutting on two sides the large western pedestal of the arch. The moulded pedestal is ca. 2.6 x 1.22 m, but its northern part is entirely missing. The features of the pedestal as well as its dimensions, whether actual or estimated, suggest that there may have been some association between the colonnade's stylobate and the pedestal (Kanellopoulos 1996: 8). The eastern pedestal was almost totally washed away or removed, so only the poorly preserved foundation courses remain *in situ*. The soundings carried out against the sides of both pedestals appeared inconclusive for the dating of the pedestals and their ancient appearance (square or rectangular). Yet, these provided some data concerning the early history of this area in general. If the

pedestals indeed supported an arch with the Trajanic inscription as its frieze, the diameter of the arch would have approached 6.2 m, being one of the largest known from Jordan (Kanellopoulos 1996: 8-9).

Area South

Initially, the work was concentrated in the southern (upper) part of this area, to remove a considerable bulge of earth and stone material located there, and to relieve the pressure of that material upon the back walls of the rooms to be excavated. That operation revealed the continuing course of the 20th century channel coming from the stairway area, as well as a simple flight of seven stone steps running from NW up in the SE direction. No clearly defined surface associated with these steps could be discerned, but the occupational remains associated with ashy deposits were found to the north of the steps.

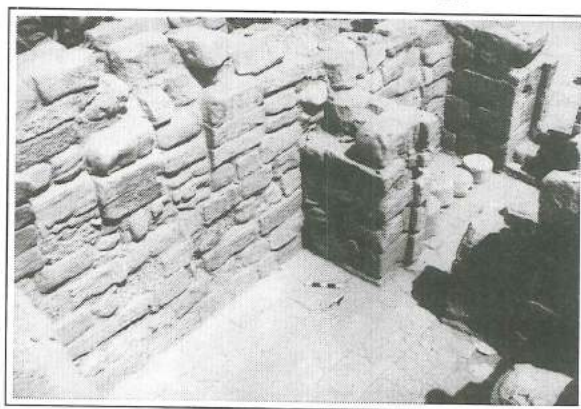
Following, the excavations proceeded in a wide-space manner, with the removal of the upper 0.5 to 1.5 m of soil and stone deposition. The goal of this procedure was to expose the walls which defined the room spaces in this area. Wall L, the back wall of the shops, which runs E-W, was exposed first. It is a massive structure, ca. 1.2 m wide. The top of the wall at its highest point is over 4.5 m above the associated room pavement. The tops of Walls M and N, P and Q became exposed too, which allowed to delimit the areas of Rooms XXVIII-XXVI. As opposed to the former, Walls P and Q were found to be extremely poorly preserved, sometimes no higher than 2 m above the floor of the adjacent rooms. Once the top of the aforementioned walls, as well as the strata which contained the collapsed arches, became apparent, the recording system as pertaining to Area South was discontinued. The only exception are the south arches in Room XXVIII which were recorded as belonging to Area South, due to their unusually high level of deposition. In general,

large quantities of stones, often in tightly packed clusters, were removed during the excavations of Area South. These stones belonged to the upper parts of walls surrounding the shops, but many came down from the area of the Upper Market. The latter is supported by the presence of very large column drums, capital fragments and ashlar blocks. Several major layers of collapse could be distinguished, interspersed with silting and mud-slide layers.

Room XXVIII (Fig. 4)

This shop is directly adjacent to the stairway on its west side, and is the best preserved in the entire excavated complex. It also features certain details which do not occur in other shops. Two niches which are semicircular in section, flank the door in the portico wall (A). The niches are ca. 1 m wide. Shop XXVIII consists of two compartments - the northern (front) and the southern one (back) - separated by Wall M. The back room is almost square - 4.75 (E-W) x 4.95 (N-S) m, while the front room is a rectangle, 4.73 x 2.72 m. The door in Wall M, which is symmetrical to the door in the portico wall, allows for an uninterrupted communication between the portico space and the back room. The original width of the doorway in Wall A is equal to 1.7 m, while that of the doorway in Wall M is 1.61 m.

Evidently, there was an upper floor



4. Room XXVIII. The back room. View from SNE (Photo Jan Vihonen).

room(s) over Room XXVIII, accessible through the west door located in the stairway. The upper floor was supported by arches - three in the back room and one in the front space - and Wall M. The arch springers are well preserved in the back room, and the entire design of arches and springers is very uniform. Each arch/springer is ca. 0.76-8 m wide, and the inter-springer spaces, including also the spaces between Walls L and M and the adjacent springers, are uniformly 0.65 m long. The single arch in the front room is known only from the empty spaces in the northern portions of Walls B and N, where the corresponding arch springers should have been located. It is clear that the arch springers here were set higher than in the back room, the distances between the springers of the single arch and the adjacent walls (M and A) were longer and unequal, and the arch itself probably exceeded the width uniform for the arches in the back room. It is also notable that the manner of bonding versus abutting observed in the north corners of Walls B and M, and M and N is highly irregular, and this may suggest that the northern portions of Walls B and N, that is beyond their contact with Wall M, could have been added later, or at least substantially remodelled at a certain point in time.

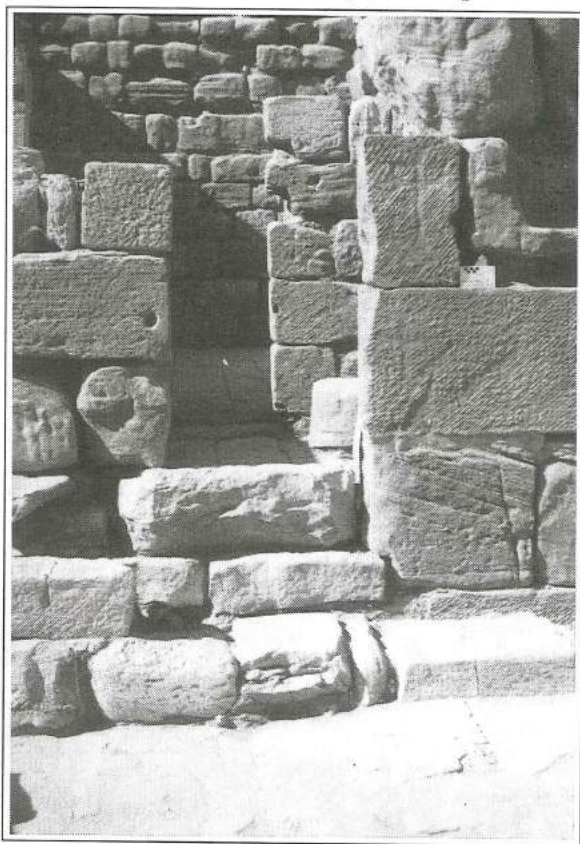
The exposed pavement in the front and back compartments is made of rectangular sandstone pavers, and is relatively well preserved. Puzzling are a series of rectangular sockets in the pavement all along the south, west, and east walls which limit the space of the backroom. The sockets are grouped in pairs; within each pair one socket is set directly against the wall and the corresponding one is in a distance of ca. 0.4-0.43 m away. Each socket is approximately 0.09 x 0.09 x 0.05 m, but some are more rectangular or trapezoid in shape. Most of the sockets are cut in the edges of the paving slabs, thus totally contained within a single slab. However, some are drilled in

the central part of the pavers, or cut half-and-half exactly on the edge between two adjacent pavers. That generally occurs in the case of sockets located against Wall L, since the pavement of the back room was laid out in the N-S orientation pattern. All this indicates that the regular spacing within each pair of the sockets had to be retained, and that the sockets were cut or drilled when the pavement of the room was already *in situ*. Altogether, 20 sockets (=10 pairs) were noted in the back room. Presumably, these served to fasten a bench along and against the walls, or series of pedestals. Only two pairs of sockets were found in the front room; both were set against Wall M.

Both external and internal doors in Room XXVIII had been partially blocked at some point in time. The masonry blockage in Wall A is 1.03 m wide, leaving the entrance reduced to 0.67 m. The corresponding dimensions related to the door blockage in Wall M are 0.82 m and 0.78 m. Both blockages occupy the eastern side of the doorways, and are carefully built. The blockage in Wall A features the door-jamb stones facing west to correspond to the original door-jamb stones facing east. This indicates that a door was inserted in the doorway space left by the blockage. No such arrangement exists in the door in Wall M. Notably, a chiselled out drum is a part of that blocking. A new, higher threshold was added in the doorway in Wall A apparently just before the blocking occurred. Probably, the occupation level in the exterior of the room, on the sidewalk, had sufficiently risen to warrant a new threshold. This should relate to the secondary "Byzantine shop" associated with Walls E and F which were built on the sidewalk apparently in the same time period. The western side of Wall E stands directly on the soil bedding of the pavement which is missing here. It means that these secondary walls were built when parts of the pavement in the front of the stairway and the shops had already been washed

away. The low bench built in front of the portico wall may also be secondary and dating from the time when Walls E and F were erected. The sidewalk in front of Shop XXVIII is ca. 5.68 m wide, including the front step, the stylobate for the colonnade, and the bench. The north edges of the sandstone stylobate and the front step are heavily eroded, presumably as a result of heavy floods. The damage is particularly substantial in the intercolumnar spaces, which suggests that it had happened when at least some columns were still *in situ* (Kanellopoulos 1996: 17).

Two crosses incised on the façade wall, and one on Wall M (Fig. 5) should also be associated with the later history of this shop. No other crosses have been noted anywhere in the excavated complex, nor elsewhere on the portico wall. One wonders if Room XXVIII was initially a commercial establishment at all. Perhaps, this particular



5. Room XXVIII. Two crosses on the outer façade and a cross on the inner partition wall (Photo: Z.T. Fiema).

room was originally planned and used as a small edifice of a non-mercantile function. The presence of the niches in the front wall, and the general proximity of the arch with the monumental imperial inscription of Trajan may be of significance. The crosses, put there during the Byzantine period, could have been meant to "christianize" the previous non-Christian character of the edifice. Alternatively, the crosses might have marked the church ownership of Room XXVIII during the Byzantine period.

No finds of significance, or attesting to the latest function and the nature of occupation were found in the back room of Shop XXVIII, except for a few broken storage jars recovered from the corners of the room. As for the front room, a small rectangular bin built of roughly dressed ashlar was found in the SE corner, as well as a round stone basin (mortar?). Three column drums and one very weathered capital or base, of a diameter ranging between 0.48 and 0.63 m, were found seemingly *in situ* in the western part of that room. These were presumably brought in to serve as tables or seats. Generally, there is more evidence for the latest occupation in the front room than in the back room.

The interior of both rooms were filled with stone and sandy-loamy material. The ceramics on the floor and in the fill were not abundant here, in contrast to the other excavated units. No well-defined occupational surfaces could be recognized in the fill between the floor and the layer of the collapsed arches, although traces of casual occupation are attested. Moderate numbers of paving stones from the upper floor as well as roof tiles were encountered mostly in the lower strata. In contrast to the other rooms, especially Room XXVII where the collapsed arches preserve their voussoirs in the E-W rows resembling a domino pattern, the arches in Room XXVIII are poorly evidenced. Only the eastern half of the southernmost arch and several voussoirs from the

eastern half of the next arch were recovered in relatively orderly rows and extremely high above the pavement. The top of the voussoirs of the southernmost arch was at the level of 878.75 m, that is 3.5 m about the floor level (875.22 m). In case of the voussoirs of the next arch, this distance is ca. 4 m above the floor. The preserved part of the southernmost arch still shows the original curvature of the arch. Besides these mentioned above, no other clearly distinguished voussoirs were recovered from the back or front room, although many badly eroded and/or broken rectangular blocks found there could originally have served as voussoirs.

This evidence suggests several possible scenarios of a gradual process of abandonment and disuse in Room XXVIII, all of which will be carefully reviewed and confronted with datable ceramic material from the fill. The level of the arches' collapse in the back room (Fig. 6) indicates that the arches were probably still intact when the room was abandoned and in process of being slowly filled up with debris and natural deposition. Perhaps, voussoirs from the other arches were not recognized during the excavations, being too weathered and broken. But it is also possible that the initial destruction had brought down the upper floors and the roof as well as most of the arches, and only the two southern arches were left still standing. Then the space below was at

least partially cleared - especially the front room - and both rooms used for a limited occupation. That would account for the lack of voussoirs during the excavations. In fact, possible traces of a makeshift roofing support over the front room were noted in its surrounding walls. Such limited occupation could have continued, except for the breaks for later major episodes of collapse caused by natural deterioration or earth tremors. Alternatively, following the first tremor-caused collapse, only the front compartment was cleared and utilized for some time, while stone and sand material was naturally accumulated in the back room where at least two southernmost arches were still standing.

Room XXVII (Figs. 7 and 8)

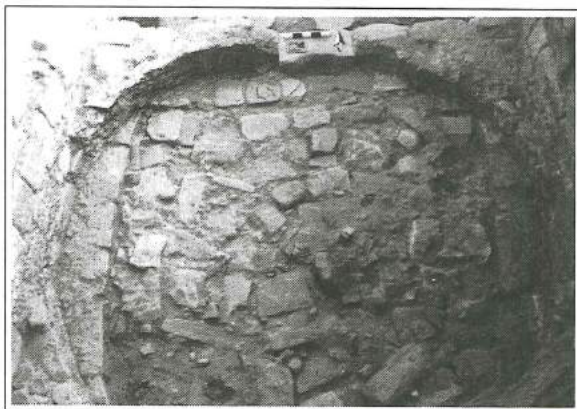
As opposed to the partitioned Room XXVIII but similar to Room XXVI, this room is currently a single, rectangular unit. The width of Room XXVII is 4.34 m on the north side, and ca. 4.47 m on the south side. The length is ca. 8.45 m. The pavement in the north half of the room is relatively well-preserved; the paving slabs were laid out in the N-S orientation pattern. Only in the west-central part of the room, especially in the area adjacent to a large installation which is situated in the southern half of the room (*infra*), the pavement had been removed. That exposed an irregular stone bedding or an earlier pavement (?) there.



6. Room XXVIII. Collapsed arches (Photo: Jan Vihonen).



7. Room XXVII. The 'installation'. View from NE (Photo: Z.T. Fiema).



8. Room XXVII. The octagonal 'installation' (Photo: Jan Vihonen).

The original width of the entry door in Wall A is 1.63 m.

The room was spanned by five arches which supported the upper floor. The existence of an upper storey with a stone-paved floor is also evidenced through the presence of numerous paving slabs in the debris inside the room, being often of a large size. The arrangement of the arch springers on the west face of Wall N partially mirrors that on the east face of this wall toward the interior of Room XXVIII. The three southern arch springers are each ca. 0.77-0.8 m wide. However, instead of a partitioning wall, as featured in Room XXVIII, there is an arch springer here, being the fourth from the south. This poorly preserved springer appears to be at least 0.85 m wide. The fifth, northernmost arch springer is about 1.10 m wide. The distance between these two springers is ca. 0.95 m. The five arches presumably correspond in size and location to the five arches of Room XXVI which is also deprived of a partitioning wall. The wall (P) which divides these rooms is rather insubstantial in width. It means that the arches in both rooms were very well balanced to prevent buckling of the wall in either way.

A puzzling feature is a quadrangular enclosure which occupies the entire southern half of the room (Figs. 7 and 8). The structure is ca. 4.4 m wide (E-W), and its length varies from 4.66 m (east) to 4.44 m (west). The structure appears to be a wall to wall,

masonry-built, tank or basin with slightly curved internal sides and rounded internal corners. The construction material includes large ashlar, roughly dressed stones, as well as column drums or even halves of capitals. The construction is rough in appearance but sturdy and solid. The curvature of the corners was further enhanced by the four mixed masonry/clay-built triangles with slightly concave long sides, located on the top of the stone frame. The greenish-grey mud mortar was found still adhering to the concave surfaces facing the interior of the installation. The triangles fully integrate with the front wall of the installation, which also supports its northern side. Resulting uppermost internal form of the installation is almost rounded, but for its slightly flattened sides which produce a somewhat octagonal effect and a rough diameter of ca. 4.4 to 4.5 m. The north wall of the installation stands directly on the pavement of the room on the east side. On the western side, however, the wall appears to have been built directly on a soil layer which might or might not be a component of the bedding for the room pavement. In general, the western area alongside this wall seems to have been much disturbed, presumably before the installation was built.

The bottom of the installation consists of a stone pavement made of irregular slabs put tightly against each other but without any particular pattern. The absolute level of this floor is only slightly lower than that of the pavement in the north part of the room. Two layers of large stones and ashlar in loamy soil were intentionally deposited on this floor, in a very tightly packed but unpatterned order. A roughly flat stone surface was laid out on top of these layers, which totally sealed the interior of the installation. This stone surface, rather irregular in appearance although tightly packed, was placed at the level equal to that of the bottom of the triangular corners. Close to the center of the area, a single upright-standing

stone was found which integrated with the surface. Thus the final appearance of the interior of the installation is that of a raised, slightly octagonal stone-paved area surrounded by a low, quadrangular masonry-and-clay frame. The top of the frame is ca. 1 m above the floor level of the north part of the room, and ca. 0.3-.35 m above the stone-paved surface inside the installation.

The installation is probably composite in both the components and the date. For example, the combined masonry/clay superstructure which includes the corner triangles and which makes the internal form roundish-octagonal at the top, could have been added later. Also the fill of the interior, that is the tightly packed stone layers and the stone surface which sealed the interior, might be a later addition, after the initial function of the installation ended or was altered. This hypothesis is seemingly supported by the fact that the second to fourth century sherds were found within the masonry structure of the installation, while the fourth/fifth and perhaps early sixth century pottery was recovered from the fill underneath the sealing surface. Alternatively, the entire structure—the stone frame, the stone/clay superstructure and the fill including its sealing surface—could have been built in the same time, probably relatively late in date although differences in the quality of construction of particular components are notable.

So far, the purpose of this installation, whether initial or secondary, remains elusive. The structure appeared at first like a lower part of a large kiln, with the entire brick-made superstructure (the upper chamber where ceramics were fired) completely missing. Admittedly, large numbers of bricks or tiles, many either poorly or over-fired, were found in the strata directly above the stone surface of the installation, and generally in Room XXVII. Also, a surprising number of the mixed ore, and copper smelting process by-products was found in

these strata. These included partially melted ore pieces and fully vitrified slags. However, the strata contained a very small amount of ash or charcoal, which would be hardly compatible with a kiln function. It is possible that once the installation was abandoned, the space could have become a convenient dump for debris generated from elsewhere. Incidentally, the slag material was found only in Room XXVII. On the other hand, it is evident, that the roughly flat stone surface inside the installation was meant to have a rounded form to facilitate some kind of industrial operations to be conducted within. The function of the installation as a press, either wine or oil, cannot be entirely excluded, although no elements of the mechanism nor the outlet channels were found. A threshing floor is less likely due to the indoors location of the installation. It must be assumed that either this installation was never finished, or its elements belonging to the upper or interior mechanisms were totally dismantled, and all other traces obliterated. Four drums have been found in the northern half of the room. Three occupy the position in front of the installation and more or less in the central position. One is a very large drum, ca. 0.75 high, with a diameter of ca. 0.68 m. The other two are stacked up reaching altogether the height of ca. 0.72 m. It is possible that these three drums had something to do with the function of the installation.

Remains of a small door (?) in Wall P are also difficult to explain. The door occupies the space almost exactly on the line of the second arch from the north. This arch is suspected to be secondary, being a replacement of a transversal wall which originally divided the room (*infra*), not unlike to, and exactly on the same line with Wall M in Room XXVIII. Therefore, this door could not belong to the early phase of the room. On the other hand, if the door was constructed later, when the arch replaced the wall, the location of the arch somewhere

over the door lintel is hardly practical or structurally stable.

Similarly, the door in Wall A was blocked by a masonry construction at a certain point in time. The blockage is ca. 0.66 m wide, reducing the doorway opening to ca. 0.97 m. It is possible that once the aforementioned installation went out of use, the front part of the room was adapted for domestic use. A small irregular bin, filled with numerous sherds, bones, ash and charcoal, is located in the front half of the room, directly against the north wall of the installation. The bin seems to be a disposal place for rubbish from a cooking place which was not located but which would appear unrelated to the function of the installation in the back of the room. The bin contained mostly the fifth century sherds. Another bin which consists of three stones forming a rectangular enclosure in the NE corner of the room, is similar to these from Rooms XXVIII and XXVI. Among few sherds found inside the bin were the early sixth century pieces and some fragments of storage jars.

The interior of the room up to the level of the collapsed arches was filled with large stones, sandy soil and abundant debris including semi- or overfired bricks, slags and semi-slugs, as well as large-size roof tiles. While the roof tiles, and paving stones concentrated in the lower layers, the slags and the ashlar were more evident in the upper strata. That may indicate that following a limited later occupation, the room might have become a convenient disposal area. The first major collapse occurred when the room was already filled to some extent with debris, but this event did not seemingly bring down the arches. The collapse surface was smoothed over and reused for some kind of occupation leaving bones and small ceramic fragments embedded in the surface. That occupational layer was in turn sealed by a thin sand layer upon which most of the arches collapsed. The five arches fell in or-

derly rows, and most of their voussoirs have been recovered. It is possible that the three southern arches collapsed first, followed then by the two in the front, although their deposition levels represent a difference hardly exceeding 0.5 m. In particular, the top of the three southern arches were found ca. 2.0-1.7 m above the floor level (= ca. 1.35 -1.0 m above the stone surface of the installation), while for the northern arches that distance was ca. 2.5-2.2 m.

Room XXVI

This is a large, long room comparable to Room XXVII in dimensions and other features. Room XXVII. The original doorway in Wall A is 1.61 m wide. is also the least preserved of all excavated rooms. Wall Q which limits the room on the west side, is almost completely destroyed in the southern part. Apparently, that section of the wall bore the brunt of a powerful destruction. Unfortunately, neither Wall P (both east and west faces) nor Wall Q (east face) are preserved to the height marked by the arch springers.

The main feature of the room is the flagstone pavement which features two well-defined but considerably differing sections. In the southern part which is ca. 4.6 m long (N-S) and of the width which equals that of the room, the pavement is exceedingly worn and poorly preserved. Mostly rectangular, but sometimes almost oval slabs are oriented in the E-W pattern. Many slabs are broken or sunken, and in some places the orientation pattern appears to have been replaced by a highly irregular design. In the north part of the room, which is 3.85 m long, the pavement made of rectangular slabs is much better preserved, and its orientation pattern is N-S. The borderline between both pavements follows exactly the line represented by the north face of Wall M in Room XXVIII, and the north face of the arch springer in Wall N, which is unusually wide and which belongs to the sec-

ond arch from the north in Room XXVII. Furthermore, considerable disturbances of the ashlar coursing have been noted in Walls N (west face), P (both faces) and Q (east face) exactly in the area of the second arch from the north. It is also significant that the line of Wall M is exactly followed by Wall R in the unexcavated Room XXV (see Fig. 1). While either one of these facts could be accidental when considered separately, the combination of all of them is not. Soundings opened in Room XXVII in the area under the second arch, and in Room XXVI in the area where both pavements meet, revealed clear remains of walls which originally run E-W, following the line of Wall M in Room XXVIII. These walls, known only from the soundings, are marked on the plan as Walls X (Room XXVII) and V (Room XXVI). As demonstrated below, the existence of these walls has a capital importance for the restoration of the early appearance of the shops, which obviously differed from the extant kind.

Sometime during the later period, four secondary installations had been built in association with Room XXVI. These are the sidewalk's cross-walls (G and H), the elevated surface limited by these walls, the partial blocking of the door in Wall A, and the new, higher threshold with the flight of steps leading down to the interior of the room. The walls and the platform in front of Room XXVI represent one of the best examples of what scholars termed as the "Byzantine shops" in Petra. Walls G and H extend northward from the face of Wall A. They enclose the area which is ca. 0.5 m higher than the neighboring pavement of the portico. The platform, ca. 0.5 x 0.63 m, was built of large stones and ashlar which were set directly upon the sidewalk. The surface of the platform is paved with variety of flat stones, including regular pavers, with a tendency for the N-S pattern but not strictly observed. So defined room or shop occupied the entire portico space in front of Room

XXVI, and perhaps encroached upon the street as well. The intended elevation of the floor of that room versus the original sidewalk may indicate concern over flooding which, as demonstrated below, was a significant threat in the entire eastern end of the colonnaded street. The new threshold in the door, and the secondary blocking could have been made before the construction of the platform but certainly not afterward. Most probably, these were constructed in the same time as the raised area. Since the top of the area in front of the Room XXVI was now to be more than ca. 0.5 m higher than the floor in the room, a new threshold which consists of the front slab and three shallow steps, was inserted in the doorway. Only upon that threshold, the masonry blocking was constructed on the western side of the doorway. The blocking is 0.48 m wide, and it reduced the doorway to the width of ca. 1.13 m.

The following elements found inside Shop XXVI are either contemporary with the development described above, or should be dated to the later period. These are five column drums and two extremely weathered small capitals or bases, all of which were found standing on the floor in the southern part of the room, to serve as either seats or tables. A small bin, ca. 1 x 1.2 x 0.45 m, built of rough stone blocks in the NE corner of the room, bears resemblance to that from Room XXVIII. It is possible that even after the initial collapse, the northern half of Shop XXVI was still occupied together with the "Byzantine shop" located in front of Wall A. The differential collapse of the five arches which spanned the width of the room might have facilitated such situation. As in Room XXVII, many voussoirs were found inside, but in much less defined clusters. Instead of orderly rows of complete arches, the voussoirs here were more stacked up in broken rows and clusters, which gave these deposits a greater depth. Nevertheless, it is obvious that the three

southern arches could have fallen down relatively early, being deposited ca. 1.6-0.9 m or less above the floor level. As for the two northern arches, these are poorly evidenced, especially the northernmost one. Yet, their deposition is estimated for ca. 2.3 - 2.1 m above the floor of Room XXVI.

Rooms XXV and XXIV

Limited work was conducted in front of Rooms XXV and XXIV. That included the clearance of their doorways and the adjacent area of the portico. The doorway to Room XXV was originally ca. 1.62 m wide, but was later blocked by the masonry wall which left the entrance reduced to 0.54 m. The blockage features door jambs fitted to correspond to the original western door-jambs of the doorway. Elements of a Doric frieze, including triglyphs and metopes were found reused in the blockage, or scattered in front of the room. The door to Room XXIV is ca. 1.61 m wide, but no traces of a secondary blocking are preserved there. The portico area in front of both shops had received a new surface raised by ca. 0.2 m with regard to the original sidewalk level. That secondary surface was presumably paved, although not much is left of the pavement. The raised area is limited by Walls H and I which run north from the portico wall. There are remains of a rectangular installation (?) in the east-central part of this area and roughly in front of the door to Room XXV. The installation consists of four paving stones surrounded on three sides by stone blocks slightly higher than the adjacent secondary pavement.

Area East

The work in this area included only a general ground clearance, thus the interpretation offered here is largely hypothetical. This preliminary assessment confirmed some observations generated by the previous prospection of the area. There are two doorways in Wall C, and two small

room spaces (XXIX-XXX) on the lowest level. Area East is characterized by the series of parallel E-W walls which enclose long and rather narrow spaces or galleries on the increasingly higher ground. Three parallel E-W walls are well visible. The lowermost is Wall S, ca. 1.2-1.3 m wide, which is also the back wall of Rooms XXIX-XXX. This wall is exactly on the same line as Wall M in Room XXVIII, and Walls X and V found in the soundings opened in Rooms XXVII-XXVI. Wall S was evidently cut and patched to abut Wall C of the stairway. It seems therefore that Wall S may be one of the earliest walls at the site.

In particular, Wall S serves as a retaining wall of a structure substantial in size and made of small and irregular stones, the remains of which can be seen directly behind the wall. That structure must have been a basis for a long and narrow space between Walls S and AA. The opening to that space which is only ca. 3.2 m wide, is the lower doorway on the eastern side of the stairway. Wall AA preserves two pilasters on its north face. Some retaining installations or barriers, probably secondary, appear to have been built in the gallery. Farther up the slope is another space or gallery of the same length and width, and contained between Walls AA and BB. That gallery was accessible from the upper door located on the east side of the stairway. Two columns are located in that gallery, standing directly against the north face of Wall BB. Each column has three drums visible above the ground, with the bases of these columns being under the uncleared sandy deposits. It appears, however, that the columns are *in situ* because each corresponds in a straight N-S line to a pilaster in Wall AA. All drums seem to be of the same diameter, being ca. 0.85-0.86 m. Since the doors which provide entries to both lower and upper galleries have been completely exposed during the clearance of the stairway, it is evident that

the deposition on the floors of the galleries is not excessive, and approaching a maximum depth of 1-1.2 m. Wall BB appears to be ca. 1.1 m wide, but obviously it is only an outer part or shell of the succession of the parallel wall courses which formed the retaining structure of the Upper Market. The width of this entire space between the north edge of wall BB and the stylobate of the portico of the Upper Market is ca. 3.9 m.

One wonders whether the appearance of the entire area should be reconstructed as a set of two-storeyed shops or rooms, parallel in appearance to that on the western side of the stairway. The row of shops in the north, to which Rooms XXIX and XXX belong, appears to be an added feature against the backdrop of the massive structure of Wall S. With one possible exception which may, in fact, be an eastern limit of the lower gallery, both galleries do not seem to feature any cross or partitioning walls. The two columns *in situ* in the upper gallery, and the two pilasters of the lower gallery are particularly intriguing as they do not seem to fit the interior of an ordinary room or shop. It is possible that the entire architectural design of Area East was intended to hide the irregularity of the bedrock which is probably substantial in here, and to provide an aesthetically acceptable eastern frame for the monumental stairway. The two long and narrow spaces were perhaps open or covered porticoes, a hypothesis particularly fitting the upper gallery. The general impression of the entire area is that of a huge façade-in depth, as in an elaborate, theatrical backstage building with two gradually superimposed and offset stages.

Rooms XXIX and XXX (Fig. 9)

These two rooms are located directly east of the stairway. Considering their size, and appearance, these could be termed as twin-rooms. Their size and parallel location makes them roughly similar to the front room of Shop XXVIII. The façade wall (D)



9. Rooms XXIX-XXX. View from W (Photo: Z.T. Fiema).

which is ca. 1.28-1.34 m wide, resembles Walls A and C in the manner of construction, however, it is in line with neither Wall A nor with the edge of the stairway's lowermost step. Also, the NW corner of Shop XXIX, which features extremely thick walls, is not at a right angle, a fact already observed before (Kanellopoulos 1996: 6). Both rooms are hardly symmetrical or regular, as opposed to the shops west of the stairway. Room XXIX is ca. 2.8 m wide (N-S), but the length differs from 3.6 m in the south to 3.76 in the north. The width of Room XXX varies from 2.6 m on the eastern side to 2.8 m on the western side, and its length is a little greater in the north (3.9 m) than in the south (3.8 m). The doorway to Room XXIX is ca. 0.9 m wide while that to Room XXX is 1.23 m wide. There are remains of a blocking in the doorway of Room XXIX but no such element was found in Room XXX.

The main feature inside Room XXIX are

the benches, or low counters built against the south (S) and east (U) walls. The benches are ca. 0.5 m wide and up to 0.53 m high. They are made of stone blocks of varying size, and capped by slabs which might have served as seats. The final (please change for main) occupational surface exposed in this room is a floor made of hard-beaten clayish soil. The benches appear as if standing on this floor, but in fact their foundations made of small irregular stones and exposed by the soundings, are clearly below the floor level. The other features are two postholes dug in the clayish floor, one located in the SE corner, and the other slightly farther to the NW. The first hole is ca. 0.1 m deep, with the diameter of 0.16 m. The corresponding dimensions for the second hole are 0.15 and 0.2 m.

As for the structure at the western side, its initial function was probably other than a bench, thus its appearance warrants a more detailed description. This bench-like structure is ca. 0.5 high above the floor level, but it is not located directly against Wall C, nor does it extend all the way north toward Wall D. Instead, a gap ca. 0.22-.28 m exists between the structure and Wall C, while the structure clearly stops ca. 0.24 m south of Wall D. Furthermore, the construction of this structure notably differs from the other benches. Large blocks have been used here, including well-dressed ashlar and one reused door jamb set in the NE corner of the structure. Therefore, it appears to have originally been a wall (Y), probably a part of another, larger construction, perhaps an anta. Although it must have been cut down to the extant height, Wall Y does not seem to have been cut when Wall D was constructed. Since the north side of the former is plastered, it appears that its presence had little impact on the construction of Wall D. Curiously, what is left of Wall Y is abutted on its NE side by other stones which continue north-east to be integrated with Wall D. Wall Y seems to abut Wall S on both

sides. The relationship between Walls S, Y and Wall C is apparent. Walls S and Y had already been *in situ* before the construction of Wall C and thus the stairway. Wall S currently abuts Wall C but the contact area displays a secondary plug made of stones. It means that Wall S was cut before Wall C and the stairway were built. Obviously, the planned width of the stairway was a matter of importance. Otherwise, Wall Y might, at least partially, have been utilized as the eastern side of the stairway. At any rate, the new wall (C) was built, and Wall Y was demolished down to the level corresponding to the planned benches in Room XXIX, and thus utilized as another bench. At its current state, Wall Y is ca. 1 m wide expanding to ca. 1.1 m at its southern end.

The elements of one arch were found inside the room, but the arch springers were not present at the preserved level of either one of the surrounding walls. Instead, a curious arrangement exists in the NW corner of the room, which consists of two stones located side by side in Wall C and projecting into the room's interior by ca. 0.2 and 0.23 m respectively. Although these stones could have something to do with the arch springer, they may be better interpreted as supports for some kind of installation allowing access to the upper floor. There are also some irregularities in the construction of Wall D, visible in its southern face. One suspects that all that may have some relation to the old Wall Y, as well as to other elements which could have preceded the construction of the room but were retained when Room XXIX received its current appearance.

Benches are also prominent in Room XXX, although these are less preserved here, and mostly missing the seat slabs. The eastern, northern and western benches are all ca. 0.45 m wide, with the height about the floor level ranging from 0.25 m (east bench) to 0.38 m (west bench). The southern bench is somewhat different. Its height

is 0.38 m but the width changes from 0.75 m in the western and central parts to 0.42 m in the eastern part. That may be due to stones missing in that part. Additionally, this bench has a low step situated in the front, being ca. 0.26 m wide and 0.1 m high. All benches have foundation courses which continue under the extant floor level. The floor itself is also made of hard-beaten clay. It is possible that both rooms had originally had stone paved floors, but these were removed or completely washed away and never replaced. Instead, the clayish soil bedding served as the latest occupational surface. The threshold of the door in Shop XXX is not preserved - either removed or washed away - exposing the stone substructure of the doorway.

The significant numismatic finds inside Rooms XXIX-XXX warrant a more detailed description of the extant stratigraphy. Upon the floor of Room XXIX, a thin homogeneous layer of ashy soil (locus 13) was encountered, which yielded 53 coins, seven of which were certainly minted after AD 363. Directly above, was a layer of sparsely distributed construction stones (locus 11), without any definite pattern, but seemingly not originating from a collapse. Rather, some attempt on creating a stone bedding (?) level may be postulated. There was some ash in the lower part of the soil matrix of this layer. Thirteen pre- and one post-363 coins were found in locus 11. Following was locus 07 - a layered deposit of sand and coarse clayish silt, ca. 0.15-.28 m deep. That deposit, characteristic for flood event morphology, contained four coins. All three loci occupied only the central space of the room, surrounded by the benches and Wall Y. All contained the pottery of the fourth century AD, which could easily date to the pre-AD 363 period. The entire area was, in turn, covered by locus 05, a very heterogeneous layer of silt with the abundance of cultural material, including four coins. The more ashy locus 05A, contiguous to 05, was spe-

cifically located only over the benches and Wall Y, and it yielded 57 coins, with 13 post-363 issues. Locus 05 (including sub-locus 05A) and the superimposed locus 04 had sealed the entire interior of the room. Loci 05 and 04 seem to represent disuse, natural deposition, and probably the tumbled or washed down material from the area farther south. The combined depth of loci 05 and 04 was ca. 1 m. Loci 05, 05A and 04 had the fourth century sherds as well as these which might be dated to the later fourth/early fifth century AD. All these loci also yielded roof tiles. A number of early sherds (e.g. first century AD) was found in locus 04, probably washed down from Area East. The collapse of the arch in Room XXIX had occurred on the top of locus 04.

While this stratigraphic situation is relatively straightforward, the datable coin and ceramic finds are paradoxically making the interpretation more difficult and requiring further studies toward its refinement. The lower part of the stratigraphic sequence falls within the time of the AD 363 earthquake the impact of which, however, is not readily apparent here. The two main coin-rich deposits, loci 13 and 05A, contain pre- and post-363 issues, but they somewhat differ with regard to the dating of their respective ceramic contents. It is possible that the final occupation before the flood, characterized by the deposits on the floor *and* on the benches (i.e., 13, 11, and 05A), may have been somehow associated with a disturbance and/or its aftermath, as represented by ash, debris (probably related to the dumping inside the room), and stone blocks. The physical connection between the coin-rich deposits - locus 13 on the floor and locus 05A over the benches - could not be established with certainty during the excavations, although locus 05A sloped down from the top of the bench. Such connection could, theoretically, have been obliterated by the flood-generated material, locus 07. The flood physically separated the deposits

by covering these on the floor, but it was not substantial enough to cover the area higher up over the benches. Such flooding might have happened sometime in the early to mid-fifth century AD, and was apparently followed by the collapse of the arches soon afterward. On the other hand, it is possible that the coin hoards in loci 13 and 05A belong to two completely separate phases of the shop's occupation, isolated from each other both spatially and temporally by the flooding incident.

The situation in the adjacent room is less complicated, but equally in dearth of a plausible explanation. The alluvial, flood-related sand and gravel (locus 10) was found deposited directly over the beaten-earth floor. That locus was sealed by locus 06 which stretched all over the interior. A total of 44 coins was found only in locus 06A, a slightly ashy soil deposit located directly over the southern bench, and contiguous to locus 06. Out of 44 coins, 14 were minted after AD 363 - a ratio somewhat higher than that from Shop XXIX. Loci 06 and 06A contained the fourth century sherds, in addition to some dated probably to the early fifth century. The voussoirs of the arch in Room XXX collapsed on top of locus 06. It appears that the coins could have been deposited in the area over the bench either before or after the flood. Again, the impact of the earthquake of AD 363 upon this room remains elusive.

Considering the relatively narrow width of both rooms (ca. 2.6-2.8 m), long wooden beams could have been used instead of stone arches to support the roof. The presence of arches may relate to the existence of the upper floor and its stone pavement, thus a need for a more sturdy support of a heavy load above. Both the roof tiles and the paving slabs were found in the collapse layers. The fall of the arches may not have been simultaneous in both rooms. Voussoirs found there are generally smaller (shorter) than those from Rooms XXVIII-XXVI.

Their deposition patterns was also peculiar. The voussoirs collapsed in a single row in Room XXIX, close to Wall D, and with their tops over ca. 2 m above the floor level. In Room XXX, the voussoirs were grouped in two parallel rows of 5-6 stones each. One row was close to Wall D, and the other was located by the southern bench. The tops of both rows were at ca. 1.1 m above the floor. The uppermost strata contained multitude of stone material, much of which would have tumbled down from the Upper Market and from the galleries of Area East. Among the finds was a large fragment of a column drum with a thick layer of plaster forming the fluting design.

The sidewalk pavement is not preserved in the front of these rooms, nor the portico itself is evident there. Instead, there is a substantial outcrop of reddish sandstone in front of Room XXIX, which was partially chiselled out to form a horizontal surface. Periodical floods had further smoothed out the surface. The limits of the outcrop's extension northward were not detected. A rectangular base or pedestal for a statue or any other architectural element, is situated in the front of Shop XXIX.

The Soundings

Nineteen soundings were opened in the excavated area. These were located inside the rooms, on the sidewalk, in the front of the stairway and under its steps, and on the paved street. These soundings produced a substantial and relatively well-sealed ceramic material which will allow for substantive statements concerning the history of the area, by providing the dating for phases of architectural development. Several coins were also found in these contexts. Furthermore, some soundings exposed the remains of the earliest walls and structures in the area. It needs, however, to be stressed that in case of several soundings, these were opened in the spots where pavements were badly cracked or partially gone. It means

that some material from these soundings, especially from their uppermost layers, may be partially contaminated. That seems to be apparent in the case of soundings where uniformly dated early ceramics were suddenly accompanied by a coin dated late.

Sounding 1 has been opened in the NW corner of the stairway, under the flagstone steps which were *in situ*. This sounding revealed the manner of construction of the stairway, and provided material which helps to date the entire structure. The ceramics recovered from there date from the fourth quarter of the first century BC up to and including the first half of the first century AD, with hardly any later material. Sounding 4 was located on the street, directly against the lower step of the stylobate. The street pavement there was partially broken but even the uppermost strata seemed hardly contaminated, and the lower ones were certainly undisturbed. The sounding revealed at least two hard-packed surfaces, partially paved with small irregular cobbles. These might be the tracks or roadways suggested by Parr, which preceded the paved street. The locus directly beneath these yielded sherds dated only to the first half of the first century BC. Both tracks had ceramics dated to the first century BC and possible early first century AD sherds. All three layers were cut by the foundation trench for the stylobate of the colonnade. Sherds dated to the first half of the first century BC through the second half of the first century AD were found inside that trench. The foundation trench and the roadways were then sealed by the superimposed strata of soil and stone bedding for the extant pavement of the street. These strata - locus 33 D, C and B (from bottom to top) - yielded the sherds from the first century BC through the beginning of the second century AD, with no later material. Additionally, locus 33 D had a coin of Rabbel II dated to AD 76 -101. All that strongly suggests that not only the pavement of the street but also the co-

lonnade and presumably the sidewalk should have come into existence toward the end of the first century AD, or in the early second century AD

Soundings 2 and 3 were opened in the areas abutting the pedestals for the postulated arch in front of the stairway. The results were inconclusive, especially since the entire area must have much suffered through the natural processes of flooding, mud-sliding, tumbling, and washing away. As for the western pedestal, the pottery which seems to be associated with its foundation trench or was in a layer cut by it, appears to be no later than the early second century AD. The sounding set against the NE side of the badly preserved remains of the eastern pedestal, revealed extensive bedrock formation which, in places, was reshaped in way to accommodate the construction of the pedestal. The recovered ceramics ranged from the first through the fourth century or later. No connection with the expected pre-paved street stratification was established.

Soundings opened in the clayish floors of Rooms XXIX and XXX revealed pottery which ranged from the later first century BC until the early second century AD. Sounding 7 which was opened in the corner of Walls M and N (= SW corner of the front room of Shop XXVIII), produced sherds dated only to the second half of the first century AD. However, soundings sunk through the pavement of the back room of Shop XXVIII were less conclusive. For example, Sounding 5 under the seemingly undisturbed pavement, yielded the post-mid-first century AD sherds and no later material. Yet, directly under the paving stone, two Byzantine mid-fourth century coins were found. Sounding 6 was dug in the corner between Walls B and M, where the pavement was missing. The upper strata have yielded several fourth century coins in addition to ceramics which dated up to the end of the third century AD. But the lower strata which represented the foundation courses

and trenches for Walls B and M provided ceramics uniformly dated to the end of the first century BC - early first century AD. Sounding 10 inside Room XXVII, which revealed the remains of the demolished Wall X, produced sherds dated to the end of the first/beginning of the second century AD only. On the other hand, Sounding 13, inside Room XXVI, which exposed the remains of Wall V (in line with Walls M and X), yielded sherds of exactly the same date but also a coin of Justinian I. Soundings 15 and 16 opened in the southern half of Room XXVI, under very poorly preserved pavement, produced ceramics dated to the period between the second century AD and the early fourth century AD. All that may indicate that, while some substantial construction activities apparently took place at the site in the first and the early second century AD, later periods also saw some activities, perhaps associated with a remodelling, or replacing of pavements.

Preliminary Interpretation

Detailed studies of the excavated material, including the ceramic and numismatic material, as well as the architectural research, are yet to be conducted. Therefore, a preliminary attempt to interpret the site in terms of spatial and temporal changes must be treated as tentative and most likely to be substantially modified through the future studies. There is no doubt that the phases of development at the site outlined here will multiply or be subdivided during the subsequent research. At this point of time, the interpretation presented below concentrates on the excavation site itself, largely excluding the comments, parallels, or conclusions which stem from the previous excavations in the street area. While these will have to be reviewed, it is unknown now to what extent the results of the previous work in the western part of the colonnaded street are applicable to the situation at the eastern end of the street.

The natural factors, such as seismic events, always played an important role in the interpretive research on the history of Petra. While the impact of ancient earthquakes is also a prominent factor in this interpretation, another important factor which bears heavily on the history of the site is its proximity to the Wādī Mūsā-Wādī al-Matāha confluence in the area of the Nymphaeum, and thus the occurrence of flooding. Considerable flood-related deposits are well evidenced on the banks of the Wādī al-Matāha. The entire area east of the stairway must have been particularly prone to such disasters, and would bear brunt of the initial water onslaught. The flooding is indeed well-evidenced inside Rooms XXIX-XXX. Floods must be also responsible for the total disappearance of the pavement in front of these shops, for the substantial damage inflicted upon the pavement in front of the stairway, and upon the eastern arch pedestal. Notably, the western side of the stairway, the shops to the west of it, and the street pavement toward the west display a gradually decreased destructive impact of flooding. It is so because the deflection of water from the walls east of the stairway channeled it back toward the Wādī Mūsā depression. The substantial stone erosion of the stylobate of the colonnade may equally reflect mud-slides as well as floods. Strata which may represent minor flooding episodes were also found inside Rooms XXVIII and XXVII.

Heavy alluvial deposits were encountered in most of the soundings inside the rooms. It appears that the Wādī Mūsā natural drain depression which runs E-W, was originally much wider, and that the continuous flooding of the area eroded the lower parts of the sandstone formations while continuously carrying in riverine material and depositing it against the southern side of the wadi. That alluvial character of the lowermost deposits in the area is common everywhere within the excavated area.

As such the width of the Wādī Mūsā depression would gradually decrease throughout the ages, while the width of the southern bank of the wadi would increase. Possible traces of ancient meandering of the wadi banks were noted inside Sounding 8 (Room XXVII).

The urban beginnings at the site are shrouded in obscurity. Pottery recovered through the soundings is nowhere earlier than the beginning of the first century BC. Certain architectural remains are strongly suspected to belong to an earliest and poorly unknown phase of the development, which should have taken place at the southern part of the site, presumably against the outcrops of red sandstone formations there. While there is no shortage of the Nabataean pottery at the site, a general scarcity of Nabataean coins is puzzling. Out of 243 coins, only eight could be recognized as Nabataean, but ca. 22% coins remain unidentified.

One of the basic questions in this preliminary interpretation is whether Rooms XXVIII-XXVI had received their extant form already at the beginning of their existence, or were substantially modified later on through the addition of the northern extensions. Either hypothesis has its advantages and drawbacks. It is tempting, however, to suggest that the first recognizable phase at the site featured the construction of three almost square rooms which would correspond to the backspace of Room XXVIII and the southern parts of Rooms XXVII-XXVI. The extant Walls B, L, Q and M and the subsequently demolished Walls X and V would have been the external limits of these rooms. The latter three walls and Wall R would have served as the façade walls in this phase. If this hypothesis is correct, only the southern parts of Walls B, N, P, and Q belong to this phase. The line represented by Walls M, X, V, and R is identical with that of Wall S. That wall definitely precedes the extant stairway in date,

and it is possible that it then extended all the way west and across the stairway area, in way to join the course of Wall M. It is equally possible, however, that a stairway, in whatever form, could have already existed there, even during this early phase. What was in the front of so defined rooms is unknown, but an early portico situated where Wall A was later built, is an attractive hypothesis. Cobble-paved or beaten-earth tracks, being the predecessors of the extant paved street, would have stretched farther north. As for the eastern part of the excavated area, some structures should definitely have existed there in association with Wall S, and probably, Wall Y. This phase should date to the Nabataean period, presumably sometime in the first half of the first century AD, or somewhat later, on the basis of the ceramics recovered from the foundation courses in the corner of Walls B and M.

The following phase witnessed a grand expansion at the site. The stairway was presumably constructed - if not existent before, in a less grandiose form - and the monumental arch was built in front of it. Presumably, the requirements of the size and the gradient of the planned stairway deemed it necessary to add northern extensions to the original Shops XXVIII-XXVI. Newly constructed Wall A served as a façade/portico wall. While Walls M and R were retained in Shops XXVIII and XXV, Walls X and V were completely demolished in Shops XXVII-XXVI, at this point in time or perhaps later. The main evidence for this postulated northward expansion includes the different appearance of the northern parts of Walls B, N, P, and Q, the variations in the arrangement and dimensions of arches in the northern parts of the rooms vs. the southern parts, and the details which emerged from the soundings. Probably also Rooms XXX-XXIX, if these existed before, were now substantially remodelled in association with the construction of Walls C and D.

The architectural studies conducted before the fieldwork began, prompted an opinion that the colonnade could also have stretched in front of the stairway, and that only in the later period its portion facing the stairway was demolished to make place for the postulated arch (Kanellopoulos 1996: 20-21). That hypothesis still remains a distinct possibility which will require further studies. The excavation results would favor the opinion that the stairway is contemporary with the sidewalk, the stylobate and the colonnade, and the remodelled shops. There is also no compelling reason to dissociate the extant pavement of the colonnaded street with the development postulated above. In fact, this entire new design would make perfect sense also in connection with the arch in the front of the stairway, and the flagstone pavement of the street. The ceramics crucial for dating of these elements, uniformly indicate the later first century AD - beginning of the second century AD for this development. For example, Sounding 11 in the portico's pavement in front of Room XXVII yielded sherds which do not date beyond the second half of the first century AD. The fortuitous coin find (Rabbel II) in the bedding for the street's flagstone pavement, which sealed the foundation trench of the stylobate, also conforms to the chronological reconstruction proposed here. The sounding in the stone substructure of the uppermost, narrow section of the steps of the stairway, revealed only the first century AD sherds. Admittedly, this development could be dated to the last decades of the Nabataean independence, or could, at least, have begun then. However, with the inclusion of the dating evidence presented by the AD 114 inscription, the entire design might as well date to the Trajanic, or generally the post-annexation period, and this date is preferred here. Incidentally, it was already observed that the structures generally associated here with this phase often feature reused and recycled

stones that must have belonged to earlier classical buildings (Kanellopoulos 1996: 5, 11). It will require further studies to determine if this expansion at the site was in response to the postulated early second century destruction noted at az-Zanṭūr habitation quarter (Stucky 1996: 14, 21). A notable rapid and substantial development of the Petra's civic center in the early second century AD might also fully or partially have been related to the newly attained provincial capital status (Fiema 1997: 147).

During the following two centuries of the Roman period, modifications, repairs and remodellings could have taken place in the excavated complex. The enigmatic installation in Room XXVII could have been constructed then, at least in its initial form, although it was probably modified later on. The most common ceramic types found at the site included storage jars (large and small), amphorae, and unused cooking pots. Casseroles and pans were rare. This repertoire is characteristic for Rooms XXVIII-XXVI, supporting their commercial function, but not for Rooms XXIX-XXX. On the other hand, the abundance of coins found in Rooms XXIX-XXX also cannot be accidental, and it should somehow relate to the form of occupation there, perhaps including specific mercantile operations. The overwhelming majority of the coins found there is dated to the fourth century AD. The fifth century types are also present although these cannot be precisely dated. The dating brackets of numerous coins end just before AD 363, which may or may not be accidental. However, until the ceramic material is fully studied and understood in terms of stratigraphic sequence and relationships, the impact of the 363 earthquake on this area cannot be fully ascertained or defined. Historical sources clearly indicate that the city was affected (Russell 1980), and the corresponding archaeological data from other sites in Petra fully corroborate this fact. For example, the Late Roman occupation at

the nearby hillside of az-Zantūr was certainly ended by that earthquake (Kolb 1996: 51, 89). In case of Shops XXVIII-XXVI, damage could have included shifted walls, collapsed arches, and damaged pavement. Yet, at least some of the damage must have been repaired afterward, as the final collapse of the arches inside these rooms had certainly occurred later. The staircase and the arch in the front could have suffered as well, although to an unknown extent. It is evident that some parts of the arch were used in the construction of the retaining wall in the NE corner of the stairway, but the precise date of this structure is unknown. Also Rooms XXIX-XXX might have suffered damage in the later fourth century AD. Some kind of a post-earthquake occupation, interrupted by a flood episode, continued there until the mid-fifth century AD or slightly later, when the arches finally collapsed.

Possibly, the earthquake also resulted in a damage to some flood-control installations in the valley, as well as it affected the stability of the hillsides. Not surprisingly, the flooding is attested in Rooms XXIX and XXX, probably in the early fifth century. Both alluvial and colluvial material is present in the rooms west of the staircase, and the landslide material also prominently figures in the shop excavated by Parr. The construction of the secondary structures ("Byzantine shops") on the pavement of the portico and often encroaching upon the street itself, as well as the blockings of the doorways of the shops may all be related to both the earthquake damage and to the increased threat of flooding. Blockages could have been a response to broken door lintels and to a generally weakened structural stability. Several shops along the street feature only partial blockings which were relatively well-done. While restricting the access, these blockages attest to the continuity of the occupation of the interiors. At least some of the secondary structures on the sidewalk were constructed on the elevated

surfaces, and these in front of Shops XXVI and XXV-XXIV are the best examples. That northward expansion and raised floors probably meant an increased concern over the proximity of the landslide affected area, as well the protection against periodical flooding of the street area. The sherds preserved on the top of the raised area in front of Room XXVI, or embedded in its surface, were dated to the fourth, fifth and probably sixth century. But the ceramics recovered from the sounding in this area were more uniformly dated to the fourth and the early fifth century AD. Drums, ashlar and architectural elements were extensively used in the construction of these secondary structures. That means that at least some parts of the colonnade had already fallen down and were not restored.

The occupation in the eastern part of the colonnaded street had then continued in some form during the later Byzantine period. The commercial activities postulated to have been conducted there, might have dwindled though. Late Byzantine coins are not present at the site, with a single exception of an issue of Justinian I. That general scarcity of Late Byzantine coinage confirms the pattern already noted during the previous excavations in the street area (Kirkbride 1960: 112). It is tempting to suggest the gradual abandonment of the shops as progressing in a linear pattern from the east to the west. The earliest abandonment within the excavated site is attested for Rooms XXIX-XXX which were definitely abandoned sometime in the fifth century. The collapse of arches there, either due to the weakened structural stability or to another earth tremor, had sealed the interiors. The landslides continued occurring there, depositing the cultural material from the higher parts of Area East.

But the latest ceramics, dated to the sixth/seventh century AD, were found on the floor of Room XXVI - the westernmost excavated shop. That late occupation may

also have been aided by the differential manner of the arches' fall in the three rooms west of the stairway. The southern arches there, with the exception of Room XXVIII, were generally first to collapse. Thus the last to be utilized were most certainly the front spaces of the rooms, and the occupation could have continued there despite a depressing appearance of the half ruined or half-abandoned spaces. That occupation was presumably in connection with the secondary structures located in the portico area. Not surprisingly, all three northern spaces of Rooms XXVIII-XXVI contained simple storage or refuse bins. The best example is again Room XXVI where the southern arches collapsed relatively early and close to the floor, while the northern ones were probably still unaffected. That would have allowed the northern half of the room to be occupied longer, together with the "Byzantine shop" in front of this room. The collapses tend to appear as due to an earth movement directed toward SWW. The preservation of the springers and directly adjacent stones and voussoirs' rows is always better at the eastern side, while the western parts are usually more scattered.

Late occupation is also attested to the west of the stairway and south of Shop XXVIII. A simple flight of seven stone steps, associated with poorly defined occupational surfaces, was found there. Ceramic deposits from that area are dated to the sixth and the seventh century AD. The steps appear to have been constructed when the stairway, and at least some of the shops were already abandoned. Perhaps, the steps provided the access to the Upper Market area when the stairway was no longer in use. A fragment of a cooking pot dated to the Crusader period was found in the top layer over Room XXIX. This may suggest that the Crusader period occupation took place somewhere in this area. The most recent activities at the site are evidenced by simple retaining walls obviously related to

the limited cultivation in the area, as well as by the water channel which runs across the upper parts of the stairway.

The Finds

Generally, small finds recovered during the excavations were not substantial. These included several ceramic lamps, a few complete vessels, and moderate quantities of ceramic sherds. One intact large deep platter with a decorated rim has been recovered from the interior of Shop XXX. A small bronze, silver-washed cross, obviously meant to be worn on a pendant, was found on the floor of Room XXVI. Small quantities of metal objects, including iron nails, were recovered too, but most objects were badly corroded, broken, and generally indistinguishable. Glass sherds were not abundant, but these included fragments of bowls. Altogether 243 coins have been found, including 138 from Room XXIX and 48 from Room XXX.

The number of architectural fragments collected at the entire site approaches 400. These are primarily column drums and their fragments, capital decoration fragments, pieces of mouldings, and fragments of door jambs. Most of them came from the stairway and the upper strata of Area South. Thus much of that material represent the washed-down architectural elements originally associated with the Upper Market. To that must belong a very large half-capital which probably weights more than one ton. The stone rested in the upper part of the stairway, and has been moved aside during the current clearance of the stairway. Several pieces of marble mouldings were recovered too. The architectural elements also include at least 100 voussoir stones recovered from the shops' interiors. Some are simple, rectangular ashlar, up to 1 m long, but quantities of them displayed an underside concave surface. It is apparent that the spaces in the upper surface of the arches resulted from using not tapered stones, were

closed by mortar or plaster plugs to achieve a specific angle between the neighbouring voussoirs in the arch. These plugs hardened into chunks which are roughly triangular in section. The same technique had been noted in the buildings belonging to the Byzantine ecclesiastical complex excavated by ACOR at Petra.

On-site Conservation

Extensive consolidation of the extant ruins has already been conducted during the excavations. All extant arch springers in Rooms XXVIII and XXVII were secured, and numerous badly deteriorated ashlar in the walls were replaced or strengthened with mortar. Two large door-jamb stones (at least 1.7 x 1.3 x 1m) have been hauled up on top of the doorways leading to Rooms XXVII and XXVI, and secured there. The parts of the front wall (A) have also been reinforced with new stones and cement. The consolidation of walls in Rooms XXX-XXIX was not undertaken, but the wall condition there is generally satisfactory. Further consolidation and limited restoration work at the site will be conducted later in 1997 under the supervision of Chrysanthos Kannelopoulos, the architect of the project.

Further Research

The Roman street Project has considerably expanded the previous understanding of the urban development and phases of history of the Petra's center. The continuity of occupation in the excavated area is well attested for the period between the first century BC and the sixth/seventh century AD. But there is also no doubt that the research on the results of the project is still in its initial stage, and it will require more work in way to arrive at more definite statements. The immediate task will be to review all recorded strata with regard to their ceramic and numismatic contents, and to establish more precise relative and absolute chronology of the construction, occupation,

abandonment and destruction phases. It is already apparent that each excavated shop features some notable variations in the course of its occupational and depositional history. Furthermore, the determination of the function and the extent of occupation of each shop throughout its history will have to be established. Equally important will be the comparative review of the excavation results with the architectural studies to be conducted soon at the site, in way to establish a relative chronology of the development at the site as a whole.

The studies to be conducted in the future will also attempt to find elements of parallel development at the sites in the vicinity of the shops, that is the az-Zanṭūr domestic quarter and the Great Southern Temple, as well as at other sites in Petra. Comparative ceramic and architectural studies should prove most rewarding. As for the form, development and function of ancient shops in the Classical-Byzantine Middle East, architectural and historical parallels are fortunately not lacking. For example, well-documented examples of shops associated with colonnaded streets were excavated in Jarash-Gerasa, Umm Qays - Gadara (Jordan), Palmyra (Syria), Scythopolis-Beit Shan (Israel), Hierapolis-Pamukkale, Perge, and Sardis (Turkey). These should provide an adequate comparative material (see selected items in the bibliography).

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