LA BASILIQUE ROYALE DU TEMPLE HÉRODIEN SELON FLAVIUS JOSÈPHE ET LES DERNIÈRES DÉCOUVERTES ARCHÉOLOGIQUES À propos d'un récent rapport final de fouilles

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THE ROYAL PORTICO OF THE HERODIAN TEMPLE BY FLAVIUS JOSEPHUS

AND THE LATEST ARCHEOLOGICAL DISCOVERIES

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Concerning a recent final report of the last excavations

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Abstract

In the final report the Temple Mount Excavations published in 2017, Orit Peleg-Barkat proposes, following a typology of decorative architectural pieces discovered at the foot of the esplanade, a restitution of the *royal portico* of the Herodian temple and a description of the vestibule of the Hulda Double Gate. In this article, her results and approach are presented, then discussed based on the passage of the *Jewish Antiquities* and the *portico*'s description by Pierre Gros.

Introduction

In October 2017, Orit Peleg-Barkat published the fifth volume (*Qedem* 57) of the final report of the archaeological excavation known as the "Temple Mount dig", carried out between 1968 and 1978, south of the Herodian esplanade under the direction of Benjamin Mazar[1]. The work presents the catalogue of decorative archaeological pieces discovered at the south foot of the Herodian temple esplanade, and proposes a res-

[1] Orit Peleg-Barkat, Herodian Architectural Decoration and King Herod's Royal Portico, Final Reports vol. v, The Temple Mount Excavations in Jerusalem 1968-1978 directed by Benjamin Mazar, Qedem 57, The Institute of Archaeology, The Hebrew University of Jerusalem, Jerusalem, 2017.

titution of the Royal Portico Herodian architecture, studying the decorative architecture of the vestibule of the Hulda Double Gate, found today beneath the *al-Aqsa* mosque (formally below the royal portico).

Following the review methodology, a first section will summarize the entire work, followed up by a more in-depth discussion of certain details in the Royal Portico restitution of the Herodian temple, as described by the Israeli archaeologist. Our analysis will concentrate mainly on technical issues concerning the more general matters linked to the typology of this kind of monument in Antiquity. Our reader is invited to refer to the publication of the work review of Peleg-Barkat by Pierre Gros in the November 2018 edition *Journal of Roman Archaeology*.

1. *Overview*

The work consists of two sections: The first one focuses on the analysis of 500 discovered decorative architectural pieces including a detailed catalogue. This allows to identify: 1°- to which excavations or which collection each fragment belongs (Mazar, Reich and Baruch, Reich and Billig, the *Biblicum Franciscanum*, l'École biblique et archéologique française); 2°- the area and precise location in which it was found; 3°- the dimensions. The fragments have been photographed (in colour or black and white) with the exception of few – for reasons of which are not known.

1.1. *Chapter one*

The first part contains 4 chapters. The first of which is introductory: Peleg-Barkat examines what generally characterizes Herodian architectural decoration, by comparing it to late Hellenistic and proto Roman architecture of the South East, The Doric order, used by the Hasmoneans, is often only conserved by Herod for friezes, the columns becoming ionic or Corinthian, heterodox then orthodox according to roman trends. The Herodian mural decoration (stuccoes and frescoes) was equally strongly influenced by Augustean Rome, tempered however by the obligation of non-figurative motifs.

1.2. *Chapter Two*

The second chapter addresses the core of the subject. The timeline and the extent of the excavations, begun in February 1968 are reviewed[2];

[2] Peleg-Barkat also cites the excavations carried out in the area by Wilson in 1864, by Warren in 1867-1869, and by Johns, Hamilton and Kenyon during the Jordanian period. She overlooks however, those carried out by de Vaux in 1964 Cf. K. Prag, EXCAVATIONS by K. M. Kenyon in JERUSALEM 1961 - 1967, vol.VI sites on the edge of the Ophel, with contributions from Peter Tom Gethin, Jonathan Goodwin, John Hayes, Levant Supplementary Series 18, Oxbow Books, Oxford, Philadelphia, 2017.

this allows an understanding of the certain numerous, though in fact, quite modest amounts of decorative architectural pieces discovered at the foot of the esplanade walls or reused in the neighbouring Byzantine and Omayyad buildings. Peleg-Barkat then summarizes the geological analysis of fragments, distinguishing between the capitals sculptured in soft local limestone (*meleke*) from those of which were cut from a harder local limestone (*mizzi hilu*), the first being less resistant than the second to extreme temperatures in the Temple fire of 70 AD. To finish a typologic analysis of 500 fragments, distinguishing the base and cylindrical column surface (12 and 13 fragments respectively), the Doric, Ionic and Corinthian capitals (5, 26 and 71 fragments respectively), the architrave (of which no fragment without a frieze was found), the friezes and Doric cornice elements (9 moulding fragments, 27 sculptured brackets, 6 egg and dart motifs, 21 cymaises), the soffits and ceilings (264 fragments) and lastly, the door frames (10 fragments) and some unclassifiable (13 fragments) as not identified with certainty. Each typology comprises drawings of the best fragments, allowing Peleg-Barkat to extract the most distinctive characteristics.

Several points worth noting.

1° - The monumental attic column bases supported the columns of 45 cm in diameter.

2°- Several cylindrical column surfaces were found: twelve of approximately one meter in diameter and a heart shaped one with engaged columns of about 45 cm in diameter.

4°- Three of the five recuperated Doric capitals match the 60 cm diameter columns, the other two with the columns of 30 to 35 cm.

5°- The ionic capitals were also of two sizes, adapted respectively to one-meter columns of approximately one meter in diameter.

6°- The majority of Corinthian fragments belonged to orthodox capitals of one meter in diameter, four other fragments come from Corinthian pilasters, one fragment belongs to a capital of about 50 cm in diameter, two others come from smaller capitals; finally, a last fragment, 30 cm wide, belongs to a capital of smooth leaves of about 1,4 m. As this fragment was found at the foot of the triple gate and that the vestibule columns of the Herodian temple double gate are a comparable size, it is highly likely that it is from a capital crowning a vestibule col-

umn of the triple gate.

7°- No architrave block unassociated to an element of the frieze was found in the different excavations. According to Peleg-Barkat, its absence is explained by easy reuse and is thus more systematic of architraves due to their regular cubic shapes. The only three fragments found are linked to Doric friezes: a first composed of only a band and two others having two straight – *fasciae* – (of a few centimetres), which no doubt correspond to interior decoration.

8°- The Doric frieze fragments found allow the identification of four different sizes: a first with 52 cm high triglyphs and 56 cm wide metopes, decorated with elaborate rosettes. It is the largest Doric frieze of its kind ever found in Jerusalem and its region. A second frieze with 30 cm wide triglyphs and 35 cm high metopes decorated with varied rosettes. Some triglyphs, in the shape of acanthus leaves, resemble those of the Tombs of the Kings frieze; a third Doric type frieze associated to an ionic architrave (typical of *Qsar-al-Bint* of Petra) with triglyphs measuring approximately 20 cm wide. The fragments do not allow the restitution of the size of the metopes; lastly, a fourth frieze of which only the superior section can be reconstituted with 18 cm high metopes and triglyphs of approximately 15 cm in width, dimensions very similar to those of the Absalon tomb frieze in the Cedron Valley.

9°- The Doric cornices fragments found at the foot of the esplanade are equipped with mutules on their soffits. This particularity seems characteristic of the Herodian period, as the Doric cornices found on Hellenistic (and Hasmonean) sites in the region have none (Gadara, Marisa, Palace of Jericho, Alexandrion, *Rujm al-Bahr*, etc.)

10°- Three types of modillions can be distinguished: a first with, alternate small leaves and rosettes; a second, soberer, without small leaves; and a third, much more elaborate with intertwined geometric figures, mixed with rosettes and laurel leaves, decorates in soffit a cornice approximately one meter thick. For this last type, a known parallel in the proximity of Jerusalem does not exist. To find similar decorations in *tardo-republican* buildings or from the beginning of the empire (in particular the *Arc Actiac* of the Roman Forum) one must go to Rome (or Baalbek).

11°- Several architectural elements, sometimes finely decorated, can not be attributed to a precise part of the Herodian temple.

In conclusion of the second chapter, Peleg-Barkat insists on the Herodian character of the decorative architectural fragments found at the foot of the esplanade walls, similar to other buildings of that time, in Jerusalem and its region. The facades of several Jerusalem tombs are good examples. The most original elements are the large Corinthian

orthodox capitals and the soffits with very fine geometric decorations, unequalled in the region.

1.3. *Chapter Three*

The third chapter of the work proposes a reconstruction of the Herodian temple royal basilica, in light of the difficult text of *Jewish Antiquities* (XV, 411-416) and the architectural elements analyzed in the second chapter. In the prologue, Peleg-Barkat reminds us that the last archeological excavations carried out by E. Shukrun[3], left a glimpse of the esplanade west wall foundation. This, a quarter of a century after the death of Herod the Great, would have no doubt delayed the finishing of the royal basilica built (almost) vertical.

The archaeologist reconstructs a three-nave basilica, approximately 38 meters wide, 180 meters long, with a succession of 54, 27 feet tall (8m) columns, crowned with Corinthian capitals, one meter in diameter. The inter-columnunation thus reached 3, 25 meters, equal to three widths of metopes and triglyphs of the largest Doric frieze found (type A). Not counting the engaged columns in the south wall of the esplanade, only those which are free standing (in the central nave and the north lateral aisle). The basilica would thus be supported by 162 columns (= 3 × 54), the exact number advanced by Josephus in the *Jewish Antiquities*. Lastly, relying on the dimensions of architraves, metopes, triglyphs and the associated cornice elements (48cm, 56 cm and 60 cm high respectively), Peleg-Barkat proposes the reconstruction of a Doric entablature approximately 2 meters in height. The elevation of the surmounted column of such an entablature is slightly superior at 10 m high. The elevation of the three naves of the edifice given by Josephus (29, 6 m for the central nave, 14,8 m for the lateral aisles) would be as such, exaggerated. Finally, considering according to Vitruvius that "columns a quarter smaller should be placed on upper levels, than those on lower levels[4]", Peleg-Barkat reconstructs 7,5 m high walls above the central nave columns – three quarters the height of the lateral aisles (10 m). The central nave thus reaches a total elevation of 17,5 m (10 m + 7,5 m), far from the 29,6 m (100 feet) registered by Josephus.

The author proposes finally a reconstruction of the esplanade porticoes challenging several points of the description given by the Jewish historian in *The Jewish War* (V, 190-192). Indeed, the exaggerated statistics in the *Jewish Antiquities* prevent us from taking those in the *Jewish*

[3]E. SHUKRUN, "Did Herod build the Foundations of the Western Wall?", in E. MEIRON (ed), *City of David Studies of Ancient Jerusalem: The thirteenth Annual Conference,* Jerusalem, 2012.

[4]VITRUVIUS, *De Architectura* 5, 1, 3.

War seriously. It seems impossible that the porticoes' columns of the esplanade would be higher (25 *cubits* according to Josephus = 13,10 m) than those of the lower order of the royal basilica (27 feet = 7, 99 m). Notwithstanding the description of Josephus in the *Jewish War*, the author also challenges the use of white marble for the monolith columns of the temple porticoes. He argues that drum columns (of local limestone) were the norm in Hellenistic or Herodian buildings in Jerusalem and its region. Finally, as the eastern portico (*Id est* "Solomon's portico" from Apostles Acts[5]) dates *a minima* from the Hellenistic period, it is probable that it was of the Doric order. Peleg-Barkat infers that other porticoes, dating from the expansion of the Herodian temple, were also – to maintain harmony. This leads the author to consider that the 60 cm diameter Doric capitals found in the excavations, were part of the columns elevation of the Herodian temple porticoes.

1.4. *Chapter Four*

The fourth (and final) chapter of part one is dedicated to the study of the double gate vestibule or, if one prefers, the Hulda west gate. It was, at the Herodian period, one of two main south wall entrances of the Temple esplanade. Peleg-Barkat begins by realizing that the double gate facade was modified several times, notably in the Omayyad period. Today it is three quarters hidden by the medieval *Zawiyya Khanthaniyya* tower. The author thus describes the double gate vestibule, divided in two 5, 6 meter (~ 19 feet) wide passages, separated in the south section by engaged column pillars and a central monolithic column measuring 1,4 m in diameter. Four surpassed domes, with refined geometric decoration, are symmetrically positioned around the monolith column. Further north, the vestibule was clearly modified in earlier periods. Peleg-Barkat reconstructed four other identical domes, thus giving credible foundations to the royal basilica situated above: a column of the basilica (1 m diameter), separating the south lateral aisle from the central nave must have been erected vertically to the monolith column of 1,4 meters in diameter. A second identical column must have been located more to the north, vertically to another monolith column of the same dimension supporting the four reconstructed domes (north of the vestibule). This means, by the width of the 5,6 m diameter domes, the width of the central nave of the basilica, such as Peleg-Barkat reconstructed it in chapter two (= ~15 m) ; then the lateral aisles (= ~ 10 m) the columns separating the lateral south aisle and the central nave, give a total width of approximately 38 meters.

[5] Act 5,12.

The composition of the surpassed domes, contemporary examples of which can be found at the Herodium Baths or in the roman mausoleum of Sebaste, are worthy of admiration.

At the centre of the dome, a circular stone of 1,8 m in diameter is set as the main arch keystone, surrounded by two crowns of cut stones in a circular arc, each measuring approximately 95 cm wide, all finely chiselled with splendid geometric shapes mostly drawn by M. de Vogue.

Peleg-Barkat then broaches the question of the dating of the double gate, by examining epigraphic (non-conclusive) and architectural (presence of Herodian bump stones, construction techniques, decorating styles, etc.) arguments respectively for the vestibule, the entrance door itself, the domes and certain decorative elements described in chapter two (Corinthian pilasters). The author concludes that, despite the modifications dating from the Omayyad period, the double gate vestibule is, with its original decoration mostly intact. The Herodian temple sector being the best conserved.

In conclusion, the present work is of considerable interest to better know the double gate and the royal basilica. A pleasure to read, well documented and with notes, in addition to a rich bibliography, it will bring the fruits of its significant archaeological excavations to the scientific community. The work of Peleg-Barkat, which testifies to his remarkable competence notably in the analysis of architectural decor is admirable. Despite its technical character and a few contentious proposals which will now be examined, we hope this work will be read.

2. Discussion

2.1. *Interpretation of Pierre Gros*

To feed the debate which will not doubt take place concerning the reconstruction of the royal basilica, we would like to refer to an article by Pierre Gros[6], from 2005 – absent from the bibliography of Peleg-Barkat –, yet decisive to get to the core of the subject. An outstanding expert of Greco-Roman architecture and in particular the writings of Vitruvius in addition to Latin and Greek languages, Pierre Gros tackles the difficult interpretation of the passage on the royal basilica in the *Jewish Antiquities* (xv, 413- 417). He proposes the fol-

[6] P. Gros, « La Basilique d'Hérode à Jérusalem. Une lecture de Antiquités Judaïques 15.413-417 », dans St. T. A. M. Mols, et E. M. Moormann (éditeurs), *Omni pede stare*. Saggi architettonici e circumvesuviani in memoriam Jos de Waele, Studia della Soprintendenza archeologica di Pompei 9, Electa Napoli, 2005, p. 177-182.

lowing translation intentionally leaving some Greek words to discuss the interpretation:

> The columns were set in four rows along the length of the edifice with the fourth row against a wall of cut stone; the thickness of each pillar was such that three men with outstretched arms and touching fingertips were required to encircle their circumference. Their height reached twenty-seven feet and their lower section rested on a double σπείρα. They numbered one hundred and sixty in total; their chiseled capitals in the Corinthian style drew admiration due to the splendor of the effect produced by the whole. The presence of four rows defined three spaces under the porticoes, two of them, parallel to each other with identical layout, each being thirty feet wide, and a stade long, for a height of more than fifty feet. The central space itself was one and a half times wide (as those of the lateral aisles) and twice as high. It was much higher than those on each side. The beam ceiling had deeply cut wood carvings representing many sorts of figures. That of the central nave was higher, because the προμετωπίδιος τοίχος had on its perimeter a sculptured architrave set with engaged columns, the whole perfectly polished, in such a way that those who had not seen it remained incredulous, whereas those seeing it for the first time were overcome with admiration7.

We have seen: numerous details and dimensions given by Josephus in his description seemingly exaggerated for many, having a more literary interpretation than a technical description. Far from denying certain imprecisions, Gros calls for level headiness as it seems clear to him that the

[7] P. Gros, « La Basilique d'Hérode à Jérusalem. Une lecture de *Antiquités Judaïques* 15.413-417 », art. cit., p 178 : "Les colonnes réparties en quatre files se répondaient les unes aux autres sur toute la longueur de l'édifice, la quatrième rangée étant adossée au mur de pierres de taille ; l'épaisseur de chacune d'elle était telle qu'il fallait trois hommes aux bras étendus dont les doigts se touchaient pour entourer leur circonférence ; leur hauteur atteignait vingt-sept pieds et leur partie inférieure reposait sur une double σπεῖρα. Leur nombre total était de cent-soixante-deux ; leurs chapiteaux ciselés selon le mode corinthien suscitaient l'admiration en raison de la splendeur de l'effet produit par l'ensemble. La présence de quatre files définissait trois espaces sous les portiques ; deux d'entre eux, qui étaient parallèles, présentaient une disposition identique, chacun étant large de trente pieds, long d'un stade, pour une hauteur qui dépassait cinquante pieds. L'espace central quant à lui était large une fois et demie (comme celui des nefs latérales) et deux fois plus haut ; il s'élevait donc très au-dessus des deux autres. Les plafonds étaient faits de poutres de bois profondément sculptées où étaient représentées toutes sortes de figures ; celui de la nef centrale montait plus haut, parce que le προμετωπίδιος τοῖχος comportait sur son pourtour une architrave sculptée et était pourvu de colonnes engagées, le tout parfaitement poli, de sorte que ceux qui ne l'avaient pas vu restaient incrédules alors que ceux dont les yeux tombaient sur l'édifice étaient saisis d'admiration"

Jewish historian has a technical notice in his hands which he transcribed to describe the temple basilica[8]:

> One of the interests of the Jewish Antiquities text (xv, 413-417) resides precisely in the use of a unit of measurement which is rare in the descriptions of this author. He clearly prefers to evaluate monumental dimensions in cubits. If here he returns to feet – there is no reason to believe that it is 'Syrian' rather than 'Roman' – his source implies as much. By all accounts, this is heterogeneous in relation to the information usually available to Josephus. This singularity, in addition to its unusual precision, leads one to think that it originates from a technical notice perhaps written in Latin. A language the author neither fully understood nor remembered, only maintaining the spirit of the text. Far from being an obstacle to the comprehension of the text, the use of feet allows us on the contrary, to follow the indications as closely as possible9.

Gros next invites his reader to accurately interpret the word σπείρα, which is translated as "double torus", as in the case of most translations, it serves no purpose:

> Another precision, apparently superfluous, reading the proposed translations, implies that the supports of the internal peristasis were stronger than those of the

[8] O. Peleg-Barkat also thinks the basilica description is from an unusual source. Based on the rarity of technical terms such as architrave, it suggests it might come from analogue writings of the Description of Greece by Pausanias (115- C. 180) or a lost writing (The life of Herod) by the historian Ptolemy (1 S. AD), p. 95: "Therefore, it might be suggested that, for his description of the Royal Portico, Josephus used another, probably non-Jewish source, different from the ones he used for describing the other parts of the Temple Mount. Such a source would use the customary foot unit and not the local cubit (.....) These writings (as those of Pausanias) could have been the source or sources used by Josephus in describing the Royal Portico. Alternatively, Josephus could have used a source dealing with the life of Herod and his construction projects, such as the loss work of Ptolemy the Historian.

[9] P. Gros, *Idem*, p. 179 : "L'un des intérêts du [texte des *Antiquités juives* (xv, 413-417)] réside précisément dans l'emploi d'une unité de mesure qui n'est pas fréquente dans les descriptions de cet auteur, lequel préfère visiblement évaluer les dimensions monumentales en coudées. S'il recourt ici au pied – dont il n'est aucune raison de penser qu'il est plutôt 'syrien' que 'romain' – c'est que sa source l'y invite ; de toute évidence, celle-ci est hétérogène par rapport aux informations dont Josèphe dispose à l'ordinaire, et cette singularité, jointe à son inhabituelle précision, donne à penser qu'elle dépend d'une notice technique peut-être rédigée en latin, dont l'auteur n'a pas tout compris ni tout retenu, mais dont il garde l'esprit. Loin d'être un obstacle à la compréhension du texte, l'utilisation du pied nous invite au contraire à en suivre les indications d'aussi près que possible. "

periphery: evoking the order of the columns, Josephus mentions at the base of the shafts a διπλῆ σπείρα. Up to this point, the word was used in the classic sense of convex moulding, that means in this case of torus, and therefore we understand "doppelter Ring", "double moulding", or "doppelter Wulst" (Shalit 1969, Ed, Loeb, Netzer 1999). However, at the time the Judaic Antiquities was written, and for a long time σπεῖρα referred to by metonymy the entire moulded base. That means in most cases the attic base had two torus and a concave moulding. This usage is in effect adopted by Vitruvius, who transliterated the word into spira (De Architectura III, 5,1). In actual fact, it would have been surprising that Josephus' source, as accurate as it was, felt the need to imply that the column bases were a double torus, which in the architecture of the period is frequent, above all in the Corinthian order. On the other hand, it is of particular interest to point out that the said columns had a double base, meaning they were bilobed. A structural conclusion is required: The internal peristasis was made up of a "colossal" order, corresponding to two levels of lateral orders[10].

To understand the remark of Gros in depth, it is appropriate to refer to the structure of the Fano basilica which Vitruvius developed and built with bilobed columns:

No less eminent is the dignity and beauty that might attain basilicas constructed in the way I adopted for the Julienne colony of Fano. The proportions and reports were established in the following way. The central aisle, between the columns, is one hundred

[10]P. Gros, *Idem,* p. 179 : "Une autre précision, apparemment superfétatoire, à lire les traductions qui en ont été proposées, donne à entendre que les supports de la peristasis interne étaient plus puissants que ceux de la périphérie : évoquant l'ordre des colonnes, Josèphe mentionne à la base des fûts une διπλῆ σπεῖρα. Jusqu'ici le mot a été pris au sens classique de moulure convexe, c'est-à-dire en l'occurrence de tore, et l'on a donc compris « doppelter Ring », « double moulding », ou « doppelter Wulst » (Shalit 1969, Ed. Loeb, Netzer 1999,). Mais à l'époque où sont rédigées les Antiquités Judaïques, et depuis longtemps, σπεῖρα désigne par métonymie la base moulurée tout entière, c'est-à-dire dans la plupart des cas la base attique à deux tores et une scotie. L'usage est en effet entériné par Vitruve, qui translittère le mot en spira (De Architectura III, 5, 1). À vrai dire il eût été étonnant que la source de Josèphe, si précise qu'elle fût, ait éprouvé le besoin d'indiquer que les bases des colonnes étaient à double tore ce qui dans l'architecture de l'époque est une banalité, surtout dans l'ordre corinthien. En revanche, il était du plus haut intérêt de signaler que lesdites colonnes possédaient une double base, ce qui veut dire qu'elles étaient bilobées. Une conclusion structurelle s'impose : la péristasis interne était constituée d'un ordre « colossal », c'est-à-dire correspondant à deux niveaux des ordres latéraux".

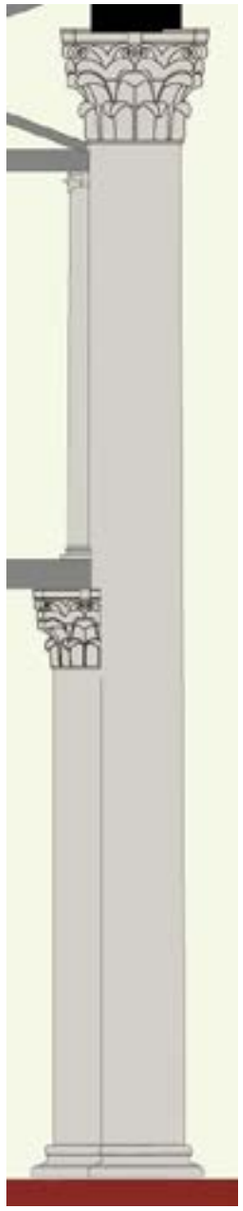

Fig. 1 - Elevation of the bilobal column

> and twenty feet long, sixty feet wide; the portico surrounding the central aisle, between the walls and the columns is twenty feet wide; the columns are of a total height, including capitals of fifty feet, of a diameter of five feet each. They have behind them twenty feet high pillars, of two and a half feet wide, one and a half feet thick, which support the pieces of framework on which are placed the boards covering the porticoes. Above, more pillars of 18 feet in height are found, each two pillars wide, one foot thick, which receive the pieces supporting the oblique pieces and the porticoes roofs, the height of which is lower than that of the central nave[11].

To have a better idea of what Vitruvius described in this passage of *De Architectura*, and what Gros refers to for the basilica of Jerusalem, have a look at figure 1: a bilobed column with the largest shaft, ornates the central nave of the edifice, reaching to the summit of the lateral aisles, themselves of two levels, both ornated with a smaller shaft, engaged in the "colossal" shaft. Such as described by Vitruvius, such as Gros proposes for the Herodian basilica in the *Jewish Antiquities*. This interpretation might appear abusive, as no bilobed drums have been found by archaeologists to date. It could even seem suspect that an author favours Vitruvius. In reality, looking more closely, the analysis of Gros is pertinent and resolves several difficulties raised by Peleg-Barkat and other authors.

2.2. *The alternation of double gate columns*

First and foremost, notice that the vestibule north pillar of the double gate (point A, figure 2), is not bilobed but of rectangular shape, as opposed to the nearby monolith column (point B) with an engaged column at each extremity, adapted to support on the upper floor, a non cylindric bilobed column. This explains the alternation between monolith columns and rectangular pillars which reinforce the engaged columns

[11]Vitruvius, *De l'architecture*, v, 1, 6 : « Non minus summam dignitatem et uenustatem possunt habere comparationes basilicarum quo genere Coloniae Iuliae Fanestri collocaui curauique faciendam, cuius proportiones et symmetriae sic sunt constitutae. Mediana testudo, inter columnas, est longa pedes CXX, lata pedes LX, porticus eius circa testudinem inter parietes et columnas lata pedes XX, columnae altitudinibus perpetuis cum capitulis pedes L, crassitudinibus quinum, habentes post se parastaticas altas pedes XX, latas pedes II S, crassas I S, quae sustinent trabes in quibus inuehuntur porticuum contignationes. Supraque eas aliae parastaticae pedum XVIII, latae binum, crassae pedem, quae excipiunt item trabes sustinentes cantherium et porticuum quae sunt summissa infra testudinem tecta. »

in the vestibule of the double gate. The reason for the arches over the door leaves and their encasement is understandable. Less so is the north side (point A). An eventual vertical bilobed column does not seem to demand such a solid foundation. The reconstruction of Peleg-Barkat other than to hold the wall separating the central nave from the south lateral aisle on the monolith column (point B) of 1, 4 m in diameter; whereas no function affects the strengthened pillar of point A, except the one supporting the floor of the central nave. A structural remark: If, according to the Peleg-Barkat hypothesis, a monolith column is sufficient to support the weight of a bearing wall column of the basilica, why did the architects not choose to install another monolith column at the point of the strengthened pillar (point A)? The harmony of the vestibule would have been even more outstanding. We return to this point below.

2.3. *The central nave columns*

Reconstructing the bilobed columns in the central nave presents the added advantage of bringing a credible solution to the disputed question of their circumference which, according to Josephus, was equal to three "orgyes"[12], meaning 18 feet (= 5, 32 m). This corresponds to a cylindrical column of 1, 69 m in diameter, of which the height, according to the vitruvian canons would be about 16 meters (10 diameter): for Peleg-Barkat – without doubt and rightly so – such a general ordenance of the central nave seems unrealistic; especially as the drum bases of the most monumental columns (one meter in diameter) found in the excavations do not correspond to those dimensions. One solution, however, is to see in the drum bases, the remains of the order of columns from the ground floor lateral aisles. Some of these were free standing (esplanade side), while others, adjoining the lateral and central naves, were engaged in a bilobed column. Since the small lobe measures one meter in diameter, it is possible to subtract the diameter of the large lobe so that the circumference of the whole reaches 5, 32 m, equal to three "orgyes". A straightforward calculation shows that a large lobe of 1,40 m in diameter, coupled with a small lobe of 1 meter in diameter, projecting 45 cm, would reach a circumference of 5, 12 cm, a number close to 5,32 m of the three vitruvian men. Based on its large axis, the bilobed column would reach 1, 85 m for a stable foundation of the engaged capital which supports the ground of the lateral aisle.

[12]Il s'agit de la longueur anatomique des bras écartés d'un homme égale selon Vitruve à 6 pieds (= 1,77 m). Cf. Vitruvius, *De Architectura* III, 1,3.

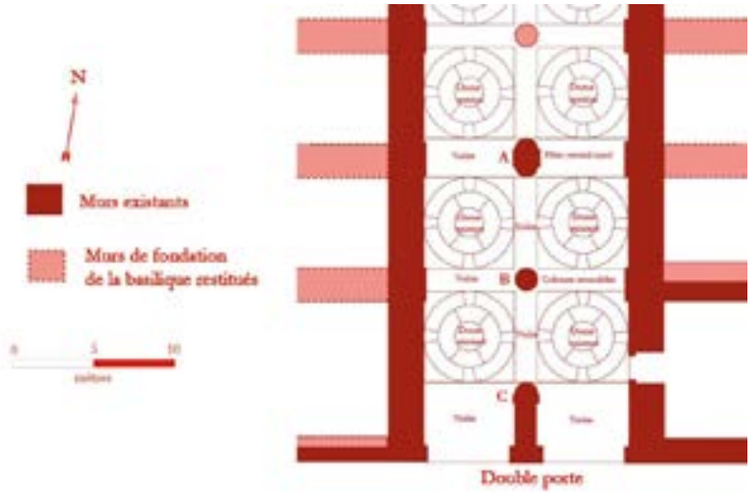

Fig. 2 - Vestibule of the Double Gate

Remark: we find here an order of magnitude similar to the diameter of the monolith column and the engaged columns in the rectangular pillars of the lower floor found in the double gate vestibule. The value is also close to the diameter of the smooth leaf capital, a fragment (n° 1127) of which was found by Reich and Baruch at the foot of the triple gate. Peleg-Barkat suggests it is a fragment from the capital of one of the triple gate monolith columns[13]. Why not? However, in light of Gros' analysis, it might also be a fragment from Corinthian capitals which crown one of the monumental columns in the central nave. The capitals, the splendor of which is praised in the *Jewish Antiquities*, thus present the particularity of being of smooth leaf.

2.4. *The basilica structural* adequation *with the double gate*

It would be unwise to consider these dimensional convergencies, around one meter forty as purely coincidental, so there are good reasons for this from a structural standpoint: the columns and pillars of the double gate vestibule were proportioned by the architects in relation

[13] O. Peleg-Barkat, *Herodian Architectural Decoration and King Herod's Royal Portico*, *op. cit.* p. 53: « The lower reconstructed diameter of the capital is ca. 1,4 m, a measurement close to the diameter of the central column in the vestibule of the Double Gate. Based on the dimensions of the capital and its location close to the Triple Gate, we can, therefore, suggest that the capital originated in one of the columns in the underground passageway, which has not survived, but that lay beyond this gate leading up to the Temple Mount. »

to what they had to carry. According to the Greco-Roman canons, their diameter is too big for their height, sign – if not proof – that their width was in keeping with structural elements of the upper floor. We have already mentioned: the vestibule north pillar (fig. 2, point A) is solid. Its dimensions seem perfectly adapted to vertically support a bilobed column as described above (1, 4 m for the large lobe, 1 m for the small one with a 45 cm overhang) ; whereas a simple monolith column of 1,4 m in diameter seems at once too small for such an installation. The small lobe of the bilobed column situated vertically, increasing from its base would necessarily be cantilevered; the centre of gravity of two superimposed structures would not be placed vertically to one another.

2.5. *Two orders of lateral aisles*

Ordinarily, for a diameter of 1, 4 m, columns measure at least 12 m in height (8 diameters). Such an elevation does not correspond to that given by Josephus[14]: 27 feet (7, 99 m). How is this explained? By accepting, as Gros, that Josephus was negligent when summarising to the extreme, a technical notice incorrectly. Attributing a height of 27 feet to the central nave, instead of to the lateral aisle columns as should have been the case:

> That said, Josephus cannot be cleared of all negligence, as in the same sentence he moves closer to a height which can only be that of the facade columns (north of the basilica), by one diameter which belongs to the internal order (of the basilica). It must be admitted that when working on a notice detailing a certain range of choices, he either hurried or went for the most impressive, from his perspective, namely the largest dimension for the diameter and the most visible for the heights. We accept without difficulty that the telescoping is somewhat approximate[15].

[14] Josephus, *Jewish Antiquities* xv, 414 : « This cloister had pillars that stood in four rows one over against the other all along, for the fourth row was interwoven into the wall, which [also was built of stone]; and the thickness of each pillar was such, that three men might, with their arms extended, fathom it round, and join their hands again, while its length was twenty-seven feet, with a double σπείρα at its basis; »

[15] P. Gros, *Idem*, p. 180 : « Cela étant, on ne saurait laver Josèphe de toute négligence puisqu'il rapproche dans la même phrase une hauteur qui ne peut être que celle des colonnes de la façade [nord de la basilique], d'un diamètre qui appartient à l'ordre intérieur [de la basilique]. Il faut admettre qu'en opérant dans une notice assurément très détaillée un certain nombre de choix, il est allé au plus pressé, ou au plus impressionnant de son point de vue, à savoir la dimension la plus importante pour le diamètre, et la plus visible pour les hauteurs. Nous convenons sans peine que le télescopage est un peu rude. »

Indeed, from the temple esplanade, the largest columns of the basilica which came into view were those of the ground floor of the north lateral aisle, 27 feet high. The bilobed columns of the central nave would only have been visible through the first row of columns in the darkness of the building. Their solid bases were imposing at first sight, however, it was impossible to have a precise idea of their height before arriving at their base.

The *bilobe* of the columns distinguished the central nave from the lateral aisles, not created in the same order (fig 1 and 3). The large lobe of the central nave went much higher than the small lobe which stopped a little higher than half way to allow for the upper floor in the lateral aisle. Thus we had a ground floor, open on the esplanade with 27 feet high columns (7, 99 m); an upper floor, most likely an open gallery on to the esplanade, with columns of a different order. According to the rule enacted by Vitruvius[16], they must have been a quarter smaller and by consequence measured 18 feet (= 27 feet × 3/4 = 5, 3 m). 46 diameter fragments found from ionic capitals in the excavations (Type B - n° 1032 and 1033) might come from the crowning of this order. A smaller order would therefore have to be reconstructed : considering that the contraction of a column of this size[17], the inferior diameter of the column can be estimated as 54 cm (46 cm × 13/11) ; which gives a shaft height of 5, 15 m (9,5 modules) finally quite close to the 5, 3 m proposed above. A rapid calculation illustrates that by additioning, the height of two orders of columns (8 m + 5, 15 m = 13, 15 m) for the lateral aisles, then the thickness of the capitals about 1, 8 m (of both the ground floor and the upper floor) and that of the intermediate floor, we arrive at an approximate height of the lateral aisles of 14, 95 m, very close to the 50 feet (14, 8 m) given by Josephus (fig. 3).

2.6. *Josephus' description conforms with the vitruvian ordenance*

Scaled as such, the Herodian basilica respects another rule enacted by Vitruvius according to which the width of a portico must equal the height of its columns[18]. It is the case of the lateral aisles which have a width of 30 feet (8, 88 m) for the columns of 27 feet (8 m). It is also the case of the central nave, one and a half times wider – 46 feet (13, 6 m) – comprising, according to our analysis, of columns of at least 42

[16] Vitruvius, *De Architectura* v, 1, 3 and 5 : « Columnae superiores quarta parte minores quam inferiores ».
[17] Vitruvius, *De Architectura* iii, 12, 2.
[18] Vitruvius, *De Architectura* v, 1, 6.

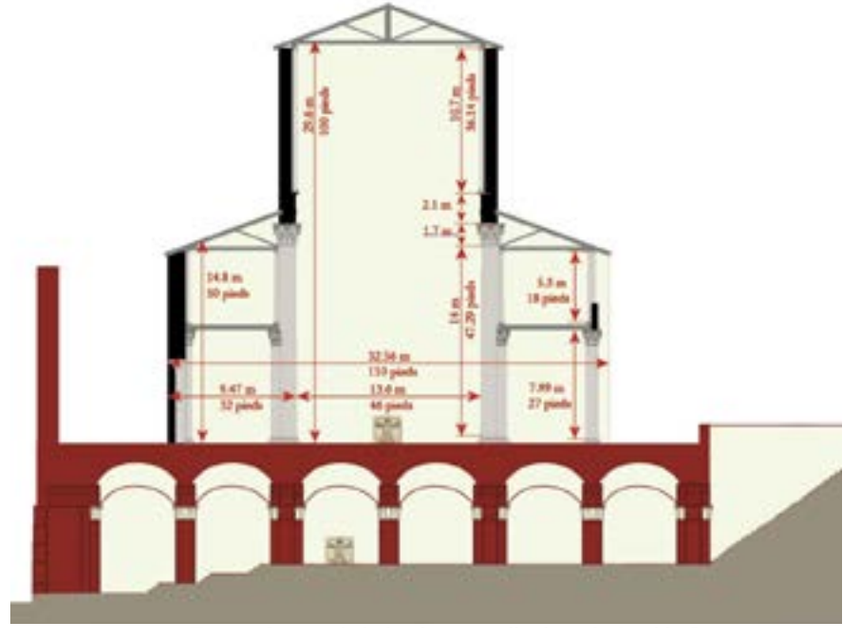

Fig. 3 - Section of the basilica vertically above the Double Gate

feet (12, 43 m) in height. We will check below that the widths of the aisles are conform to what we find on the site.

It is also worth noting that the lateral aisles of the Herodian basilica thus proportioned (50 feet high), match best with the eastern and western porticoes of the esplanade which, according to *The Jewish War*[19], had columns of 25 cubits of elevation (13, 1 m = 44 feet). It is irrelevant here to know whether they were monolithic or not, what is important to note is that Josephus demonstrates perfect coherence. There is a convergence between the eastern and western portico elevations of the esplanade (44 feet) and that of the lateral aisle of the Herodian basilica (50 feet), of which the north façade was rather close if not adjacent to the porticoes.

[19] Josephus, *War* v, 190-192.

2.7. *Upper order of the central nave*

To perfect the elevation reconstruction of the central nave of the basilica, a final hurdle must be overcome: the correct interpretation of two words προμετωπίδιος τοῖχος, that Gros at first did not want to translate. Indeed, the classic sense of this expression "façade walls" makes the *Jewish Antiquities* phrase unintelligible. Gros therefore proposes to translate it as "the attic frontal wall"[20], by remarking on the one hand that the *Jewish Antiquities* text does not describe the exterior of the central nave but the interior; and on the other hand, the wall mentioned by Josephus is none other than the one overlooking the central nave with a lanterneau[21]. The roof of the lateral aisle located by the esplanade which, in some way, acts as a "façade wall" of the basilica – as it is the one that people see first on the esplanade (fig. 3). Gros explains the presence of this ill adapted greek expression προμετωπίδιος τοῖχος by the probable maladdress of Josephus or his greek translator, who was not able to interpret the latin word *fastigium* with precision which, in all likelihood, was found in the latin technical notice describing the basilica[22]. In the final analysis, Gros proposes to understand the passage from *Jewish Antiquities* as follows:

[20]P. Gros, *Idem*, p. 180-181 : "As for the one hundred feet – approximately 30 m – of the height of the principal nave, the only plausible explanation is if a heavy attic surmounted the entablature of the 'colossal' order. Josephus describes it precisely, suggesting even by syntax, its position. However, he describes it from the interior, which misleads some exegetes, above all the terminology used for this structure could, once again create some ambiguity if a literal translation is adopted, inappropriate for the transmission of technical realities. In the sentence where he speaks of the central nave height, he adds that it is due to the presence of προμετωπίδιος τοῖχος described with its decorative order plaque; the absolute genitive of the afore mentioned as the precise reason for the distance from ground to ceiling. Clearly if we give to these words their classic sense of façade wall, as most publishers, we are misled. This fact is acknowledged by the translator from Loeb publishers. It is a fact that the terms πρόσωπον, μετώπιον, or προμετωπίδιος τοίχος are frequently applied in inscriptions or anterior wall texts of a building, the main entrance of which opens on to the street. However, in the case of the Jerusalem basilica, no partition wall was situated behind the anterior colonade which opens on to the esplanade. Such notions do not make sense, therefore we must find another explanation. In reality the main idea contained in the compound adjective used by Josephus could easily refer to the emerging section of the walls which support the lantern roof above the lateral porticoes. These walls are also frontal, for observers on the outside, if we accept, in accordance with etymology, the notion of the summit section in relation to that of the façade. This interpretation, which is imposed by the text itself, highlights the inappropriate language of Josephus, or that of his greek translator, applied to a structure with no real equivalent in the hellinistic world. It is true that in latin, only the vitruvian locution of 5.1.10 relating to the Fano basilica, fastigiorum duplex pectinata disposito, refers to this sort of roofing in a visual but labourious manner, and in any event it is difficult to transpose into another language. We therefore translate: "the ceiling of the central nave rises higher because the attic frontal wall is included in its perimeter...". ; "Quant aux cent pieds – 30 m à peu près – de la hauteur de la nef principale, il ne s'explique que si un puissant attique surmonte l'entablement de l'ordre 'colossal'. Josèphe le décrit précisément, en suggérant même par sa syntaxe, sa position. Mais il le décrit de l'intérieur, ce qui a dérouté quelques exégètes, et surtout il emploie pour cette structure une terminologie qui, là encore, peut entretenir quelqu'ambiguïté si l'on adopte une traduction automatique, indifférente aux difficultés de la transmission des réalités techniques. Dans la phrase où il parle de la hauteur de la nef centrale, il ajoute que celle-ci est dû à la présence du décrit avec son ordre décoratif plaqué ; le génitif absolu de désigne comme la cause même de l'éloignement du plafond par rapport au sol. Il est évident que si l'on donne à ces mots leur sens classique de mur de façade, ce que font la plupart des éditeurs, on se condamne à ne rien comprendre ; c'est ce qu'avoue le traducteur de l'édition Loeb. Il est de fait que les termes πρόσωπον, μετώπιον, ou προμετωπίδιος τοῖχος s'appliquent fréquemment dans les inscriptions ou les textes au mur antérieur d'un bâtiment qui donne sur la rue et dans lequel s'ouvre généralement l'entrée principale. Mais dans le cas de la basilique de Jérusalem, aucune paroi n'étant située derrière la colonnade antérieure qui se déploie sur l'esplanade, ces notions n'ont aucun sens. Il faut chercher un autre chose. En réalité, l'idée de front contenue dans l'adjectif composé utilisé par Josèphe peut aisément s'appliquer à la partie émergée des murs qui soutiennent la toiture en lanterneaux au dessus des portiques latéraux : ces murs sont eux aussi frontaux, pour qui regarde de l'extérieur, si l'on privilégie, en accord avec l'étymologie, la notion de partie sommitale par rapport à celle de façade. Cette interprétation, qui est imposée par le texte lui-même, met en évidence la caractère inadapté de la langue de Josèphe, ou de celle de son traducteur grec, appliquée à une structure qui n'a pas d'équivalent réel dans le monde hellénistique ; il est vrai qu'en latin, seule la locution vitruvienne de 5.1.10 relative à la basilique de Fano, fastigiorum duplex pectinata dispositio, rend compte de ce type de toiture, d'une façon imagée mais laborieuse, et en toute hypothèse difficilement transposable dans une autre langue. Quoi qu'il en soit, nous traduirons donc : « le plafond de la nef centrale montait plus haut parce que le mur frontal de l'attique comportait sur son pourtour… »

[21]R. Ginouvès, *Dictionnaire méthodique de l'architecture grecque et romaine,* t. II, Éléments constructifs : supports, couvertures, aménagements intérieurs, École française d'Athènes, École française de Rome, 1992, p. 174 : « Lanterneau is a roof often of reduced dimensions, placed above an opening in another roof. » ; Idem, note 68, p.174 : « A latin word does not exist for this sort of roofing, although it is not characteristic of a series of buildings. Vitruve VI, 3,9. Cf. also, in the description by Vitruve X, 13, 6 of the testudo arietaria, the indication of a supra dium tectum fastigium (but without the lateral openings of a Lanterneau...). »

[22]Vitruvius, *De Architectura* V, 1, 10 : "As such the dividing of the roof timbers into two sides of the roof outside the perimeter and of a high interior nave produce a remarkable aspect." ; "Ita fastigiorum duplex pectinata dispositio estrinsecus tecti et interioris altae testudinis praestat speciem uenustam." In the language of Vitruve, the word fastigium could describe, among other things, the slope of a roof but also very often a pediment, both literally and metaphorically. We can also play on the fact that the roofing of a basilica of which we only see half from the ground, is similar to a sort of pediment which dominates the basilica wall. This allusion can be the same inside monumental buildings when the framework is visible from the ground, without being hidden by a ceiling. In this way it becomes a kind of pediment which solemnizes the high walls of the edifice. To understand what is at stake by using the word fastigium in two ways (roofing and pediment), one must return to the importance of pediment (of temples, doors, etc.) in the architecture at the end of the republican period and the beginning of the augustinian period: it indicates the "royal" character of an edifice (De Architectura V, 6, 9) and that permission from the Senat to embellish a monument was an obligation. Furthermore, it is not insignificant that Vitruve uses this double meaning word for the roofing of "his" Fano basilica : it is a way of solemnizing it. It is no doubt the same for the Jerusalem basilica description of which the latin notice must have used the same artifice to underline its "royal" character. Cf. C. Saliou, *Commentaires* in Vitruve, *De l'architecture*, livre V, Texte établi, traduit et commenté par Catherine Saliou, professeur à l'Université de Paris VIII (Vincennes-Saint-Denis), Les Belles Lettres, Paris, 2009, p. 158-159 ; also P. Gros, *Introduction* dans Vitruve, *De l'architectur*e, livre III, Texte établi, traduit et commenté par Pierre Gros, Les Belles Lettres, Paris, 1990, p. xxxii-xxxvi.

> The central space itself was one and a half times wide (that of the lateral aisles) and twice as high; therefore it reached far beyond the other two. The ceilings were made of deeply sculptured wood beams on which all kinds of figures were represented: that of the central nave was higher, because the frontal attic wall (προμετωπίδιος τοῖχος) included a sculptured architrave on its periphery and had engaged columns. The whole of which was polished to perfection. As such, those who had not seen it were incredulous whereas those who saw the edifice were full of admiration.

The translation takes into account the high elevation of the central nave (100 feet = 30 m) as described by Josephus. There was, above the monumental doric entablature another order of engaged columns, of which fragments of metopes and triglyphs had been found in in the excavations, which must have reached the framework – in the same way as the Fano basilica. Vitruvius insists on the monumental finality of such a decoration that he wanted for his basilica:

> As for columns (of the second register) erected in one go, up to just under the nave framework, they seem to enhance both the vast amount of money spent and the prestige of the work at the same time[23].

If, according to the vitruvien canons, the upper register of the engaged columns in the central nave are a quarter smaller than those of the lower register, they could be about 10 m high (= 13 x 3/4). The height added to the lower register columns (~ 14 m), to that of the Doric entablature as reconstructed by Peleg-Barkat (~2, 1 m) (p. 105-107), and finally those of two register capitals (~ 3, 5 m), gives a general total of elevation of 28, 6 m (96 feet). The 30 meter elevation of the central nave given by Josephus, similar to that of a modern 10 storey building, is not unrealistic. It even incites us to take the temple sanctuary elevation given by Josephus seriously: 100 cubits (~ 50 m)[24]. It would have

[23] Vitruvius, *De Architectura* v, 1, 10: « Ipsae vero columnae in altitudine perpetua sub trabes testudinis perductae et magnificentiam inpensae et auctoritatem operi adaugere uidentur. »

[24] Josephus, *War* v, 207.

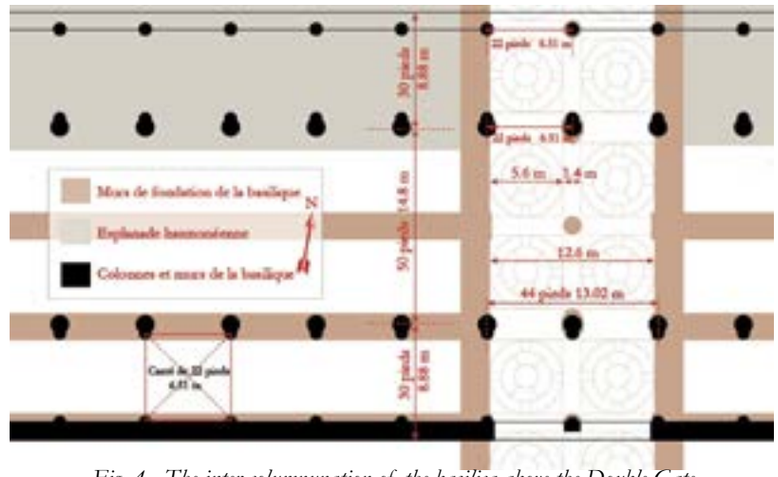

Fig. 4 - The inter-columnunation of the basilica above the Double Gate

been inappropriate for the basilica to dominate the most sacred sanctuary. Even with its height of 30 m, the Herodian basilica remained largely dominated by the temple sanctuary.

To conclude , if the upper register order was Ionic, which is most likely, to alternate with the Corinthian lower order, the 1 m in diameter ionic capital fragment (n° 1031) found in the excavations would originate from there.

2.8. *The inter-columnunation of the naves*

To validate the reconstruction, the topography and the foundation of the esplanade has to be adjusted. For the one meter in diameter columns, Peleg-Barkat reconstructs an inter-columnunation of 3, 25 m following the width of the largest Doric frieze block of three triglyphs and metopes found in the excavations[25]. The inter-columnunation however, appears too narrow for structural reasons. The double gate vestibule, undoubtedly of Herodian attribution, is 12, 6 m wide. Therefore, an inter-columnunation of 3,25 m necessitates the placing of several columns vertical to vestibule arches (fig. 4). Is it realistic to place such a weight on

[25] E. Baruch and Y. Peleg proposed in 2002 that the inter-columnunation be of 5, 6 m for the same reason; cf. E. Baruch & Y. Peleg, "A new reconstruction of the Royal Stoats in the Temple Mount", in E. Baruch & A. Fault (eds), New Studies on Jerusalem : Proceedings of the Eighth Conference, Ramat Gan, 2002, p. 49-57 (in hebrew), p.10* (summary in english).

the lowered vaults? A rapid calculation clearly shows a compact limestone column (of 2, 7 tons density), of 1 m in diameter and 8 m high alone weighs 17 tons (= (0, 5 m)² 8 m 2, 7 t/m³). If we add the weight of the entablature, itself supporting the vertical wall (almost as high as the column = 8 m), we must at least double the weight supported by each column. That is almost 40 tons distributed on the square meter of the column's base; such a vertical mass of a lowered vaults, presuming it resists under such a load, nevertheless weakens the structure, thus vulnerable to earthquakes, frequent in the region[26]. The same holds true, if not more so, for the bilobed columns of 1, 4 m in diameter and 14 m high. The large lobe alone weighs 58 tons (= (0, 7 m)² 14 m 2,7 t/m³), thus it is possible to estimate the pressure of one hundred tons on the ground at the base of the column. Also, as Baruch and Peleg[27] we assume that the architects of the basilica did not risk placing the vestibule columns vertically. Two columns must have been located as closely as possible to the lateral walls and the inter-columnunation must have been slightly larger than its half width equal to 6, 3 m (=). Remember: Peleg-Barkat limited it to the width of three "triglyphs/metopes" motifs (3, 25 m). We propose enlarging to six "triglyphs/metopes" motifs, that means to 22 feet or 6, 51 m (= 3, 256 m 2)[28], a length 20 cm longer than the half width of the vestibule. Figure 4 illustrates that such an inter-columnunation matches the double gate structure. It allows the two bilobed columns, while encroaching on the vestibule by 50 cm (= 0, 7 m – (6, 5 m – 6, 3 m), to have their centre of gravity at 20 cm (= 6, 5 m – 6,3 m) of their plumbing.

2. 9. *The monumental entablature of the central nave*

A 22 foot gap (6, 51 m) between the columns resolves the difficulty of the passage above the double gate. However, it complicates the architect's task for the entablature crowning the columns. Vitruvius stipulated that the architraves made from stone risked breaking. Stone was thus not a suitable material above a certain weight and only wood beams would be sufficiently resistant[29]. Such a hypothesis does not concern the basilica of Jerusalem as numerous architrave fragments, of friezes and huge stone cornices had been found in the fall. So then, how to resolve this quandary? The two openings of the double gate are both crowned in lintels 5, 5 m long, about two meters high and one meter thick, with a 5, 15 m width overhang, comparable to the 5, 10 m (= 6, 5 m – 1, 4 m) separating the capitals of the two bilobed columns. Furthermore, the excavations showed that no architrave without dominant frieze elements was found (p. 53). Is this not precisely an indication that the monumental entablature of the central nave was composed of lintel blocks similar to those of the double gate, of 2 m high (fig. 5)? We have seen: Peleg-Barkat thinks it was composed of two parts, the first 2 m high, including the architrave and the frieze, the second, the cornice, adding an additional height to reach the two meters. The monumental entablature fragment dimensions found in the excavations (Type A: n° 1128, n° 1129, and n° 1169) allow this interpretation; however, nothing proves that the fragments in question do not belong to an even bigger block. Also, it is possible to maintain the theory that the whole entablature (architrave, frieze and cornice) was composed of a succession of large monolithic blocks, 5, 5 m long, 1, 4 m wide and 2 meters high, each being crowned with a discharging arc – as those still in place in the double gate – to relieve from pressure which risked breaking it (fig 5).

Some, perhaps, find this hypothesis somewhat exaggerated. It is however realistic even if, as Peleg-Barkat suggests, the architrave and the frieze on the one hand, and the cornice on the other hand, formed two distinct superposed blocks (about 1, 2 m and 0,8 m thick respectively) : If they were placed one on top of the other and long enough to cross the inter-columnunation (22 feet = 6, 51 m), they offer a mass resistance effect, this acquiring a rigidity close to that of a 2 m high monolithic block, as lintels of the double gate.

[26] The earthquake of 31 BC related by Josephus necessarily had an impact and obliged architects of both the temple and the basilica to be careful. Cf. JOSEPHUS, *War* 1, 370-371: "At the beginning of spring, an earthquake killed innumerable herds of animals and thirty thousand people; fortunately the army was not affected, as they were camping outdoors."

[27] E. BARUCH & Y. PELEG, *op. cit*.

[28] O. Peleg-Barkat distrusts measures in roman feet as it is possible to make incorrect conclusions. It is therefore true that we must remain on the side of caution. However, the shift away from this principle seems to us, unjustified. Considering the science of surveying of Antiquity, less was known then, than today, but they were no less keen on measures, with a preference for "round numbers".

[29] VITRUVIUS, *Architectura* III, 3, 4-5: "The diamond style ordonnance of [the temple] will be what we obtain when it is possible to introduce an inter-columnunation equivalent to three diameters of columns. (...) This layout presents the problem that the architraves break due to the span length. In the renostyle temples, it is no longer possible to use stone or marble architraves, having to use one piece wood lintels instead." R. Reich raised the problem in 2002 : R. Reich, "A response to E. Baruch and Y. Peleg concerning the reconstruction of the Herodian Royal Stoa", in E. BARUCH, U. LEIBNER & A. FAUST (eds), *New Studies on Jerusalem: Proceedings of the Ninth Conference*, Ramat Gan, p.50-51 (in hebrew), p. 31* (summary in english).

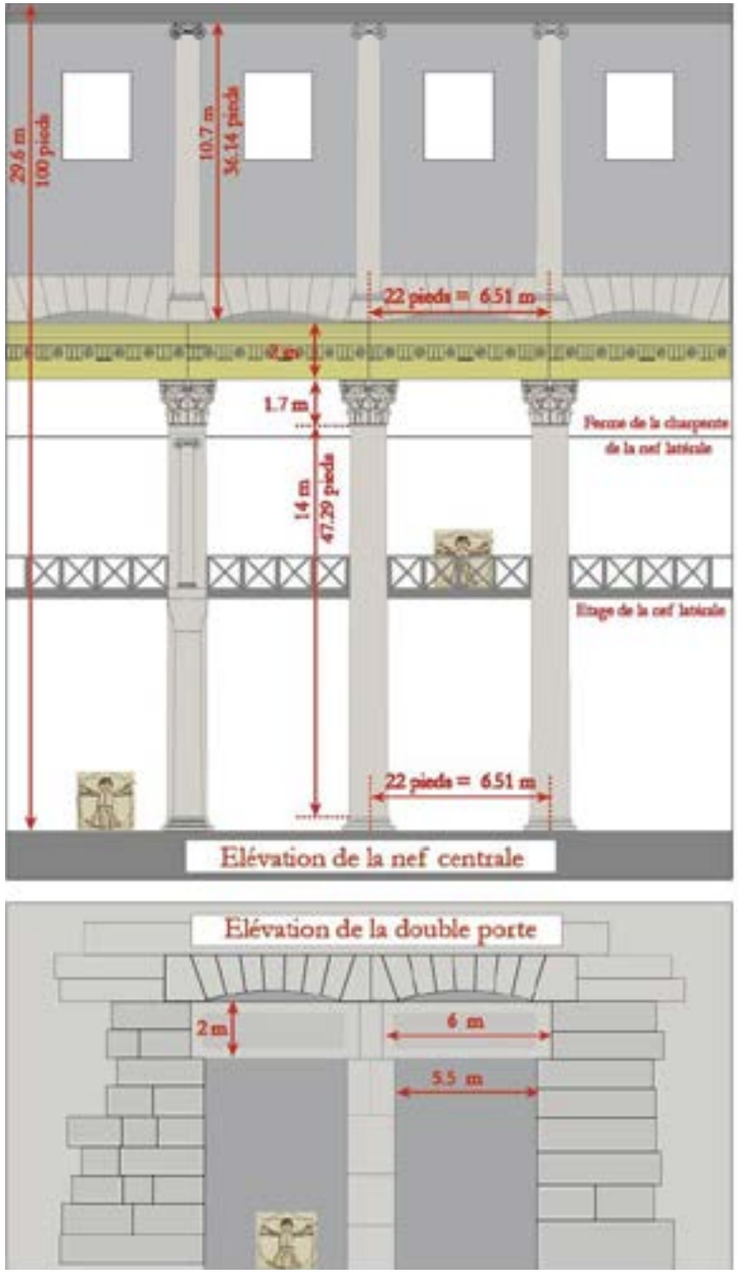

Fig. 5 - Comparative elevations of the central nave and the Double Gate

2. 10. *The entablature of the north lateral aisle overlooking the esplanade*

A similar difficulty is posed for the entablature of the free standing columns of the northern lateral aisle overlooking the esplanade. The span of architraves there, was even larger, as the inter-columnunation remained fixed (22 feet = 6, 51 m) due to bilobes, the diameter of columns no longer measured 1, 4 m but only one meter. Also, was the span of the architraves so increased not measuring 5, 10 m either (as for the entablature of the central nave) but 5, 5 m (= 5, 10 m + 0, 40 m). To cross such a span, the size of the double gate lintels could not have been long enough, neither those of the Barclay gate, piercing the western wall of the esplanade[30]. Furthermore, in the absence of examples having such a hypothesis, a wood framework to support the ground and the barrier of the gallery overlooking the esplanade for the entablature of the colonnade, has to be imagined.

2. 11. *The inter-columnunation and the triple gate*

The inter-columnunation of 22 feet also accounts for the distance separating the double gate from the triple gate: 65, 80 m (222, 3 feet)[31]. This length is slightly longer than 10 inter-columnunations (= 10 × 22 feet = 220 feet = 65, 12 m), and reconstitutes a layout of columns to "pass above" the triple gate, similar to that which we proposed to cross by the top of the double gate. A column should be found vertical to the west wall pillar of the triple gate (with an engaged column at each extremity) already identified by Warren and Conder[32]. As D. Bahat[33], we be-

[30] The Herodian lintel of the Barclay gate, of 7 feet high (2, 05 m) and 5, 5 m long, does not imply a bigger span than that of the double gate. Cf. E. Mazar, *The Walls of the Temple Mount*, Old City Press, Jerusalem, 2011, p. 61. L. Ritmeyer affirms that the interior passageway of the Barclay gate measures 5,48 m. However, this does not inform us about the exact width of the gate, which must no doubt be reduced by forty centimeters. Cf. L. Ritmeyer, *The Quest*, Revealing the Temple Mount in Jerusalem, Carta, The Lamb foundation, Jerusalem, 2006, p. 29-30.

[31] E. Mazar, *op. cit.*, p. 221. On his side, L. Ritmeyer claims that the distance between the double gate and the triple gate is of 65, 60 m. Cf. L. Ritmeyer, *op. cit.* p. 92.

[32] Ch. Warren & Cl. R. Conder, *The Survey of Western Palestine*, 1884; Id, *Plans, Elevations, Sections, showing the results of the excavations at Jerusalem 1867-1870*, London.

[33] D. Bahat, *Recension of book S. Gibson and D. M. Jacobson, Below the Temple Mount in Jerusalem*, BAR International Series 637 (1996), BAIAS 16 (1998) p. 97-104; E. Mazar (*The Walls of the Temple Mount*, Old City Press Jerusalem, 2011) summarises the position of D. Bahat (p. 219) : "During the Herodian period, [the Triple Gate] was a double gate and the width of its entrances was the same as that of the double gate. This gate is first mentioned in eleventh-century sources, and its present condition refers to the Fatimid construction that was carried out following the earthquake of 1033 AD."

lieve that the triple gate (of which the width of three doorways is not coherent[34]) owes its tripartite structure to a later layout (most probably Fatimid) and that its primitive structure must equal the width of the double gate. This is imposed by the Herodian basilica structure.

This analysis confirms the existence of a direct link between the basilica and the underground passageways located below. They could not have been built one without the other. The double and triple gate, in particular, were built as wide as possible – no doubt to ensure the crowd flow – accounting for the inter- columnunation of the basilica, as well as the same and its opposite, the spacing of columns was itself conditioned by the maximum size of lintels of the double gate and the entablatures.

A final precision concerns the lowered vaults of the double gate (and the triple gate): to avoid that the wall of the south lateral aisle – does not carry it's full weight, we have to consider by their perpendicularity in the basilica, the doors opening onto the residual space between the south lateral aisle and the south wall of the esplanade (fig. 6). As wide as the underlying passageways and completed with the same lintels (with an arc of discharge), they relieve the lowered vaults and, as such, give a satisfactory solution to the structural problem of the width of the underground passageways. In addition, they give easy access to a space, seemingly useless, which, on the contrary was essential for people trading in the basilica. The "Temple tradesmen" expelled by Jesus clearly needed somewhere to store their wares.

2.12. Jewish Antiquities *architecture conform to vitruvien advice*

An inter-columnunation of 22 feet corresponds to the Vitruvius recommendations which stipulate that, for buildings of a non

[34] E. Mazar, *op. cit.*, p. 214: "The eastern and central entrance each measures, 3, 95 m wide, while the western entrance is 3, 8 m wide." Cf. D. Bahat, *art. cit.*, p. 13: "The Triple Gate had a history similar to that of the Double Gate, since it was also mentioned in 11th century sources and probably not before. The chamfered arches would suggest that its present state originates in the repair work carried out after the AD 1033 earthquake. It must have been a double gate in the second Temple period and there is no reason to suppose that it was tripartite as Ritmeyer has claimed (Biblical Archeology Review 15, 1989) since the breadth of its three passages is equal to the breadth of the Double Gate and nowhere is there evidence for other triple gates in the Temple Mount. Double Gates however, abound: above the south of the 'seam', in the, 'Masonic Hall', over Wilson's Arch which has a Medieval double gate, and, of course, the Double Gate itself."

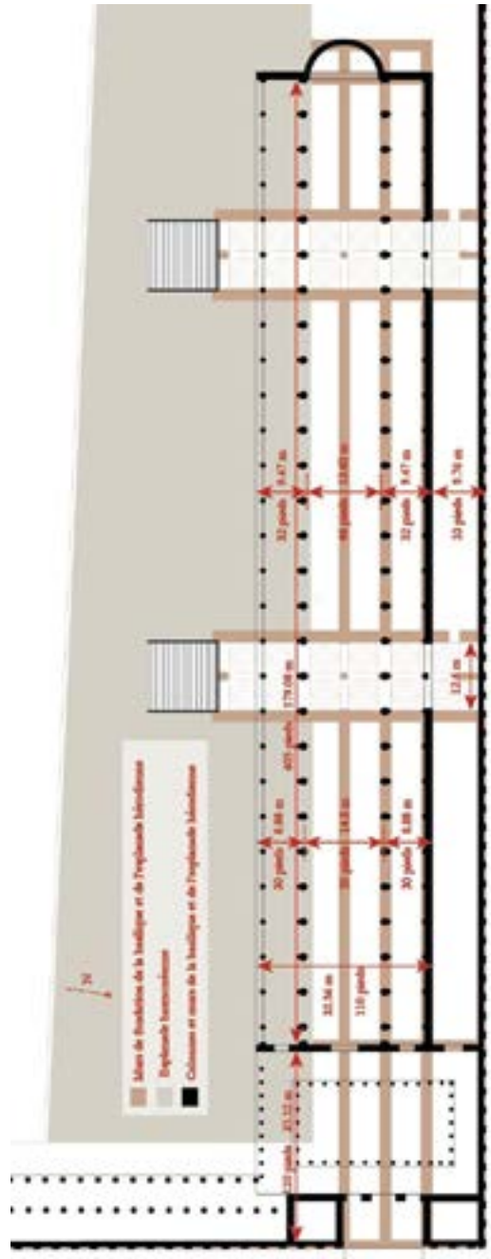

Fig. 6 - Royal Portico ground plan

sacred nature, the distance between two columns must be of 5, 5 modules, the module here equalling the radius of the columns[35]. The original shape of the bilobed columns necessitates a little approximation: According to the axis of the bilobed, it measures 1, 85 m (= 1, 4 m + 0,45 m), and perpendicular 1, 4 m. It seems therefore legitimate to estimate a diameter of 1, 62 m for a cylindrical column with a circumference of 5, 11 m (the three famous "orgyes" as determined above ~ 18 feet).Then, we estimate the module at 0, 81 m which gives the distance between two shafts of 4, 45 m (= 0, 81m 5, 5), slightly inferior, but nevertheless the same range (85%), to the distance separating two bilobed columns (5, 10 m).

2.13 *The precision of description of Josephus*

Two last remarks concerning the inter-columnunation of 22 feet : considering the width of the lateral aisles, it is possible, as indicated in figure 4, to have the squares of 22 feet (6, 51 m), of which each angle reaches a column. The column sequence in the lateral aisles forms in this way, a succession of square spaces, offering a well proportioned view. It is highly likely that he wanted such a layout for himself.

The inter-columnunation of 22 feet allows the reconstruction of a long colonnade, about the length of a *stade* (180 m). Precisely 27 columns, 22 feet distance apart, with two pilasters at each extremity, covering a distance of 616 feet (= 28 × 22 feet = 182, 33 m). To approach the length given by Josephus (600 roman feet = 177, 6 m), we propose to reduce the first western inter-columnunation to 11 feet (=) only, to obtain the total length of 605 feet (= 616 feet – 11 feet = 179, 08 m) of the basilica naves. Peleg-Barkat suggests naves of 54 columns at 3, 23 m intervals. She finds the 162 columns announced by Josephus by limiting the free standing columns, those of the central nave (2 × 54) and those of the north lateral aisle overlooking the esplanade (1 × 54). We find them by integrating the six colonnades of the basilica, each made up of 27 columns, some engaged, others not (excluding the

[35] VITRUVIUS, *Architectura* V, 9, 3 : "The columns would not have stayed in the same proportions neither the same modular reports as those I indicated in the case of sacred edifices : in the temples of the God's they must have a gravity much different to the lightness they share in the porticoes and other public places. (.....) First of all, the column diameter must be of two modules; the inter-columnunation of five and a half modules."

reconstructed pilasters in the western and eastern walls of the basilica): the two colonnades of the central nave (2 × 27); finally, the two colonnades of the south lateral aisle, engaged in the south wall of the nave, that of the ground floor and that of the upper floor (2 × 27).

2 .14. *The Herodian Basilica and the* Al-Aqsa *Mosque*

To finish, in view of the substructures and the buildings reconstructed on the esplanade of Mosques, we propose that the west entrance of the basilica is situated at 120 feet (1 *actus* = 35, 52 m) from the internal face of the Western Wall of the esplanade (fig. 6). Such a location allows the reconstruction of the central nave at the eastern extremity – almost one *stade* further away – an apse, the curved extremity of which is situated lateral to the impressive wall, still visible today at the western extremity of the Marwanieh (Solomon's stables). This Herodian wall mounting marks the eastern foundation of the basilica.

To conclude, what would be suitable to develop further, Figure 7 highlights to what degree the proposed reconstruction of the basilica is found in the actual *Al-Aqsa* mosque structure. Evidence shows it took, in part, the Royal Basilica foundations according to analysis by Gros. Large plain walls and the dome of the mosque are built lateral to the colonnades or basilica walls (or of the double gate vestibule).

2 .15. *The scarcity of remains*

Reproaches will no doubt surface following P. Gros' reconstruction of bilobed columns, despite the almost complete absence of suitable archaeological remains. It is appropriate to say "almost complete" as the smooth leaf fragments of the Corinthian capitals – already mentioned – could belong to one of those, crowning the bilobed columns. We do admit however, the leads are few indeed. Remember nevertheless, not to underestimate them in view of their quantitative scarcity, from other remains. Only 13 drums of 1 meter in diameter were found; which is few, considering the total number of columns, having this dimension in the basilica: 54 free standing columns, 108 bilobed and 54 engaged; that means 13 drums for about 216 columns. If we consider that one column accounted for a minimum of 5 drums, we

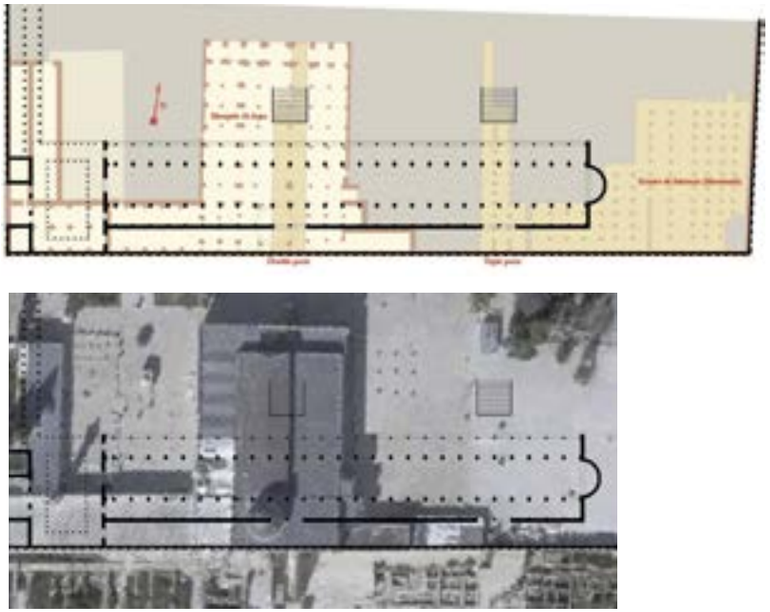

Fig. 7 - Superposition of the Basilica and Al-Aqsa Mosque

would estimate that only two or three columns out of 216 were found in total. That is a low statistic (1, 2 %). Bad luck cannot be ruled out – or the privileged reuse of certain architectural pieces, something Peleg-Barkat envisaged for the architraves – to explain the absence of remains which would attest to the bilobed columns of the basilica. It is all the more important to not, a priori, exclude that a bilobed column drum was made of two distinct blocks, on one side, the large lobe, on the other, the small one. The Beisan basilica is an example of this[36].

Hopefully more drums will be found in the near future around the esplanade. Several were recuperated in recent excavations under the Wilson arch, next to the unfinished theatre shape construction that some call, the Odeon, perhaps they will unearth some important information ?

[36] The basilica of Beisan (Beth Shean) 110 m long and 37 m wide, dating from the first half of 2nd century AD. Cf. The New Encyclopedia of Archeological Excavations in the holy land, vol. 5, Supplementary volume, Israel Exploration Society, Biblical Archeology Society, Jerusalem ; Washington, 2008, p. 1630 and p. 1641.

3. Conclusion

Understood according to the interpretation of Gros, the *Jewish Antiquities* text described the royal basilica with proven, surprising exactitude. This allowed a precise reconstruction of the building (especially the bilobed columns in the central nave), confirmed – or more precisely not contradicted - by the archaeological remains found at the foot of the esplanade. The descriptive precision highlights that the text is most likely the transcription – somewhat imprecise on the part of Josephus or one of his secretaries – for a technical notice on the basilica of Jerusalem. It no doubt came from the roman archives, consulted for the writing of *Jewish Antiquities*. Gros demonstrates that the greek translation of the latin notice is misleading on two occasions. The technical sense of latin words, leads to many misunderstandings in modern translations in common language.

Taking into account the substructures of the Herodian esplanade still *in situ* – especially the double gate vestibule – and the registered remains well displayed by Peleg-Barkat, the notice indicates the location of the basilica, not against the wall of the Herodian esplanade but 10 meters further north (33 feet = 9, 76.m) – as Schick proposed in his day[37]. This more surprising northern location, proves to be however, the only one which satisfies structural demands as much for the basilica as the double gate vestibule (and the triple gate), designed to support the considerable weight of the edifice. In that respect, it is with good reason that there was an alternation of a monolithic column and a more solid pillar in the vestibule of the double gate. The space between the basilica and the southern wall of the esplanade, far from being wasted, could serve as an outlet for large crowds, and / or somewhere tradesmen could sell their wares or store them.

The dimensions and scale of the reconstructed basilica are imposing and impressive: as high as they are wide in height interior (~ 100 feet = 29, 6 m), six times longer (~ 600 feet = 177, 6 m) than wide and high, approaching 54 Corinthian bilobed columns of fifteen meters high, crowned with magnificent Doric entablatures, monolithic blocks finely engraved, the Herodian basilica arouses both admiration and wonder by its monumental decoration and splendour. One had to go as far as Ephesus, the capital of the Roman Asian Province, to

[37] The certified mock-up of the esplanade is conserved in the basement of the "Schmitt School" or Paulus Haus, of Jerusalem.

find a similar sized basilica (180 m × 58 m)[38] in the Augustean period.

In this regard, refer to the works of Gros about the Peleg-Barkat review in the *Journal of Roman Archaeology* November 2018.

In conclusion, simply note that Herod the Great, aspired to be the best King client of Rome and the East. He embellished the Jerusalem Temple with one of the most magnificent basilicas that the Roman Empire had known. While it was appropriate that the Jerusalem Temple remained Jewish, the *pax romana* – and the imperialist ideology that it implied – obliged, without doubt, that its platform was of a Greco-Roman character – in spite of some undeniable regional particularities. It is understandable that the Jews displayed disquiet when Herod announced his expansion plans for the temple.

Dominique-Marie Cabaret, o.p.

Jerusalem, 2018

[38] The Ephesus basilica was consecrated between 2 and 14 J.C. AD. Cf. P. Gros, L'architecture romaine : du début du III[e] siècle av. J.-C. à la fin du Haut-Empire : 1. Les monuments publics, Paris, A&J Picard, 1996, p. 245-246.