Polish Centre of Mediterranean Archaeology
University of Warsaw

# STUDIA PALMYREŃSKIE
# XI

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Michał Gawlikowski

*Karol Juchniewicz, Khaled Asᶜad, Khalil al Hariri,* The defense wall in Palmyra after recent Syrian excavations
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# Abbreviations

| | |
|---|---|
| *AA* | *Archäologischer Anzeiger* |
| *AAAS* | *Annales Archéologiques Arabes Syriennes* |
| *AE* | *L'Année épigraphique* |
| *AM* | *Athenische Mitteilungen – Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung* |
| *ANRW* | *Aufstieg und Niedergang der antiken Welt* |
| *ArchCl* | *Archeologia Classica* |
| *AS* | *Antiquités syriennes* |
| *BAR* | *British Archaeological Reports* |
| *BEtO* | *Bulletin d'études orientales* |
| *BGU* | *Aegyptische Urkunden aus den Königlichen [Staatlichen] Museen zu Berlin, Griechische Urkunden* |
| *BJb* | *Bonner Jahrbücher* |
| *BMC Arabia* | *Coins in the British Museum. Arabia, Mesopotamia and Persia* |
| *BMC Parthia* | *Coins in the British Museum. Parthia* |
| *BMusBeyr* | *Bulletin du Musée de Beyrouth* |
| *BSAA* | *Bulletin de la Société archéologique d'Alexandrie* |
| *CIL* | *Corpus Inscriptionum Latinarum* |
| *CIS* | *Corpus Inscriptionum Semiticarum* |
| *CRAI* | *Comptes-rendus de l'Académie des Inscriptions et Belles-Lettres* |
| *DaM* | *Damaszener Mitteilungen* |
| *DHA* | *Dialogues d'Histoire Ancienne* |
| *EtTrav* | *Etudes et Travaux* |
| *FGrH* | *Fragmente Griechischer Historiker* |
| *HR* | *Cassius Dio, Historia Romana* |
| *IG* | *Inscriptiones Graecae, Berlin* |
| *IGLS* | *Inscriptions grecques et latines de la Syrie* |
| *IGR* | *Inscriptiones Graecae ad res Romanas pertinentes* |
| *ILS* | *Inscriptiones Latinae Selectae* |
| *Inv.* | *Inventaire des inscriptions de Palmyre* |
| *JGS* | *Journal of Glass Studies* |
| *JRA* | *Journal of Roman Archaeology* |
| *JRS* | *Journal of Roman Studies* |
| *LIMC* | *Lexicon Iconographicum Mythologiae Classicae* |
| *MEFRA* | *Mélanges de l'Ecole française de Rome* |
| *MUSJ* | *Mélanges de l'Université St. Joseph* |
| *NH* | *Naturalis Historia* |
| *PACT* | *Journal of the European Study Group on Physical, Chemical and Mathematical Techniques applied to Archaeology* |
| *PAM* | *Polish Archaeology in the Mediterranean* |
| *P. Dura* | *Dura-Europos Parchments and Papyri* |
| *P. Oxy* | *Oxyrhynchus Papyri* |
| *PAT* | *Palmyrene Aramaic Texts* |
| *PNO* | *La Palmyrène du Nord-Ouest* |
| *RA* | *Revue archéologique* |
| *RdA* | *Rivista di Archeologia* |
| *RM* | *Römische Mitteilungen – Mitteilungen des Deutschen Archäologischen Instituts, Römische Abteilung* |
| *RMD* | *Roman Military Diplomas* |
| *RTP* | *Recueil des tessères de Palmyre* |
| *SEG* | *Supplementum Epigraphicum Graecum* |
| *SHA* | *Scriptores Historiae Augustae* |
| *ZDMG* | *Zeitschrift des deutschen morgenländischen Gesellschaft* |
| *ZPE* | *Zeitschrift für Papyrologie und Epigraphik* |

# The defense wall in Palmyra after recent Syrian excavations

Karol Juchniewicz, Khaled Asʿad, Khalil al Hariri

One of the most important monuments of ancient Palmyra, the Wall of Diocletian survives in fairly good condition [*Fig. 2*] and is regularly maintained and preserved through the efforts of the authorities of the Palmyra Museum. In the past few years the northern section of the wall from the so-called 'Indian Gate' to Tomb 176 (for tomb location, see Gawlikowski 1970: Plan VII) has been consolidated and restored, especially the upper parts of the wall and some of the gates. Archaeological excavations by archaeologists from the Palmyra Museum carried out on the outside of the line of defenses have uncovered the moat and, in places, sections of the wall foundation. The results have contributed new data on the technique of construction of the fortifications.

A closer look at the run of the wall in the sections explored by Syrian archaeologists complements Dora Crouch's remarks of 1975 (Crouch 1975: 6-44). Particular sections of the wall have already been designated with letters of the alphabet by von Gerkan (1935: Fig. I) and I propose to uphold this system. And so, C is the section encircling the Camp of Diocletian to the west of the town, D is the entire northern sector of the fortifications and E is the section running down Wadi Qubur and closing off the town from the south. However, the constituent elements of this defense wall, such as towers and gates, have never been recorded in one consistent system. Therefore, I propose to designate the towers and gates with the letter T or G respectively, followed by a running number [*Fig. 1*]. Since towers are fairly frequent, this system will provide a convenient way for referring to particular sections of the wall. Moreover, considering that the towers can be categorized by shape or origin into three separate groups, an additional designation will be used with the T to identify the different kinds: Ts — square tower, Tu — U-shaped tower, Tt — tomb tower). The designation is meant to reflect the final state of the feature, that is, a square tower transformed into a U-shaped one will be designated as Tu.

The Palmyra fortifications have seen their share of discussion and controversy, regarding their chronology as much as their constituent elements as noted by Crouch. There has never been any regular excavation project concentrated on the defenses, hence the precise number of the towers and gates remains unknown (Crouch 1975: 13-16). The dating is based therefore on an analysis of the wall structure and correlations with reports found in the ancient sources. The prevailing view is that the wall was built by Diocletian (Wood 1753; Gabriel 1926; Krencker [in: ] Wiegand 1932: 13-15; Seyrig 1950). An opposing, now obsolete theory attributed its construction to Zenobia (von Gerkan 1935; Puchstein [in: ] Wiegand 1932: 36).



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Conservation works on the ancient defense wall started on the so-called 'Indian Gate' just south of the Museum (Crouch 1975: 26) [*Fig. 22*]. This gate, which has now been designated as G1, was excavated by Chr. Delplace. The name 'Indian Gate' was used by Crouch and is probably a misnomer. It is flanked by two U-shaped towers (Tu 1 and Tu 2). The passage between the towers is fairly narrow — approximately 3 m wide. The channel made of stone slabs which can be seen running through the gate has proved to originate from the 1930s. Towers Tu 1 and Tu 2 reveal two distinct stages of construction. The original towers were square in shape and structurally incorporated into the wall. They were solid inside with a core, like the wall itself, consisting of mortared rubble faced with stone slabs. The stone used was a soft pinkish limestone which is quarried locally. In the next phase U-shaped constructions were built around the original towers, clearly not interfering with the standing structures. Both towers incorporated rooms and steps leading to the higher floors, but none of the archer's window slits, assuming they were present here, have been preserved. The construction technique was clearly different in the second phase with the slabs of white limestone being dressed on all sides. The bond is broken by single slabs set crosswise, the purpose being to bind the stone face to the mortared rubble core. The towers stand on stone platforms which are topped by projecting cornices in front.

The square and U-shaped towers occur regularly along the entire length of the wall and they are all constructed in the same way. And so, the next three towers in the section of wall west of gate G1 are square (Ts 3, 4, 5), followed by tower Tu 6 which has a chamber inside it, accessed from a narrow staircase hugging the east wall. There is a postern in the corner between the tower and wall. This tower has been excavated and partly restored by Syrian archaeologists. Next are again three square towers (Ts 7, 8, 9), a U-shaped one (Tu 10) and three more square ones (Ts 11, 12, 13).

The structure situated by tower Ts 13 is to my mind a *castellum* of the northern aqueduct [*Fig. 6*]. It is rectangular in plan and is adjacent to the east side of the tower. Water for the tank was supplied by a channel, a fragment of which can still be seen by the north wall of the structure. A system of five stone chambers channeled water to the separate water-supply pipelines. The inclination of the preserved chamber walls suggests a barrel vaulting. The channel was built of reused building material. It is filled with rusty-colored sand, bearing witness possibly to the chemical composition and quality of the water which passed through it. It is common knowledge, for example, that the water from the Efqa spring was heavily sulphuric in content. A piece of lintel with door socket and a fragment of ceiling coffering can be observed by the northwestern corner of the structure. On the outside face there is a bilingual, Greek and Palmyrene inscription (Asʿad and Yon 2001: 155-156).

A T-shaped opening seen west of tower Ts 13 is most likely a sewage outlet [*Fig. 8*].

Tower Tt 14 is ruined completely [*Fig. 20*]. It was originally a tomb (T129c) which was incorporated into the defense wall. The tomb, which is currently excavated by a Japanese mission, stands at an angle to the line of the wall, masking a turn to the west and acting as the eastern one of the flanking towers of gate G2. This gate was blocked at some point and only the jambs, presumably belonging to the original gate, can still be seen in the structure of the wall. The pavement of a road leading off to the north was found in front of this blocked passage. The pavement was restricted to the area immediately in front of the gate and it provides a clear marker of the latest phase of the gate and by extrapolation of the fortifications as a whole. The western flanking tower of the gate was U-shaped (Tu 15) [*Fig. 16*]. It was a tower tomb (T129b) incorporated into the fortifications and subsequently remodeled in U-shaped form. Testing by archaeologists from the Palmyra Museum uncovered the base of the tower consisting of two small steps, the topmost vanishing flush with the front of the tower. A postern, now blocked, once opened in the eastern side of the tower, immediately next to the face of the wall. The threshold in this postern corresponds to the pavement in front of gate G2. The door frame is finely made, topped by a decorative lintel, all coming in all likelihood from the original tomb. Testing at the base of the wall next to this tower revealed a footing that projects approx. 2 m to the front of the wall.

The next tower, Ts 16, has been excavated nearly down to the foundations [*Fig. 12*]. The base of the tower is clearly seen, projecting approx. 0.50 m beyond the line of the facing on three sides. The building material consists of reused stone blocks, especially well apparent in the northwestern corner of the base where one finds an inscribed lintel block bearing a bilingual, Greek and Palmyrene

inscription (As$^{c}$ad and Yon 2001: no. 1, 154-155, Fig. 1). The block is cracked, possibly under the combined weight of the tower structure above or due to an earthquake event.

Khalil al Hariri from the Palmyra Museum tested the length of the wall section between towers Ts 16 and Ts 17. The trench, which was about 2 m wide, yielded stone blocks which had tumbled from the wall but which originally came from dismantled tower tombs [*Fig. 7*]. It also revealed that the wall was founded in this section on top of a rock overhang that was partly reinforced with mortared rubble fill [*Fig. 10*]. The masonry footing projects approx. 2 m in front of the wall face [*Fig. 11*]. Tower Ts 17, as well as the next tower Ts 18, have been partly restored by the Syrians.

Tower Tu 19, which has also been partly restored, is decorated with an upside down reused cornice at its base. A postern gate is located in its eastern side. The archer's slits, two on the sides and one on the front, are not preserved as such, but can be presumed to repeat the position of the original windows. Limited testing on the western side revealed a fragment of the foundation made of blocks of soft pink limestone, the same as can be seen under the wall itself. The latter is practically even with the wall face with no rock overhang and masonry reinforcement in this part and, interestingly, no evident foundation trench either. Petrified soil approx. 0.50 m thick reaches right up to the wall face; under it is a layer of sand and stones of undetermined thickness.

Between tower Ts 20, which has undergone partial restoration, and tower Ts 21 the outlet of a big sewage channel was discovered below the present ground surface [*Fig. 9*]. The outlet is rectangular in shape, framed with jambs and a lintel; the threshold is presently not to be seen, but the presumed height of the outlet is approx. 0.96 m, and its width is 0.85 m. The channel itself is about a meter higher inside and vaulted with semicircular stone sections. No traces of a grille of any kind could be observed; hence it is assumed that the opening was not barred.

Another test trench approx. 15 m long was dug from tower Ts 21 to tower Tt 22, the latter a tower tomb incorporated into the wall structure. It yielded large quantities of stone building material, mainly blocks and architectural decoration originating from tombs dismantled when building the wall. Tt 22 stands at an angle to the walls; it has been heavily reinforced by the Syrians, similarly as the next square tower Ts 23 [*Fig. 13*].

Gate G3 is flanked by the next two towers, Ts 24 and Ts 25, both of which are square. It has been reconstructed significantly [*Fig. 24*], the only original elements today being the jambs. Together with the towers, they give an idea of the original width of the gate passage. The carved stone door, which has been mounted in the gate opening, originates from one of the tower tombs that were dismantled for the construction of the wall and was used most likely as building material in the wall and not the actual gate. The inside plan of the gate, now concealed from view, indicates beyond doubt that the street leading to it reached the gate at an angle.

Next in line are square towers Ts 26 and Ts 27, both reconstructed by the Syrian Antiquities Service, and U-shaped tower Tu 28 which was built against a tower tomb marked as no. 176 on Gawlikowski's plan. This structure consists of at least two parts, of which one was screened off by the U-shaped tower. Syrian restorers have reinforced the tomb structure, among others, by mounting another stone door. The tower seems to have been reinforced with mortar here and there but otherwise it shows no evidence of modern building interference. The original archer's slits can be seen, one each on the side and a third on the front. Explorations of the tower in 2008 by archaeologists from the Palmyra Museum uncovered the archer's windows, a postern and narrow steps [*Figs 14, 15*]. There seem to have been three levels inside the tower. A catapult or ballist machine may have stood on the lowermost level. The archer's slits are inclined inward. The topmost level must have been a wooden floor supported on the cornices observed on the east and west walls of the tower interior. This space was closed probably and was entered through a door in the inner, southern side of the wall. The stone steps, preserved in residual form, would have led to the uppermost, third level, most likely the roof of the tower.

The next tower, Ts 29, has a rubble filling that rises above the line of the chipped face, revealing the original core of the towers and wall (this section of the wall was restored by Syrian archaeologists in 2009). Two courses of blocks were preserved in the front wall of the tower, more on the sides. The lower course was constructed of the pink limestone used for most of the wall itself, while the next course up (second from the bottom) is of a white limestone that was used in the construction of the U-shaped towers. Moreover, the white limestone is worked into slabs, while the pink limestone



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is dressed only on the joining surfaces, leaving the back rough, presumably to ensure better bonding with the core of the wall.

The wall between tower Ts 29 and the beginning of the wall of the Camp of Diocletian is reinforced by towers adapted from existing tower tombs, designated by Wiegand as tombs 175, 174, 173, 173a, 173b, 173c. They have been given corresponding designations as defensive structures in the fortifications, respectively Tt 30, Tt 31, Tt 32, Tt 33, Tt 34, Tt 35. Structural changes, if any, introduced to facilitate the incorporation of the tombs in the defense wall, are difficult to establish. It is to be expected that any entrances to the tombs found outside the circuit would have been blocked and that the interior spatial arrangements of the tombs would have been adapted to the new function. While this would have been a priority from the military point of view, there are reasons to believe that nothing actually changed and that the tombs continued to function as burial places.There are examples of other tower tombs which were transformed into defensive towers and thus deprived of their original function, but here there is absolutely no evidence of any changes inside the tombs connected with their incorporation into the line of defenses. Quite clearly, at least some of the tower tombs in this section were not desacralized despite being incorporated into the fortifications [***Fig. 21***].

A small gate, G4, is situated next to tower Tt 31, to the north of it. It is actually no more than a passage through the wall with jambs *in situ* and a lintel lying nearby which is of the right size and dressed in the same way. This passage was blocked at an unknown time.

Tower Tt 35 stands at the joining of the town wall and camp wall. There is absolutely no reason to think that the two structures were separate.

The next structure is gate G5, the Northern Camp Gate, used today as an access road for the excavations. It is fairly narrow, flanked by square towers Ts 36 and Ts 37. As in gate G3, the road approaches the gate at an angle. There are evident differences in the construction of the two towers. Ts 36 is clearly built onto the wall of a different kind of stone (white limestone) and in a different technique than tower Ts 37 which is structurally integrated into the wall. Gate G5 stands at the end of one of the camp's two principal streets, *Via Principalis*.

The camp fortifications are reinforced with square towers (Ts 38, Ts 39, Ts 40, Ts 41, Ts 42, Ts 43, Ts 44, Ts 45, Ts 48, Ts 49) [***Fig. 3***], except for towers Tt 46 and Tt 47 which are incorporated tower tombs 83 and 83a on Gawlikowski's plan, one on the west and the other on the south side. The towers were not developed into U-shaped constructions. A small gate, G6, between towers Ts 44 and Ts 45 led onto a small rock platform at the foot of Jebel Husayniyet. A fragment of the doorframe can be seen sticking out from the heap of rubble. A break in the wall seen from inside the *horreum* a little further on could represent yet another passage through the wall (G7).

The Damascene Gate (G8) at the end of the Transversal Colonnade is undoubtedly of the greatest significance [***Fig. 23***]. The eastern flank consists of a fragment of wall and U-shaped tower Tu 50 built around tower tomb 83c. On the west side the gate seems not to have been protected; the camp *horreum* located against the inside of the wall in this spot may have been considered sufficient protection. Any flanking fortification on the west would have interfered with the camp wall. The gate had three passages, two side ones flanking a central one, but little can be said because of the current state of preservation. The remains of architectural decoration suggest that the Damascene Gate was built in the 2nd-3rd century AD. It was an ornamental gate, later incorporated into the wall.

Practically all the different phases of the fortifications around Palmyra are concentrated on the spot of Tower Tu 50 [***Fig. 17***]. The wall from the Tetrarchy period was reinforced with a U-shaped tower. As for the wall running from Gebel Muntar which disappears on the southern edge of Wadi Qubur in the general area of tower Tu 50, its date remains a question for debate. The tower was built around the tower-tomb 83c, annexing the southwestern corner of the tomb. The front of the tower appears to be slightly turned to the southwest, thus falling out of line with the Damascene Gate.

The next three square towers, Ts 51, Ts 52 and Ts 53, are poorly visible under the rubble. Next there is a U-shaped tower Tu 54 which repeats a known pattern. However, it is difficult to analyze the architecture of the towers in sector EE, because of the current state of preservation [***Fig. 4***]. Square towers Ts 55, Ts 56 and Ts 57 are followed by U-shaped towers Tu 58 and Tu 60 [***Fig. 18***], the latter having been partly excavated, separated by a square tower Ts 59; next come towers Ts 61, Ts 62 (with breakwater) [***Fig. 19***], the Agora and tower Ts 63 and the Annex to the Agora. Palmyra's strongest gate, the Theater Gate (G9), stands at the end of the Theater Colonnade. It was adapted from an arch

at the end of the colonnade and connected with the fortifications, forming a defensive structure with an inner courtyard flanked by at least one U-shaped tower, Tu 64 [*Fig. 25*].

The last section of the wall is reinforced with towers Ts 65, Tu 66 and a possible banquet hall connected with the Temple of Nabu. A few meters further on the modern road crosses the line of ancient defenses. After that only fragments of the fortifications can be seen among the gardens behind the Temple of Bel. The top of the wall may have provided a convenient bedding under the modern road, but this is not entirely clear [*Fig. 5*].

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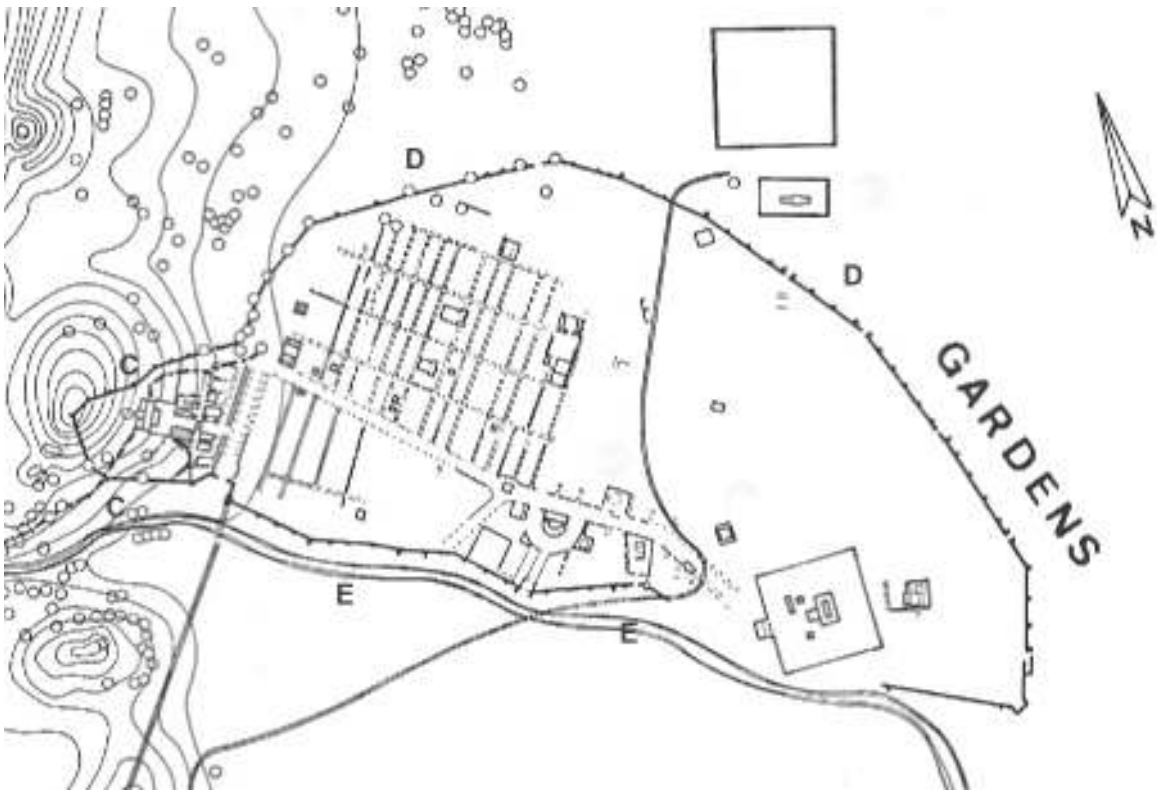


*Fig. 1. Plan of the Palmyra defenses; letter designations mark successive sectors of the defenses. (after Barański 1997: 6)*



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*Fig. 2. Wall of Diocletian in Palmyra, view from the Arab castle*

*Fig. 3. Square towers fortifying the camp defenses, view from the east*

*All photos by Karol Juchniewicz*

*Fig. 4. Towers in Sector EE, view from the west*

*Fig. 5. Modern road possibly running along the top of the town fortifications in this area, view from the west*



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*Fig. 6. Presumed castellum of the northern aqueduct by tower Ts 13, view from the northeast*

*Fig. 7. Stone building material recovered from a test trench by the wall between towers Ts 16 and Ts 17*

*Fig. 8. Sewage channel outlet in the wall west of tower Ts 13*

*Fig. 9. Outlet of a sewage channel in the section of wall between towers Ts 20 and Ts 21*

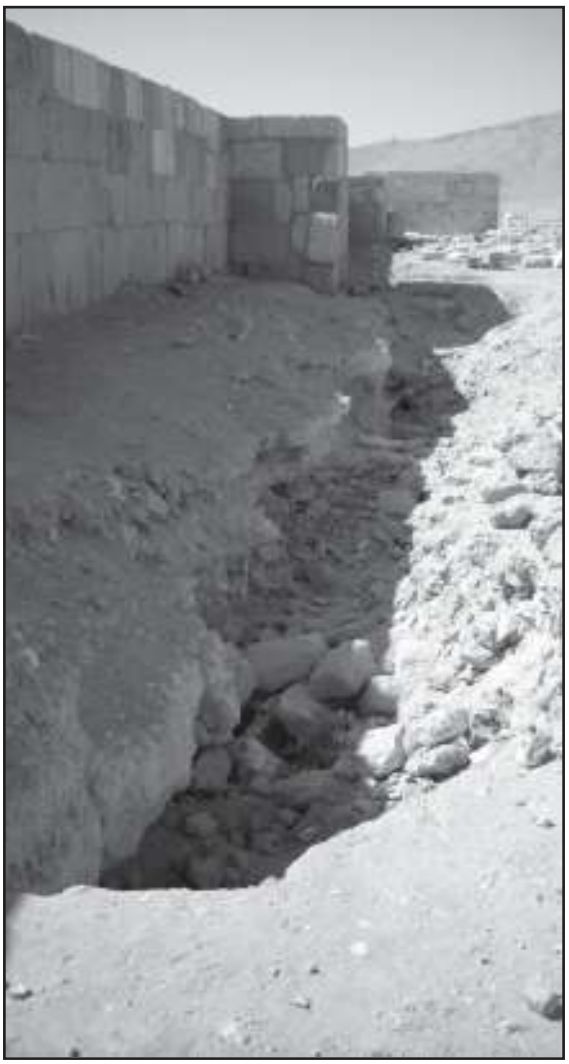

*Fig. 10. The rock overhang foundation revealed in testing alongside the wall between towers Ts 16 and Ts 17, view from the northeast*

*Fig. 11. Masonry footing of the wall between towers Ts 16 and Ts 17, view from the northeast*



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*Fig. 12. Tower Ts 16, view from the northeast*

*Fig. 12. Tower Ts 16, view from the northeast*

*Fig. 14. Narrow steps and archer's slits inside tower Tu 28 after exploration in 2008, view from the south*

*Fig. 15. The inside of tower Tu 28, view from the south*



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*Fig. 16. Tower Tu 15 flanking gate G2 on the west, view from the north*

*Fig. 17. Tower Tu 50, view from the south*

*Fig. 18. Tower Tu 60, view from the south*

*Fig. 19. Tower Tu 60, view from the west*



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*Fig. 20. The ruined tower Tt 14, view from the north*

*Fig. 21. Tomb Tt 174 incorporated into the defenses, view from the northwest*

*Fig. 22. The 'Indian Gate' (G1) in the southern section of the defenses, view from the north*

*Fig. 23. Damascene Gate (G8) in the camp walls, view from the southeast*



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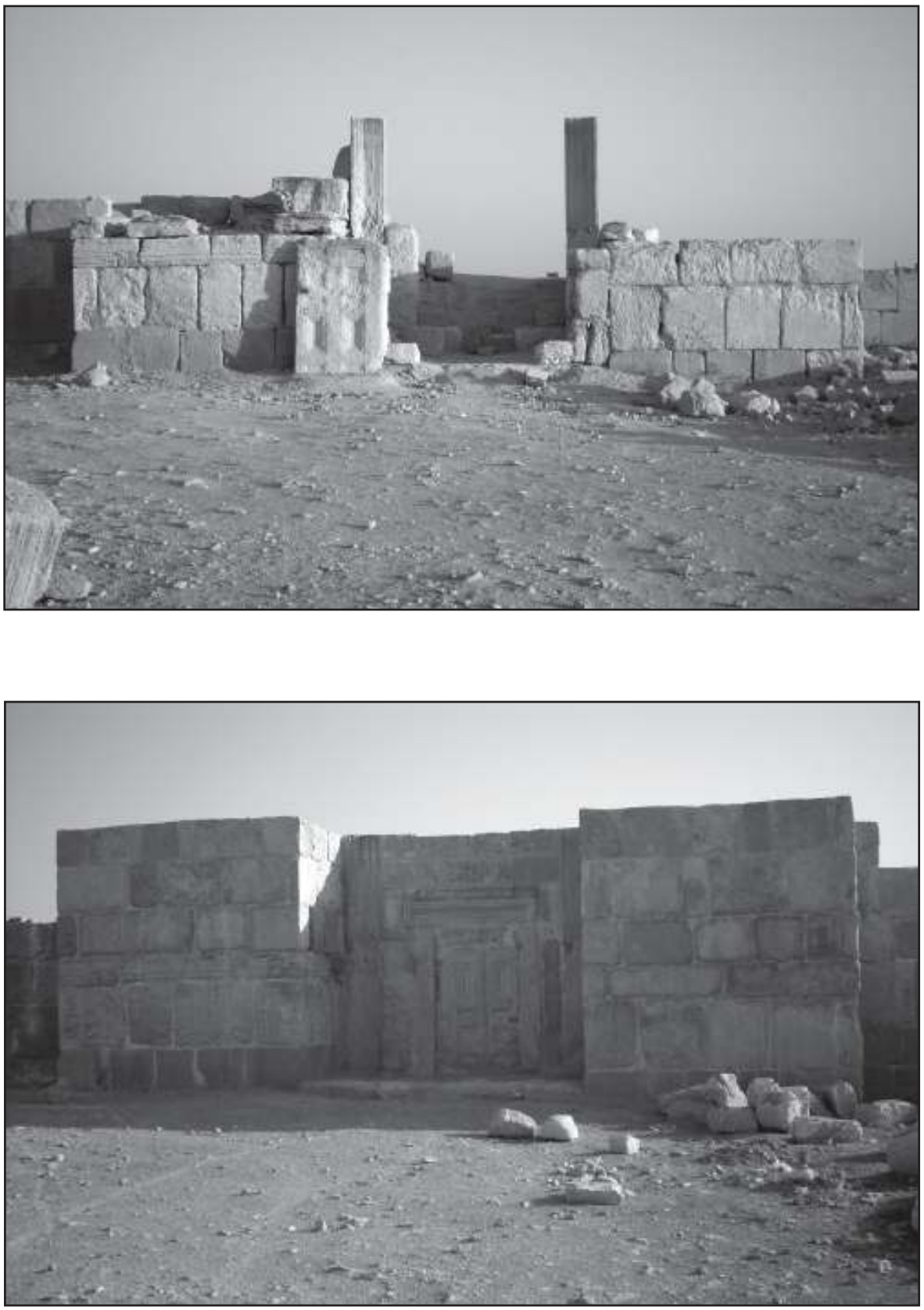

*Fig. 24. Gate G3, view from the north, before (top) and after reconstruction*

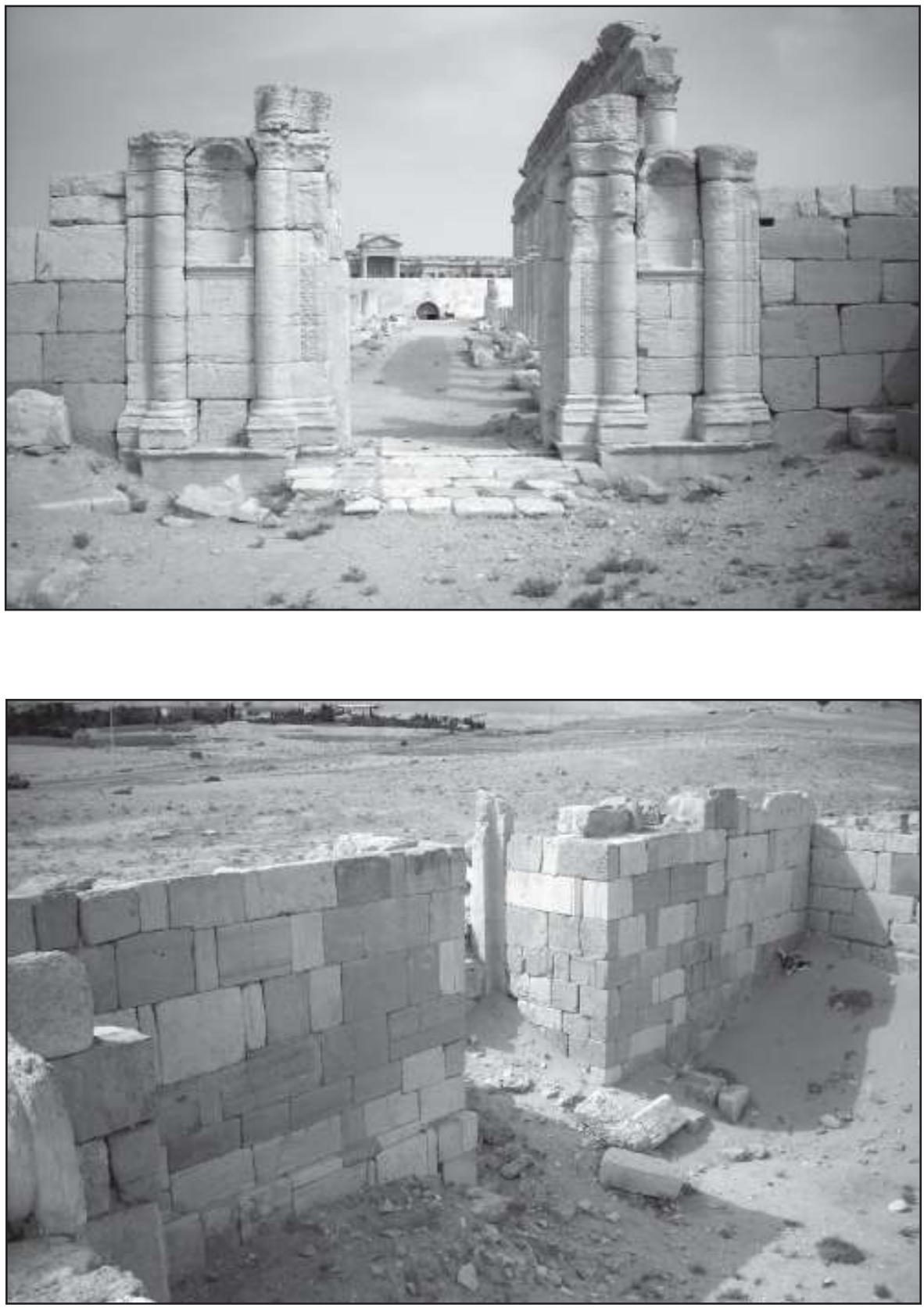

*Fig. 25. The Theater Gate G9 with tower Tu 64, view from the outside (top) and inside*



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