

THE SPATIAL ORGANIZATION MOUNTAIN COMPLEX OF PETRA

Anna K. Kudriasheva

Abstract

The natural-urban morphology of the landscape complex of Petra is characterized by material homogeneity and maximum use for the purposes of town planning and engineering support of natural geomorphology and hydrography, the regime of underground and surface waters, as well as the properties of natural geometry for its external and internal architectural processing.

The three-dimensional scheme of the landscape complex of Petra, the key of which is its the location, marked by the sacred heights of the mountain massifs peak, fits into the shape of a diamond, where its sides coincide with the outer boundaries of the city, and the diagonal intersection to fix the main axis and the entrance to the city center.

The dynamics of specific fragments of the landscape complex of Petra on the main route and within the central part of the city, is based on a gradual increase in the angle of perception from a series of specific views, landscape and wide-angle panoramas - and a sharp narrowing of views into specific shots with a deep perspective; characterized by a constant presence in the field of view succeeding one another the most significant architectural objects of Petra. The article publishes materials of the author's graphical diagrams, photos and technical drawings of architectural graphic reconstruction of the Nabatean tombs of Petra.

Key Words

landscape complex, landscape structure, city-forming concept, landscape species fragments, Rock city of Petra

Introduction

Physical Nature and Morphology of the Urban Space of Petra

The capital of the Nabatean kingdom was hidden deep in the mountains, stretching along the red-pink ridges of the valley of Wādī 'Arabah, in the area between the Dead Sea and the Gulf of al-'Aqabah in the Red Sea. In the naturally protected, water-rich valley of Wādī Mūsā where the city center was located, leads a narrow corridor of successively connected canyons. The gorge or commonly named as as-Sīq is winding of 1.5km in length, deep camber between the overhanging cliffs almost closing at a height of more than 90m, outer gorge or outer as-Sīq, which leads towards the exit to the city center.

According to its geological nature, the mountains of Petra are sandstone - a sedimentary rock of compacted sand. The ridge of such mountains, stretching along the entire eastern side of Jordan, the Dead Sea, and Wādī 'Arabah, transformed into a system of mountain massifs that have a granite formation at the base which gives their unusual red and pink color. Sandstone is formed mainly by mechanical movement of sand layers under the influence of natural forces - water and wind. A consequence of this geology was the characteristic pattern of mountains with sharp stepped steps that led towards the valley to the west and a more gentle slope and that lead towards the east. The western winds in this region are predominant, with clouds of dust coming from the desert, called *Khamasīn*, which means fifty days a year. The unique natural specifics of the mountain rock, which is the main medium-forming the landscape of Petra, is present in

rock carved cavities, caverns, which allowed to “colonize” these cavities and caverns, and use them tombs and palaces, houses and temples. This unique characteristic had a major role in in the processing of external facades (Fig. 1).

The main common space of the of Petra forms a number of structure mountain ranges, the main of which are *al-Khubthah*, *al-Madhbah* and *al-Habīs*, with a plateau between them, cut by a network of valleys, which arms diverging from the main water and communication artery, Wādī Mūsā. Mountain massifs close the city space with their slopes and creates, due to the outline and internal structure, the presence of voids, which form the basis of most of its infra infrastructure (Fig. 2).

According to its city-forming morphology, the mountain ensemble of Petra consists of two fundamentally opposite systems. The first system is the central flat area, which is a complex of urban center architecture, mainly built on a plateau made of sandstone using horizontal planning coordinates the central. The second system is the rock part which consists of the architecture built inside the rock, with external facades, terraces streets, platforms, ascents and descents towardsthem, chosen from the whole breed of natural slopes of mountains at different levels and vertical coordinates of space, the rock part. In general, Petra has about eight hundred unique monuments, carved into stone and erected in an open space, belonging to Edom and Nabataean-Roman times. In their appearance, the influence of two cultures was fundamentally affected: Eastern, Mesopotamian and Western, Ancient, and also combinations based on them.



1. Street of facades in Petra.

As mentioned before, Petra is located in the valley of Wādī Mūsā , which crosses the plateau from east to west. The center was formed entirely in the period that followed the annexation of Petra Rome (Figs. 3, 6). Modern excavations show that the only main street of the Roman center - *Decumanus-maximus*, is laid on the site of the gravel road that existed before, the main thoroughfare of the Early Nabataean center of the 3rd century BC. Decumanus, or Colonnaded Street, is the main compositional axis of the center (Fig. 4).

It runs along the valley of Wādī Mūsā and across the mountain corridor of the Petra basin, connecting the northern and southern parts of the caravan route into a single artery. City walls, 2m thick, serving defensive purposes in the period of greatest period of Petra, were it was still the capital of the independent Nabataean Kingdom in 1st century BC-1st century AD only fragmentarily defended the most vulnerable northern and southern directions, while from the west and east the city was impregnable. The large round, 25m in diameter, on a hill in the north-western part of the city wall and two small, rectangular, supposedly sentinel, in the south-west and south-east parts of the wall are preserved. A similar system of protective screens with rectangular bastions was typical of the Hellenistic military architecture (Fig. 5).

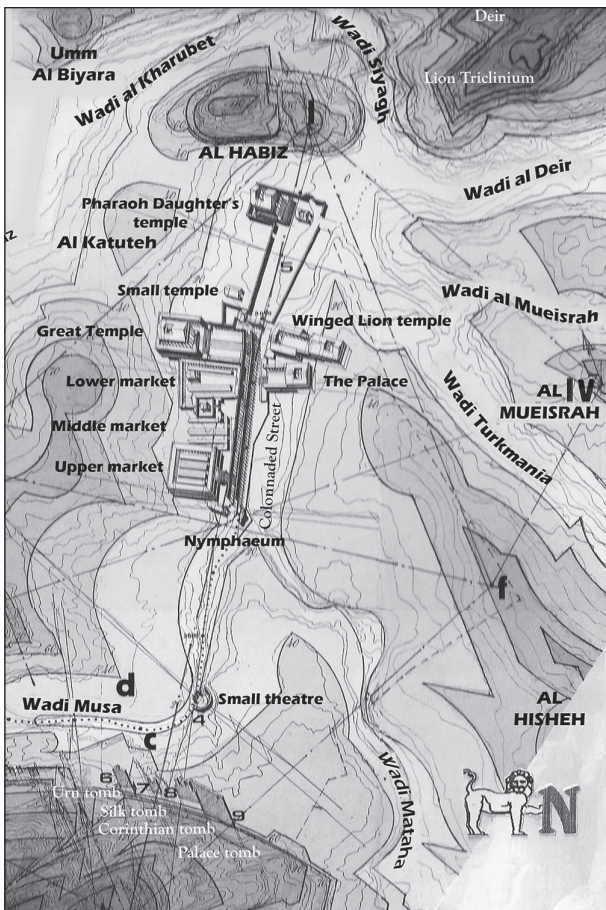
In 1904 Karl J. Trubner Publishing has issued a full research and documentation of Petra region. He documentation is included the contour and geographical site maps of Petra is included, along with location of all tombs and drawings of facades, plans and it details. The archaeological documentations were investigated by Brünnov R.E. and von Domaszewski, A. This unique book exists as main archaeological reference (Fig. 6).

The entire complex of monuments of the Roman center in Petra is located on both sides of the 6 meters wide Colonnade Street, , and is compositionally oriented to it. The carriageway was separated from the pedestrian by two steps and a colonnade. In one section of the paving was laid an inscription dedicated to the visit of the Emperor Diocletian to Petra in 283.

The first construction at the entrance to the city was the Nymphaeum complex, which was the link between the organized Roman center



2. Landscape structure of Petra.



3. Petra city center plan.

and its picturesque surroundings. The complex consisted of the city drinking fountain, located on the north side of the street in the shadow of a huge tree, and southern Nymphaeum, erected on the opposite south side. The fountain consisted of three semicircular niches facing Decumanus. The southern Nymphaeum is a rectangular building with two columns at the entrance. Further, along the southern side of Decumanus, the Upper, Middle and Lower markets, which appeared on it, were connected in turn to each other. In the upper market, a staircase led from the street. Two monumental blocks indicate that the entrance was opened by



4. Decumanus-Maximum of Petra.

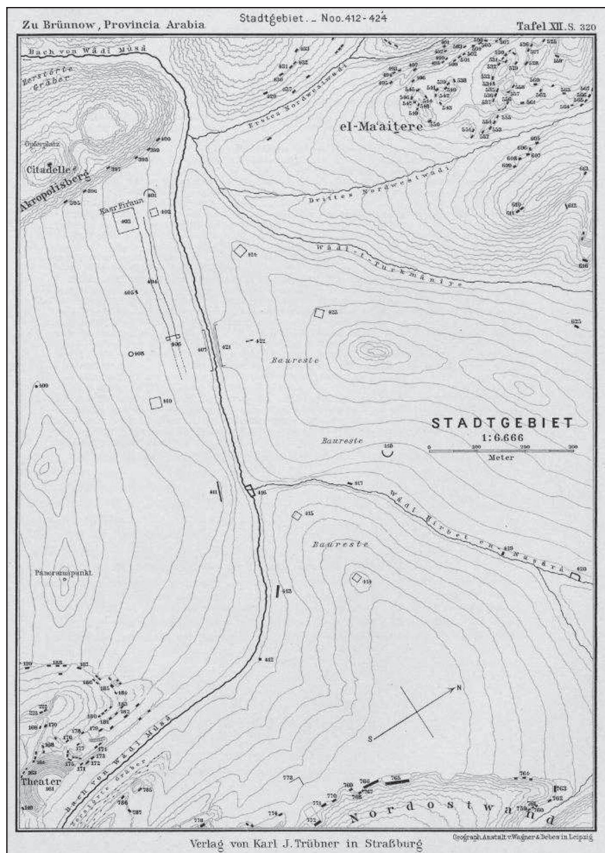


5. Ruins of city walls of Petra.

a separate arch. The inscription on the blocks is devoted to the visit of Emperor Trajan to Petra in 114BC. On the upper step of the stairs are the bases of two columns. On the opposite side of the street of the Procession, along the axis of the Lower Market was the so-called Royal Palace. This is one of the few structures of Petra, where archaeological excavations have not been conducted. The palace appeared in the form of a peripteros, with a square in front of it and a staircase descending to the Decumanus-maximus.

The next monument to the north of the central axis was, facing the Colonnaded Street, laid the Temple of the Winged Lion, built in 27BC. The temple, dedicated to the goddess Atargatis, was repeatedly rebuilt and was decorated from the inside with paintings and stucco decorations.

Its name was given to the temple thanks to the sculptures of winged lions crowning the pediment. The altar of the temple was surrounded by twelve columns with Corinthian capitals. The open Sanctuary in front of the temple was connected with the Street of the Procession by



6. The site map of Wādī Mūsā (Brünnow, R.E. and von Domaszewski, A. 1904).

two symmetrical lateral ladders. In the middle of 4th century AD. the temple was rebuilt. Within this period, workshops: picturesque, marble processing, metal processing, located in several basements adjacent to the temple have emerged. In the beginning of the 2nd century AD. the temple lost its cult significance and was rebuilt into a residence that existed for the next 250 years.

Immediately after the Great Temple and the Temple of the Winged Lion, the Procession Street ended with the Monumental Gates leading to the open Temple Sanctuary of Qaşr al-Bint. Triple arches were erected from pink limestone at the beginning of 4th century AD. in the end of the building Streets - the Colonnade. The width of the central passage of the gate coincided with the width of the street. Symmetrically located narrower side passages on one level rose above the pedestrian sidewalks. On the eastern side of the gate were four detached columns with zoomorphic capitals.

Opposite the Temple of the Winged Lion, adjacent to the Lower Market, was a Great Temple with an open Sanctuary and Propylaeum. The staircase led to the Sanctuary on the hill located at the side of the Procession Street. The unusual sculptural zoomorphic capitals of the Sanctuary columns in the form of the heads of African elephants were found in the excavations of 2002. Excavations show that during the period of the Roman legions in Petra, this complex served as a forum or agora. Due to its size and location, it was the center of the commercial and administrative life of the city. The same capitals depicting animals also found in pilasters of the central arch. The Monumental gates represent an outstanding example of the mixing of imported Greco-Roman ideas with local Arab practices (Figs. 7, 8).

On either side of the city center Gate were the North and South Towers. To the southern tower adjoined "Thermae", conventionally named because of the construction and ceramic pipes inside. In the immediate vicinity was the Small Temple. Unfortunately, these monuments have not yet been excavated and almost not studied. Only their general location and dimensions of plans are known.

The Open Temple Sanctuary of Qaşr al-Bint

is 73m long and continued with a slight deviation from the direction of the Colonnaded Street and the Monumental Gate (Fig. 9). The northern front of the Sanctuary was turned the valley of Wādī Mūsā. It was fenced with a wall along which two levels of benches from fitted limestone blocks and a series of statues on pedestals stretched from inside. The wall approached the Temple of Qaşr al-Bint, and surrounded it from all sides, forming an open square in front of the entrance with an altar. Monumental gate of the wall, located 20m from the temple, opened the way out from the Sanctuary to the southern part of the city. The complex of the temple with an open altar in front of it and further into the valley outside the city closes the general composition of the center of Petra, intersecting its longitudinal axis at right angles to the extended Sanctuary. In this case, the point of intersection is fixed by the location of the altar, and the completion of the central highway as a whole creates a semicircular niche in the western wall surrounding the temple (Fig. 10).

as-Sīq

Narrow and deep, with steep walls more than 90m high, and a broken line leading to Outer as-Sīq from the east entrance to Petra. The total length of this corridor is 1500m. The width in different places is from 4 to 12 meters. One of the most significant facades, cut out in the rock of al-Madhbaḥ mountain range, on Bāb as-Sīq left side, are the facade of the Obelisk Tomb and the facade of Bāb as-Sīq Triclinium (Fig. 11).

The first is a composition of four pyramidal volumes above the entrance and is a reflection of the strong influence of Egyptian architecture. The second monument was built some time later just under the Obelisk Tomb.

The axis of its doorway coincides with the axis of the middle right obelisk. Triclinium, means a room with two benches at the walls (*lat.*) was intended for special funeral ceremonies, above the entrance to as-Sīq at an altitude of 20m (Figs. 12, 13).

The arch of Bāb as-Sīq was abandoned. In the



7, 8. Monumental gates from front and rear sides.



9. The ruins on the left side of the colonnaded street.

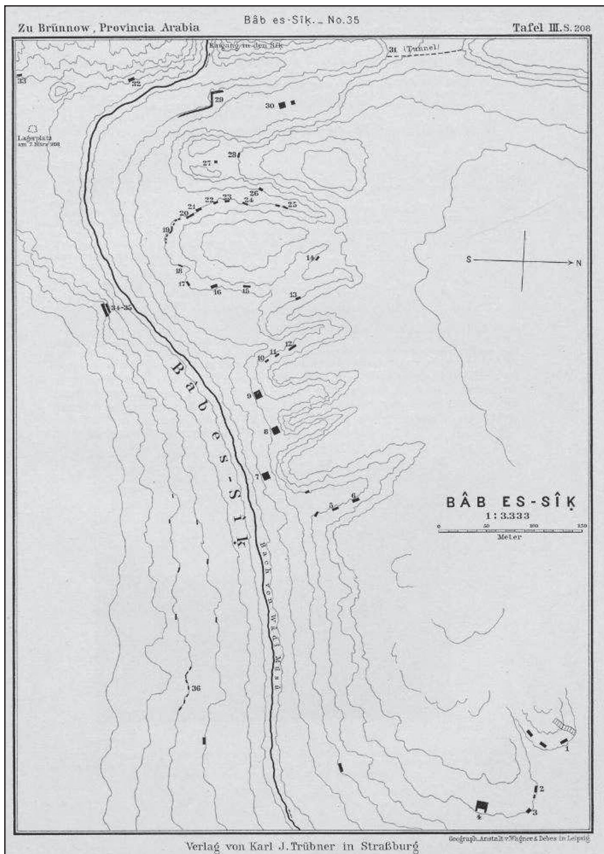


10. Qaşr al-Bint Temple.

niches of the surviving pilasters, which served as its bases, statues could be placed. Proceeding further, the path to Petra began (Figs. 14-16).

After 1400m from the outer eastern entrance to as-Sīq gorge, the mountains of both massifs almost symmetrically break apart, and then again close, forming a square across the gorge to which the famous façade of al-Khaznah (the Treasury) (Fig. 17). The facade of al-Khaznah down in the steep slope of the al-Madhbaḥ massif is the most outstanding rock facade of Petra, recognized in 2006 as one of the

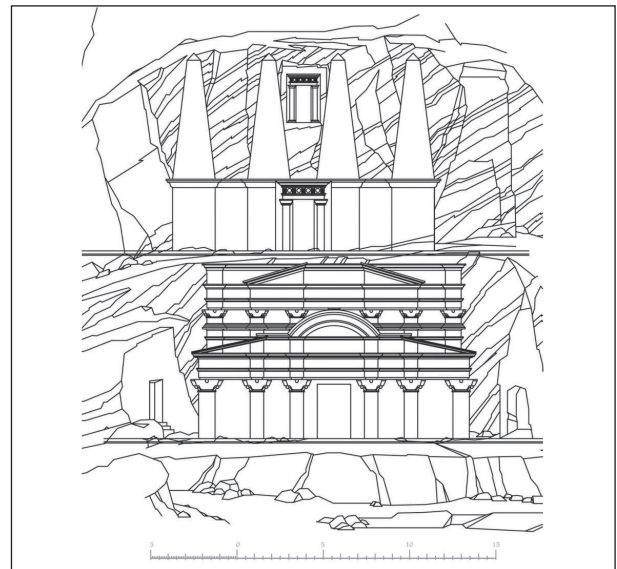
Wonders of the World (Figs. 18, 19). Until now, there is a legend state that in the urn, crowning the central half-ruble of al-Khaznah, the treasures of the pharaoh were hidden during its construction in the 2nd century. As for the dating of the monuments of Petra, is uncertain; only the estimated dates of the construction of al-Khaznah exist in twenty-five versions. The monumental tomb was built in honor of the Nabataean king, probably Aretas IV, and later was a temple for religious ceremonies, where the royal entity was worshiped as a deity. The



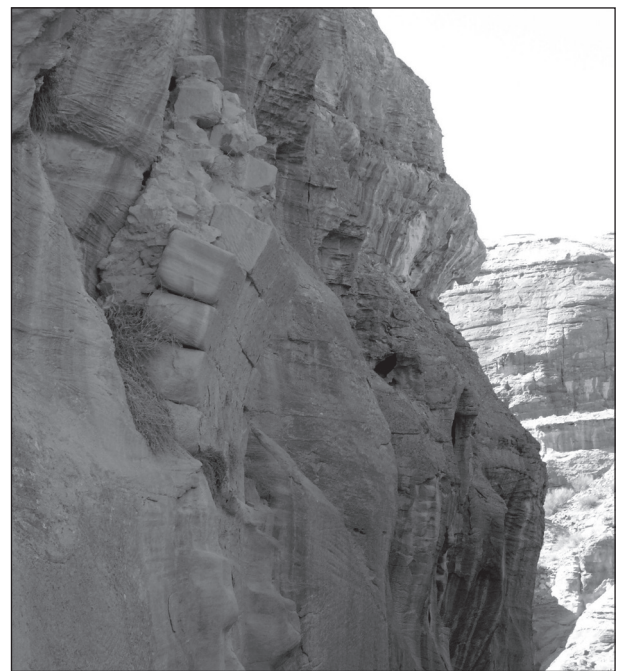
11. Bāb as-Sīq map (Brünnov, R.E. and von Domaszewski, A).



12. Obelisk Tomb, Bāb as-Sīq Triclinium.



13. Obelisk Tomb, Bāb as-Sīq Triclinium. Architectural graphic reconstruction 1904.



14. Bāb as-Sīq arch, left side.

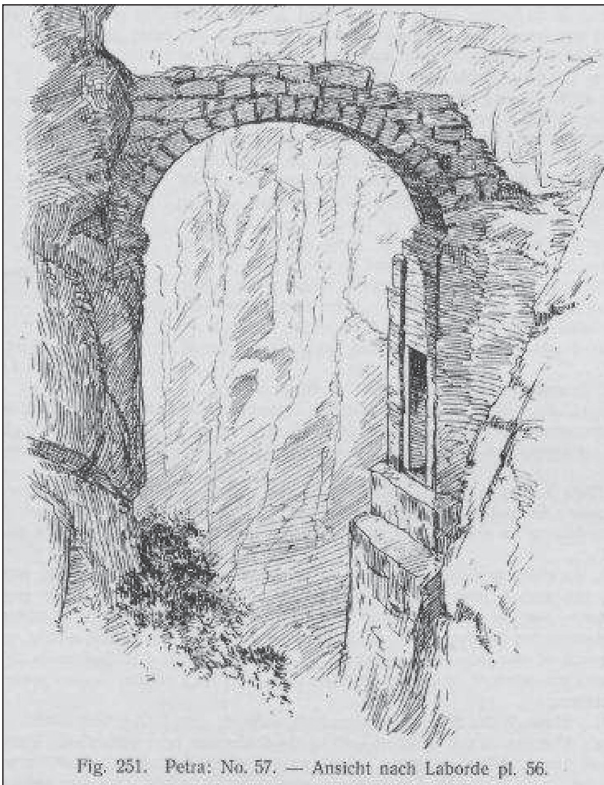
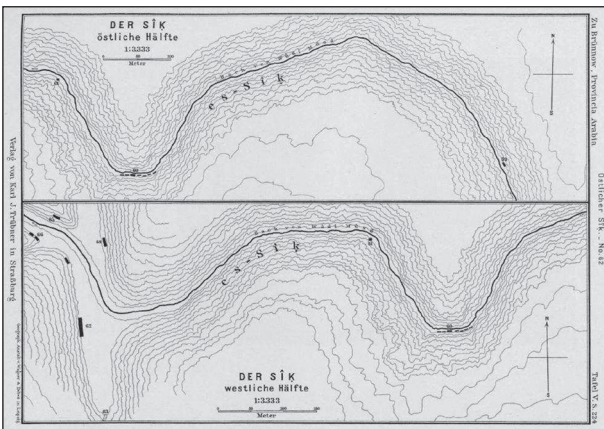


Fig. 251. Petra: No. 57. — Ansicht nach Laborde pl. 56.

15. Bāb as-Sīq arch (Brünnov, R.E. and von Domaszewski, A. 1904).



16. Bāb as-Sīq arch, right side.

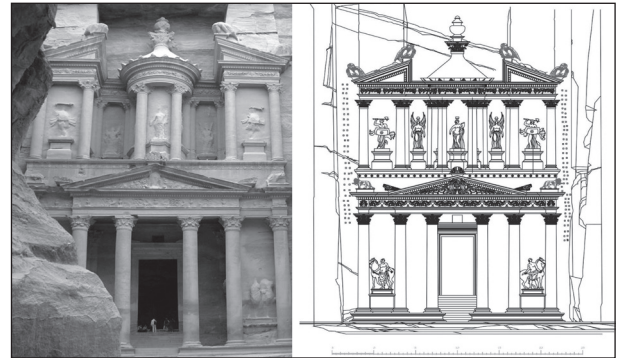


17. as-Sīq map (Brünnov, R.E. and von Domaszewski, A. 1904).

internal space of al-Khaznah includes a central rectangular hall 12×12m with three tombs adjoining it (Fig. 20).

In the slopes of al-Madhbah, in addition to the above mentioned monuments, the order fronts of a number of tombs are located south of the exit from outer as-Sīq canyon. Together with the facades of al-Khubthah mountain massif, they form a changing panorama of the eastern wall of the mountain passage with caravan transit towards the north-south direction. The facade of Broken Pediment Tomb (Figs. 21, 22), followed by the facade of the Renaissance Tomb after 50m (Figs. 23, 24) and beyond that the facade of Roman Soldier Tomb, 50m to the south (Figs. 25, 26).

al-Madhbah Heights, down Wādī Farasah, forms the southern part of the gorges from the rock part of Petra, al-Khubthah forms the northern gorge (Figs. 27, 28). Royal Tombs in the form four rock carvings adjoining almost closely to each other and forming a single front of order facades in the steep wall of al-Khubthah mountain range. From their entrance, the facades



18, 19. al-Khaznah. Architectural graphic reconstruction.

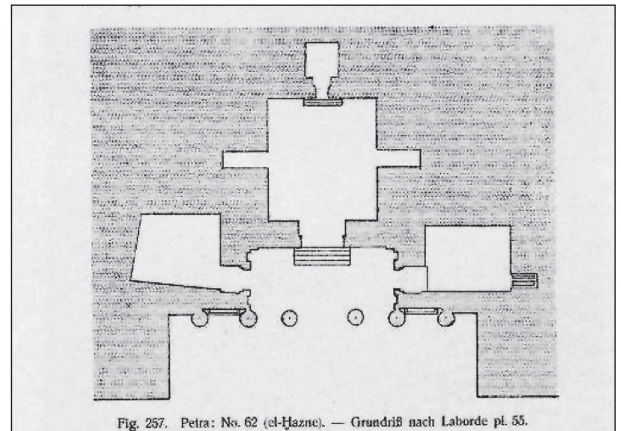
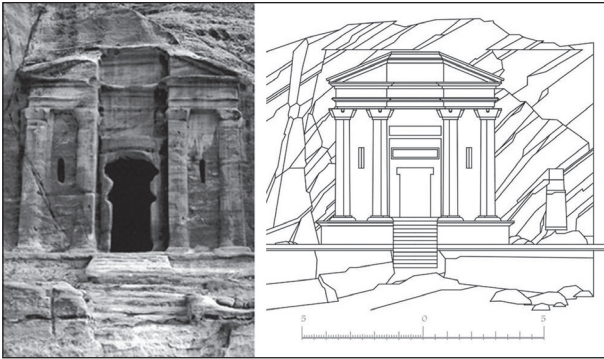


Fig. 257. Petra: No. 62 (al-Hazne). — Grundriß nach Laborde pl. 55.

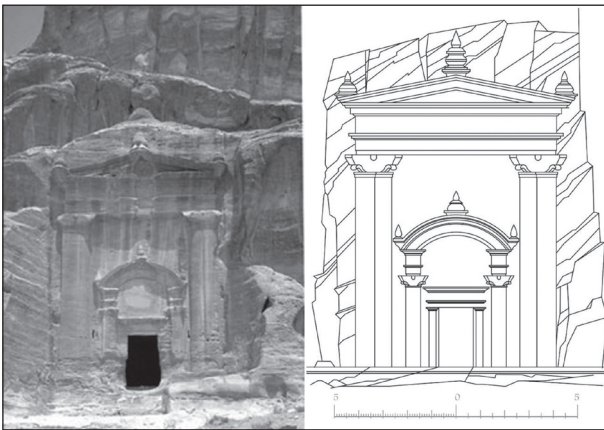
20. al-Khaznah plan (Brünnov, R.E. and von Domaszewski, A. 1904).

of the Royal Tombs turn from the east to the city center at a distance of 500m. Their panorama, exactly perpendicular to the Decumanus of Petra, opens an unusual theatrical decoration and an arched gate in the form of a wings (Figs. 29, 30).

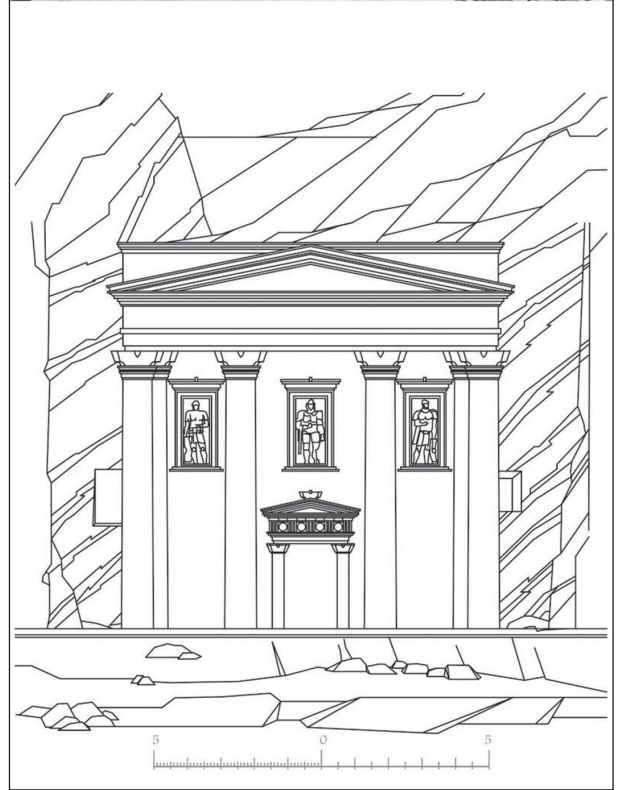
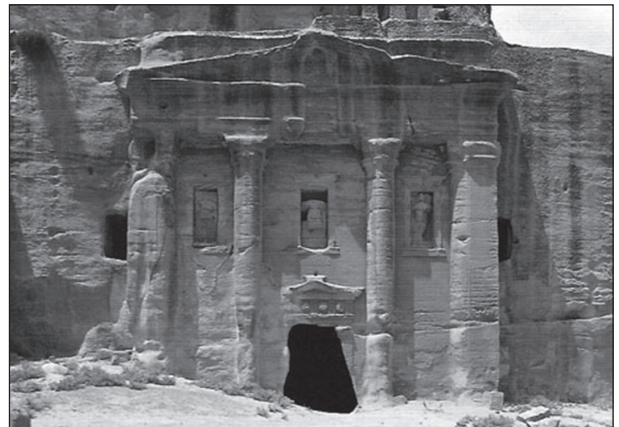
The southernmost facade of this front is the facade of Urn Tomb the tombs of one of the Nabataean kings who ruled in the 4th century AD. The monument, which got its name from



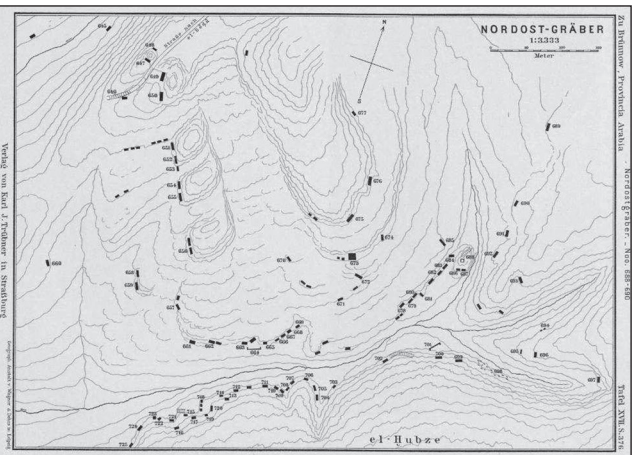
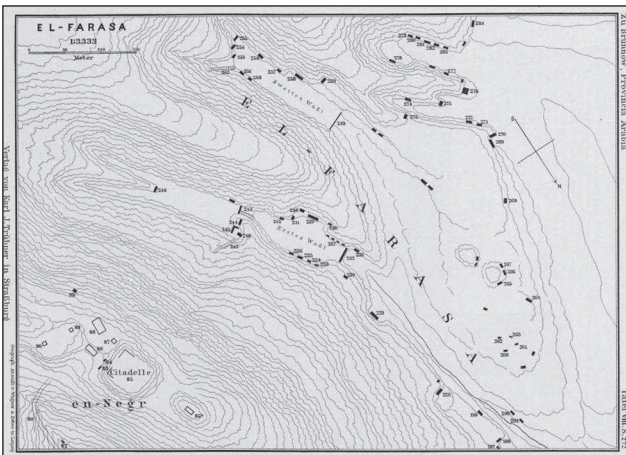
21, 22. Broken Pediment Tomb. Architectural graphic reconstruction.



23, 24. Renaissance Tomb. Architectural graphic reconstruction.



25, 26. Roman Soldier Tomb. Architectural graphic reconstruction.



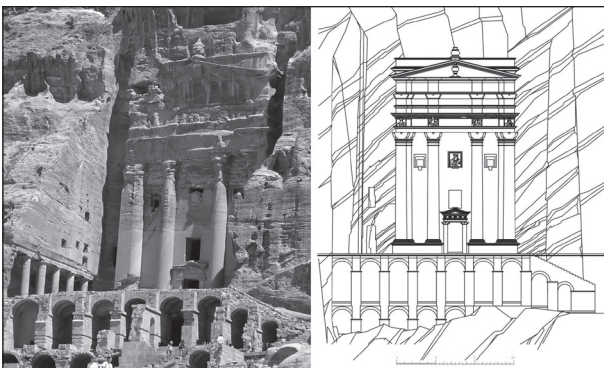
27,28. al-Madhbah and al-Khubtah (Brünnov, R.E. and von Domaszewski, A. 1904).



29, 30. *Royal Tombs.*

two urns located along the axis on a tympanum and an attic, could also be a triclinium facade, as indicated by three niches inside. In the central niche there still stands a statue of an unknown person dressed in toga. A large open courtyard in front of the entrance, at a later time intended for court hearings, has five sides, supporting the overhanging rocks and forming open galleries. The yard rests on a two-tiered arcade with a staircase leading to it (Figs. 31, 32).

The next façade, behind several almost worn

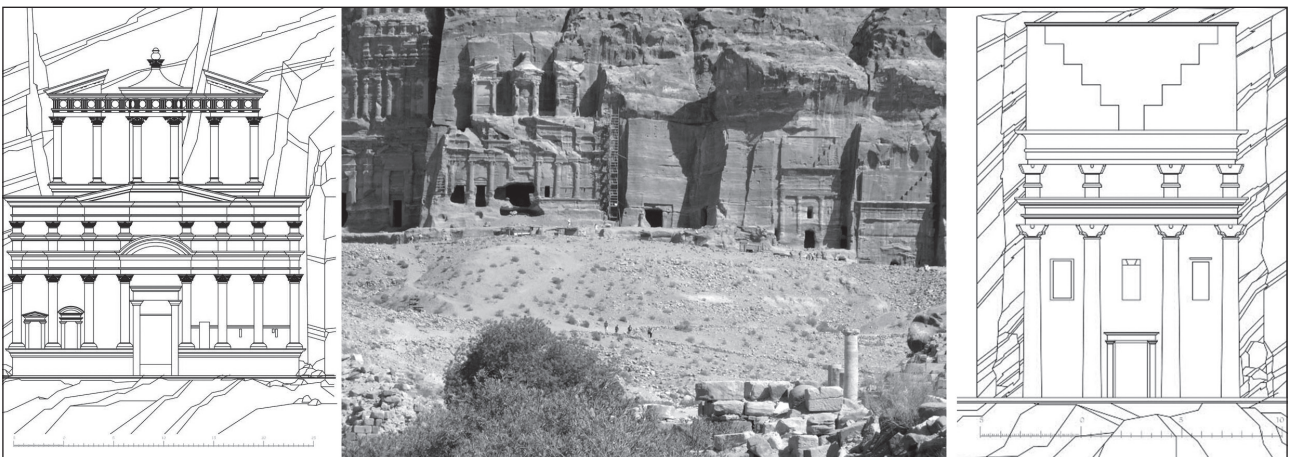


31, 32. *Urn Tomb. Architectural graphic reconstruction.*

out facades, is the facade of the Silk Tomb, which shimmers with orange-red shades and named after the natural color of the rock layers from which it was cut. To the north of the Silk Tomb, is the facade of Corinthian Tomb, a ceremonial, rich in details, combining various Nabatean and classical architectural styles (Figs. 33-35).

The facade of the Palace Tomb located north, was erected in the 1st century BC. or 1st century AD. It was named after its analogy with the architectural scheme of the palaces of ancient Rome. In the immediate vicinity of the Palace, a little to the north, was a huge pool cut in the rock, where the water collected from the sources of Wādī Mūsā flows into a stone tank outside the entrance to as-Sīq canyon (Figs. 36, 37).

At a considerable distance to the north-east of the Royal tombs, the front of al-Khubthah massif continues to the facade of Sextius Florentinus Tomb. This volume was constructed parallel with a section of early Nabataean city



33-35. *Silk and Corinthian Tombs. Architectural graphic reconstruction.*

walls. This Tomb was built around 130AD (Figs. 38, 39).

Communication Arteries and the Water Supply System of Petra

The network of valleys crossing the plateau part of Petra and disappearing in deep mountain gorges converge to its main channel - the valley of Wādī Mūsā. The direction of the valley, as already mentioned, coincides with the axis of the urban center west-east. At al-Khubthah massif, Wādī Mūsā abruptly turns to the south, and then again follows the eastern direction to as-Sīq. The western direction of Wādī Mūsā continues to the valley of Wādī aṣ-Ṣuyyagh leaving the mountains. North, the valley of Wādī ad-Dayr, one of the four branches of which already lays deep in the mountains makes a turn to the west towards ad-Dayr Tomb. In the same bundle, the valleys of Wādī al-Mu‘aysirah and Wādī at-Turkumāniyyah, which runs in the northeastern direction, coincide with the site of the city wall in the north of Petra. The southern part of the wall that passed along the valley of Wādī Farasah, runs southeast into the gorge of the massive al-Madhbaḥ. From the north, exactly to the location of Nymphaeum near the entrance to the city center, situated in the valley of Wādī Mūsā, adjoined another valley of al-Maṭāḥah, which is divided in the northern part of the plateau into several branches, one of which leaves for al-Khubthah array.

In the autumn-winter season the river valleys were filled with water, which was preserved in special stone water wells. Traces of them are found throughout the central plateau of Petra. The non-permeating springs of ‘Ayn Mūsā outside the eastern entrance sent fresh water through as-Sīq to the city all year round through

two canals: an open, carved out groove along the road, and a closed one consisting of flexibly connected ceramic sections.

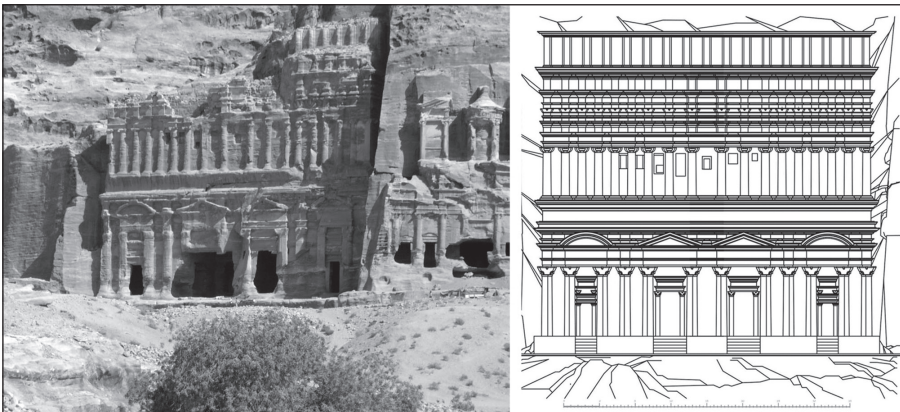
From these same sources, an external reservoir was filled, with a volume of 2500m³. The water flowed from it in the north-western direction through a canal cut into al-Khubthah massif leading towards a vast pool in the center of the central area of the Palace Tomb.

At the end of it a dam was built to the north side of as-Sīq, entrance which contained Wādī Mūsā water in winter and protected the gorge from flooding. Stormy streams were directed through the tunnel of al-Maṭlab, which was cut down in the mountains of al-Khubthah, and spread through one of the branches of al-Maṭāḥah valley along all the riverbeds of central Petra, as in communicating vessels. One can only imagine the spring oasis of Petra, blossoming, fragrant, filled with the singing of birds, drowning in the giant bushes of azaleas and rhododendrons.

Mountain Peaks and the City-Forming Concept of Petra

The summit of the mountains surrounding the central plateau of Petra are marked by sacred heights, High Places (the places of main religious ceremonies dedicated to the ancient Nabatean deities; the god Dhushara and the goddess al-‘Uzza).

One of the heights; al-Ḥabīs in the west, crowns one of the two peaks close to the city center of mountain al-Ḥabīs at 64m above the level of the city. This mountain is separated from the common mass by the two arms of Haroubet valley and Wādī aṣ-Ṣuyyagh (Fig. 40), which merge into one channel in the long western gorge. The sacred site of al-Ḥabīs

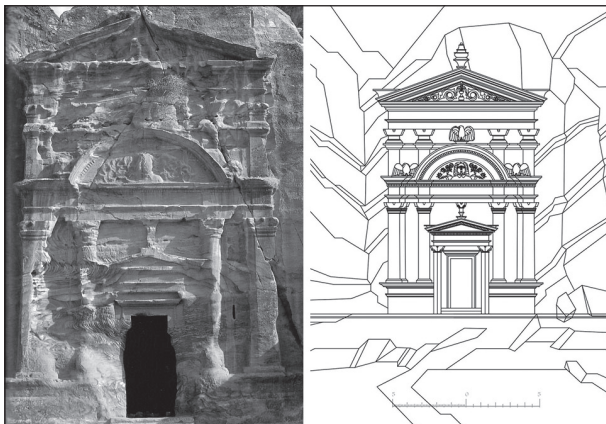


36, 37. Palace Tomb. Architectural graphic reconstruction.

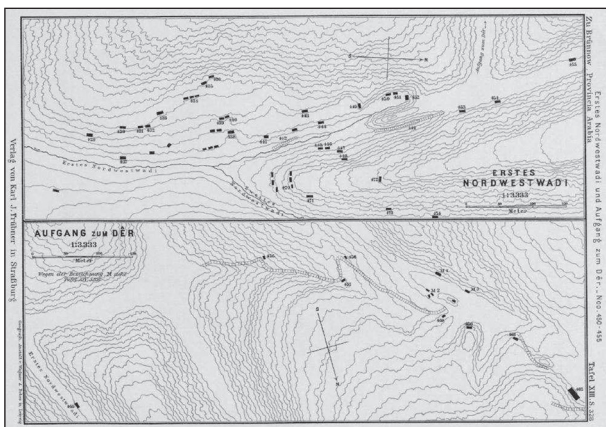
is a sanctuary site of 4×5m with benches, platform of the altar and three steps leading to it. The altar of sacrifices was equipped with a drained pool with running water. This provision is characteristic of the religious ceremonies of the ancient Nabateans. The main sanctuary was associated with a whole complex of sites at different levels, connected by stone paths and steps that encircled the northern ledge of Mount al-Ḥabīs over aṣ-Ṣuyyagh valley (**Fig. 41**).

Directly opposite, in the direction exactly along the line coinciding with the longitudinal axis of the city center, at a level exceeding it by 250m, peak the Eastern Heights al-Khubthah. The group of heights of al-Khubthah mountain range, first discovered in May 1904, was known as a single complex of Three Heights.

In fact, five separate buildings can be considered as separate places for conducting religious ceremonies. There are four different approaches to al-Khubthah Heights: two from Sextius Florentinus Tomb from the north, the third from the steps going up to the Tomb Urn



38, 39. Palace Tomb. Architectural graphic reconstruction.



40. Wādī Ṣuyyaghah (Brünnov, R.E. and von Domaszewski, A. 1904).

and the fourth from the valley to the north of al-Khaznah. The heights of al-Khubthah are the courtyards or sanctuaries taken out of the rock formation with three steps leading to them, and an altar, about 1m in height and 0.5m in width. Among other constructions of al-Khubthah closed courtyards, as well as an open area with an obelisk, about 1m high, also cut down from a solid massif.

The main height of the sacrifices is the southeast al-Madhbaḥ. It is located on the ridge of aṭ-Ṭaff mountain massif al-Madhbaḥ, towering above Petra at 214m. Two small plateaus, separated by a gorge, together form the main religious center of the ancient Nabataeans. On the southern plateau are two obelisks, about 6m height, at a distance of 30m along the line east to west. Cutting them, the Nabataeans had to level the whole mountain top a titanic work, almost definitely undertaken for the sake of the greatest deities; the god Dhushara and the goddess al-‘Uzza. On the northern plateau, with a large massif that was lined up to an open courtyard with a low table in the middle and a high altar rising at its end the Nabataean Top of the sacrifices. Here, ritual sacrifices were made to the living blood

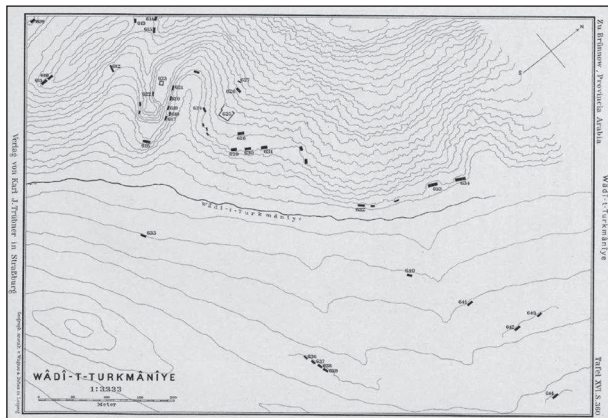


41. City-forming concept of Petra.

(presumably animals) in honor of Dhushara and al-‘Uzza, with a view of obelisks high above the breathtaking view of Petra in the valley and endless mountains around. The main height of the sacrifices may have been inherited from the Edomites who inhabited these places in the earlier Nabataean times and represents one of the best preserved religious places of this kind in the Ancient World. Following further north, the remaining walls and corner towers - are the fort of the sacred altitude al-Madhbaḥ. There is also a version that it was Propylaea, the main entrance to the sacred height of sacrifices.

The Height al-Mu‘aysirah the fourth height of sacrifices, is at a level of 60m above the city center on one of the al-Mu‘aysirah mountains in the north-western part of Petra (Fig. 42). Its altar with a staircase leading to it from the north is built on top of a lonely rock. The path of religious processions, carved in stone, passed along the eastern slope of the western ridge of al-Mu‘aysirah mountains, crossed the valley of Wādī al-Mu‘aysirah passing the catchment well, and connected to a common system with three communicating pools, rose to the sacred height along the western slope of eastern al-Mu‘aysirah. On the way of the processions is a whole series of tombs, a small Triclinium that opens onto an open terrace with a solitary grave in its eastern part, and a quarry with a carved block of the god Dhushara.

In addition to the four key groups of heights that fix the central Petra, there is one more height, deep in the mountains, ad-Dayr (Fig. 43). Religious processions to mountain ad-Dayr began from the Temple of Qaṣr al-Bint, descended to the valley of ad-Dayr, and then

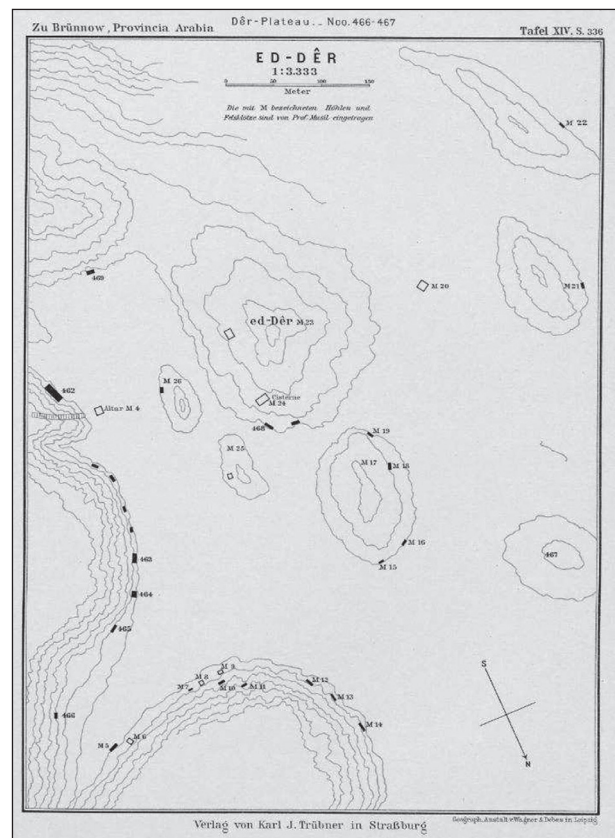


42. Wādī at-Turkumāniyyah (Brünnov, R.E. and von Domaszewski, A. 1904).

climbed a mountain path, passing the Lion Triclynum (Figs. 44-45), to a height of 220m above the center level (Figs. 46-47).

Thus, it remains to be assumed that the first four groups of Heights: al-Ḥabīs, al-Khubthah, al-Madhbaḥ and al-Mu‘aysirah, together formed a virtual contour. The microcosm of Petra, its protection from external forces, while the fifth ad-Dayr demonstrated a macro-cosmic picture of the outside world. Already the ascent to the sacred Height forms the pictures of the conquered world to the stunning ad-Dayr and the view revealing new horizons could not but be a world view model of the interconnection and integrity of this world with its boundless surroundings.

The natural forms of mountains and valleys, the architectural volumes that make up the three-dimensional components of the natural-architectural complex of Petra, together represent a strictly defined formal system, the key of which was the location of the sacred heights. The prerequisite for reading the system was the plastic generalization of the terrain in the form of conditionally graphic “isophotes”,



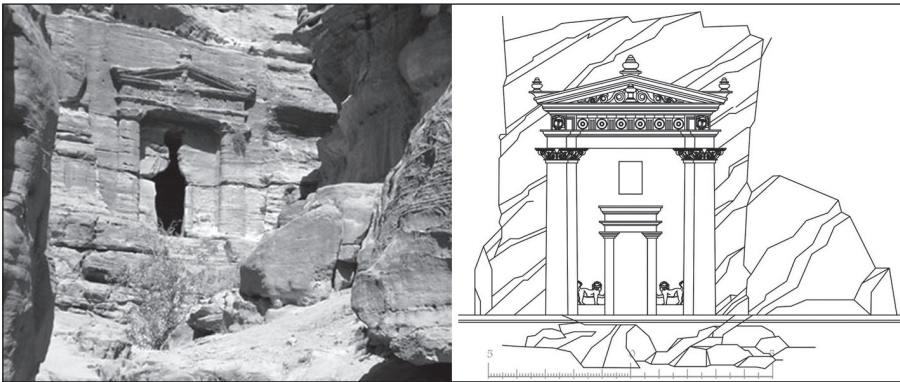
43. ad-Dayr mountain (Brünnov, R.E. and von Domaszewski, A. 1904).

showing the general pattern, the preferred direction and steepness of the characteristically sections of the relief and, in addition, the conditional graphic reproduction of the volumes of the city center.

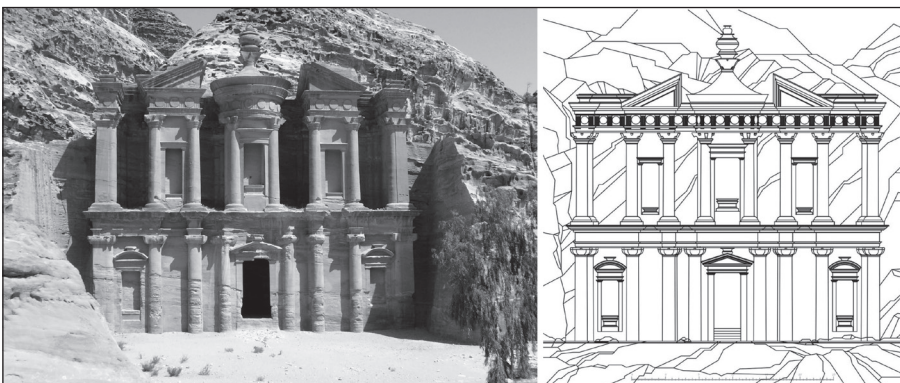
Straight lines connecting all four Heights consistently form a contour, coinciding with the boundaries of the central Petra. The straight line I-II, horizontally linking the Heights al-Ḥabīs and the al-Madhbaḥ sacrificial altitude, is superimposed on the line of the southern city wall, straight II-IV, al-Khubthah-al-Mu‘aysirah on the north line. The height of the sacrifices visually connects with al-Khubthah heights of straight II-III, passing exactly across the Outer as-Sīq canyon in the area of its passage to as-Sīq, thus denoting the eastern boundary of the city. Direct I-IV, Heights al-Ḥabīs al-Mu‘aysirah, limits Petra to the west. Moreover, the line I-III, connecting the heights of al-Ḥabīs and al-Khubthah along the diagonal, exactly coincides with the axis of the city center, and its intersection with the other diagonal of the quadrilateral II-IV, which connects al-Madhbaḥ High Altitude height with al-Mu‘aysirah Height, and thus marks the entrance to City center with a near-by Nymphaeum.

Therefore, the sacred Heights al-Ḥabīs,

al-Madhbaḥ, al-Khubthah and al-Mu‘aysirah will fix the western, southeastern, east and north-western coordinates of central Petra, the entrance to the city center and its main axis. One can reasonably assume the presence of a certain “Protective, security circuit” of the city. This version is confirmed by strong electromagnetic radiation in the area of Sacrificial Heights, which made it impossible before the advent of digital photography equipment and video shooting. Developing this idea, one can conclude in the assumptions that all the rock structures that are in the field of action of the “contour”, almost literally within its borders, had a civil purpose: temples, residences (Palace Tomb, court), Urn Tomb, theater, residential quarters. This is also indicated by their appearance and size. The same is known about the appointment of a free-standing center: the city fountain, markets, thermae, temples, and palaces. As already mentioned, the forerunner of this, later Roman city center, was the early Nabataean city center of the 3rd century BC. It is obvious that the tombs were located outside the symbolic quadrangle and it was probably not by chance that their location was somehow connected with the ways of following religious processions to the sacred Heights of the city.



44, 45. *Lion Triclinum. Architectural graphic reconstruction.*



46,47. *ad-Dayr. Architectural graphic reconstruction.*

Landscapes and Dynamics of the Review of Architectural Species Fragments of Petra

Along the major base route, a number of Petra landscapes follow each other one by one, strung together on one thread of the pedestrian (horse) path (Fig. 48).

Under the landscape space is meant to be a separately acquired territorial unit of landscape composition, which has a relative integrity and specific volume-spatial characteristics that refer it to a certain type. In mountain Petra such signs are primarily determined by the nature of the relief, its pattern, steepness, and the proximity of the bulk masses (Fig. 49).

1. as-Sīq gorge is the first trail along the path towards the center of Petra's space, where a man enters, to the site, passing a wide exterior road before as-Sīq. Lies complex among the rocks in the slopes of the southern arm of Wādī Mūsā valley. this complex,



48. Dynamics and review of architectural species fragments of Petra.

with impressions precedes the entrance to the gorge: reveals the rock carvings of the Obelisks Tomb and Bāb as-Sīq Triclinium are the main elements of the landscape picture, which unexpectedly appears to the left and to the left of the path and as single pylon on the right, leading the way towards to the beginning of the mountain corridor (Figs. 50, 51).

Unexpectedly, appears a frame on the entrance to the gorge (Fig. 52). Until the middle of the 19th century, it was fixed by the arch of Bāb as-Sīq thrown over the narrowed entrance from one mountain wall to another. The total length of the line of as-Sīq corridor is 1400m. The width of the gorge in different areas ranges from 4 to 12m. the height exceeds 90m. Numerous bends of the gorge divide it into a series of tribes, representing visually isolated or partially communicating subspaces. The steep walls, which in height exceed its average width in a ratio of 10:1, visually closes above the head, creating the effect of an enclosed space, excluding visual connections with the external environment. From the beginning of the ravine, walking for 40-45 minutes with a fantastic variety of views, limited in the field of view by closely approaching rocky walls of a narrow corridor. In such gap between the bizarrely protruding forms of rock, are one or several perspectives that are that are moving forward to the right or to the left, sharply breaking with a turn of the gorge.

The limited width of the corridor contributes to close consideration of close-up picturesque fragments of rock, and rock paintings of local



49. Bāb as-Sīq path way.

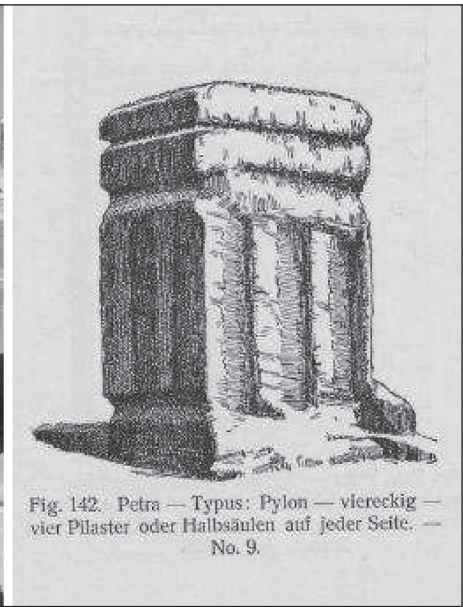
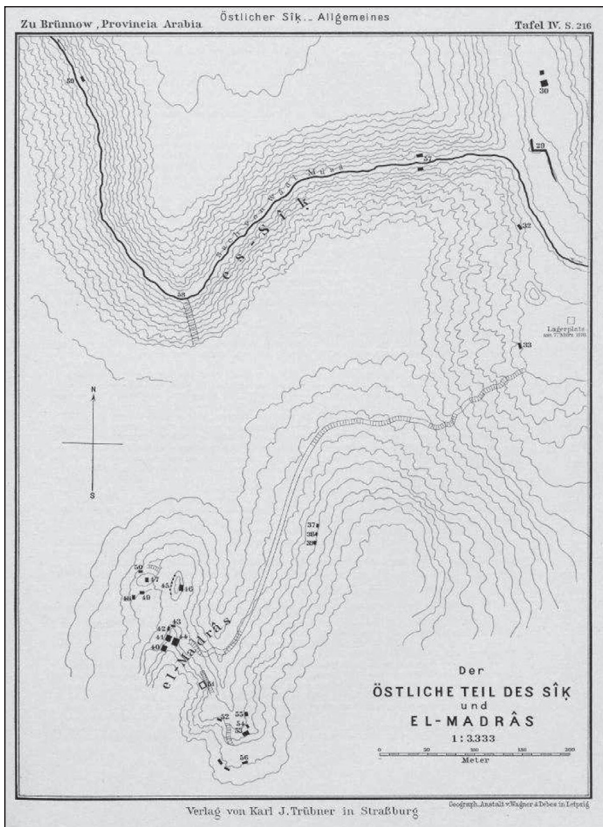


Fig. 142. Petra — Typus: Pylon — viereckig — vier Pilaster oder Halbsäulen auf jeder Seite. — No. 9.

50-51. Pylon on the Bāb as-Sīq path way.

deities (Figs. 53-58). The gorge is oriented from east to west, but even its overlapping subspaces, because of their depth, do not receive direct morning and evening light. Direct light falls into the gorge only from the mid-day sun, which at the latitude of this region shines directly, giving no shadows. At other

times of the day, each of the gorge spaces, depending on its orientation, has a different direction of shadows and a different degree of illumination. Consequently, the gorge is a long pulsating space, connecting as links in chains closed communal subspaces, different orientations, proportions, illumination and degrees of visual isolation. A sign of the approaching transition from one subspace to another, following it, is only a gradual or sudden change in illumination or a few flashes of light in individual places of expansion of the corridor. In such beam of bright sunlight, which initially appears as a narrow strip at the end of the gorge, and then wider and wider, appears before the travelers in a sequence of specific frames and then close-up Facade of al-Khaznah (Figs. 59-60).



52. as-Sīq (Brünnov, R.E. and von Domaszewski, A. 1904).

2. The square flooded by the sun in front of al-Khaznah is stretched in the direction transverse to the gorge. The area next to this walking space, is 35×100m, Closed along the perimeter, with high steep walls in the east, with the facade of al-Khaznah in the west and the more gentle slopes of the gorges that go north and south.
3. To the right of the facade of al-Khaznah is an exit to a narrow corridor which serves as the beginning of the thorough passage of the Outer as-Sīq gorge. The corridor with steep walls, as in as-Sīq gorge, but with architecturally processed facades of



Fig. 252. Petra: No. 60, 2. Nach einer Skizze von Euting.

53, 54. The niche at as-Sīq, and documentation by Brünnov, R.E. and von Domaszewski, A. 1904.

tombs, stretches a series of specific frames strictly in a straight line, oriented precisely to the Amphitheater in the background, in a direction close to the north-west, and then expanding sharply, entering an open wide

space with rock scenes left and right. During the 12-15 minut journey to the Amphitheater, the views change, , bringing it closer and including the field of view to the Street of the Facades (Figs. 61-66).



55. The niche at as-Sīq.

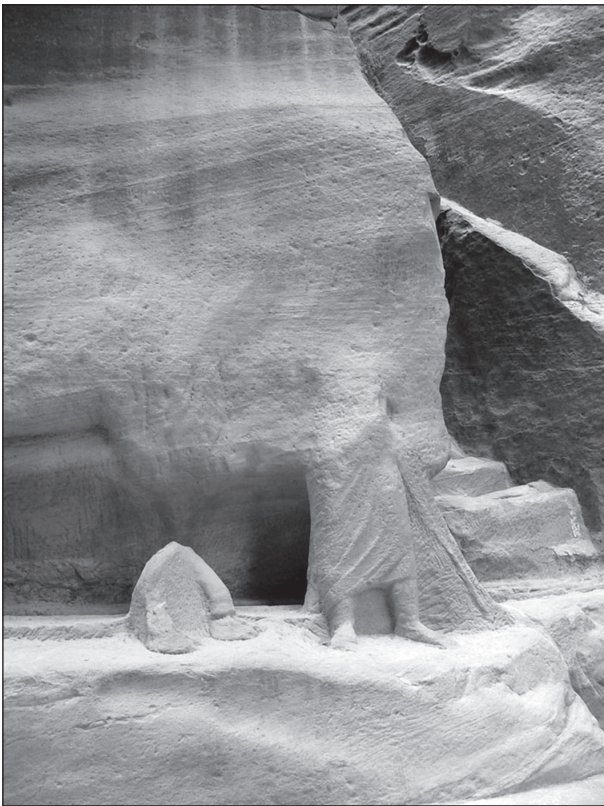
4. From the Amphitheater the gorge turns to the north, opening the next 400m long, landscape space that spreads into the central Petra. The western boundary of this space - slopes of al-Madhbah ledges lower their height to 20m. The close-up of the Amphitheater remains to the left of the smoothly turning road. On the right is a view of the opposite stepped slope with the apertures of the tombs on different levels (Figs. 67, 68).

From this place a scene is created; an exit into the open space with a view to the sky, the distant view of the surrounding mountains, and the sharp perspective of the Royal



Fig. 255. Petra: No. 60, 5. Nach einer Skizze von Euting.

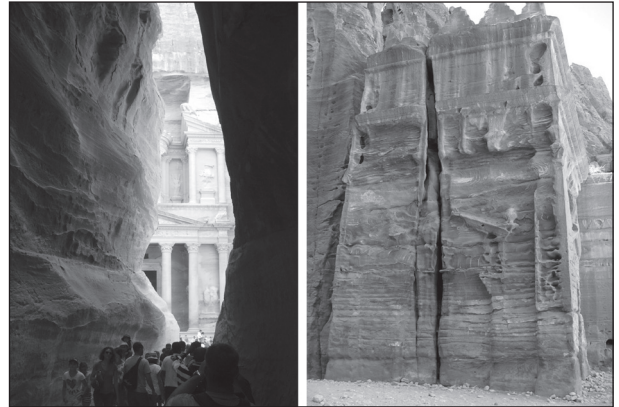
56,57. The deities in the niche at as-Sīq, and the documentation by Brünnov, R.E. and von Domaszewski, A. 1904.



58. Tyche sculpture at as-Sīq.

Tombs on the right. In this scene, there is no doubt of its compositional center, which undoubtedly was in its time the volume of the Small Amphitheater. Now only its ruins testify its previous glory (Fig. 69).

5. Another ten minutes, and the panorama is replaced by a deep central perspective of the thorough space of the Colonnade Street with the Monumental Gate in the background (Fig. 70).
6. The next ten minutes of the way brings the



59, 60. as-Sīq, and al-Khaznah from as-Sīq.

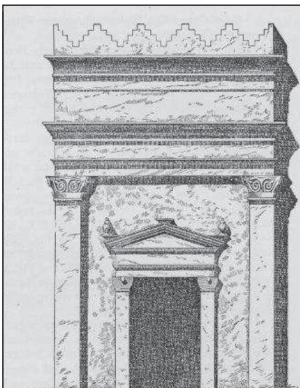


Fig. 145. Petra — Typus: Hebr. mit sechs aufgesetzten freien Zinnen nach Art eines Pylons — dreiseitig mit gleich gearbeiteten Seiten — Eckpilaster mit verzierten Kapitälern und Giebelumfassung der nicht ausgehöhlten Türen. — No. 70.

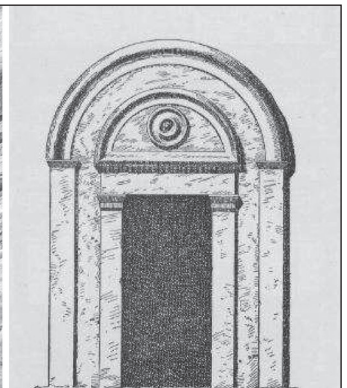
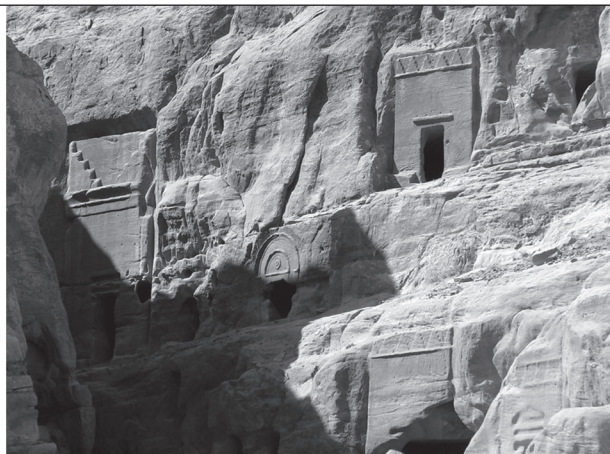


Fig. 175. Petra — Typus: Bogengrab — einfacher Bogen — Bogentüre mit Patera. — No. 124.

61-63. Outer as-Sīq, Tomb 70 and documentation by Brünnov, R.E. and von Domaszewski, A. 1904.

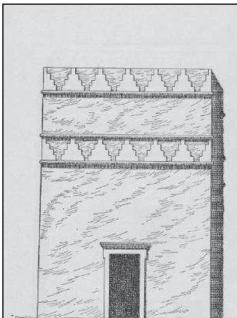


Fig. 128. Petra — Typus: Pylon — zweistöckig — sieben Zinnen — Architravtür. — Nos. 117, 134, 357, 527.

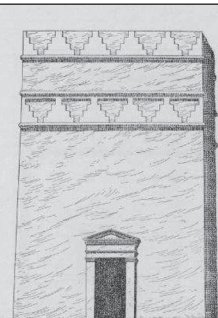


Fig. 129. Petra — Typus: Pylon — zweistöckig — sechs Zinnen — Giebeltür. — Nos. 133, 530.

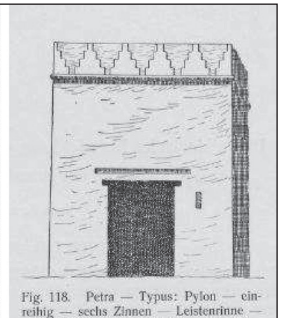
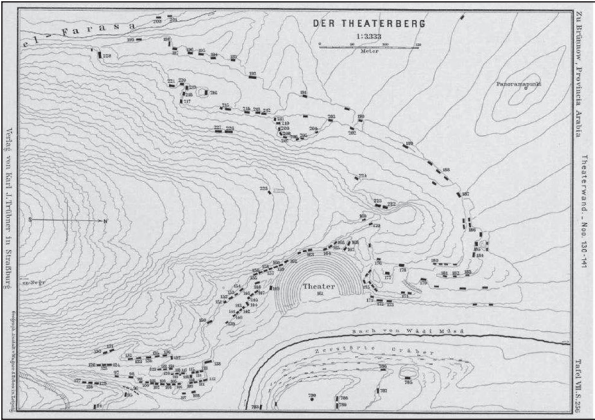
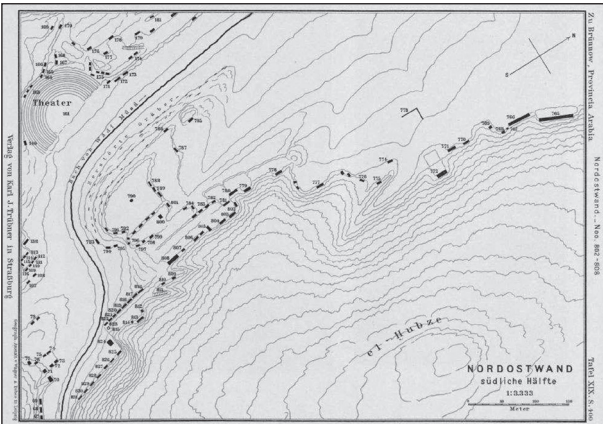


Fig. 118. Petra — Typus: Pylon — einreihig — sechs Zinnen — Leistenrinne — Türe oben ausgeschnitten. — No. 119.

64-66. Outer as-Sīq, Tombs 124 and 119 and documentation by Brünnov, R.E. and von Domaszewski, A. 1904.



67, 68. Outer as-Sīq, Tombs 133 and 134 and documentation by Brünnov, R.E. and von Domaszewski, A. 1904.



69. Outer as-Sīq (Brünnov, R.E. and von Domaszewski, A. 1904).

70. View from Palace tomb to Wādī Mūsā.



71. View to the Monumental Gates and Qaṣr al-Bint Temple from the Colonnaded Street.



72. View to the Royal Tombs from the Monumental Gates.



73. The Royal Tombs. Architectural graphic reconstruction.

Monumental Gate closer. Their supports limit the view frame with the perspective of the Open Sanctuary and the Temple of Qaṣr al-Bint in the background of Mount al-Ḥabīs (Fig. 71).

7. Looking towards the opposite direction of the opening of the Monumental Gate is an imaginary central perspective of the little-preserved Colonnade Street with the Corinthian tomb along its axis in the background. The next few steps along the Colonnade Street open an extraordinary panorama of the Royal Tombs and their mesmerizing beauty (Figs. 72, 73).

Dr. Anna K. Kudriasheva
 School of Built Environment Engineering
 al-Hussein Technical University
 Amman 11831
 Building 23, King Hussein Business Park
 Mobile: +962-799-638059
anna.kudriasheva@htu.edu.jo

Bibliography

Andreas Schmidt-Colinet
 1987 The Mason's Work-shop of Hegra, its Relations to Petra, and the Tomb of Syllaios. *SHAJ* III: 149-150.
 Auer, B. , Bartel, S. *et al.*
 1994 *Jordan. Report of a Zoological and Botanical Field Trip*: Vienna.
 Bennett, C. M.
 1983 *Petra*. - Art International
 Bourbon, F.
 1999 *Art, History and Itineraries in the Nabataean Capital*: Vercelly.
 Browning, I.
 1989 *Petra*: London.
 Brünnov, R.E. and von Domaszewski, A.
 1904 *Die Provincia Arabia, Vol 1: Die Römerstrase von*

Mâdebâ über Petra und Odruh bis El-'Akaba, Strassburg.

Burckhardt, J. L.
 1822 *Travels in Syria and the Holy Land*: London.
 Kennedy, A.
 1925 *Petra, its History and Monuments*: London.
 Khouri, R.G.
 1992 *Petra. A Brief Guide to the Antiquities*: Amman.
 1986 *Petra. A Guide to the Capital of the Nabataeans*: London, New York.
 Mc Kenzie, J.
 1990 *The Architecture of Petra*: New York - Oxford.
 Glueck, N.
 1965 *Deities and Dolphins*: 445 pl. 32. 34a.
 Parr, P., Atkinson, K. B. and Wickens, E. N.
 1975 Photogrammetric Work at Petra, 1965-68. An Interim Report: *ADAJ* 20: 31-45.
 Petra
 2010 *Petra, Amman*: Al-Balka Foundation for Arts.
 Roberts, D.,
 1848 *From an Antique Land. Travels in Egypt and the Holy Land*, Reprint (1989): New York.
 Ronczewski, K.
 1934 *Die Kapitelle des El-Hasne in Petra*, in: *Archäologischer Anzeiger*:10-17.
 Ruben I.,and Disi, A.
 2006 *Field Gyde to the Plants and Animals of Petra*: Jordan National Trust
 Schmidt-Colinet, A.
 1987 The Mason's Work-shop of Hegra, its Relations to Petra, and the Tomb of Syllaios. *SHAJ* III: 149-150.
 Summerson, J.
 1988 *The Classical Language of Architecture*: London.
 Taylor, J.
 1989 *High above Jordan*: London
 1993 *Petra*: London.
 Welling, J.D.
 1935 *Petra. Ancient Caravan Stronghold, National Geographic*: Washington, DC.
 Zayadine, F.
 1982 Recent Excavations at Petra, *ADAJ* 26: 365-393.