

THE CLASSICAL ORDERS IN THE ROCK FAÇADES OF PETRA ARCHITECTURE AND GRAPHIC RECONSTRUCTION

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Abstract

Tomb façades, carved into solid rock massifs, represent an architecturally processed part of the natural mountain landscape of Petra. Its specific composition is accentuated by the scale of the entire Petra ensemble. On the other hand, as an ornamental texture cut into a virgin rock surface, the façades of this monumental gallery provide valuable compositions in plasticity. The present article discusses this subject matter.

Graphic reconstruction was carried out in 1994-95 by the author using existing photogrammetric documentation of monuments. She surveyed façades *in situ* taking new measurements on the spot and included separately preserved architectural fragments.

The architectural graphic reconstruction aims at recreating the original view of the Petra rock carvings, now destroyed by erosion and earthquakes, on large-scale orthogonal drawings. The replenishment of missing fragments in accordance to the theory of the restoration of architectural monuments and the requirement for graphic reconstruction was carried out in analogy to existing material.

Architectural drawings of twelve monuments were made in congruent scale, with all the details of structural and ornamental order plasticity and, for the first time, represent a single series of their dimensional, typological, proportional, and new terminology ratio.

Key Words

Petra, Nabataean classical façades, architectural reconstruction, architectural ornamental plasticity, Nabataean order.

The Typology of Petra Rock Carved Façades.

The plasticity typology of Petra rock carvings varies depending on the cultural influences under which the Nabataean kingdom was at different periods. Their unique pattern as a whole can be generalized into a phenomenon such as the local Nabataean style.

Most of the rock pre-classical order structures are called tomb-pylons, the origin of which researchers refer to the period of conquest of the region of Petra by Assyrians. The earliest pylon tombs dating around the 7th-4th centuries BC are of a smooth surface, the upper part of which is decorated by a primitive cornice with a hemisphere profile and an attic with a strip of flat pyramid-stepped ornament, or “crow’s steps”. In the lower part of the pylon is an entrance opening into the space.

The trade relations of the Nabataeans with the North states of Africa, in particular Egypt, also left their mark in the plasticity of rock carvings. There was Egyptian type of pylon tombs, which is characterized by a cornice with the Egyptian cavetto fretwork. The period of construction ranges between 3rd century BC and 1st century AD.

The influence of ancient Greek and Roman cultures on the Petra region had an effect on the character of Nabataean architecture. The rock carvings of this time are the most vivid and a perfect phenomenon of the Nabataean style. The following examples of Nabataean portals and Classic Nabataean portals and porticos, more precisely façades, representing varying degrees of rock carving compositions.

Nabataean portals are the frontal compositions with elements based on the classical order,

and marks the only central entrance to the tombs due to the ritual and sacred purposes (**Fig. 1**).

Nabataean portals with a double cornice supposedly dated to the period from the 2nd century BC to the 4th century AD. Portals with an attic supported by an entablature, consists of a cornice with a fillet, and a smooth strip of frieze and an architrave. The lower cornice, being richer in composition due to classical profiles, than the upper one, is supported by two pilasters with Nabataean Reverse-frustum Capitals. As for the processing of the lower part of the façade, due to certain time periods, the main space between the pilasters consists of an entrance composed of a pediment and acroteria on top. There were examples of a second smaller portal inside a portal, where a simple cornice rested on two pilasters framing the doorway with pyramidal capitals. This type of rock carvings is distinguished by the appearance of the pilaster base and the façade attic, decorated with a narrow cornice with classical profile details (**Fig. 2**).

Nabataean Portals with a Double Entablature

In earlier portals of this type, the upper entablature, completed by a cornice with a cavetto, supports the attic. The lower one, with a complex profiled cornice, rests on two pilasters with four capitals, clearly reminiscent of the Doric order, in the form of inverted flat truncated pyramids, and a developed neck. In the next level, the entablature of the lower order tier is supported by four pillars, of which two external ones exist as double pillars, with a rectangular cross-section on the outside and a quarter of a circle on the inner side, and end with double capitals. Unlike



1. Nabataean portals.

the previous types of façades, the period of construction of the portals with a double entablature are known.; 40 to 70 decades AD and coincides with the construction of the Corinthian Tomb and the Bāb as-Sīq Triclinium, which are vivid examples of the discussed type of Petra rock carving façades (**Fig. 3**).

Nabataean classical portals, are the frontal ordered structural compositions, with a single central entrance. A type of rock carving that is witnessed in a large number of order compositions in Petra.

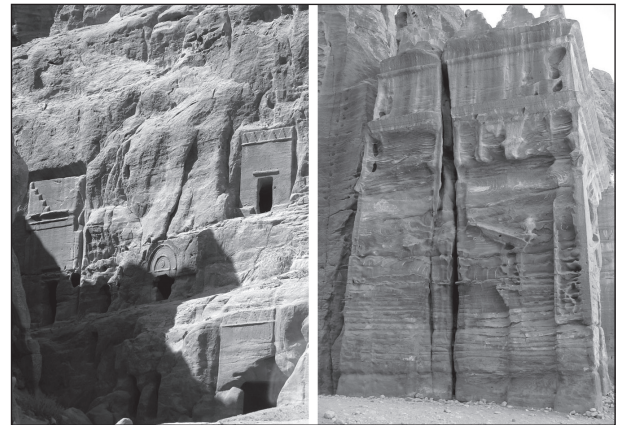
Nabataean classical porticos are the frontal ordered structural compositions with one or several ordered levels topped either with a pediment, or a “broken” pediment and a circular Tholos in the middle. In rare cases, the pediment of the portico is replaced by a multi-leveled ordered attic. In the lower part of the façade is one more entrance to the tombs, related to ritual and sacred purposes.

Nabataean classic type of portals and porticos, which includes twelve objects with the most expressive order compositions, can be conditionally divided into three groups:

The first group consists of portals with the most expressive order of ordered elements built during the 1st century BC to the 1st century AD. This group includes the Broken Pediment Tomb, Roman Soldier Tomb, Lion Triclinium and Renaissance Tomb.

The second group consists of rock carved façades, erected during the 1st century BC to the 1st century AD and includes The Sextius Florentinus, Silk and Urn Tombs.

The third group consists of five façades, whose magnitude and plastic personality puts



2, 3. Nabataean portals with double cornice and double entablature.

them in the most significant rock carved façades of Petra. This group includes Bāb as-Sīq Triklinium, Palace Tomb, Corinthian Tomb, the ad-Dayr and al-Khaznah. These structures date back to 1st century AD.

Twelve of the most significant rock order portals and façades of the Petra mountain range according to their distribution along the Wādī Mūsā and its branches are represented by drawings of the author's graphic reconstruction and are analyzed to illustrate the element features of their structural, ornamental plasticity, thematic decoration, and order composition as a whole. These include the Bāb as-Sīq Triklinium, al-Khaznah (al-Khaznah), the Broken Pediment, the Renaissance, the Roman Soldier and the Sextius Florentinus Tombs, the Lion Triclinium (Fig. 4), the Urn (Fig. 5), Silk, Corinthian (Fig. 6), and the Palace Tombs (Fig. 7). The ad-Dayr and al-Khaznah are presented through drawings of the author's graphic reconstruction and are analyzed according to the element features of their structural, ornamental plasticity,

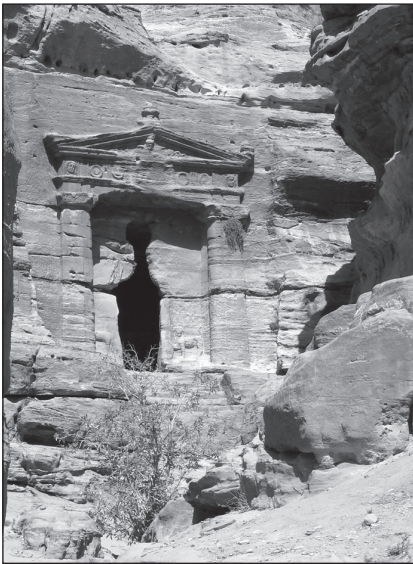
thematic decoration, and order composition as a whole (Figs. 8-13).

The System of Carving Petra Rock Façades

In general, the plasticity features of the order façades of Petra are connected to the technique of their rock carving in the direction starting from top and reaching the bottom. There could not be any analogies to construction machines of the ancient time, Their construction requires a large number of high-altitude forest, which in this region did not exist. The idea of a system for cutting down the rock façades of Petra leads to the examination of several types of unfinished tombs, which facades clearly show two methods for processing rock massifs.

Stepwise Rock Carving

On a selected section of the rock, the surface of the highest horizontal division of the future façade was cleaned and leveled. The lower untreated part of the natural rock massif represented working platform of the levels above.



4. Lion Triclinium.



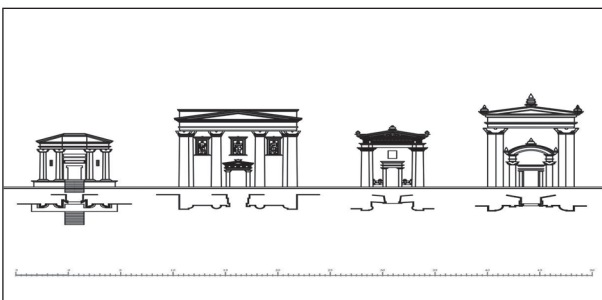
5. Urn Tomb.



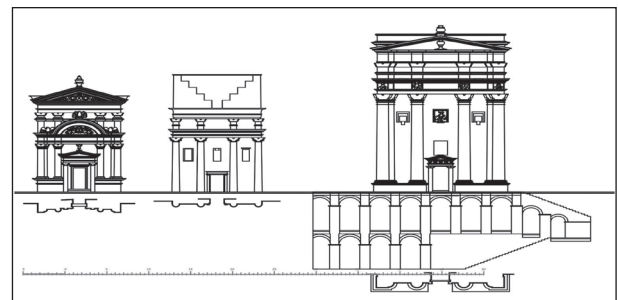
6. Corinthian and Silk Tombs.



7. Palace Tomb.



8. Broken Pediment, Roman Soldier Tombs, Lion Triclinium Renaissance Tomb.



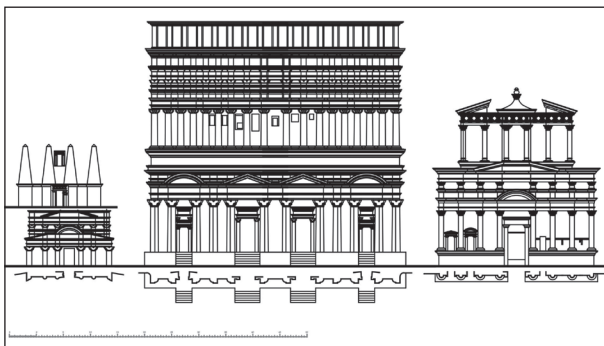
9. Sextius Florentinus, Silk and Urn Tombs.

The next stage was the vertical and horizontal marking of parts and elements, presumably with the use of a plumb, and directly stone cutting from top to bottom. The process of “bringing down” of subsequent lower levels, two or several horizontal divisions occurred in reverse to the previously mentioned erection sequence. Presumably, this method was used to create the façades of the Silk, Urn and the Palace tombs. The consequence of such non-simultaneous step-by-step surface treatment was a violation in the alignment of vertical parts, which is especially evident on the façade of the Palace Tomb. The Unfinished Tomb in Petra is a unique example and evidence of stepwise rock carving (Fig. 14).

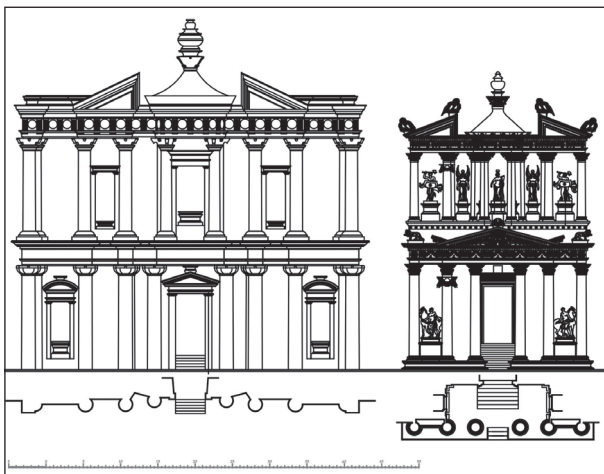
Levels Rock Carving

This technique required a previous cleaning and leveling of the rock geological layer to the height of the future façade or the height of the upper order level in a multi-leveled composition of the façade. On the lower untreated part of the natural mass, a construction platform was built with monolithic masonry work. On the

upper levels a vertical and horizontal marking of large elements of the order was made. When the stone-cutting work is finished, abiding by the top to bottom method, the monolithic masonry of the construction platform was disassembled. When building a multi-leveled façade, this operation was repeated as many times as required for processing each tier. This method



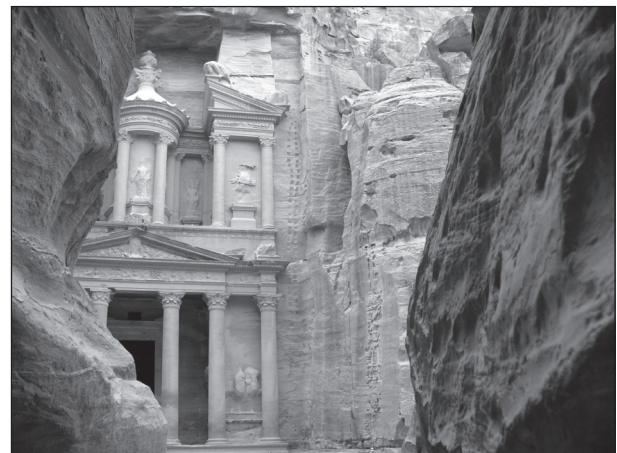
10. Bāb as-Sīq Triklinium, Palace and Corinthian Tombs.



11. ad-Dayr and al-Khaznah.



12. ad-Dayr.



13. al-Khaznah (the Treasury).



14. Stepwise rock carving.

of operation is typical for rock carvings with a relatively developed order composition and a complex structural and ornamental plasticity. It can be assumed that the façades of the Sextius Florentinus, Roman Soldier and Broken Pediment tombs, as well as the Lion Triklinium, the multi-tier compositions of al-Khaznah, Corinthian Tomb, the ad-Dayr and Bāb as-Sīq Triklinium, were carved from top to bottom by this method. An example of this method are markings of an unrealized façade in the rock mass opposite to al-Khaznah (**Fig. 15**).

The dimensional proportions of the major parts and the overall dimensions of the Nabataean classical portals and façades of Petra, gives a reason to assume that during their cutting a certain system of proportionality was used. A system that, by unknown means, is integrated in masonry work from top to bottom, only possible with the help of a hemp dimensional rope and nodes. This led to multiplicity in all façade dimensions along the vertical and horizontal directions, based on a single module which is the diameter of a column or a semi column in the lower order level. Unlike the invariable canonical order systems, the system of proportional ordering of Petra's façades was flexible. The composition of each façade was clearly proportioned directly „in place“, and was determined by the outline and size of the mountain fragment intended for architectural processing. Such freedom from the proportional ratio of elements established by the canonical orders and the classical system, led to numerous variations in the order allowed for the manipulation of façade compositions, processed on any size of a rock massif. This however, depends on the selected area of a landscape.



15. Levels rock carving.

The methods of non-synchronous processing of the levels of Petra rock carvings inevitably led to the transformation of stylistic and plasticity of their details. When processing the surfaces of a structure, its details were made in parts, from the upper tier of the architectural composition to its lower tier.

At the beginning and middle of the work, most of the dimensions of the future structure were a rough rock massif. For a long period of work on the porticoes of the Urn or the Palace Tomb, the style and plasticity drawing of architectural details inevitably changed from the upper zones of the general composition to the lower ones.

It is possible that during the time of processing one façade, ideas, traditions, masters, and schools changed, which resulted in the distinctive principle of the Nabataean style: the principle of collateral combinations of order elements, free of tectonic logic.

And strangely enough, such logical inconsistency of asynchronous plasticity elements of different levels, a possible disruption of alignment, coarseness of the details as a whole, impart improvisational spontaneity to the rock carved façades of Petra, ornaments inspired by classical orders, and at the same time, the monumentality and timeless character, are all part of the unique Nabataean style.

Elements of Structural and Ornamental Plasticity of the Rock Portals and Porticoes of Petra

Structural plasticity of Petra's rock fronts play a major role in their order composition, which in the canonical architectural order exist as an entablature array, horizontal blocks of architrave, frieze and cornices, cornice rods that limit the tympanum, pilasters and columns. The array of concepts of structural plasticity includes order details such as triglyphes and metopes in the friezes of the Doric order, echinus and abacus of Doric capitals, echinus, volutes and balusters of ionic capitals, figured abacus, twin beams of volutes and tiers of acanthus leaves of Corinthian capitals.

Ornamental Plasticity

Ornamental plasticity consists of decorations such as moldings of cornice rods and balusters, echinus and scroll details of Corinthian capitals

The motifs of traditional Greek and Roman ornaments, such as ionics and palmettes, are limited in the ornamental plots of the façades of Petra. Typical plant motifs are images of Arab acanthus, or *Onopordum Anisacanthum*, which differs from the Mediterranean one by more articulated leaf shape, and the symbol of this region, the black iris or *Iris Petrana* in the form of a blossoming flower or bud. The acanthus leaf is present in all types of Corinthian capitals, garlands, as well as stylized branches of trees and fruits such as figs and grapes on the friezes and *tympana* of al-Khaznah, along with large scaly acanthus that takes the place of a flower rosette in the capitals of the lower tier of its portico. The blossoming irises play the role of rosettes on the *abaci* of Corinthian plant capitals and, together with the buds and twirled stems, represent the elements of their relief ornaments.

The Capital

The capital is the most distinct part of an architectural order. The characteristic plasticity forms of the Doric, Ionic and Corinthian capitals of Greece and Rome are the symbols of each order system. The geometric capitals of façade compositions of Petra are generally simple and expressive, reflecting the density and texture of local rocks of loose and coarse-grained sandstone. Their coarsened style, having a specific regional character, was defined as Nabataean.

The Nabataean Doric Capital

The Nabataean Doric capital is the upper plastic element of a pilaster with no base, serves as a major part of the stone frames on entrance

apertures and niches of rock portals and porticos of Petra. The *abacus* is a rectangular plate that supports an architrave and the *echinus* represented as a multi-layer of fillets. Examples of this are found at the Lion Triclinium central entrance (Fig. 16), at the Renaissance Tomb central entrance (Fig. 17), at the Palace Tomb external entrances (Fig. 18), and at the ad-Dayr central niches (Figs. 19, 20).

The Nabataean Cupped Capitals

There are two other varieties of Nabataean capitals that do not have any analogies with any other order and can only be associated with abstract forms. They are referred to as:

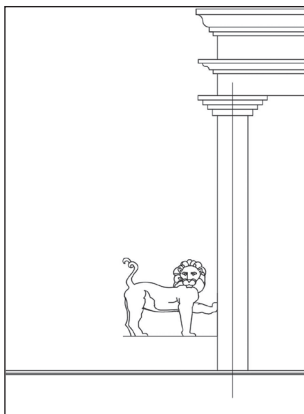
- Nabataean Cupped Capital Type I, which occurs in the lower level of the Palace Tomb (Fig. 21)
- Nabataean Cupped Capital Type II, occurs in the first levels of the ad-Dayr façade (Figs. 22, 23).

The Nabataean Reverse-Frustum Capital Type I

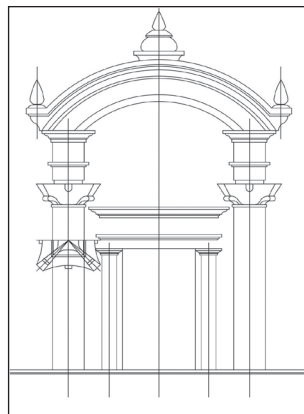
Nabataean Reverse-frustum Capitals appear in the form of a truncated pyramid, or *frustum*, with slightly concave faces, which is flipped upside down. Such pyramidal capitals can be found on the façades of the Broken Pediment Tomb (Fig. 24), and the upper tier of the Silk Tomb (Fig. 25)

The Nabataean Reverse-frustum Capital Type II

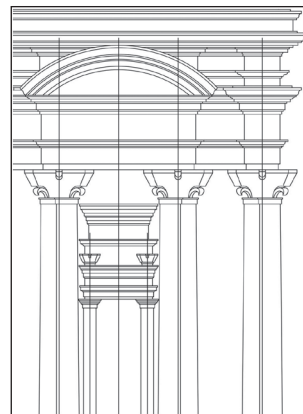
These Capitals can be found in the Sextius Florentinus Tomb (Fig. 26), the second level of the ad-Dayr (Figs. 27, 28). the Urn Tomb (Fig. 29) as well as the Roman Soldier Tomb (Fig. 30).



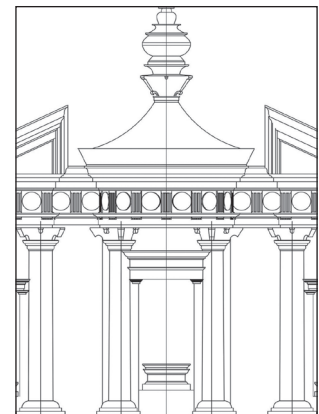
16. The Lion Triclinium central entrance (detail left side).



17. The Renaissance Tomb central entrance.



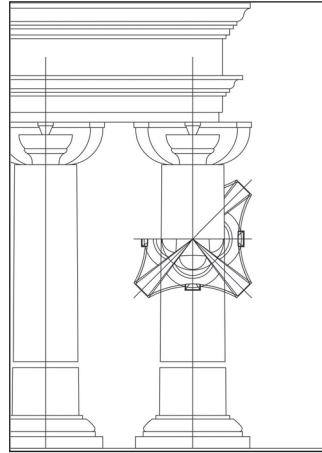
18. The Palace Tomb side entrance.



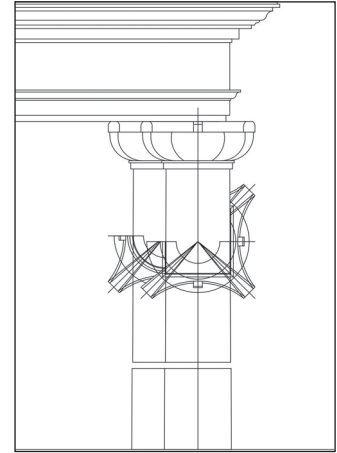
19. Detail of the ad-Dayr central niche of the upper storey.



20. *ad-Dayr Nabataean Cupped Capital.*



21. *The Palace Tomb Nabataean Cupped Capital.*



22. *ad-Dayr Nabataean Cupped Capital.*

The Nabataean Reverse-Frustum Capital Type III

A more slanted variant of the Nabataean Reverse-frustum capital imitates curved plates along the diagonal axes of a pyramid. This gave rise to individual researchers of Petra to draw parallels with the form of the Corinthian capital and call this type *Pseudo-Corinthian*. It seems



23. *ad-Dayr Nabataean Cupped Capital.*

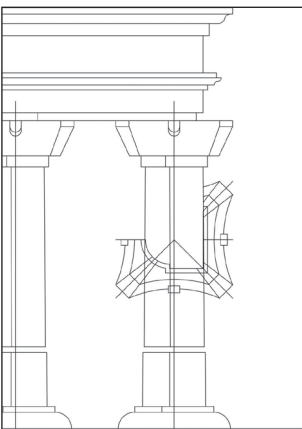
more correct to keep this type of capital, widespread in the region of Petra, its originality and call this derivation of frustum capital the ‘The Nabataean Reverse-frustum Capitals Types III and IV.

This variation can be found in each of the lower tiers of the Bāb as-Sīq Triclinium (Fig. 31), The Renaissance Tomb (Fig. 32), and the Silk Tomb (Fig. 33).

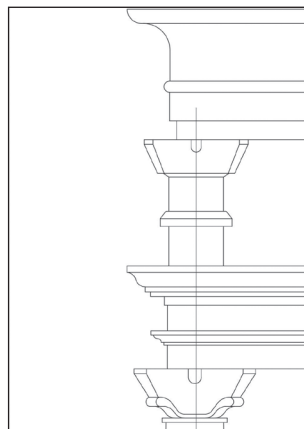
The Nabataean Reverse-Frustum Capital Type IV Is shown in the Details of the Palace Tombs (Fig. 34).

The Nabataean Corinthian Capitals

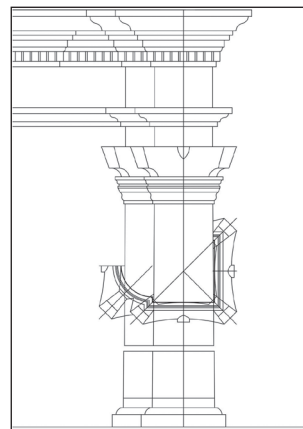
The Nabataean Corinthian capital is the result of a local artistic development originating from Corinthian classical capitals. This quite successful architectural column head decor is assigned as an invention of the 5th century BC by Vitruvius to the Greek architect and artist



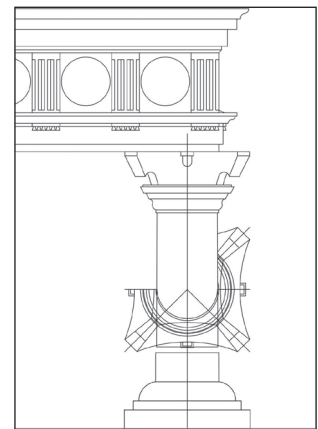
24. *The Broken Pediment Tomb Reverse-frustum capital.*



25. *The Silk Tomb Reverse-frustum capitals.*



26. *The Sextius Florentinus Tomb Reverse-frustum capital.*



27. *ad-Dayr Reverse-frustum capital.*

Callimachus. It occurs for the first time as an element of interior architecture, found on fluted columns in the cellar rear wall of the peripteral temple of Apollon Parnopius at Basse-Phigaleia in western Arcadia, Greece. It was adopted in Greek architecture, an element of exterior colonnade, later in the 4th century BC, to become



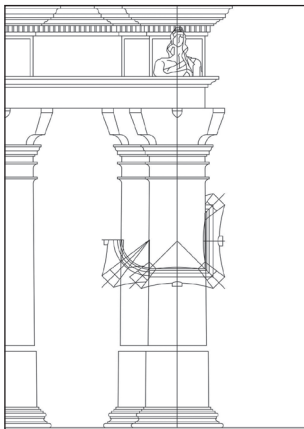
28. ad-Dayr Reverse-frustum capital.

the signature of the canonic Corinthian order dominating during Hellenism and Roman imperial times.

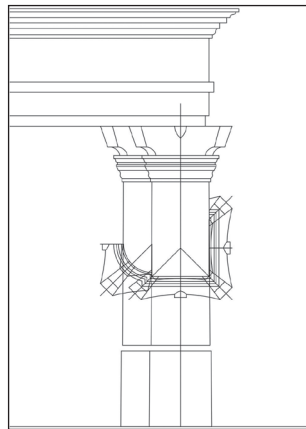
The classical Corinthian capital consists of one or two superimposed acanthus rows, eight leaves in each. Behind the belts of the acanthus leaves are four torches, from which the stems of four double scrolls and four bundles of paired central small volutes (*cauliculi*) rise upward. Above them rests the abacus, which forms a square plate with cut off corners and concave sides to support the horizontal architrave of the entablature. Forms of Greek and Roman capitals differ in the height of their capitals, the proportions of volutes and rosettes, and the pattern of acanthus leaves.

The Nabataean Corinthian Capital, Type I

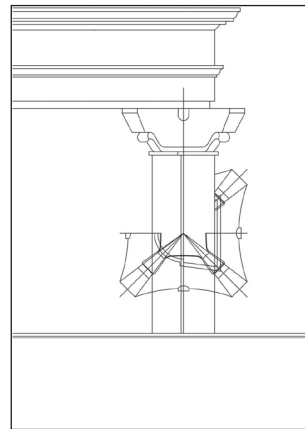
The abaci of capitals has a fillet with *cyma reversa* on the top and a large rosette in the form of a blossoming Black iris, or *Iris Petraea*, which is a noble flower of the spring in



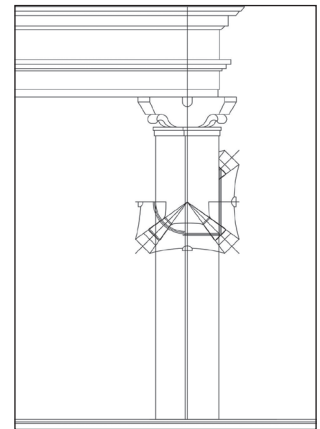
29. The Urn Tomb Reverse-frustum capital.



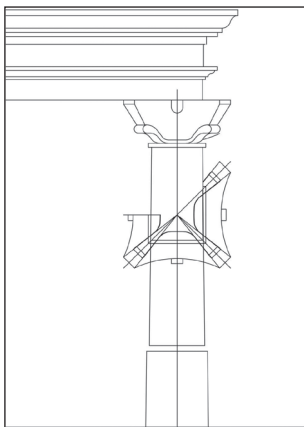
30. The Roman Soldier Tomb Reverse-frustum capital.



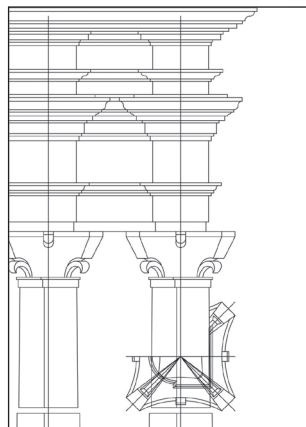
31. Bāb as-Sīq Triclinium Reverse-frustum capital.



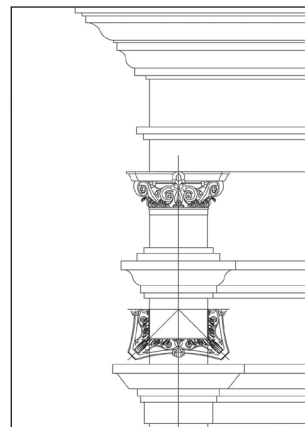
32. The Rainessance Reverse-frustum capital.



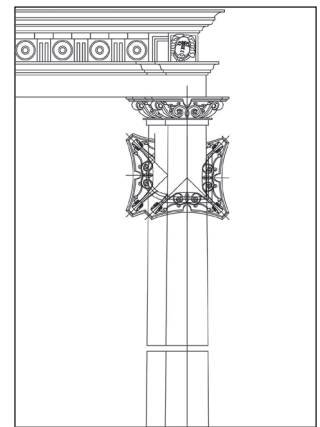
33. The Silk Tomb Reverse-frustum capital.



34. The Palace Tomb Reverse-frustum capital.



35. The Corinthian Tomb Nabataean Corinthian capital, Type II.



36. The Lion Triclinium Nabataean Corinthian capital, Type I.

Nabataean highlands. In the center two large volutes smoothly pass into a pair of *cauliculi*, between which is a composition of vertically standing seven-edged acanthus and two open arrows above it with buds of irises at the ends and a trefoil in the center. Massive angular volutes are supported by leaves of sharp-pointed acanthus. The lower part of the capital is treated in the form of a low astragal and a flat wide band, which acts as the neck of a rectangular pilaster. This is a common detail in two façades, the Corinthian Tomb central capital (Fig. 35) and the Lion Triclinium capitals (Figs. 36, 37).

The Nabataean Corinthian Capital, Type II

The shape of the round capital is a plastic version of the Alexandrian plant capitals. The lower angular volutes, rounded not in the form of two *cauliculi*, but by a pair of symmetrically intertwined stub rings with two flowers of irises in each. The rosette in the form of a large iris grows from a thin stem, and massive angular volutes, forming the ends of their lower coils in the center of a facet triangle, that are supported by two steeply curled acanthus. It's a common detail in the façades of the Corinthian Tomb lower tier capital (Fig. 38), Corinthian Tomb upper tier capital (Fig. 39), and al-Khaznah upper tier capital (Figs. 40, 41).

Nabataean Corinthian Capital, Type III

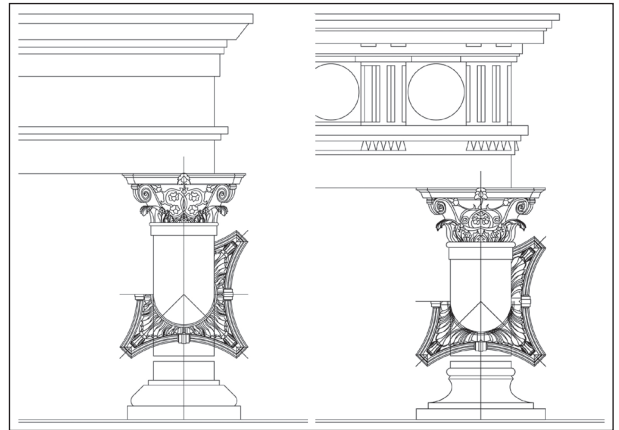
A detail of the upper level of al-Khaznah only shows a composition in detail that is derived from templates of late Republican and Alexandrian plant capitals. The proportions and the plasticity pattern in the double bands of acanthus leaves in the lower part of the capitals, as well as the shape of angular volutes and the supporting acanthus leaves reminds of Greek capitals. The relief of a complex interlacing of stems with iris flowers instead of traditional *cauliculi* bears the features of Alexandrian plant capitals. A large rosette is made in the form of a scaly cone of local oak, bordered by four sharp-toothed leaves. The profile of astragal and abaca resembles the details of Italian capitals. A portico with six of such capitals in the lower order level of al-Khaznah meets every traveler entering Nabataean Petra (Figs. 42, 43).

A major feature of Petra rock carvings is the diversity of architectural details within a single

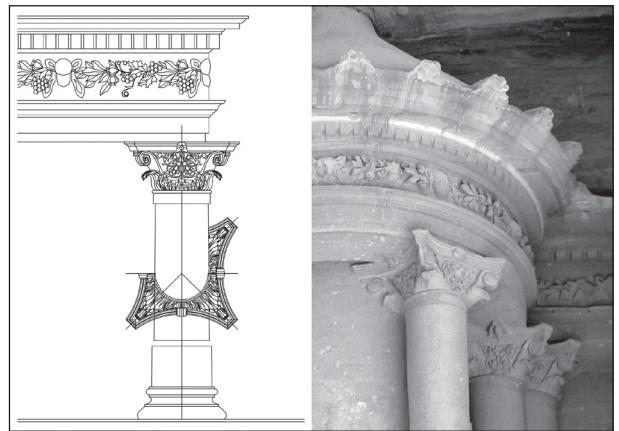
order system, where Corinthian capitals are combined with a base, of which the profiling is typical for Tuscan orders. The Capitals and bases are perceived as details of arbitrary style combinations far from a single order in each of the canonical orders. Typical for Petra collage combination of structural details.



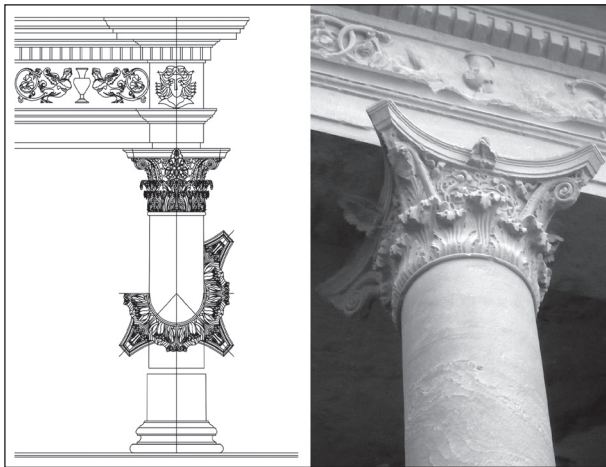
37. *The Lion Triclinium Nabataean Corinthian capital, Type I.*



38, 39. *The Corinthian Tomb Nabataean Corinthian capital, Type II.*



40, 41. *al-Khaznah, upper storey, tholos, Nabataean Corinthian capital, Type II.*



42, 43. *al-Khaznah*, lower storey, porch, Nabataean Corinthian capital, Type III.

The Figural Decoration of the Rock Portals and Façades of Petra

The figural decor means the relief of sculptural images of deities, human figures, birds, animals and plants. In the animalistic motifs of the decorative plasticity of Petra, representations of the local fauna are depicted, and relief images of deities and human figures are borrowed from Greek and Roman subjects. In the rock carved façade structures of Petra, certain definite compositions of thematic decorations were formed.

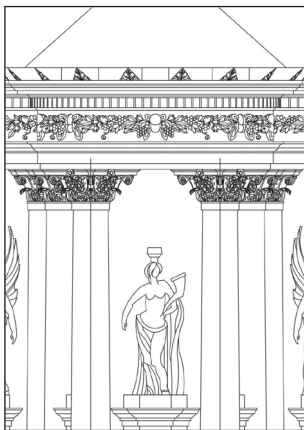
Ornamental Plasticity Decor of *al-Khaznah*

The Friezes of both levels of *al-Khaznah* are richly ornamented. On the frieze of the upper order level, complex garlands of fig tree branches, intertwined with groups of round

fruits, such as figs and grapes, are framed by leaves. The center of such composition is indicated by a large acorn of local oak.

In the upper level central *intercolumnium* of the *Tholos*, a standing statue of the half-naked Aphrodite is depicted in her syncretistic aspects of Isis, as the head gear of the *calathos* testifies, and of the tutelary urban patron Tyche, evident by the horn of plenty in her left arm (Fig. 44). The remaining spaces between the columns of both the round temple as well as the framed colonnade are filled by statues representing Victories or Amazons, the latter wielding double-axes over their heads.

The *tympanon* of the pediment crowning the tetra-style entrance porch of the lower level is filled with a delicate vegetal scroll on both sides of a ruined object (Fig. 45), resting on a narrow base of acanthus leaves. In his famous corpus of lithographs, the artist David Roberts (1849) restituted this detail, totally destroyed today, as a squatting sideward faced eagle, which inspired the presented reconstruction (Fig. 44). Many modern scholars, however, recognize a human bust of Atargatis, or fertility diety, as shown in the famous relief from Khirbat at-Tannūr. The same motif also occurs in funeral art of Palestine and Arabia, with relief pattern on the frieze and the plane of the tympanum of the lower level represents large spirals wrapped acanthus stems with a cone in the center. These depictions alternate on the frieze, along with paired images of sirens with a calyx along the axis between them (Figs. 46-48).



44. *al-Khaznah*, upper storey, tholos, representation of Isis-Aphrodite-Tyche.



45. *al-Khaznah*, lower storey, pediment with Isis crown and eagle (according to lithography by David Roberts).



46. *al-Khaznah*, lower storey, pediment with bust in scrolls as most modern scholars understand the theme.



47. *al-Khaznah*, lower storey, frieze with heraldic sirens with a calyx, framed by vegetal scrolls.



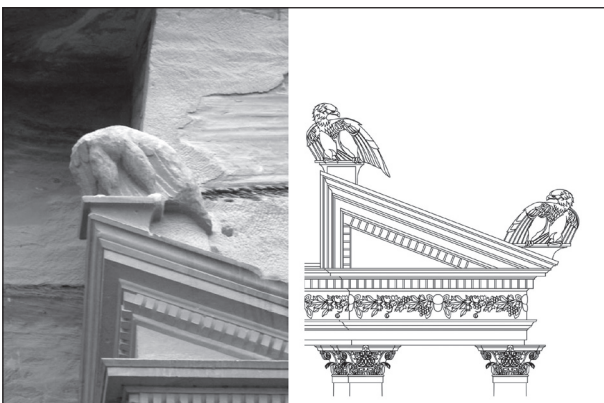
48. *al-Khaznah*, lower storey, frieze with heraldic sirens with a calyx, framed by vegetal scrolls.

Acroteria in the Shape of Eagles (Figs. 49-54)

The greatest number of sculptural figures adorn *al-Khaznah*. In the space between the external columns of the first order level, two compositions with male figures (Fig. 56b, c) leading the bridles of horses (Castor and Pollux) are created on a scale of 2.5:1. In the five piers of the upper level of *al-Khaznah*, are five figures of Amazons holding axes on a scale of 2:1 (Fig. 55). In the central *intercolumnium* of the *tholos*, the relief statue of Isis, the goddess of motherhood, is depicted (Figs. 44, 56a) and the planes of the friezes along the axis of the external pilasters adorn the heads of Gorgons.

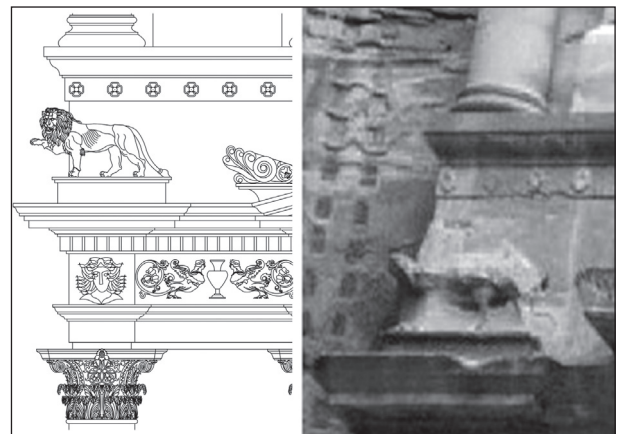


49. *The Sextius Florentinus Tomb* with acroteria in the shape of eagles on top and both sides of the segmental pediment.



50, 51. *al-Khaznah*, eagle acroteria on the broken pediment of the framing colonnades in the upper storey.

The lateral pilasters of the Lion Triclinium display Theatre mask (Fig. 57). Sculptural images of Hellenistic Armors, occupy the space between the columns in the Roman Soldier Tomb. A drapery bust is located along the axis of the entrance portal of Urn Tomb, and the frieze plane coaxial to the pilasters, is filled with human bust reliefs. (Fig. 58). The Atargatis, or fertility deity with scrolls, appear as the central image of the segmental arch in Sextius Florentinus Tomb.



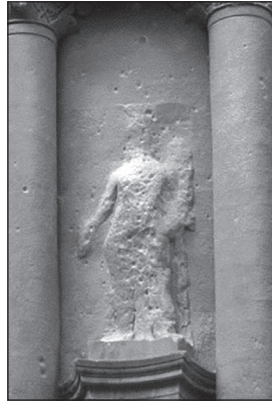
52, 53. *al-Khaznah*, acroterion of the attic on the left side in the shape of a sculpture of a lion.



54. *Lion Triclinium* wall decoration.



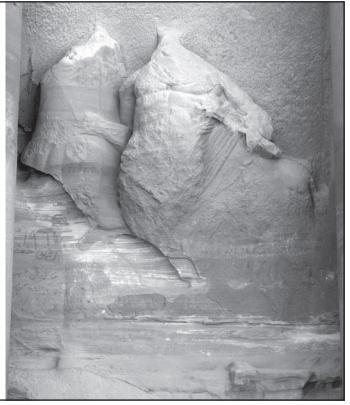
55. *al-Khaznah*, representation of Amazon.



56. |a. *al-Khaznah*, representation of Aphrodite-Isis.



|b. *al-Khaznah*, representation of the two Dioscuri Castor and Pollux.



|c. *al-Khaznah*, representation of the two Dioscuri Castor and Pollux, identified by the Nabataeans with the astral gods Azizos and Monimos.

Order Compositions of the Nabataean Classical Rock Carved Façades of Petra

The goal of Architectural and graphical reconstruction is the reconstruction of original species of Petra rock fronts preserved in varying degrees of Fragmentation, and presented in large-scale orthogonal drawings, in order to analyze the plastic patterns of typology and the proportional system.



57. *Lion Triclinium* frieze with Theatre masks, wreaths and paterae, in the pediment bust with vegetal scrolls.



58. Human draped bust in the window of the central inter-columnium of the Urn tomb.

Bāb as-Sīq Triclinium

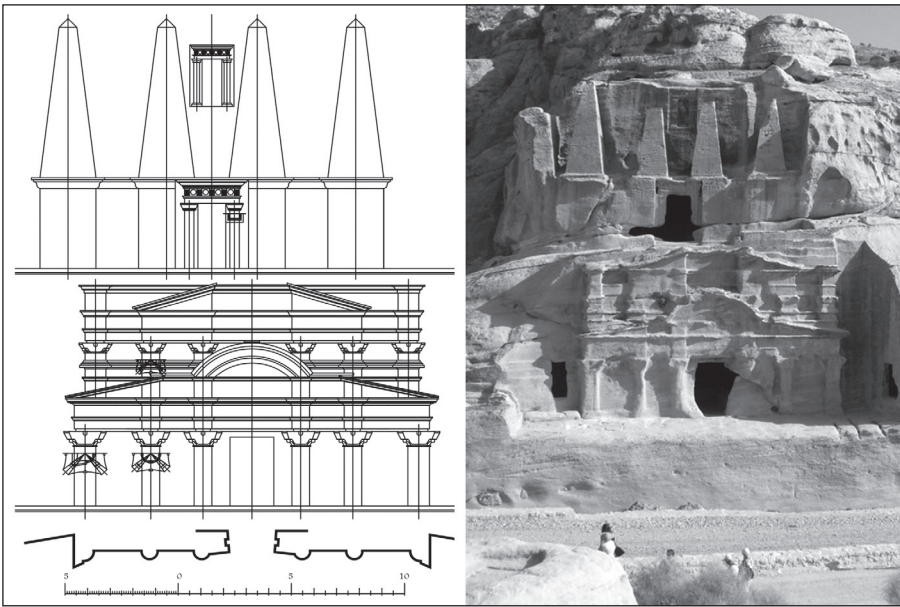
The height of the façade is 12.0m, and has a width of 18.50m. The composition of the façade consists of two levels. The six pilasters of the lower level carry a massive entablature that supports a „broken“ pediment. The second level is perceived as a detailed attic with dwarf pilasters, crowned with the Nabataean Reverse-frustum Capital Type III, multi-molded entablature and a “broken” pediment on the top.

The massive half-columns of the lower level are crowned by the Nabataean Reverse-frustum Capital Type III, between which a rectangular entrance opening with an entablature on a top of the broken pediment is located. *Bāb as-Sīq* Triclinium has a unique façade in its plasticity detailing and original proportional system. (Figs. 59, 60).

al-Khaznah

The height of the façade is 42.0m, and has a width of 28.0m. The façade of *al-Khaznah* is characteristic to Nabataean two-leveled compositions, Completed with a „broken“ pediment, of which the central part is occupied by a circular rotunda or a *tholos*. The first order level represents a six-columned portico with Nabataean Corinthian Capitals, Type III, and an entablature, a pediment and an attic.

Two middle freestanding columns and four extreme semicircular pilasters are crowned by Nabataean Corinthian Capitals, Type II. These columns have bases with classical moldings. In the depths of the portico between the central columns, there is an entrance with an aperture of 8m in height, to which a staircase with twelve steps leads. The second order level is a three-part portico, with an external “broken” pediment and



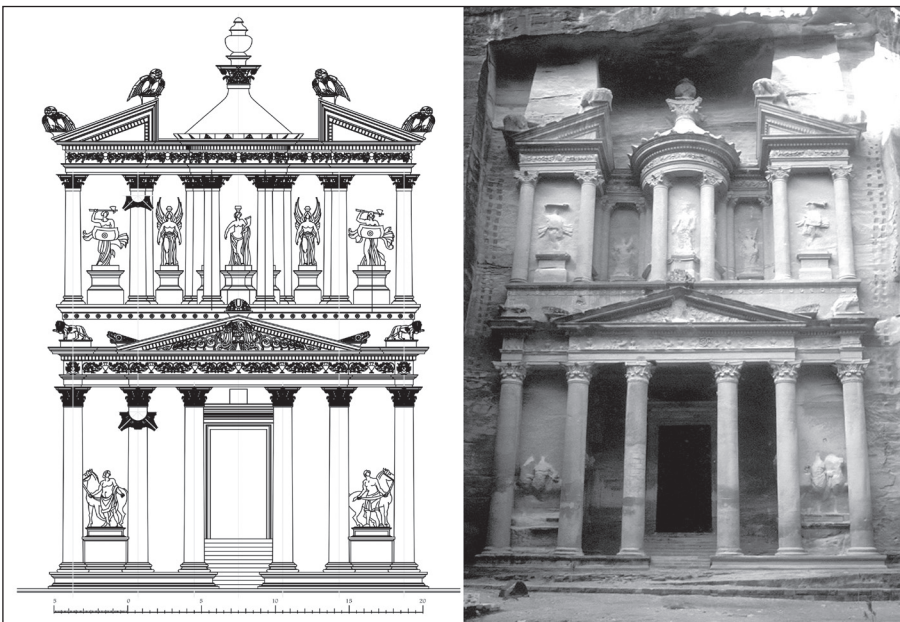
59, 60. *Bāb as-Sīq Triclinium architectural and graphic reconstruction.*

a Tholos in the center. Sculptures depicting male figures and figures of the Amazons are placed on high profiled pedestals. The Treasury is the most famous and significant construction of Petra, meeting travelers at the end of the Siq gorge. A plasticity complex, harmonious composition, with specific beauty of order details, and elements of ornamental décor, makes al-Khaznah the climax of art in the Nabataean architecture front piece, (Fig. 61a-b).

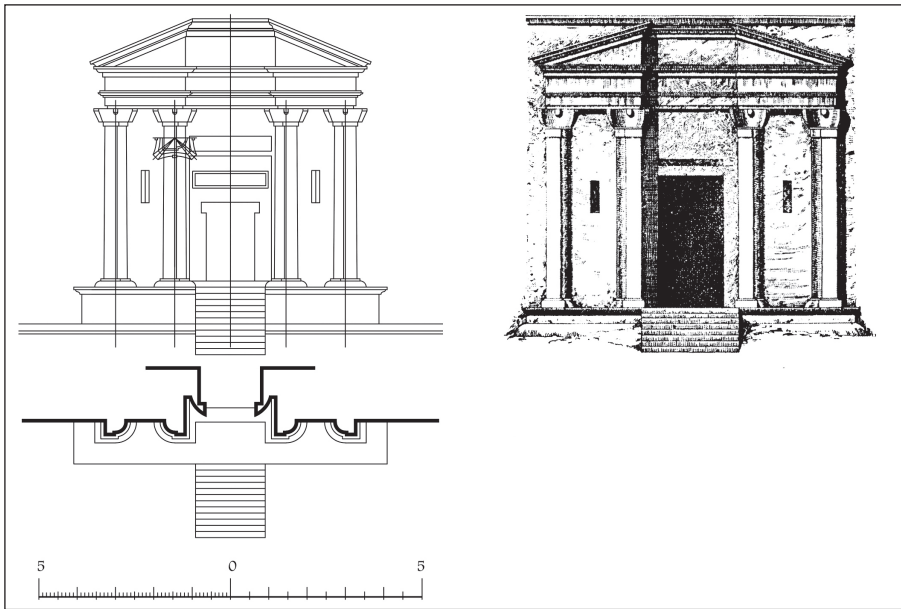
The Broken Pediment-Tomb (BD 228)

The height of the structure is 8.0m, and a width of 7.0m. The composition is a flat portal with four pilasters, an entablature and a pedi-

ment, with a clear division into the central part and two entablatures on the side. Pilasters are complicated in section, rectangular from the outside and semicircular from the inside, and a base without a plinth, and crowned by the Nabataean Reverse-frustum Capital Type I. The central plane of the portal occupies an entrance aperture, above which are three cut horizontal niches, where ornamental plates were apparently mounted. The side planes between the pair of external pilasters, with smaller intercolumnium than the central ones, have narrow slits for windows. The entire structure rests on a plinth, with a staircase in the center consisting of thirteen steps (Fig. 62 a, b).



61. |a. *al-Khaznah architectural and graphic reconstruction.*
|b. *al-Khaznah.*



62. |a. The 'broken pediment'-Tomb, architectural and graphic reconstruction. |b. Elevation prospect (Brünnow and von Domaszewski I. 1904: 158, fig. 179 [no. 228]).

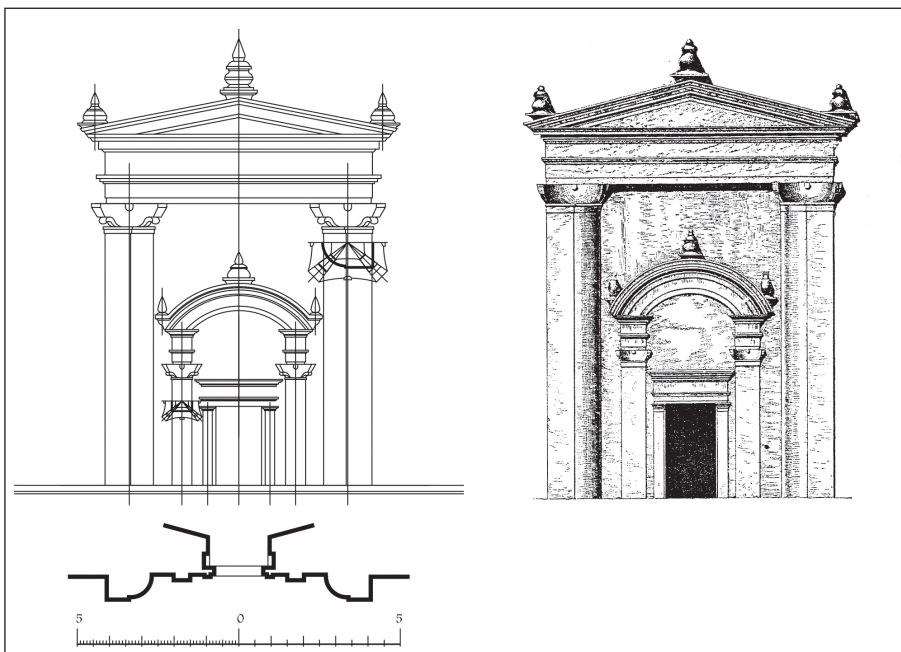
The Renaissance-Tomb (BD 229)

The height of the structure is 14.0m, and the width is 8.25m. The composition of the façade according to the formal schemes (see Fig. 18) is similar to the façade structure of Lion Triclinium, but differs in the order of details. The external double pilaster portal, crowned with the Nabataean Reverse-frustum Capital Type III and an architrave, is completed by a pediment with multi-profiled cornices and three *acroteria* with urns. Its pilasters with the Nabataean Reverse-frustum Capital Type III support two entablatures, With a faceted segmental archivolte. The central and side *acroteria* in the

shape of small urns complete the composition. The entrance frame consists of a pair of pilasters with the Nabataean Doric capitals and an entablature (Figs. 63a, b).

The 'Roman Soldier' Tomb (BD 239)

The so-called Tomb of the Roman soldier is a vast architectural complex consisting of a rock-cut tomb connected with a *triclinium* by a colonnaded piazza. It is located east Wādī Farasa, underneath the so called Garden-triclinium, and accessible via monumentalized gates on both long sides of the enclosed piazza (Figs. 64a, b). This funeral complex has been intensively



63. |a. The 'Renaissance'-Tomb, architectural and graphic reconstruction. |b. Elevation prospect (Brünnow and von Domaszewski I. 1904: 159, fig. 180 [no. 229]).

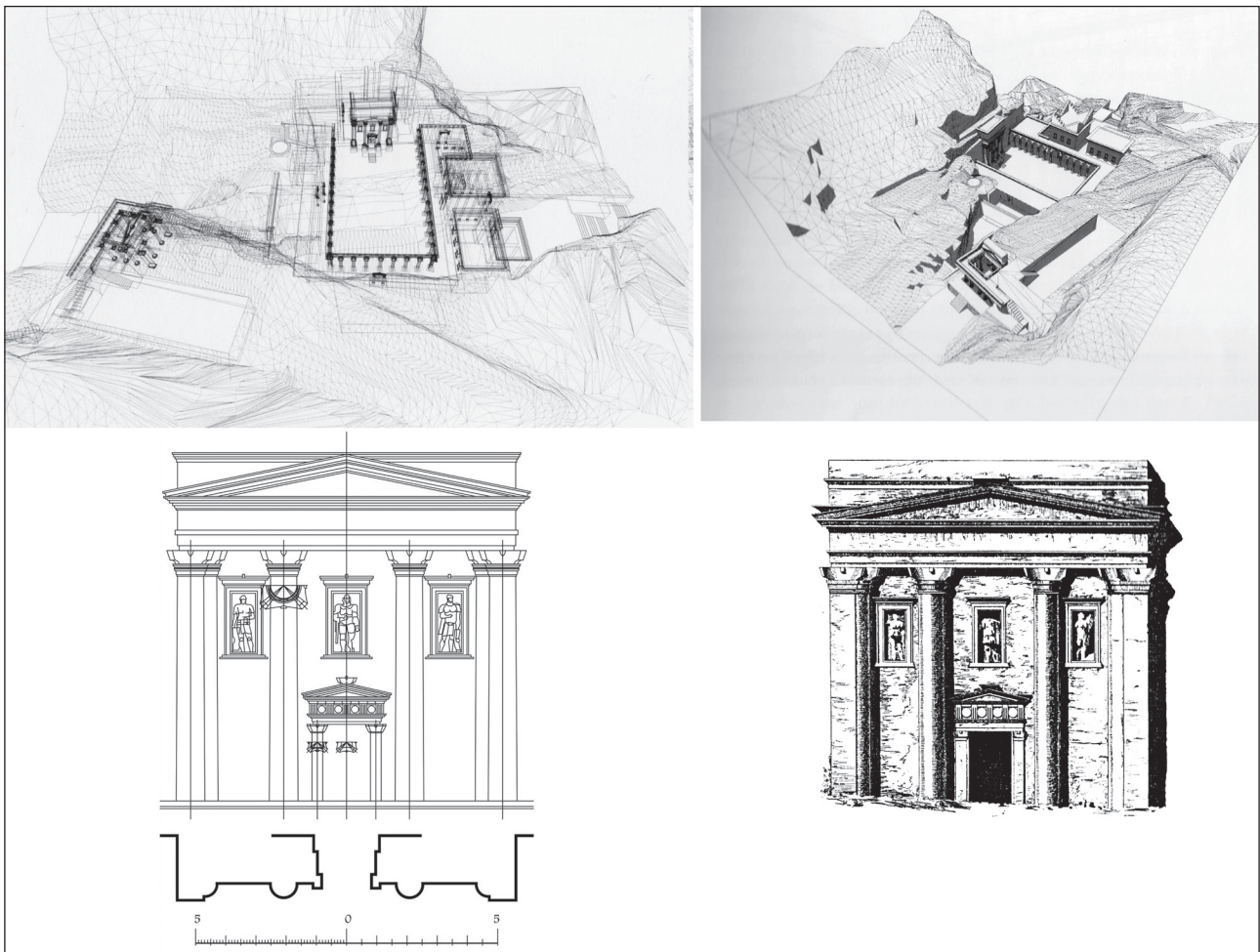
explored by an international team (IWPF) directed by Stephan Schmid (Humboldt-University, Berlin) between 2001 and 2010.

The height of the rock-cut tomb façade (Figs. 64c, d) is 11.75m, and the width is 11.25m. The outer portal, with a small door inside, represents a composition of four pilasters carrying an entablature and a flat triangular pediment attached to an attic. The external complex cross-section of pilasters and medium semi-columns are completed by the Nabataean Reverse-frustum Capital Type II. The upper segments of the intercolumnium are occupied by three niches with relief figures of Hellenistic Armors. Only one Armor figure is preserved today, meanwhile the IWPF-mission found fragments of the rest during their excavations. The central entrance frame consists of two rectangular pilasters with The Nabataean Reverse-frustum Capital Type III, supporting the entab-

lature decorated with a frieze of *triglyphes* and *metopes*. The front is crowned by the Nabataean Reverse-frustum Capital Type III.

The Sextius Florentinus Tomb (BD 763)

Titus Aninius Sextius Florentinus was a Roman official of senatorial rank with a profound military career in different parts of the Empire. In the reign of Hadrian, he was promoted as a governor (*legatus Augusti propraetore*) of *Provincia Arabia*, a position which he held from AD 127 until his death shortly after AD 130. His ownership of the tomb during BD 763 is testified by a Latin inscription, which triggered a long controversy on the date of its architecture. As Klaus Stephan Freyberger demonstrated in a comparative study (*Zur Datierung des Grabmals des Sextius Florentinus in Petra*, in: *Damaszener Mitteilungen* 5, 1991:1-8), the tomb originated in the days of the Nabataean



64. |a-b. The 'Roman Soldier'-Tomb, volumetric view on the Wadi Farasa East complex (including the so-called garden triclinium) from south and east (Pascal Wirth, *Exhib. Cat. Basel 2013*: 200 figs. 8-9). |c. Architectural and graphic reconstruction. |d. Elevation prospect (Brünnow and von Domaszewski I. 1904: 160, fig. 182 [no. 239]).

Kingdom and it has been usurped for a secondary burial of the governor after 130AD. The inscription has been incised at this later stage of use. The usurpation of older tomb was obviously a common practice as it is evidenced by various Nabataean inscriptions on the tomb façades at Hegra / Mada'in Salih.

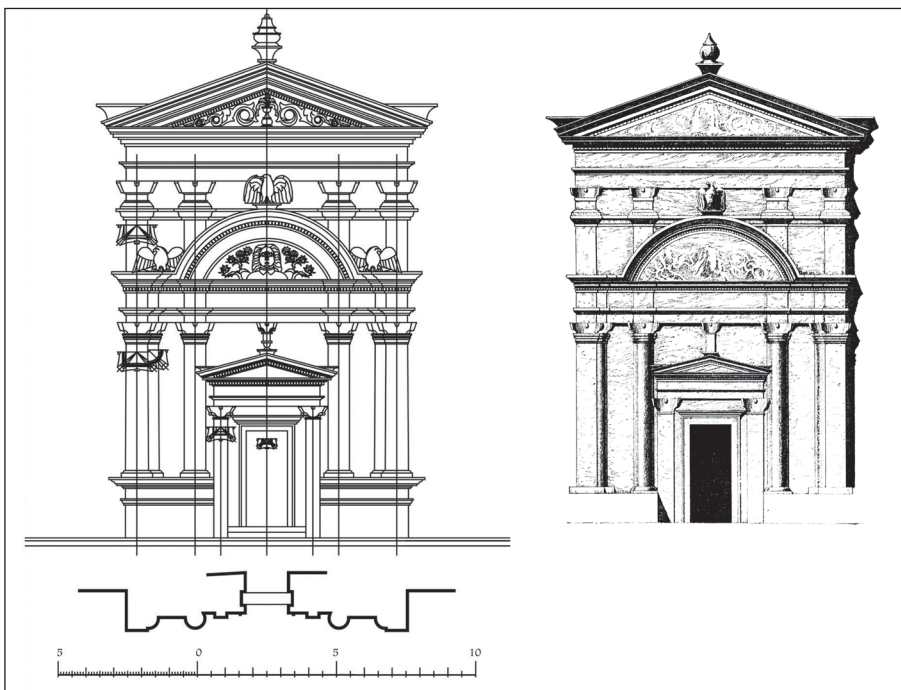
The height of the façade is 18.5m, and width of 10.0m. The composition on two-levels consists of a small portal inside of a large portal on a high pedestal. Four pilasters of the first level are crowned by the Nabataean Reverse-frustum Capital Type III. A segmental pediment displays the bust of Atargatis, the deity of Fertility, with scrolls in the center and relief plant ornament on the top and side *acroteria* adorned by sculptures of eagles. The latter, however, are not shown on the elevation prospect published by Brünnow and von Domaszewski (Fig. 64b). In the second level, dwarf pilasters with The Nabataean Reverse-frustum Capital Type I support a detailed entablature crowned by a triangular pediment, which displays a delicate vegetal scroll in the plane of the *tympanon*. The overall composition of the portal is completed by an *acroterion* in the shape of a massive urn. The inner portal has a pair of pilasters with The Nabataean Doric Capitals, a massive entablature and a flat triangular pediment. An *acrotetion* with a capital of the same type completes the composition of the façade (Figs. 65a, b).

The Palace Tomb (BD 765)

The height of the double-storied façade measures at 45.0m, with a width of 56.0m. It shows four portals in the lower level and a colossal multi-profiled attic on top. The lower level sits on a massive pedestal, which has twelve twin-pilasters terminating in the Nabataean Reverse-frustum Capital Type III, a detailed entablature and a two-part attic. Four large entablature compositions represents the upper parts of the two-portals, two of which are external ones completed by semicircular pediments, and two central ones completed by pediments of triangular shape. In the center of the portals are entrance openings, with relief frames of a pair of pilasters and multi-levelled attics.

The pilasters of the lower level are crowned by Nabataean Cupped capitals. Vertical divisions of the lower and upper levels do not coincide with their axes, except for the side pairs. The space between the semi-columns occupy a variety of window openings and niches. A massive multi-levelled attic above the entablature of the second façade level has vertical divisions that continues its axis. Its semicircular pilasters are decorated with The Nabataean Reverse-frustum Capital Type I.

The name of this façade is by no means accidental; it is distinguished from all other tombs by its giant dimensions and its exaggerated multiplication of horizontal architectural



65. |a. *The Tomb of Sextius Florentinus, architectural and graphic reconstruction.* |b. *Elevation prospect (Brünnow and von Domaszewski I. 1904: 170, fig. 194 [no. 763]).*

bands. Waterfall channels fed by a large basin on top of it frame the architecture on both sides. Recent geological studies and limited excavations directed by Stephan Schmid (Humboldt-University, Berlin) located the urban *basileia*, or the residence of the Nabataean kings in Petra down-town. This fancy setting on the north-western cliff of the al-Khubthah massif testifies the extravagance of its aristocratic and wealthy planner (Figs. 66a, b).

The Corinthian Tomb (BD 766)

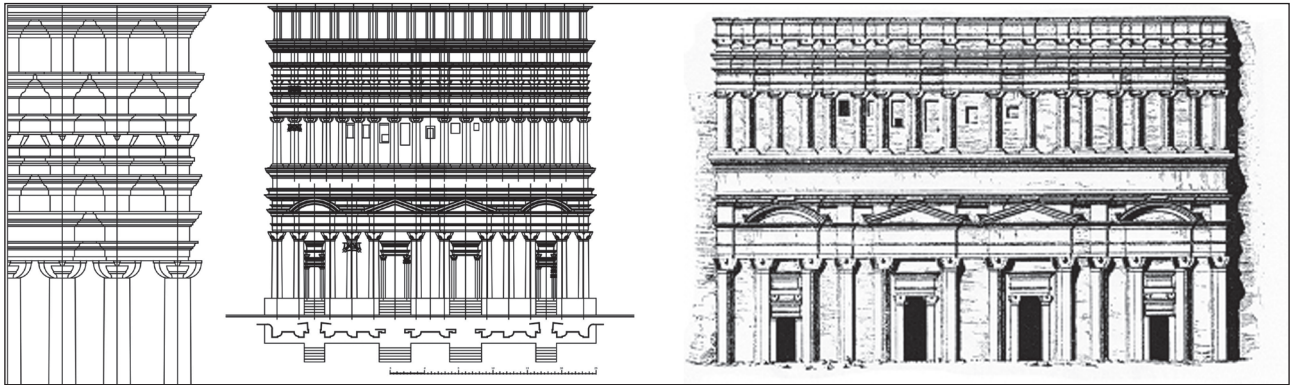
The height of the building is 32.5m, and the width is 29.0m. The scheme of the façade is similar to al-Khaznah. The two-leveled composition has a “broken” pediment and a central Tholos. Eight semi-columns on a high base are crowned by the Nabataean Corinthian capitals, Type II. They support an entablature in the lower order level. Its center consists of a semicircular pediment. The entrance opening is decorated with two Nabataean Doric pilasters and an entablature with a cornice. The entablature

of the first level is vertically divided into two parts; the upper one is completed by the attic with a „broken“ pediment and an entablature supported by dwarf pilasters with the Nabataean Corinthian capitals, Type I.

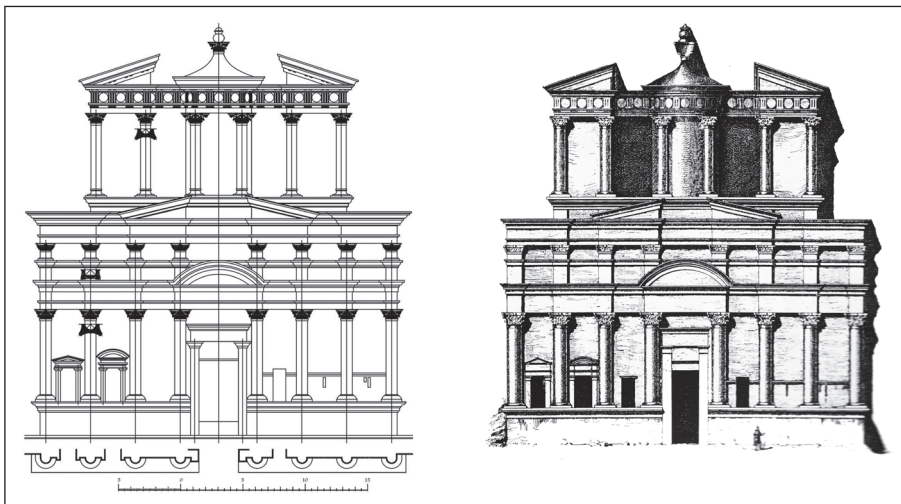
The upper order level consists of a „broken“ pediment and six semi-columns which are not coaxial with the lower half columns. They carry the Nabataean Corinthian capitals, Type II. A Doric frieze is adorned by alternating *triglyphs* and *metopes*, the latter being filled with round smooth discs. The central part is occupied by a round rotunda with a crowning of a complex shaped urn. The two-columned segments are the sides of the “broken” gable (Figs. 67a, b).

The Silk Tomb (BD 770)

The height of the façade is 18.5m. The width is 11.0m. The composition of the façade is typical for portals with a double entablature, but the special natural texture and the silk-tinged color of the rock, from which it is carved, gives it significance in the series of Royal tombs of



66. |a, b. The Palace tomb, architectural and graphic reconstruction (a), prospect of the same tomb limited to the lower two storeys and omitting the high multiplied entablature zones by Brünnow and von Domaszewski (1904) 169 fig. 193 (no. 765).



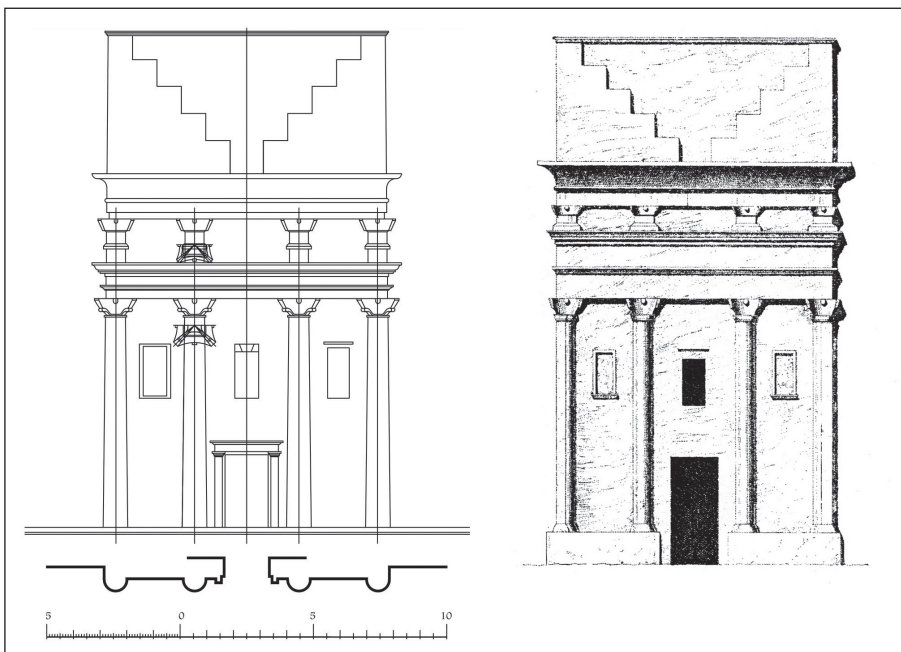
67. |a. The Corinthian Tomb, architectural and graphic reconstruction. |b. Elevation prospect (Brünnow and von Domaszewski I. 1904: 168, fig. 192 [no. 766]).

PetraThe plane of the façade is divided vertically into three structural parts. In the lower order tier are four semicircular pilasters with the Nabataean Reverse-frustum capitals, Type III and a detailed entablature. There are four dwarf rectangular pilasters on the second tier with the Nabataean Reverse-frustum Capital Type I and an attic. The entablature consists of a cornice with Egyptian *cavetto* and fillet. The upper level consists of an attic with „crow’s steps“, a rectangular niche above the frame of the entrance portal, with two Nabataean Doric pilasters and an entablature (Fig. 68).

The Urn Tomb (BD 772)

Another important tomb within the royal necropolis along the western cliff of the al-Khubta massive is the Urn tomb, styled by the middle *acroterion* executed in relief and raising from the gable top at the attic tier. Due to its open forecourt lined by porticos, and its monumental appearance on a landscape-dominating terrace, it points out several analogies with the Forum of Augustus in Rome. In consequence, it was hypothetically assigned to Aretas IV Philopatris (ruled ca. 9 BC to 40 AD) as the proprietor of the tomb. This king was very well acquainted with the actual building projects in the Roman capital, since he traveled a number of times to Italy to hold audience with his clientele lord, Emperor Augustus, especially in his diplomatic clash with the usurping minister Syllaios.

The height of the building is 28.5m, and has a width of 18.5m. According to Andreas Schmidt-Colinet (*loc. cit.*), the Urn tomb was executed by the official mason workshop of ‘Abd ‘Obodat and Sons from Hegra. The façade is the central part of the deep spatial composition cut down from the massif of the rock slope. Two covered galleries in the sides have five round columns supporting overhanging rocks. The base of the tomb is located on the arcade constructions, according to many scholars, dating to the period of the Byzantine Empire 446-447AD. The façade structure is formally similar to the type of rock Portals with a double entablature. However, the order plasticity of the first level is so monumental that the entire abovementioned part of the building is perceived as a single surface of a detailed attic consisting of reliefs on the upper level and a pediment with a plane of smaller attics. The first order level has a pair of external “twin” pilasters with a rectangular outer section and a quarter of a circle inner section, and a pair of medium half-columns completed by the Nabataean Reverse-frustum Capital Type II. The frieze of the entablature is adorned by sculptural bust reliefs. The entrance structure supports a pediment with a profiled cornice, with a central entrance portal embedded in it. A pair of the Nabataean Reverse-frustum Capital Type II supports an entablature with a Doric frieze and a triangular pediment with *acroteria*. The upper



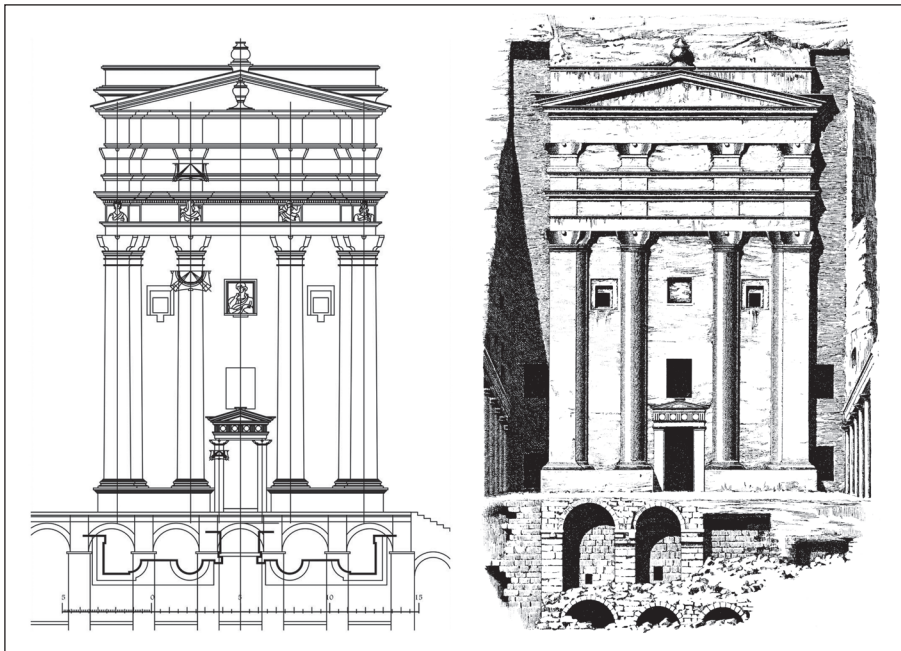
68. |a. The Silk Tomb, architectural and graphic reconstruction. |b. Elevation prospect (Brünnow and von Domaszewski I. 1904: 155, fig. 173 [no. 700]).

part of the *intercolumnia* is occupied by three profiled niches, of which the central one is a relief bust. The dwarf pilasters of the upper order level are crowned by the Nabataean Reverse-frustum Capital Type I, relief of the urn in the center and a central acroteria with a larger urn on the top (Figs. 69a, b).

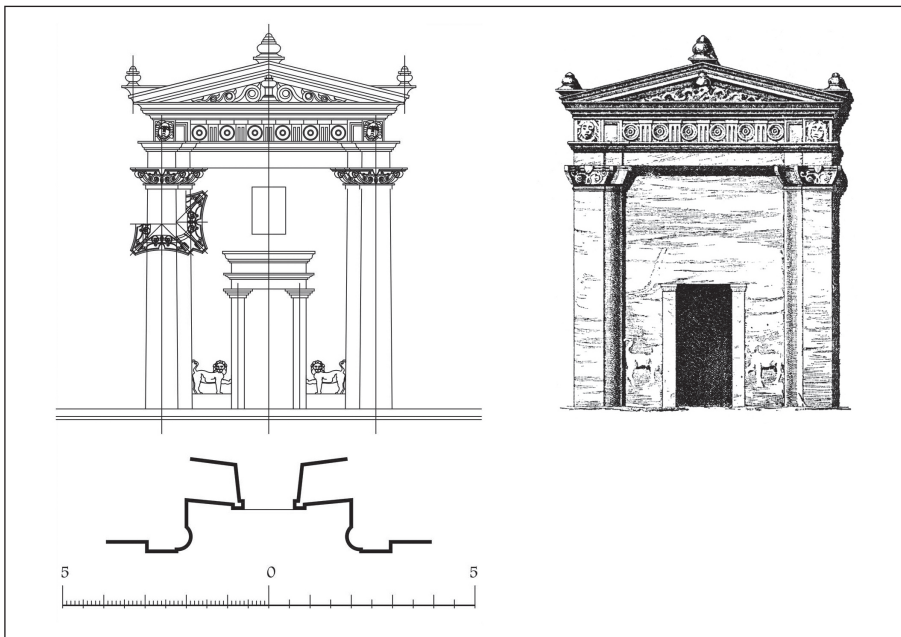
The Lion Triclinium (BD 452)

The height is 9.0m, and the width is 6.0m. The portal has an elegant composition of a small portal inside a large portal (see Fig. 17). Two twin pilasters of the external portal are completed

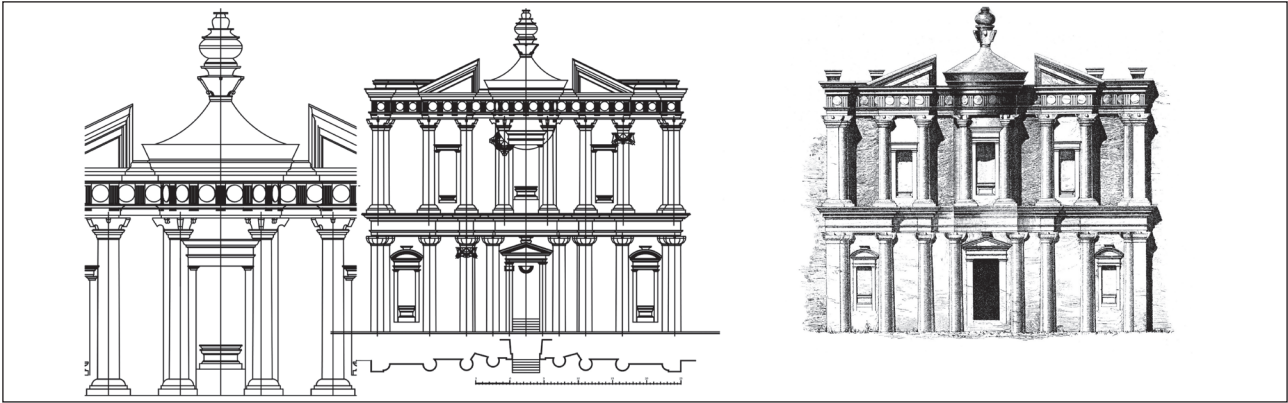
ed by „double“ Nabataean Corinthian capitals, Type I. Doric frieze is adorned by the heads of Gorgons. Large acroteries with urns are based on each edge of rich ornamented triangular pediment. There are relief images of two lions, the holy animals of the goddess Al ‘Uzza, on both sides of the central portal with an entrance opening. An analogue of the plastic structure of this composition is undoubtedly the Doric order, in spite of its incompatible combination with the Corinthian capitals, which is a typical sign of the Nabataean mixing of differently ordered ornamental elements (Figs. 70a, b).



69. |a. *The Urn Tomb, architectural and graphic reconstruction.*
|b. *Prospect of the same tomb (Brünnow and von Domszewski I. 1904: 167, fig. 191 [no. 772]).*



70. |a. *The Lion Triclinium, architectural and graphic reconstruction.*
|b. *Elevation prospect (Brünnow and von Domszewski I. 1904: 164, fig. 190 [no. 452]).*



71. |a. ad-Dayr, architectural and graphic reconstruction. |b. Elevation prospect (Brünnov and von Domaszewski I. 1904: 187, fig. 220 [no. 462]).

ad-Dayr (BD 462)

The height of the structure is 47.0m, and the width is 46.0m. The scheme of the façade is similar to the schemes of al-Khaznah and the Corinthian Tomb. Due to its monumental size and its similarity to the named royal tomb, ad-Dayr has been associated with the burial of a Nabataean king Rab'el II, the last king prior to the adoption of the Kingdom by the Roman empire. Two levels consists of a “broken” pediment and a central *Tholos*. The semi-circular pilasters of the lower level are crowned by the Nabataean Cupped capitals, Type II. Two deep niches with segmental pediments are placed in the external *intercolumnia*, along with a central entrance on a triangular pediment. The upper level consists of a Doric frieze and eight half-columns with their axes coinciding the half-columns of the lower level, crowned by Nabatean Reverse-frustum capitals. The *intercolumnia* of the half-columns occupy deep niches with pedestals, probably prepared for statues. The round shape rotunda is crowned by the Nabataean Reverse-frustum Capital Type II and a free standing giant urn raised on top of the conical roof. The ad-Dayr is the most monumental building of Petra. The proportions of its elements and impressive plasticity details express the characteristic features of Nabataean architecture (Figs. 71a, b).

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