

SURVEYS OF THE HOLY SEPULCHRE IN JERUSALEM FROM THE XVI CENTURY TO PRESENT TIMES

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¹ The first edition of B. Amico's *Trattato* appeared in Rome, printed by the Typographia Medicea. The authorization was issued by the Vicario Generale on 20 July 1609, and the printing was completed on 28 March 1610. It took Fra' Bernardino almost four years to prepare the work (B. BAGATTI, *Fra Bernardino Amico disegnatore dei Santuari Palestinesi alla fine del '500*, "Studi Francescani", Florence, 1938, pp. 307-25, reprinted in: M. PICCIRILLO, *La nuova Gerusalemme*, Custody of the Holy Land, 2007, pp. 233-238).

² Charles Couâsnon (Rennes 1904 - Jerusalem 1976) was an architect and a Dominican friar. A student at the École Nationale des Beaux-Arts in Paris (1927-33), he arrived in the Holy Land in July 1950 to follow the third excavation campaign at Tell el-Raha. In 1954 he was appointed by the Custodianship of the Holy Land, having been chosen by P. Coupel (replaced the following year by Jean Trouvelot), to oversee the on-site investigations and restoration works, which were undertaken in 1962, in line with the programme adopted in 1959 by the three Christian Communities. The works, concerning the static reinforcement and restoration of the Crusader church (the *Rotunda* and Transept with the choir of the Canon Fathers) in its 12th century appearance, were completed in 1992, after being broken off in 1980 owing to disagreements regarding the dome of the *Anastasis*. Contributing to the delay in the restoration work, the subject of unfortunate friction between Couâsnon and the Custodianship, in the person of P.A. Rock, was the disagreement on the part of the Greeks, who wanted work to be restricted to repairing the existing structures. Nevertheless Couâsnon managed to establish a productive relationship with Leonidas Collas, the new architect of the Orthodox Patriarchate (1961-64). Together with him, he decided to conduct a trial excavation of the foundations, thereby establishing that the

original building was built over an abandoned quarry, around the year 100 BC. He appointed Terry Ball to make the drawings (1964-67). A detailed report on the surveys and the works under way at the time was published by COUÂSNON in the magazine *Terra Santa* (no. 10, 1964, pp. 284-294), followed two years later by his report "Les travaux de restauration du Saint-Sépulchre" to the Académie des Inscriptions et Belles-Lettres (*Comptes-rendus des Séances...*, année CX, n. 2, 1966, pp. 209-226). Regarding the ups and downs in the history of this work, see: R. COHEN, *Saving the Holy Sepulchre*, Oxford University Press, 2008.

³ Starting in 1963, the Franciscan architect Virgilio C. Corbo (1918-1991) supervised, on behalf of the three religious communities (Catholic, Greek Orthodox and Armenian), the surveys and excavations inside the building and in the area of the monumental Complex.

⁴ The map by Antonino de Angelis (1578) is regarded as one of the most accurate topographical maps of the city of Jerusalem. Having lived about 8 years in these lands, Fr. Antonino made the plan of the city of Jerusalem with the help of Fr. Francesco della Salandra, who later became Guardian (i.e. Superior of the Convent of Residency), living 40 years in the Holy Land. Soon after its publication, the Map was certainly known and used everywhere in Europe, due to its innovations compared to previous maps. Maldovan, the Map's editor, noted that the impact of De Angelis' work on subsequent plans of Jerusalem was considerable. Cf. M. PICCIRILLO, "The role of the Franciscan in the translation of the sacred spaces from the Holy Land to Europe", in *New Jerusalem Hierotopy and iconography of sacred spaces*, Edited by Alexei Lidov, published by "Indrik", Moscow, 2009.

⁵ K.J. CONANT, "The Original Buildings at the Holy Sepulchre in Jerusalem", in *Speculum* vol XXXI, no. 1, 1956, pp. 1-48). Conant had undertaken the investigations, making special

This chapter presents an overview, in chronological order, of the most important surveys of the Church of the Holy Sepulchre since the latter part of the 16th century, beginning with those by Jean Zuallart (1586) and Bernardino Amico (1591-1597)¹, and ending – after a list of works, almost none of which are first-hand studies, published before the fundamental *Jérusalem Nouvelle* (1914) by Vincent and Abel – with an examination of new contributions in the 20th century.

Among the later works, much space is given to the reports by W. Harvey (1935) and the supplementary checks by L. Marangoni (1937) on the building's structural stability after the 1927 earthquake, and the associated disagreements over the risks of collapse, also in view of the excess load of the stone dome that it was planned to erect over the *Anastasis*, and the forces that would thereby be transmitted to the adjacent structures (the transepts and *Katholicon*). Of more recent work, the list includes, after the investigations by C. Couâsnon² and the excavations by Father Corbo (1960-1980)³, the accurate photogrammetry surveys by M. Biddle (1989-90), restricted only to the *Aedicula*, and the work of A. Georgopoulos and G. Lavvas, before finally covering the topographical measuring campaigns and laser 3D scans carried out (2007-2010), under my own supervision, by the GeCo Laboratory of the University of Florence for diagnosis of the seismic security of the monument, as commissioned by the Custodianship of the Holy Land from the C.A.Be.C., directed by Prof. Malesani.

In choosing the surveys, consideration was given to their accuracy, and whether information about measurements is given in the plates and/or in the text, omitting studies on the topography of Jerusalem and the resultant city maps, starting with the famous one by Antonino De Angelis⁴ (1578), and the more sketchy illustrations, or those taken from previous works, and renderings of supposed original layouts, including those outlined by Vincent and Abel (1914), Kenneth J. Conant (1956)⁵ and Terry Ball, a collaborator of Couâsnon. Nor was consideration given to diagrams in essays and volumes by architectural historians (G.A. Dehio, A. Grabar, E. Dyggeve, etc.), and the suppositions advanced regarding the Holy Sepulchre site in the mid-1800s by Edward Robinson, James Fergusson and Charles Wilson⁶, which at the time were the subject of fierce controversies, that disputed the location of the Tomb of Christ and the site of the original

Basilica, identifying the Constantinian building as the Mosque of Omar (Qubbat al-Sakhra) on Haram al-Sharif. Such speculation had already been refuted by George Williams (1845) and Charles Warren⁷ but, on the basis of the coincidence in dimensions and geometry between the “Dome of the Rock” and the Holy Sepulchre *Rotunda*, it was later returned to by C. Mauss⁸.

The surveys included in this review involve plans, and sometimes sections and elevations, of the whole complex, despite the fact that more recently they relate to individual parts of the structure, in relation to the requirements of restorations, and the subdivision of the spaces between the various religious Communities. Indeed, each community has acted independently from the others, giving rise to separate studies. This has sometimes made it hard to integrate data, as Father Corbo acknowledges in the introduction to his volumes on the Holy Sepulchre, with harmful effects for the whole monument.

The sequence of the entries generally reflects the date of publication of the surveys, which does not always correspond to the period when they were compiled, which was often at a far earlier time. Not always are the authors of the surveys known; published contributions are most frequently linked to the name of the historians, archaeologists and architects who made use of them for their own considerations and their own works. The following list, which places them in four groups, is the necessary result of this combination.

Group A) – from the end of the 1500s⁹ to the second half of the 1700s.

Prominent in this group, in terms of accuracy and documentary importance, are the surveys by B. Amico (1609), F. Quresmi (1625) and E. Horn (1725). In addition, there are the fundamental works by J. Zuallart (1606) and C. de Bruyn (1698). After these, the most extensive reports on Jerusalem and the Holy Places of Palestine – with detailed descriptions, references to the sources, iconography, sections and views of the *Rotunda* and the *Aedicula* – are those by Henri de Beauvau (1615), Fynes Moryson (1617), Ian Cootwyce (1619), George Sandys (2nd ed. 1621), Father Eugene Roger (1646), partly copied from Cootwyce, and Alain Manesson-Mallet (1683).

The other travelogues, often repetitive and mainly of a devotional nature – such as those by Salomon Schweigger (1608), Hans Jacob Breuning von Buchenbach (1612) and L. Deshayes (1624), with very sketchy vignettes – have been excluded from this list. As for the 1700s, after Nicolas de Fer (1715), Eleazar Horn (1725) and Giovanni Mariti (1784), worthy of mention are Richard Pococke (1743), Paul Lucas (1712, although of modest interest), and Charles Thompson (1752).

Group B) – from the clumsy “restoration” (1809-11) of the Aedicula after the 1808 fire, to the publication (1914) of the monumental Jérusalem Nouvelle (1914) by L.H. Vincent and F.M. Abel.

In this group we find the largest collection of “scientific” contributions on the issue¹⁰, with first-hand investigations and surveys. Worthy of note are: the superb plan by A. de Forbin (1817-18) in the *Voyage dans le Levant*; the drawings by J.J. Scoles (1825) included by R. Willis¹¹ in his *Architectural History of the Church of the Holy Sepulchre at Jerusalem* (1849) (the same text by Rev. Robert Willis

surveys, in 1939 with the collaboration of P. PELHAM PATTEE, who published a number of plates in *A Brief Commentary on Early Mediaeval Architecture* (1942).

⁶ E. ROBINSON, *The Reputed Site of the Holy Sepulchre*, “Bibliotheca Sacra”, New York, 1843, pp. 254-202; J. FERGUSSON, *An Essay on the Ancient Topography of Jerusalem* (1847) and *The Holy Sepulchre and the Temple of Jerusalem*, 1865; CH.W. WILSON, C. MORE WATSON, *Golgotha and the Holy Sepulchre*, P.E.F., London, 1906. Robinson «clearly opposed his Protestant measuring tape and meticulous topographical study to the spurious traditions [...] maintained by Catholics and Eastern Orthodox Christians» (Z. SHALEV, “Christian Pilgrimage and Ritual Measurement in Jerusalem”, in: *Micrologus*, XIX, 2011, Preprint 2009). The views of J. Fergusson (1808-1886) are briefly stated in two remarkable articles contributed to Dr. W. SMITH’s *Dictionary of the Bible* (vols. I and II). The book attracted little attention at the time, but later on his claim that the “Mosque of Omar” is the exact same church as was erected by Constantine the Great over Christ’s tomb at Jerusalem, and that it, and not the present Church of the Holy Sepulchre, is the true burial-place of Jesus, gave rise to an important controversy. The Palestine Exploration Fund is said to owe its origin to his strenuous advocacy of this theory. In 1860 he succeeded in arousing widespread interest in the subject by his *Notes on the Site of the Holy Sepulchre at Jerusalem*, a pamphlet in which he confidently repeated his view in response to an article on “The Churches of the Holy Land” which had appeared a short time before in the *Edinburgh Review*. Thereafter, an accurate survey of the Holy City was carried out by Captain (afterwards Colonel) C.W. Wilson, R.E. The first large map of the Haram area at Jerusalem was prepared at Fergusson’s own cost, and he was also ready to personally pay for excavations, which were not permitted by the Sultan. However, he continued to pursue his inquiries, and in 1878 developed them further in a large quarto volume on *The Temples of the Jews and the other Buildings in the Haram Area at Jerusalem*, fully illustrated with plates and woodcuts.

⁷ CH. WARREN, *The Temple or the Tomb, giving further evidence in favour of the authenticity of the present site of the Holy Sepulchre*, London, 1880. For Warren’s investigations, together with Wilson, see also *The Recovery of Jerusalem, a narrative of exploration and discovery in the city and the Holy Land*, edited by W. MORRISON, London, 1871: «[...] the much disputed question of the possible authenticity of the Holy Sepulchre still remains unsolved; or rather so much additional progress has been made towards its solution, that as far as the excavations have as yet gone, they disprove, rather than confirm, the alleged proof that the walls excluded the site

from their compass, and therefore admitted of its genuineness.» (Introduction, p. xvi). See also D. JACOBSON, “Charles Warren vs. James Fergusson”, *BAR*, Sept-Oct 2003. The question of the authenticity of the Holy Sepulchre, already debated in the time of B. Amico (cf. B. BAGATTI, *Foreword* to 1953 edition, in English, of the *Trattato*, pp.4-8) would be resumed by CH. CLERMONT-GANNEAU (*L’authenticité du Saint-Sépulchre*, Paris, 1877), backing up the tradition with archaeological findings relating to the tomb of Joseph of Arithamea. On the terms of the problem, with a wide-ranging analysis of the sources and the literature, see: J. MURPHY-O’CONNOR, “The Argument for the Holy Sepulchre”, *Revue Biblique*, 2010, T.117-1, pp. 55-91.

⁸ CH. MAUSS, “Notes sur la méthode employée pour tracer le plan de la Mosquée d’Omar et de la Rotonde du Saint-Sépulchre à Jérusalem”, *Revue Archéologique*, 3^{sième} Série, T. XII, Paris, 1888, pp. 1-31; *Recherche de la mesure ouvrière du Saint-Sépulchre et conséquences de cette recherche*, Paris, 1911. The architect, who based his work on measurements made in spans (handwidths) (23-25 cm.) given by B. Amico (1596 ca), notes the surprising analogy of the two bodies, observing that these are almost identical in the lower zone, and he attributes both to the Byzantine period, adding: «le plan de cette mosquée procède du carré comme celui de la rotonde du Saint-Sépulchre procède du triangle équilatéral, et c’est en cherchant la raison de l’inégalité de largeur des deux bas côtes polygonaux que nous avons été amené à découvrir la méthode employée par les architectes byzantins pur tracer le plan de leur édifice». He goes on to express regret over the fact that, in order to construct the new dome (1867), the tholobate (dome pedestal, or “drum”) of the *Rotunda* was demolished, with the Byzantine niche in the western buttress, being an «irrécusable témoin de l’antique possession du clergé grec», adding, «mais la diplomatie était, alors, plus puissante que la raison artistique».

⁹ As noted by Z. SHALEV (*op. cit.*, preprint 2009, p. 11), «Published pilgrim narratives during the sixteenth century multiplied and developed into a characteristically early modern genre, enriched by both the technology of print and antiquarian styles that dominated erudite Europe [...] Indeed, Zuallart became equally famous for his detailed and precise images – maps, views, architectural plans – that were immediately copied by many others. Thus the exact measurement and documentation of the sites in the Holy Land developed significantly in this period as part of these general trends». The most representative figure in this genre is Father Bernardino Amico di Gallipoli, elected in 1596 as Guardian of the Holy Sepulchre. B. Amico’s treatise (*Trattato*) was published in 1609 by the “Typographia Medicea linguarum externarum” directed by

Giambattista Raimondi of Cremona, a professor of mathematics (1576) at the Collegio della Sapienza in Rome. The Collegio itself was founded in 1584 by Card. Ferdinando de' Medici, for the purpose of printing texts in Eastern languages (Jewish, Arabic, Armenian, Syriac) for the benefit of Catholic missions to the Levant. On Raimondi's death (1614), the material of the Typographia passed to the Grand-Dukes of Tuscany. On the printing-works under Raimondi, see: A. TINTO, *La tipografia medicea orientale*, Lucca, 1987.

¹⁰ F. Laplanche, "Through Travelogues in the Holy Land", in: *Bulletin du Centre de recherche français à Jérusalem*, 7 | 2000, 129-135.

¹¹ Robert Willis (1800-1875). As Jacksonian Professor of Natural and Experimental Philosophy at Cambridge University, he specialized in the study of mechanism, which he also taught at the Royal School of Mines in London. Meanwhile he pioneered the serious study of architectural history, being awarded a gold medal from the Royal Institute of British Architects in 1862. Starting with Canterbury (1844), he investigated almost every English cathedral, and developed a new approach, combining documentary and archaeological research. His studies culminated in the monumental *Architectural History of the University of Cambridge*. For more information on him, see: A. BUCHANAN, *Robert Willis (1800-1875) and the foundation of architectural history*, Cambridge, 2014.

¹² Nineteenth-century Palestine mapping projects based on systematic land surveying reached a peak with the Ordnance Survey of Western Palestine between 1871 and 1877, conducted on behalf of the Palestine Exploration Fund by officers of the British Royal Engineering Corps. See in this respect: H. GOREN, "Sacred, but not surveyed. Nineteenth-Century surveys of Palestine", in: *Imago Mundi*, no. 54 (July 2002), pp. 87-110; R. KARL and H. GOREN, "Pioneering British-Holy Land Exploration: the Palestine Association", The RGS and the PEF, ASTENE, International Conference, Manchester, UK, July 2005; and N. Levin, "The Palestine Exploration Fund Map", in: *The Cartographic Journal*, vol. 43 no.1, 2006, pp. 45-67. Regarding previous systematic surveys of the Holy Land, starting with the 1:100.000 scale map produced by Pierre Jacotin during Napoleon's expedition to Egypt (1799), without forgetting *The Plan of Jerusalem from actual survey / by F. Catherwood, Architect*, Colen's Lithography (1833), see also: H. GOREN, "British surveyors in Palestine and Syria (1840-41)", 2005 International Cartographic Conference. Aug. 8, 2010, La Coruna; and H. GOREN and B. SCHELHAAS, "An early measuring of the Holy City forgotten for over a century: Westphal's Jerusalem map of 1825", in: *Die Erde*, vol. 146, no. 1, Berlin, 2015.

¹³ See the review by J.-B. CHABOT in *Journal des Savants*, April 1928, pp. 145-157.

¹⁴ The School was founded in 1890 by P.

Marie-Joseph Lagrange as the École pratique d'études bibliques, with the aim of «éclairer l'étude de la Bible par une connaissance scientifique du milieu humain où elle a été vécue, parlée, écrite: il s'agissait donc d'étudier la géographie de la Terre Sainte, l'histoire antique du Proche-Orient, les langues orientales, l'archéologie, l'épigraphie, ecc. Le P. Lagrange réussit rapidement à former une équipe de jeunes confères dominicains», instructing «le P. Hugues Vincent dans l'archéologie, le P. Félix Abel dans l'histoire et la géographie, le P. Antonin Jaussen dans la langue arabe, le P. Raphael Savignac dans la langue syriaque et l'épigraphie, le P. Paul Dhorme dans la langue et la culture akkadiennes» (P. BENOIT, "Activités archéologiques de l'école biblique et archéologique française à Jérusalem depuis 1890", in: *Revue biblique*, (1987) vol. 94 1-4, pp. 397-424). As well as running courses, the institute also published the *Revue Biblique* (as of 1892) and the *Études Bibliques series* (starting in 1900). The archaeological field research that was begun (in 1894) with excavations in the sanctuary of the Holy Sepulchre, the site of the School, gradually became its main activity, culminating in preparatory work for a large-scale work on ancient and modern Jerusalem that combined the efforts of the two Fathers, Vincent and Abel. After 1920, the School was merged with the Académie des Inscriptions et Belles-Lettres.

¹⁵ Ernest Tatham Richmond (1874-1955), Director of the Department of Towns and State Buildings at the Ministry of Public Works, at the time supervisor of the conservation of monuments in Arab countries occupied by the British.

¹⁶ Sir Alfred William Clapham (1883-1950), architectural historian and archaeologist, Secretary (1929) and later President (1939-44) of the Society of Antiquaries of London. From 1945 to 1948 he was President of the Royal Archaeological Institute of Great Britain. He devoted much of his life to the Royal Commission on Architectural Monuments for England, becoming its Technical Editor in 1913. He is perhaps best known for his studies of Romanesque architecture. During World War I he served in the Royal Sussex Regiment, and, after entering Jerusalem with Allenby's troops, he took advantage of the opportunity to make a detailed architectural study of the monastic buildings of the Church of the Holy Sepulchre.

¹⁷ F. FORLATI, *Il Santo Sepolcro di Gerusalemme. Proposte di restauro statico e di nuove sistemazioni*, Venezia, 1954; "Il Santo Sepolcro di Gerusalemme e il suo restauro, in: *Fede e Arte*, 1958, no. 7-8, pp. 262-279.

¹⁸ For an overview of the studies and projects carried out, under the aegis of the Custodianship of the Holy Land, from 17 July 1954 to 20 August 1956, see: *Le Saint-Sépulchre. Etudes et projets de restauration*, Jerusalem, ex typis PP. Franciscanum, 1956.

would later be included in the second volume, chapter III of the book *The Holy Land* by George Williams), and later included again (1860) by Charles J.-M. de Vogüé in his volume *Les Églises de la Terre Sainte* (which G. Jeffery later partly amended in 1911); the large-format plate entitled *Plan of the Church of the Holy Sepulchre and adjacent structures in Jerusalem* (Vienna, 1807), in its state prior to the clumsy "restoration" (1809-11) by the architect Komninos of Mytilene, attached to the *Proskynetarion* by Chrysantos of Bursa; and finally, albeit only partially, the interior views by E.D. Clarke (*Travels in various countries of Europe, Asia and Africa. Part the First: Russia, Tartary and Turkey... Part the Second: Greece, Egypt and the Holy Land...*, London, MDCCCXIV), taken from de Bruyn, and the small floor plan and key in Robert Curzon's book *Visits to Monasteries in the Levant* (London, 1865-1916). Considerable progress in "archaeological" analysis of the Holy Places came with the topographical works by Charles Wilson, *The Survey of Jerusalem*, undertaken in 1874 with the sanction of the Secretary of State for the War, and by Conrad Schick (both working for the *Palestine Exploration Fund*, founded in London in 1865 with the purpose of carrying out exploration and excavation in the area, and publishing the results of any discoveries)¹². Alongside Charles M. de Vogüé we must also report on Felicien de Saulcy (*Voyage en Terre Sainte*, 1865) and Auguste Salzmann (1824-1872), the author of the album *Jérusalem: Étude et reproduction photographique de monuments de la ville sainte, depuis l'époque judaïque jusqu'à nos jours* (1856), who took the photographs, acting on suggestions by de Saulcy, in his four-month stay in Jerusalem, where he arrived the previous year. We also include the aforementioned measured investigations by Ch.E. Mauss (1868-1887), and, finally, the weighty tome *Jérusalem Nouvelle* (1914)¹³ by the Dominican Fathers Vincent and Abel from the École Biblique et Archéologique Française à Jérusalem¹⁴, with original surveys by L.H. Vincent, carried out between 1910 and 1912.

Group C) – from the end of the Great War to the structural assessments that were ordered, at the suggestion of E.T. Richmond¹⁵, by the British Authorities, in the wake of the violent earthquake of 1927.

Dating to the beginning of this period of investigation is, moreover, the first complete planimetric survey of the complex, drawn up by A.W. Clapham¹⁶ and E.G. Newnum (1918), who at the time was stationed in Jerusalem (having been seconded there), also comprising the areas under the Coptic monks which had up until then been off-limits. The illustration, published in 1921, also appears in the famous monograph *Les Monuments des Croisés dans le Royaume de Jérusalem* (1925) by C. Enlart, and it was used by all scholars prior to the publication (3 vols, 1981) by V.C. Corbo, still today the definitive work on research into the building phases and the archaeological context of the complex. In our overview, special importance is attached to investigations into the building's stability, with new surveys and diagnostic tests, carried out as of 1934 (W. Harvey, L. Marangoni etc.) to determine the interventions added later to stabilize and reinforce the most compromised features (especially the *Anastasis*), which Ferdinando Forlati would also deal with in the 1950s¹⁷, and which were made urgent by the evolution of signs of damage (patterns of cracks and leaning walls), which were followed, in the post-war years, by the on-site inspections and site report (1955) by C.T.M. Wolley and B. Spence on behalf of the Jordanian government¹⁸.



FIGURE 2 3D mesh model: view of the Apse of the Katholicon from the area above the Chapel of St. Helena, (L. Fiorini, from point cloud surveyed by Tucci-Bonora).

FIGURE 3 3D mesh model: view of the cross vault of the Entrance to the *Basilica* (L. Fiorini, from point cloud surveyed by Tucci-Bonora).

Group D) – from the studies after the fire (1949) of the 19th century dome of the Anastasis, to the recent surveys (2007-2010) aimed at assessing the seismic risk of the complex.

Dating to the last few decades of research and restoration projects, that begin with the formation (1954) of a unified technical office, comprising the experts chosen by the three religious communities (the Greeks, Catholics and Armenians) who chose P. Coupel (later replaced by J. Trouvelot), A. Orlandos and M. Altounian (who was succeeded by E. Utudjian), are the studies by Charles Coüasnon, the Dominican architect who was also appointed by the Armenians, and the on-site assistant to Trouvelot. These studies appeared in book form in 1974¹⁹. This intense period of research also gave rise to the excavations by Father Corbo, who described them in his fundamental monographic work *Il Santo Sepolcro di Gerusalemme. Aspetti archeologici dalle origini al periodo crociato* (1981). More recently, the availability of innovative surveying systems has made it possible to carry out more sophisticated analyses, such as the photogrammetry surveys (1989-90) of the *Aedicula* of the Sepulchre, conducted by M. Biddle, M.A.R. Cooper and S. Robson for the Gresham Jerusalem Project²⁰, and those of the whole *Basilica* by G. Lavvas, D. D. Balodimos and A. Georgopoulos, published in their most complete version in 2009 in Athens, in addition to which there is the 3-dimensional survey, with laser scanner, carried out under my direction by the Laboratorio GeCo team from Florence university. Finally, given the delay in compiling this volume, we must list the very recent paper by the interdisciplinary group from the Athens Technical University on the *Aedicula*, at the request of the Patriarch of Jerusalem and All Palestine, Theophilos III²¹.



¹⁹ CH. COÜASNON, "The Church of the Holy Sepulchre, Jerusalem", in: *The Schweich Lectures 1972*, London-Cambridge, 1974.

²⁰ The Jerusalem Project is a Swiss-Israeli-Palestinian initiative for the creation of new, innovative perspectives, designed to benefit both Israelis and Palestinians equally. Its first activities began in 2003. After preparation lasting some years, a systematic cooperation between the three partners involved was initiated in October 2008, for a period of 20 years.

²¹ In May 2015, the National Technical University of Athens signed a programmatic agreement with the Jerusalem Patriarchate to compile and implement an "Integrated Diagnostic Research Project and Strategic Plan-

ning for Materials, Interventions Conservation and Rehabilitation of the Holy *Aedicula* of the Church of the Holy Sepulchre in Jerusalem". The interdisciplinary group conducted a study of the existing situation of the Holy *Aedicula* to enable the rehabilitation of the monument. A detailed account of the latest survey, carried out on the occasion of the very recent restoration of the *Aedicula*, can be found in: A. MOROPOULOU, M. KORRES, A. GEORGOPOULOS, C. SPYRAKOS, C. MOUZAKIS (EDS), "Transdisciplinary Multispectral Modeling and Cooperation for the Preservation of Cultural Heritage", First International Conference, TMM_CH 2018, Athens, Greece, October 10–13, 2018, Part I, pp. 3-102.

LIST OF SELECTED AUTHORS*

Gruppo A)

- 1) **JEAN ZUALLART** (1586)
- 2) **BERNARDINO AMICO** (1609 – 1620)
- 3) **FRANCESCO QUARESMI** (1639)
- 4) **EUGÈNE ROGER** (1646)
- 5) **ALAIN MANESSON-MALLET** (1683)
- 6) **CORNELIUS DE BRUYN** (1698-1702-1714-1725)
- 7) **NICOLAS DE FER** (1715)
- 8) **AUGUSTIN CALMET** (1720)
- 9) **ELEAZAR HORN** (1725)
- 10) **GIOVANNI MARITI** (1784)

Gruppo B)

- 11) **LOUIS NICOLAS PHILIPPE AUGUSTE DE FORBIN** (1819)
- 12) **JOSEPH JOHN SCOLES** (1825) disegni pubblicati da **ROBERT WILLIS** (1849)
- 13) **GEORGE WILLIAMS** (1845)
- 14) **CHARLES MELCHIOR DE VOGÜÉ** (1860)
- 15) **ERMETE PIEROTTI** (1864)
- 16) **CHARLES WILSON** (1865-68)
- 17) **CONRAD SCHICK** (1862-1896)
- 18) **CHRISTOPHE E. MAUSS** (1888; 1911)
- 19) **CHARLES SIMON CLERMONT-GANNEAU** (1877;1899)
- 20) **ARCHIBALD C. DICKIE** (1908)
- 21) **GEORGE JEFFREY** (1895; 1910; 1919)
- 22) **LOUIS-HUGUES VINCENT – FELIX MARIE ABEL** (1914)

Gruppo C)

- 23) **ALFRED W. CLAPHAM – E.G. NEWNUM** (1921)
- 24) **WILLIAM HARVEY** (1935; 1938)
- 25) **LUIGI MARANGONI** (1937)
- 26) **FERDINANDO VIENNA** (1940)

Gruppo D)

- 27) **CHARLES COÛASNON** (1974-1975)
- 28) **CHRISTOS KATSIMBINIS** (1977)
- 29) **VIRGILIO C. CORBO** (1981)
- 30) **SHIMON GIBSON – JOAN E. TAYLOR** (1994)
- 31) **MARTIN BIDDLE** (1999-2000)
- 32) **FLORENTINO DIEZ FERNANDEZ** (2004)
- 33) **JON SELIGMANN, GIDEON AVNI** (2003)
- 34) **DENNIS D. BALODIMOS – GEORGIOS P. LAVVAS – ANDREAS GEORGOPULOS** (1993-1999)**
- 35) **GRAZIATUCCI – VALENTINA BONORA** (2007-2010)***

* the dates alongside the names refer to the works described in the entries below, with a few biographical details about the Authors.

** The dates refer to the survey campaigns whose outcomes are described in Chapter 1 of the second part of the present volume.

*** The dates refer to the survey by the Author and her team presented in the following Chapters 2, 3 and 4 of the second part of the present volume.

1

JEAN ZUALLART

(1541-1634)

J. Zuallart, *Il devotissimo viaggio di Gerusalemme. Fatto, et descritto in sei libri dal sig.r. Giovanni Zuallardo, cavaliere del Santiss. Sepolcro di N.S. l'anno 1586. Aggiuntovi i disegni di vari luoghi di Terra Santa: et altri paesi. Intagliati da Natale Bonifacio dalmata, con le illustrazioni di Natale Bonifazio, Rome, Francesco Zannetti and Giacomo Ruffinelli, 1587.*

Small 4, 220 x 150 mm, fine engraved title page with architectural border with coats of arms of the Knights of the Holy Sepulchre and of the dedicatee, Odoardo Farnese, plus in the lower panel a pilgrim walking with the Virtues; full-page engraved portrait of the author on b1 recto with his coats of arms, lion device and a verse addressed to him by Julius Roscius; 51 copper-engraved views, maps, plans, and details of pilgrimage churches, 2 being full-page, 17 measuring 52 x 82 mm, (2 x 3¼ inches), and the rest half-page, engraved by the Croatian Natale Bonifacio, after drawings by the author (Proemio), woodcut head - and tailpieces and historiated initials, divided into six books, pages (20), 402, (10) - index and colophon.

JEAN ZUALLART (1541-1634), a Knight of the Holy Sepulchre, was Burgomeister of Hainaut, in Belgium, as of 1584. While in Rome with Baron Philippe de Merode, his travelling companion in Italy and Germany, he was urged by the latter to travel to the Holy Land with him and a number of priests, in 1586.

This account of his six-month travels in the Levant contains some of the earliest printed illustrations of buildings and views of Palestine. The places visited include Venice, the Tremiti Islands, the southern Mediterranean, Zante, Cyprus, Crete, the surroundings of Bethlehem, Jaffa, Jerusalem and Tripoli.

The first Italian edition of the account of the pilgrimage that began in 1586, dedicated to Odoardo Farnese, with drawings by the author engraved by Natale Bonifacio of Ragusa (1550-92)¹, including seven small maps, first appeared in Rome in 1587. It was followed in 1597 by a reprint. Additional tables appear in the edition in French, printed in Antwerp in 1606, and later in 1608 and 1626. In the foreword to the 1606 edition, he complains that a certain Castela di Tolosa had plagiarized part of the Italian text, copying many illustrations, which were also forged by Ian van Cootwijk (*Itinerarium Hierosolymitanum et Syriacum*, Antwerp, 1619) and others.

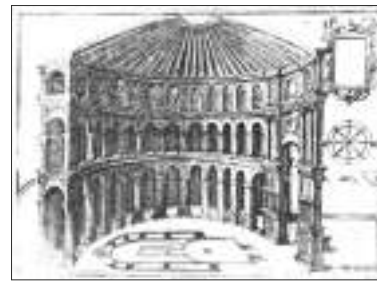
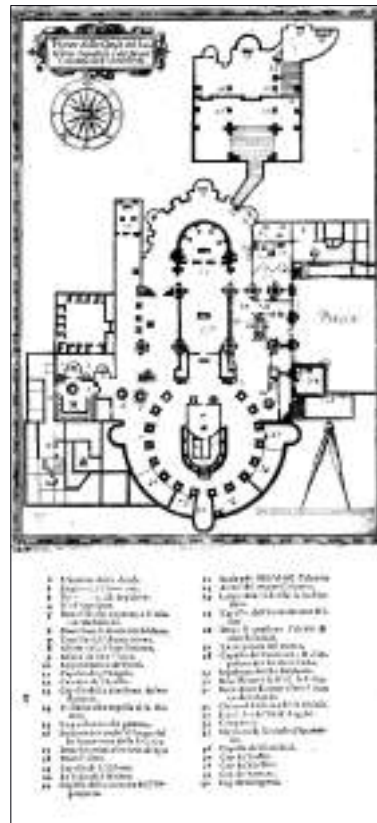
Indeed, his drawings were so accurate and precise that they are still a key source for architectural historians today, despite the fact that Jeffery², in his writings, later pointed out that, in Zuallart's picture of the south front, the roof of the Rotunda appears as a hemispherical dome, rather than a straight-lined conical roof, as it was normally depicted at that time. However, he justifies this (p.77, note 1) as a «mere concession to the fact that, in Zuallardo's day, roofs over circular buildings were usually of a distinctly domical form». He was the first author who made use of Antonino de Angelis' topographical map of Jerusalem.

Left to right:

Plan of the *Basilica* of the Holy Sepulchre, of the Chapels of St. Helena and of Mount Calvary, with list of places.

Perspective section of the *Rotunda*, with the Plan of the Holy Sepulchre.

View of the entrance to the *Basilica*, with the Bell-tower.



¹ Natale Bonifacio, or Natale Dalmatino, (Šibenik, 1538–1592), was a carver and engraver from Dalmatia. His favourite technique was using the bulin, although he also used other techniques, such as the woodcut. Not much is known of the early years of his life: he was definitely in Venice in the 1570s, where he produced a number of maps. On the occasion of the start of the Holy Year in 1575, he moved to Rome, where he became very famous and achieved great renown in just a few short years. While in Rome he came into contact with some of the most important specialist publishers of the era, such as Antonio Lafréry and Claudio Duchet. On 5 July 1579 he became a member of the Congregation of San Girolamo degli Schiavoni, becoming their Guardian on 10 April 1580, Auditor in 1582 and Chamberlain as of 1583. The following year – as a result of book-keeping mistakes – he took on a new project to pay back the financial losses: by

Christmas 1586 he made copper engravings of two images of St. Jerome for the candles to be offered to the Pope for the feast day of Candelmas. In 1589, by now the second Guardian of the Confraternity, he had to return to Šibenik to care for his ailing mother, leaving his wife Maddalena Guerrini in Rome, with their children. See the section on Fabia Borroni in *Dizionario Biografico degli Italiani*, Vol. XII (1971). Natale Bonifacio "of" Ragusa (Šibenik), who made the engravings in Zuallart's book, is not to be confused with the other Bonifacio "from" Ragusa (Bonifacio Stefani), the Franciscan Custodian of the Sepulchre, who sponsored the restoration of the Shrine (1555).
² G. JEFFERY, *A brief description of the Holy Sepulchre, Jerusalem, and other Christian churches in the Holy City, with some account of the mediæval copies of the Holy Sepulchre surviving in Europe*, Cambridge University press, 1919.

2

BERNARDINO AMICO

(XVI-XVII cent.)

B. Amico, *Treatise on the Plans and Images of the Sacred Edifices of the Holy Land drawn in Jerusalem according to the Rules of Perspective and the True Measure of their Size* By R.P.F Bernardino Amico of Gallipoli, of the Order of St. Francis of the Observant Minor Friars. Printed in Rome, Ex typographia Linguarum Externarum 1609, with engravings by Antonio Tempesta and newly reprinted by the same author in a smaller format with the addition of the Via Dolorosa and other sketches, printed in Florence, Pietro Cacconcelli, At Medici Stars, 1620, with engravings by Jacques Callot, with Permission of Superiors.

BERNARDINO AMICO DA GALLIPOLI was Guardian of the Monastery of Jerusalem in 1576, and stayed in the Holy Land for several years. After returning to Italy in 1598 he created a product that was new in the panorama of Holy Land pilgrimage books, producing a book of great artistic quality that is acknowledged as having introduced those places to Europe two centuries before the Orientalist David Roberts achieved the same objective with his colour lithograph prints made during his 1838 trip. Fra' Bernardino is thought to have travelled to the Holy Land to ingratiate himself, on behalf of the Order, with King Philip III of Spain¹ (to whom he dedicates the first edition of the *Trattato*). There is no biographical information concerning him², apart from the details that the author himself gives in the volume. Nevertheless, we know of his familiarity with the Franciscan Custodian Gianfrancesco della Salandra³ who sailed from Calabria and served in the Holy Land from 1568 to 1601 (he became Custos soon after Amico's arrival in Jerusalem in 1593). He had already urged Fr. Antonino de Angelis to make his map of Jerusalem, and he was a backer of the special mission by Bernardino, who had manifested his intention to make drawings of all the Sanctuaries with the precise aim of enabling reproductions of them to be made in Europe⁴. The illustrations in the *Treatise* are the result of measured surveys and drawings that the author made in situ, between 1593 and 1597, "according to the rules of perspective and their true size". After returning to Europe, he handed his drawings to an engraver in Rome, Antonio Tempesta (Florence 1555-Rome 1630). In 1610 the first edition was published of the *Trattato delle Piante e Immagini dei Sacri Edifizi di Terra Santa illustrato con 20 lastre di rame e 38 disegni*. In 1620 Father Bernardino curated a second edition of the work, which was printed in Florence, and illustrated with 47 drawings by the elegant engraver Jacques Callot (Nancy, 1592-1635).

In the first edition, the buildings are empty, and all the surrounding elements are omitted; there are no human figures. Callot tried to correct this absence by adding illustrations of monks in meditation, or accompanying pilgrims, in an attempt to bring to life the scenes of the places that were depicted. There is general agreement that the second edition is closer to Bernardino's intentions, also since it was easier to handle, and therefore more accessible.

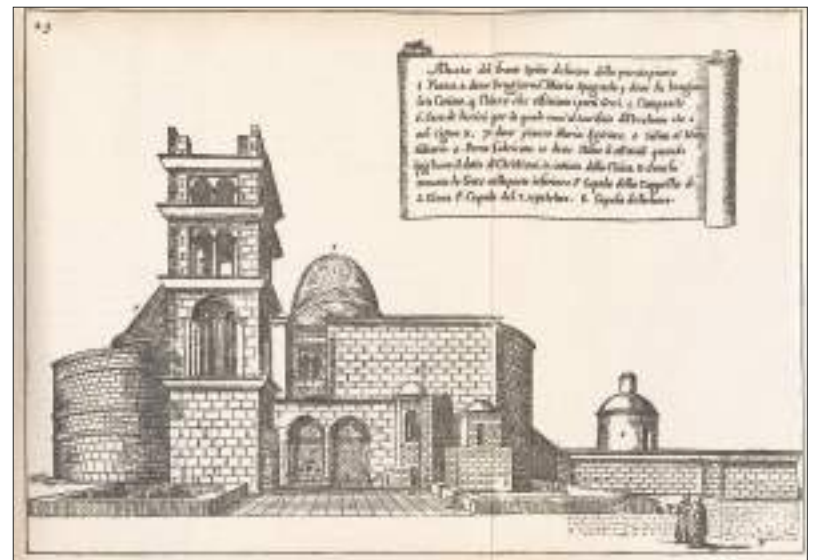
Robin Halwas⁵ comments that: «Amico's drawings exhibit a new standard of naturalism and topographical veracity. He took the measurements of the plan and elevations himself, expressing them in the ordinary cane, which is in use in the Kingdom of Naples, or asked others to measure, where his access was impeded by the Ottoman authorities».

In those days, Gothic and Romanesque art was regarded as barbaric, and so Bernardino sought to represent the scenes along classical lines, changing ogival arches into round arches, and making other similar changes. He states this openly, for example for the Holy Sepulchre, where he speaks of "corrections" to improve the beauty of the building. In doing this, he simply follows the fashion of the day. (De Thevenot and Le Bruyn would also later follow the same criteria as Bernardino Amico).

Left to right:

"The true Plan of the Most Holy Sepulchre and Mount Calvary of Our Lord Jesus Christ".

"Elevation of the Facade of the previous Plan".



Although Amico drew on Zuallart's engravings, «The images made by the two – notes B. Bagatti – differ much in the drawing. And that is only natural, because Bernardino produced views from a carefully measured plan, whereas Zuallart drew with the unaided eye, in a very rough-and-ready way. The two had different intentions, and also had different amounts of time they could devote to the work [...]. He often states that he depicted the sacred buildings “according to the rules of perspective, and to their true scale [...]”. In fact, concerning the Shrine of the Holy Sepulchre, he challenges “those who delight in handling the compass” to find “one single point of difference, or mistake” between the elevations and the floor plan, to demonstrate the precision of his measurements⁶, and admits that “not all the drawings display equal reliability. [...]” This is what he has to say regarding the Shrine of the Holy Sepulchre, which had already disappeared some time before: “The socles are of different heights and are rough-and-ready, and similarly the columns are of different thicknesses, and styles, there being some that are round, with eight corners, and out of shape, and in short it appears, in my view, that they are relics from other buildings: but I made them the same, partly out of negligence, and partly to beautify the drawing [...]».

Many people have drawn from the engravings in the *Trattato*: Father Quaresmi, Dapper, Fr. Swinner, Fr. Guyon, and Fr. Castillo, as well as more modern authors: Fergusson describes it as the most accurate work that was ever conducted, Jeffery calls it praiseworthy. Many others have referred to them for their documentary value: Willis⁷, De Vogüé, Enlart, Mauss, Harvey, Marangoni...

Rembrandt owned a copy of the second edition, and borrowed from it Amico's rendering of the Temple of Jerusalem as a domed octagonal building.

Bernardino Amico also included, at the end of the volume, a reproduction of a bird's-eye view plan drawn by F. Antonino de Angelis⁸, in which he situates the Basilica of the Holy Sepulchre, and which he “corrects” and embellishes (“I have not hesitated to embellish it and to correct it in some defects”), stating that he was not able to measure it directly as he would have liked⁹, showing once again how dedicated he was to faithfully representing the Holy Places¹⁰.

Archaeological excavation in modern times has diminished the utility of the drawings. However, their value in the historical reconstruction of the shrines, as witnesses to the former state of Holy Places altered and sometimes destroyed, has not waned.

¹ «In the 1550's Philip, too, would have his chance to present himself as the Franciscan's dotting patron, funding a renovation of Jerusalem's most important shrines and thereby furthering himself as a 'new Constantine' [...] Philip struck up a close friendship with the charismatic Guardian of the Holy Sepulchre, Boniface of Ragusa. Fr. Boniface had rescued the permission from the Ottoman authorities in Jerusalem to make much-needed repairs to the roof and structure of Holy Sepulchre, and he hoped to leverage Spain's customary interest in patronizing the Holy Places as a means to

recruit Spanish backing for his ambitious restoration.» (ADAM G. BEAVER, *A Holy Land for the Catholic Monarchy: Palestine in the Making of Modern Spain 1469-1598*, Harvard University, may 2008, p.56; “From Jerusalem to Toledo: Replica, Landscape and the Nation” in *Renaissance Iberia “Past and Present” Oxford Journal*, 218, 1, 2013, pp. 55-90). Beaver confuses Philip II (+1598) with Philip III (1578-1621), known as Philip the Pious, who famously expelled (1609) the moriscos from Spain.

² Cfr. BELLARMINO BAGATTI, “Fra’ Bernardino Amico disegnatore dei Santuari Palestinesi alla

fine del '500” in: M. PICCHILLO, *La nuova Gerusalemme, Artigianato palestinese al servizio dei Luoghi Santi*, Custody of the Holy Land, Jerusalem 2007, pp. 233-238.

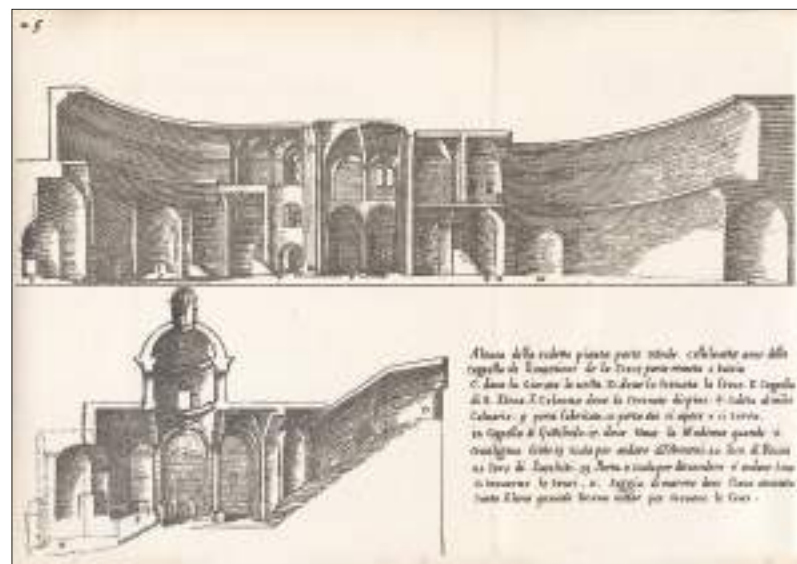
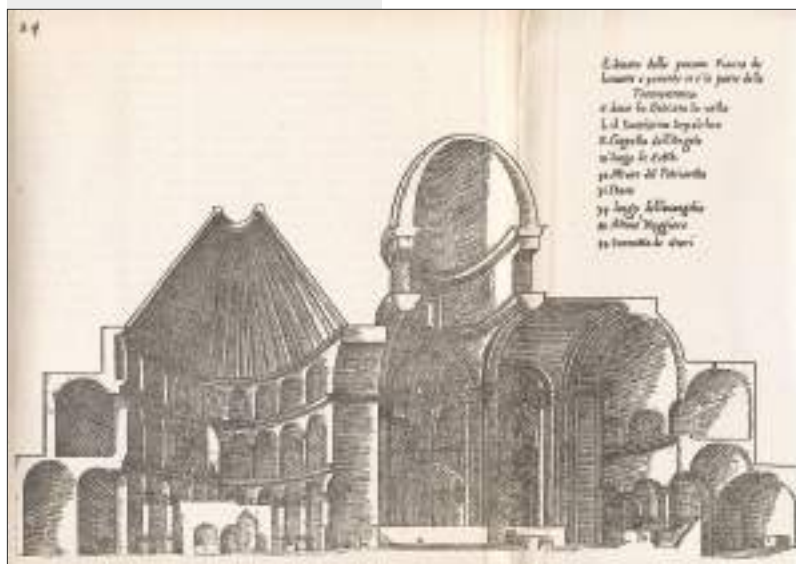
³ Author of the *Liber de perenni cultu Terrae Sanctae* (1577), reprinted by Fr. Cipriano da Treviso at Venice in 1875: For more information on him, see: BELLARMINO BAGATTI, *Un custode di Terra Santa archeologo pioniere. P. Gianfrancesco della Salandra (1568-1601)*, Custody of the Holy Land, Jerusalem 1951, pp. 87-94.

⁴ «Amico's *Trattato* consists of systematic and accurate documentation of Christian tra-

Left to right:

"Elevation of the previous Plan cut from the East and West and it is the Northern Side".

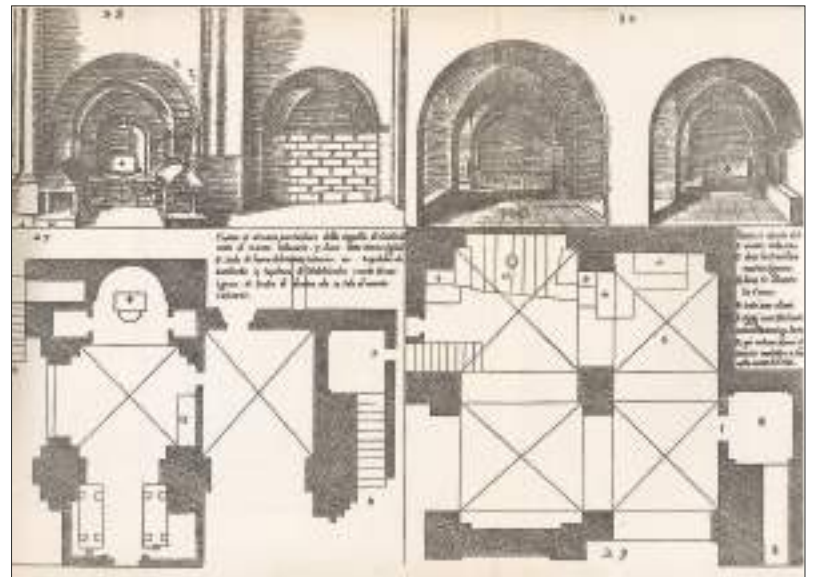
"Elevation of the said Plan, South Part, with the Elevation also of the Chapel of the Finding of the Cross, the separate Lower Part".





Left to right:
"Elevation of East Side".

Left: "Plan and particular Elevation of the Chapel of Godfrey under Mt. Calvary"; right: "Plan and Elevation of Holy Mt. Calvary".



ditions and monuments. It is uniquely and without precedent a commented architectural survey of the Christian Holy Land, guided by a visual rationale and lacking a narrative or chronological backbone. [...] Amico's detailed images and documentation and full of concrete quantitative information, were designed to enable the reader to reproduce the holy places, either mentally or physically». ZUR SHALEV, *op. cit.*, preprint 2009. In the Holy Land the illustrations were used, as per the express desire of the author, by the artisans of Bethlehem to build the scale models of the Sanctuaries, many of great artistic merit, that are today held in several European museums. See: M. PICCIRILLO, *La Nuova Gerusalemme. Artigianato Palestinese al servizio dei Luoghi Santi*, Custody of the Holy Land, Jerusalem 2007.

⁵ Curator of the digital edition of the *Trattato delle Piante et Immagini* (1620), Octavo, Palo Alto, 1999. A previous modern edition, in English, appeared in 1953 (Jerusalem, Franciscan Printing Press), with a preface and notes by Bellarmino Bagatti O.F.M.

⁶ B. BAGATTI, *op. cit.*
⁷ The exactness of the measurements reported by Bernardino Amico is called into question by Robert Willis (cf. *Architectural History of the Church of the Holy Sepulchre at Jerusalem*, (1849) reprint Elibron classics) who, on the basis of the surveys by Scoles, he ventures into an analytical comparison of the measurements shown. Specifically, he observes (note 2, p. 70) the lack of homogeneity between the accuracy of the floor plan survey and the accuracy of the elevations, which he suggests

may have been drawn on the basis of Vitruvian principles, as was then customary.

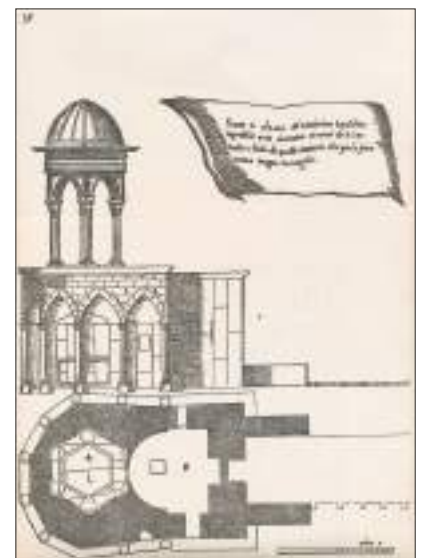
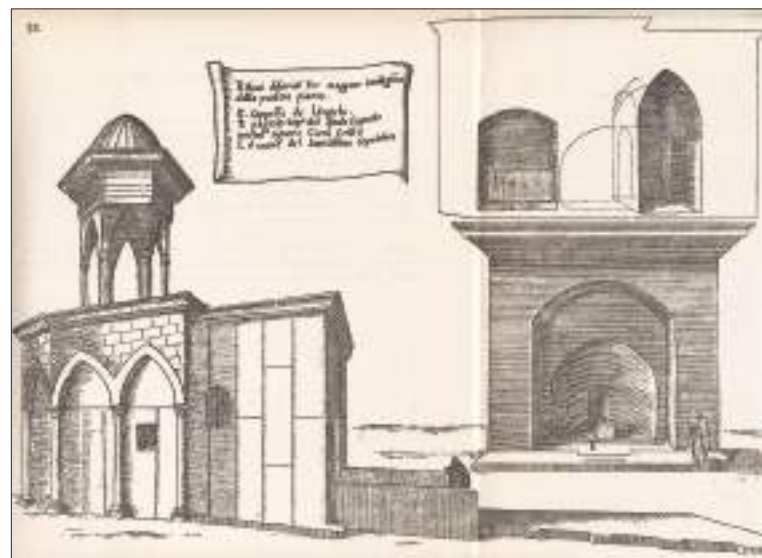
⁸ Fra Antonino's plan, which modern scholars believed to have been lost, reappeared in July 1999 in an exhibition held in Tel Aviv as part of a private collection belonging to the Molodov family of New York.

⁹ It was not easy to enter buildings held by Muslims or turned into Mosques. The panoramic view of Jerusalem also generated suspicions among the Turks who, always at war with some European state or another, did not distinguish between possible espionage and simple surveys of the Holy Places. In either case, it could have been a weapon in the hands of the enemy.

¹⁰ See: M. PICCIRILLO, *The role...*, *op. cit.*, 2009.

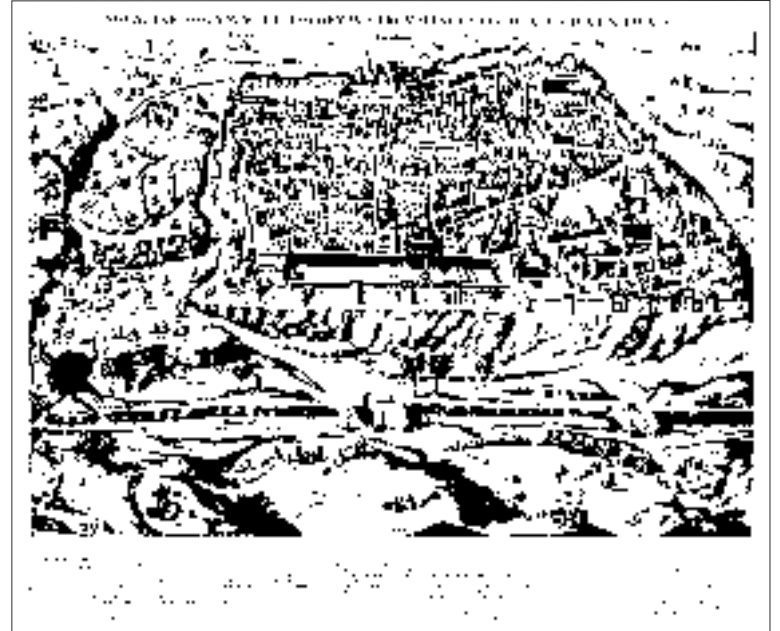
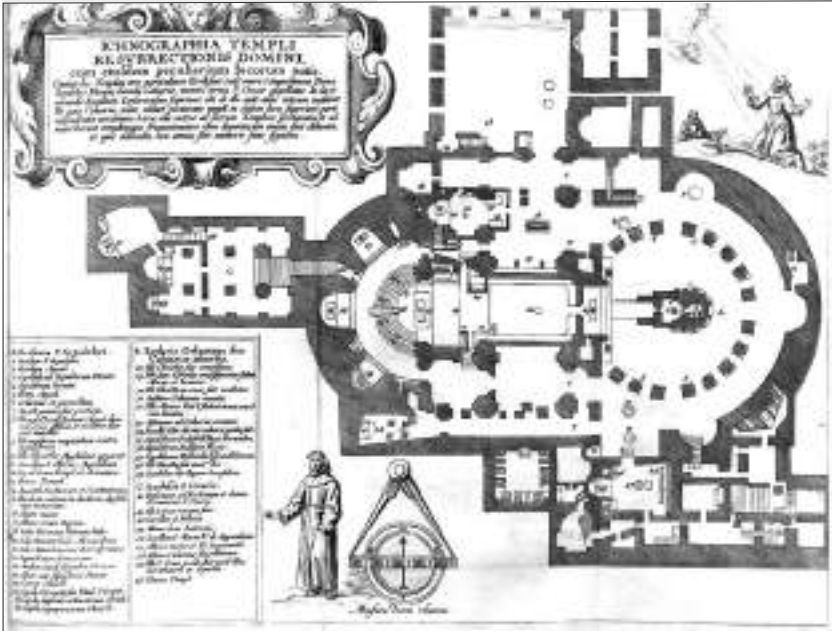
Left to right:
"Different reliefs for a better understanding of the Plan of the Holy Sepulchre".

"Plan and Elevation of the Most Holy Sepulchre in profile, so that each one may use his own scale and make it of that material which pleases him without too much labour".



F. Quaresmi, *Historica, Theologica et Moralis Terrae Sanctae Elucidatio. In qua pleraque and Veterem et Praesentem eiusdem Terrae statum spectantia accurate explicantur varii errores refelluntur veritas fideliter exacateque discutitur et comprobatur. Opus non tantum ad Terram Sanctam proficiscentibus sed etiam Sacrae Scripturae studiosis Divini Verbi praeconibus utilissimum*, I-II, Antverpiae 1639. (the work was republished by F. Cipriano from Treviso in Venice in 1880).

Quaresmi discusses the Temple of the Resurrection (*De Sanctissimi Domini Nostri Jesu Christi*) in book V (chs. VIII-IX-X). The treatise deals with the Holy Places, which are illustrated by Holy Scripture, and by history, theology, geography, archaeology, natural science, and the events of the day. A new edition of the work, now impossible to find, was printed in Venice in 1881. The most recent edition is the one edited by S. De Sandoli¹, and printed in 1989 in Jerusalem by the Franciscan Printing Press, selecting the descriptive parts of the Holy Places and omitting the theoretical parts on theology, morality, law, etc...



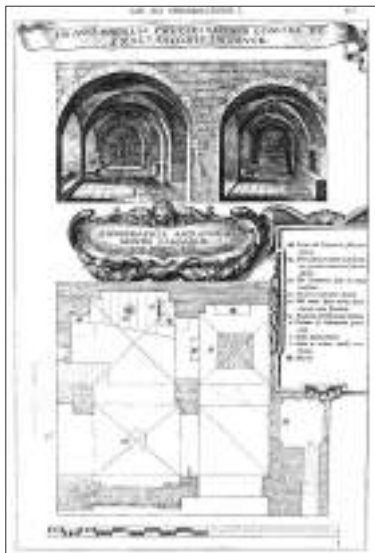
Full-page plates of the "Historica... Elucidatio". Left to right:

General Plan of the *Basilica* of the Holy Sepulchre.

View of Jerusalem and surrounding places.

FRANCESCO QUARESMI (1583–1650), from Lodi, entered the Order of Friars Minor at the monastery of S. Maria delle Grazie in Mantua, and was "Lettore Giubilato" in Sacred Theology, and Guardian of the Sant'Angelo monastery in Milan before arriving in the Holy Land on 3 March, 1616. Later on he became Provincial Guardian of Lombardy and Procurator General of the Order. He never forgot the Holy Land, to which he remained forever closely bound. His writings are a devout defence of the presence of the Franciscans in those lands, and in his mission for them he occupied important roles, with wide-ranging ecumenical contacts. A reading of the *Elucidatio Terrae Sanctae* supplements and explains Bernardino Amico's drawings. For that matter, the author himself confesses in the introduction that he is writing and describing precisely owing to his scant skill in the practice of drawing. «When about to leave Milan to begin my holy pilgrimage to Jerusalem, I went to pay my respects to the Most Reverend Giorgio Odescalchi, bishop of Vigevano, who was then in Milan, who, standing before me, seriously urged me to compose a small work on the Holy Places, in which I was to draw the Holy Places geographically, and write about their history [...] But, being inexpert in the art of drawing, and thus not being able to draw the Holy Places and their ruins geographically, I thought I would render a better service were I to explain with more diligence the Holy Sites, and were I to add that which others have handed down to us». His guiding principle, as is underlined in several places in his writings, is to discuss the Holy Places with as much clarity and precision as possible. The tradition must be based on the people who have seen for themselves, and on his own experience, and on the tradition of the Christian populations in the Holy Land. As regards the antiquarian importance of the work, its greatest merit lies in having handed down to us a description of the mosaic and fresco cycles that adorned the basilica of the Holy Sepulchre, and the Basilica of Bethlehem, with the addition of an accurate transcription of the Greek and Latin inscriptions that accompanied it, now that the mosaics, frescoes and inscriptions have largely been lost².

The descriptions of the Holy Places minutely produced by the Franciscans also suffered from the cultural climate of the local Franciscan community at that time. The map of Jerusalem by Father Antonino³, Amico's drawings and Quaresimi's descriptions fulfill the need for veracity in the information given to pilgrims, to counter the more fantastical tales that abounded at the time⁴. Father Francesco Quaresimi is regarded as the founder of modern Palestine studies, and he produced a work that remained an unquestioned standard for centuries. All later authors, including Horn, copied freely from him⁵.



¹ Fr. FRANCISCI QUARESIMI *Elucidatio Terrae Sanctae*. Excerpts chosen and translated by S. De Sandoli (SBF – *Collectio maior* n. 32), Jerusalem 1989.

² Jeffery also said, on p. 36, in reference to the monumental work of Quaresimi: «In it he mentions many particulars about the building of the Holy Sepulchre, and refers among other things to the ruined mosaics in the Calvary Chapels, with their inscriptions».

³ The map included by Fr. Quaresimi in the second volume of his *Elucidatio Terrae Sanctae* also relies on Fr. Antonino and Fr. Bernardino.

⁴ The comments on Quaresimi are mainly discussed in the chapter on “Presenza e attività culturale dei Francescani in Medio Oriente” by Fr. GIOVANNI CLAUDIO BOTTINI OFM, contained in *Itinerari e Cronache Francescane di Terra Santa (1550-1800)*, a collection of Franciscan guidebooks, itineraries, tales and chronicles on the Holy Land, edited by Marco Galateri di Genola, and published, on the occasion of the 800th anniversary of the Franciscan presence on the Land of Jesus, by Edizioni Terra Santa, in 2017.

⁵ The list of writers who have used Quaresimi's work as a major source includes: Fr. Antonio of

Castille (who prepared his work in 1626-32); Fr. Da Secli (1628-1629); Fr. Eugene Roger (1631); Fr. Bernardino Surius (1644-47); Fr. Mariano Morone from Maleo (1652,58); Fr. Elcectus Zwinner (1658); Fr. Antonio Gonzales (1665-68); Fr. J. Florent Goujon (1668); Fr. Leonard Du Clou (1671-74); Fr. Francesco Caccia (1690); Fr. Conrad Hietling (1697); Fr. Marcel Ladoire (1719) and Fr. Pietr'Antonio from Venice (1700).

Plan and perspective view of the Calvary Chapel.

4 EUGÈNE ROGER (?-about 1646)

E. Roger, *La Terre Sainte, Ou Description Topographique tres-particulière des saints Lieux, & de la Terre de Promission. Avec un Traitté de quatorze Nations de différente Religion qui l'habitent, leurs mœurs, croyance, ceremonies, & police; Un Discours des principaux pointcs de l'Alcoran, & ce que les Santons leur preschent dans les Mosquées. L'Histoire de la Vie et Mort de l'Émir Fechrredin, Prince des Drus; Et une Relation véritable de Zaga Christ prince d'Ethyopie, qui mourut à Ruel prez Paris l'an 1638. Le tout enrichy de figures par F. Eugène Roger.* Paris, Antonie Bertier Marchand, 1646.

First illustrated edition of 37 etchings (one folded card, 19 views, 17 pl. (10) ff., 440 pp., (16) ff., ill. in-text.

EUGÈNE ROGER was a French Franciscan who arrived in the Holy Land in 1629. He lived there for five years, and died in his native France in 1638. The first edition of his work was followed by a second edition, printed in Paris, around 20 years later (1664). Roger spoke about the Holy Sepulchre in the first book (pp. 118-145). The 37 superb illustrations, attributed by Michaud (*Biographie universelle*, p. 314) to Mellan, and consisting in numerous full-page copper engravings depicting maps, views and customs of the local inhabitants, are found on pages 130, 131, 134, and 135. Some of them are ascribed by a number of people to François Chauveau (1613-1676).

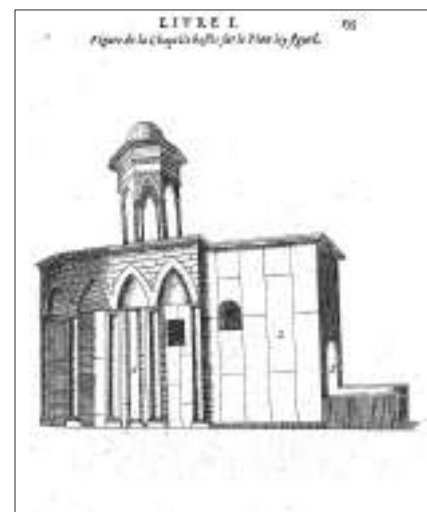
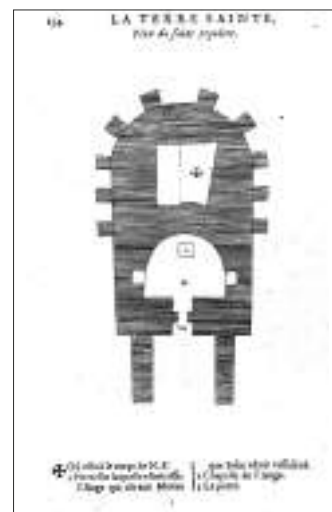
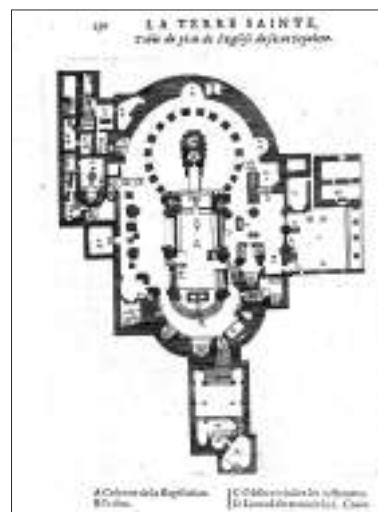
Particularly well-versed in natural science and botany, it offers detailed descriptions of landscapes, people, and farming. Indeed, the work's value lies in its descriptions of the places visited, with an anthropological approach to Islam.

Left to right:

Plan of the *Basilica* of the Holy Sepulchre.

Plan of the Holy Sepulchre.

View of the Holy Sepulchre.



5

ALAIN MANESSON-MALLET

(1630-1706)

ALAIN MANESSON-MALLET (1630–1706) was a French cartographer and engineer. He began his career as a soldier in the army of Louis XIV, becoming Sergeant-Major in the artillery and an Inspector of Fortifications. He also served under the King of Portugal, before returning to France, where he was appointed to the court of Louis XIV.

His most important publications were *Description de L'Univers* (1683) in 5 volumes, and *Les Travaux de Mars ou l'Art de la Guerre* (1684) in 3 volumes. On p. 253 (Fig. CXI) of vol. 2 (Asia) of the *Description de L'Univers*, there is a “Plan de l'Eglise du Saint-Sepulchre et du Mont-Calvaire à Jerusalem modern”¹, which is basically a reworking of the drawings by Quaresimi and Amico.

¹ All Mallet maps and views from different editions (1683-1719) available at <http://www.columbia.edu/itc/mealac/pritchett/00generallinks/mallet/>

Right:

Plan of the *Basilica of the Holy Sepulchre* and of Mt. Calvary.



6

CORNELIS DE BRUYN

(1652-1726)

C. De Bruyn, *Reizen van Cornelis de Bruyn, door de vermaardste Deelen van Klein Asia, de Eylanden Scio, Rhodus, Cyprus, Metelino, Stanchio ecc. Mitsgaders de voornamste steden van Aegypte, Syrien en Palestina. Verrijkt met meer als 200 kopere konstplaatn, vertoonende de beroemdste landschappen, steden, &c. Alles door den autheur self na het leven afgetekend, Delft, 1698.*

Right:

View of the Entrance to the Holy Sepulchre.

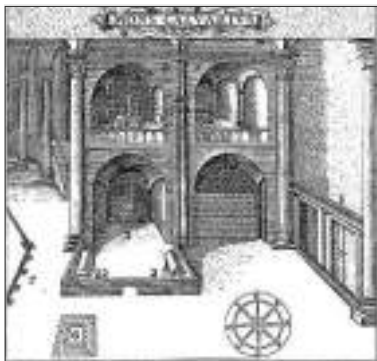
Interior view of the *Rotunda* with the Holy Sepulchre.



Above:

Interior view of the *Katholicon* towards the *Chorus Dominorum*.

The Dutch painter **CORNELIS DE BRUYN** (Hague, 1652–Utrecht, 1726/7), came to Italy in 1674 to complete his training as a painter. In 1678 he set out from Livorno on his first lengthy trip to the Middle East, staying in Palestine between 21 July 1681 and 9 January 1682. This was followed by a second trip around 27 years later. During his travels, he produced hundreds of drawings and paintings, taking accurate measurements of the monuments he visited, but of these only a few originals remain.



However, engravings were made from them. As well as using his own notes in his account, he wrote the text also drawing on the work of other travellers, especially Jean de Thévenot, the author of a 1664 work, *Voyage au Levant*, which Cornelis took with him on his journey¹.

Not having the benefit of photography, travellers generally were unable to make reliable sketches of what they saw. Often illustrations in travel books were made after the authors returned from their travels, by engravers who had to make them on the basis of the description of the places, a rather difficult task.

De Bruijn also made use of engravers who transposed to copper plates the very numerous drawings he made on his travels; in the preface to *Traveles of Cornelis de Bruijn etc...*, he assures the reader that the engravings in his book are more reliable than those found in other travelogues, and in the preface to his second book he states how important it was for him to abide scrupulously by reality². De Bruyn himself remarks that he had “made it an indispensable Law to my self, not to deviate in any respect from Truth”. His works greatly added to knowledge in Europe of foreign peoples, flora and fauna, and ancient monuments³.

De Bruijn prepared a unique panorama of Jerusalem from the the Mount of Olives⁴, and several drawings in the *Basilica of the Holy Sepulchre*. It took three days and nights of more or less continuous work. His drawings were important for Western scholars: there is a fine picture of the exterior, a remarkable drawing of the *Rotunda*, the square building (*aediculum*) in which the tomb itself could be found, and the sepulchre itself. Even today these drawings are valuable, as they provide a description of the places that allows us to suggest reconstructions of the buildings before the fire in 1808.

¹ J.H. HAYDEN, "Cornelis de Bruyn: Painter, Traveler, Curiosity Collector – Spy?" in: *Through the Eyes of the Beholder The Holy Land, 1517-1713*, Ed. J.H. Hayden and Nabil I. Matar, Brill, Leiden, 2012.

² J. DE HOND, "Cornelis de Bruijn (1652-1726/27). A Dutch painter in the East", in:

G.J.H. VAN GELDER, Ed de Moor, *Eastward bound: Dutch ventures and adventures in the Middle East*, London-Atlanta, 1994, pp. 51-81.

³ J. SPEAKE, *Literature of Travel and Exploration: A to F*, pp.132-133-134.

⁴ This was forbidden, but a bribed Franciscan friar gave him a signal when Ottoman soldiers

approached, so that the artist could hide his drawing materials in a picnic basket. After four days, the first accurate drawing of the holy city that was to reach Europe was ready. <https://www.livius.org/articles/person/bruijn/bruijn-5/>.

From above:

Mt. Calvary: view from the Entrance.

Interior view of the Holy Sepulchre.

General view of the Complex of the Holy Sepulchre, with the Bell-tower and the two domes.

N. De Fer, *Atlas Curieux où le Monde représenté dans les cartes générales et particulières du Ciel et de la Terre, Paris, 1715, with the Plan du Saint Sepulchre de notre seigr. Jess-Christ: situé en la Terre Sainte sur le Mont Calvaire dans la Cité de Jerusalem, image measures 15.5" x 19"*.

NICOLAS DE FER was an influential and prolific French cartographer, geographer, engraver and publisher. He produced more than 600 sheet maps, atlases, and wall maps prized for their decorative qualities more than for their geographical accuracy. He was apprenticed to Parisian engraver Louis Spirinx, and made his first map at the age of 23, of the Canal du Midi. His father Antoine was also a printer, and his business passed to Nicolas in 1687. The fortunes of the firm improved rapidly under De Fer's management, and he combined cartographic skill with a keen eye for advancement. In 1689 he produced a map of Franche-Comte to honour the Grand Dauphin, becoming his official geographer.

His output subsequently became closely tied to the French Crown's interests: for example, the 'Forces de L'Europe ou Introduction a la Fortification', published in 1695, which showed towns drawn as a plan to outline the fortifications designed by the groundbreaking French engineer Sébastien de Vauban, rather than as an elevation or view. He then went on to become official geographer to Philip V and Louis XIV (both the French and Spanish branches of the House of Bourbon), and eventually, in 1720, to the Pope. De Fer published the '*Atlas Curieux où le Monde représenté dans les cartes générales et particulières du Ciel et de la Terre*' between 1700 and 1705, adding plates each time, covering astronomical and geographical subjects. De Fer also published a well-known map of the Americas, with vignettes designed by Nicolas Guérard, including one of beavers creating a dam. This vignette was later used by Herman Moll for his famous '*Beaver Map*' of the British colonies in North America¹.

His works include several atlases: *Les Côtes de France* (1690); *France Triomphante* (1693); *Forces de L'Europe* (1696); *Atlas Curieux* (1705); *Atlas Royal, dans l'isle du Palais sur le Quay de l'Orloge a la Sphère royale* (between 1699 and 1702); and *Introduction de la Fortification* (1693).

7

NICOLAS DE FER

(1646-1720)



Plan of the *Basilica* of the Holy Sepulchre, with 3 insets: the Temple of Solomon, the Map of the Holy Land and a Plan of Jerusalem City.

Several copies exist of his map of the Church of the Holy Sepulchre in Jerusalem, with Calvary, some of them coloured and others line illustrations. This elaborate and striking engraving communicates the geography, culture, and history of the city of Jerusalem. In doing so, it touches on almost all of its medium's 18th century uses, including map, architectural rendering, town plan, and pictorial representation. Its primary component is a floor plan of the Church of the Holy Sepulchre, labelled down to the finest detail, encompassing chapels, thrones, columns, decorative mosaics, and sites of relics, among other details. An elevation of the Holy Tomb fills the space of the *Rotunda*. Three insets surround the plan, their shapes complementing the geometry of the church. They feature a plan of the Temple of Solomon, a plan of the city of Jerusalem, and a Map of the Holy Land. These four renderings, taken together, are furthermore framed by a border of remarkable design. At the top, scenes portray from left to right the crucifixion and the resurrection. On the remaining three sides, the stations of the cross appear along a stone path, with each group of weary cross-bearers described with a unique emotional inflection. De Fer's strategy of filling negative space with a texture of engraved lines not only helps these fine details stand out, it also contributes to the gravity with which they are conveyed².

¹ <https://www.crouchrarebooks.com/mapmakers/nicolas-de-fer>.

vialibri.net/years/books/97699596/1715-fer-nicolas-de-plan-du-saint-sepulchre-de-notre.

² For a description of the plan: <https://www>.

8

AUGUSTIN CALMET

(1672-1757)

Right:

Plan of the *Basilica* of the Holy Sepulchre and Plan and views of the Holy Sepulchre and Mt. Calvary. The plate seems to be a collection of previous drawings (see Zuallart and De Bruyn)

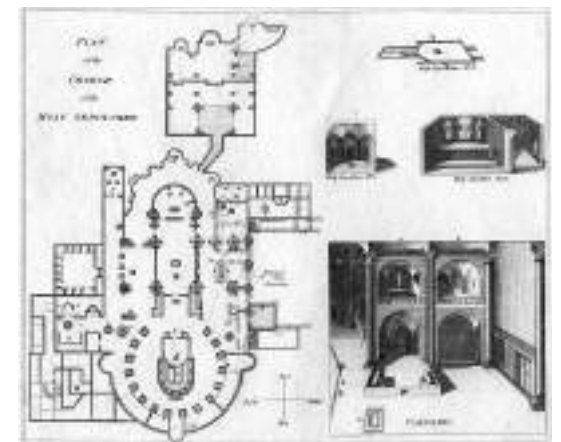
A. Calmet, *Dictionnaire historique, critique, chronologique, géographique et littéral de la Bible* (Paris, 1720, two vols. folio).

A supplement (also folio) was added in 1728. An improved and enlarged edition in four folio volumes was published in 1730, which has several times been reprinted, the last time in Migne, "Encyclopédie théologique", I-IV. It, too, was translated into Latin and the principal European languages. The English translation by D'Oyley and Colson (1732), revised and with additions by Taylor (1795), went through many editions in a larger and compendious form.

A. Calmet, Ch. Taylor, *Calmet's Dictionary of the Holy Bible: With the Biblical Fragments*, five volumes.

The plan of the Holy Sepulchre reproduced here is a copper engraving taken from an 1800 edition. Size 20.5 x 17.5 cms.

AUGUSTIN CALMET, (1672 –1757), was a Benedictine scholar, a famous exegete, and an eclectic writer. He was appointed to teach philosophy and theology at the Abbey of Moyen-Moutier. He received a commission to produce a commentary on Holy Scripture at the Moyen-Moutier abbey, and at the abbey of Munster, and was later appointed prior at Lay-Saint-Christophe (1714-1715), subsequently becoming Abbot of Saint-Léopold in Nancy (1718). He consulted all the libraries of his Order, compiling numerous historical essays. In 1728 he was appointed Abbot at the Abbey of Saint-Pierre de Senones, in what was the capital of the Principate of Salm. It was in this abbey that he worked in the last years of his life, engaging in frequent correspondence with numerous scholars of the day.



9

ELEAZAR HORN

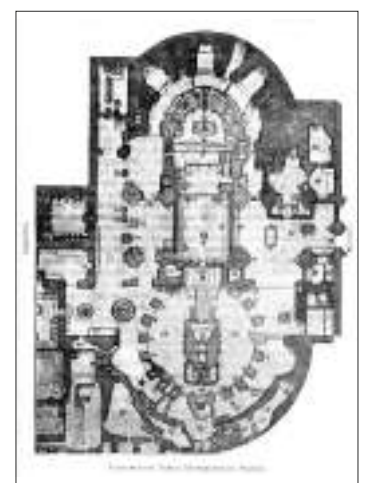
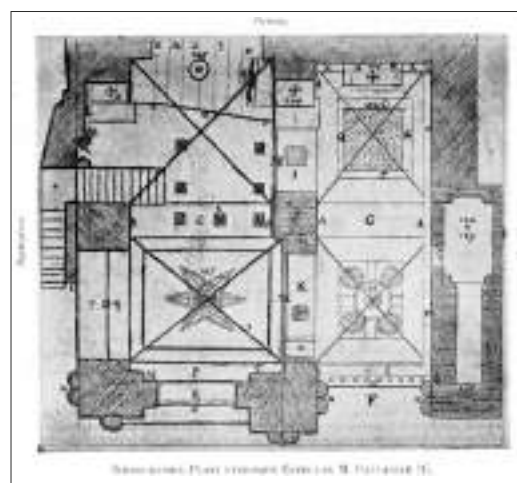
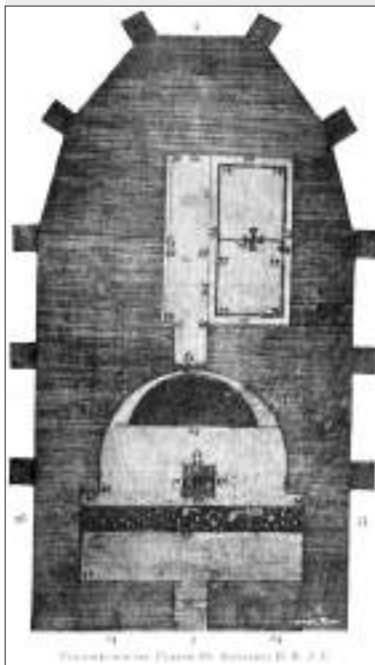
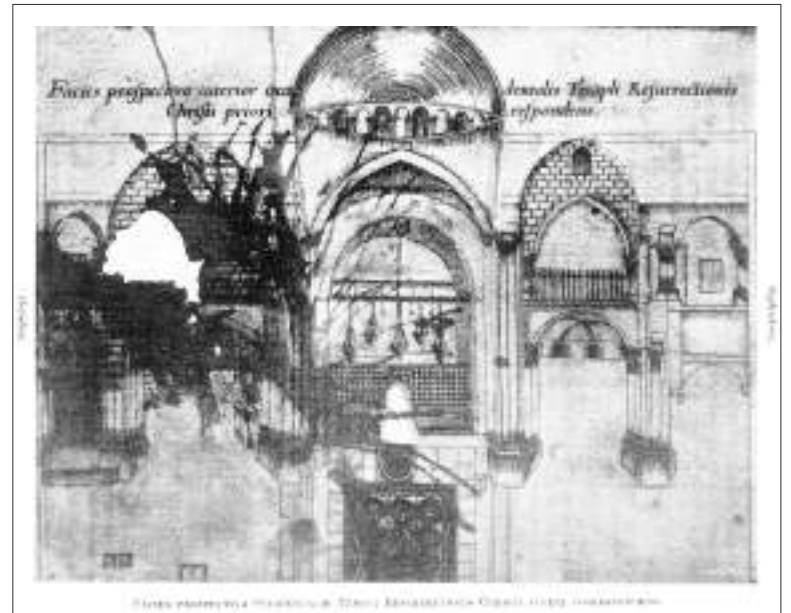
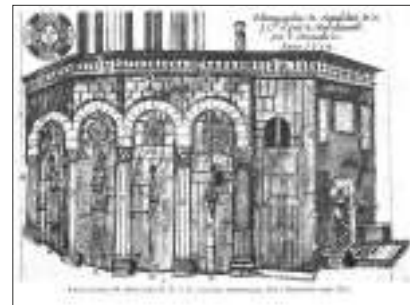
(1691-1744)

From left, clockwise:

Interior view of the Holy Sepulchre.

Perspective sketch of the West interior Elevation of the *Basilica*.

South side of the Holy Sepulchre.



After the work of Bernardino Amico, the work of **ELEAZAR HORN** is the one most used by later authors, down to and including Vincent and Abel.

E. Horn, a Franciscan organist born around 1691, lived in Palestine from 1724 until his death (28 November 1744). Greatly inspired by devotional motives, he showed an interest not only in places and monuments but also in objects of worship, holy rituals, and religious celebrations. In 1724 he began his work on the sacred monuments of Palestine, published only in 1902 by Father G. Golubovich, who found the text and illustrations in the *Codice Vaticano Latino 9233* of the Apostolic Library (3 vols.).

The description of the *Basilica of the Holy Sepulchre* is in volume II (which also discusses the *S. Salvatore* monastery), from fol. 43 to fol. 164; the work consists in 56 pages, with 33 drawings.

A new edition with an English text on the facing page, with a preface and notes by Bellarmino Bagatti, appeared in 1962, published by the Franciscan Printing Press in Jerusalem (reprinted 2004).

Above:

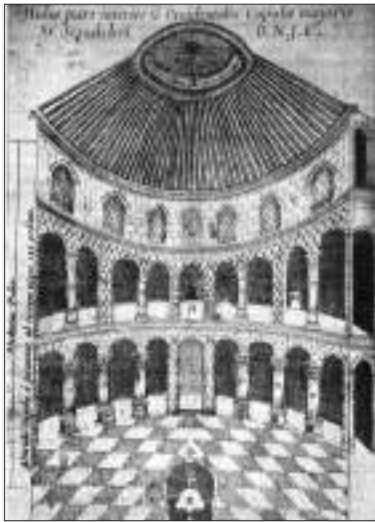
Plan of the *Aedicula* of the Holy Sepulchre.

Right:

Franciscan Convent of the Holy Sepulchre.

Plan of Mt. Calvary Chapels.

Plan of the *Basilica* of the Holy Sepulchre.



Above:

Rotunda, interior: West Elevation.

Below, clockwise:

Section on St. Helena Chapel.

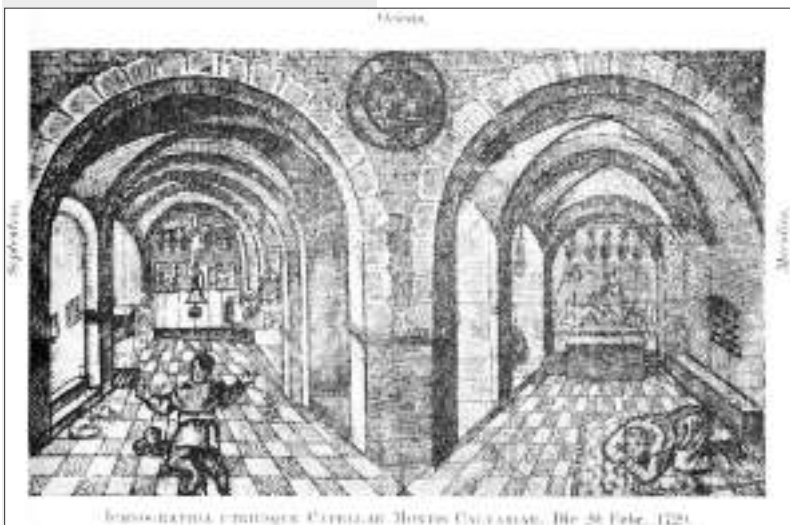
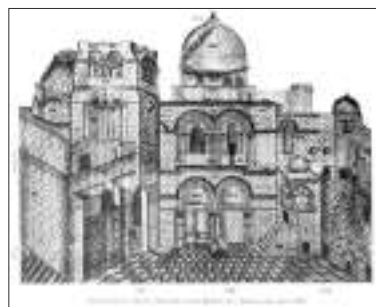
Front Elevation of the Holy Sepulchre.

Perspective view of the Chapels of Mt. Calvary.



Above:

Views of the Holy Sepulchre with the adjoining Coptic Chapel.



Many illustrations are taken from other works. For some illustrations, he makes use of the drawings of Bernardino Amico, but in the case of the Holy Sepulchre he changes some details, adding others. On-site measurements, made “in front of the monuments and marked with numbers and letters in order to describe them in detail”, are completely “the fruit of his labour”. Louis Hugues Vincent also acknowledged their documentary value, showing the state the Holy Places were in at the time, and drew on them with F. M. Abel. Horn's work was used for some historical reconstructions, such as that by Marangoni, regarding details of the Holy Sepulchre.

Horn provides a valuable first-hand account of the state of the Aedicula before the 1719 repairs, noting that the Sepulchre chamber was not dug into the bedrock, but was a construction in its own right, made from large, cut stones, bonded with mortar, and that the 10 outer columns had differing profiles.

After discussing the circumstances that led to the reconstruction (1555) of the Aedicula by Fr. Bonifacio da Ragusa¹, he describes its poor state of conservation: “The marble slabs, with which it was covered, had been in part removed, and in part, on account of age, loosed”, so that “our Friars began in the meantime to decorate the most Holy Tomb all around by suspending silk drapery according to the quality of the feasts until it would be permissible to repair it entirely. Up to the present the matter has remained in suspense because not so much the Turks as the Greeks oppose its repair”². The drawings of the fabric are of considerable interest because they show elements that have disappeared today, such as the mosaics with the figures of S. Eraclio and St Helena. Bernardino Amico had depicted the truncated cone-shaped roof that predated the 1719 “restorations”, while Horn shows us the rotunda with the later roof, which was also later replaced.

The drawings of the tombs of the Latin Kings (Baldovino, etc), destroyed in 1808, and of the Cosmatesque pavements, later removed or reworked, are very accurate and completely new. By contrast, it is likely that the depiction of the facade is taken from previous drawings. Horn is also the first to provide a plan of the Monastery of the Holy Sepulchre. In chapter III there are the captions to the numbers shown in the illustrations, with the measurements in feet and palms (Fol. 56. v.) of the Anastasis, including the diameter (71 feet), from pilaster to pilaster, of the vast internal space. E. Horn dates the construction of the chapel of the Copts to 1571, as stated by Quaresmi³; however, the date is uncertain. He also notes that the church stands at a lower level compared to the surrounding buildings, making it necessary to go down some steps to gain access to the Monastery. Moreover, the entrance must have been not to the west, behind the Aedicula, but to the east, before the door.

Amongst other things, he describes the inner choir of the Greeks with the measurements in feet and palms, including the 12 double columns (the same number as the Apostles), the windows, the steps and the altar with the Iconostasis made 20 years earlier (Horn compiled his work in 1724-1744), as well as the Katholicon, through the 12 doors of which people used to pass. Already at that time the Muslims only had access via the southern door. Horn notes (p. 67) that the columns of the rotunda (accurately measured) belong to the rock which the building stands on. Regarding the Monastery, he reports that in 1721 they built a sacristy and the kitchen close to the refectory with 22 cells made of wood and stone. He gives details regarding the chapel of St Helena, on the garden of the Copts by the ruins of the church of S. Maria Latina, erected by the Amalfitani.

¹ Bonifacio da Ragusa «rebuilt it again in its ancient form, although, for greater ornament, he added marble slabs and columns, a hemisphere or cupola and perhaps the middle and also the eastern side of the vestibule that it might receive more persons within itself».

² See pp. 37ff of the second edition of the Latin

text, with a preface and notes by Bellarmino Bagatti (reprinted 2004).

³ During the Friars' imprisonment in Damascus after the battle of Lepanto, the Copts reportedly took advantage of their absence to build their chapel (cf. p 51, note 10 of the edition edited by B. Bagatti, 1962).

10

GIOVANNI F. MARITI

(1736-1806)

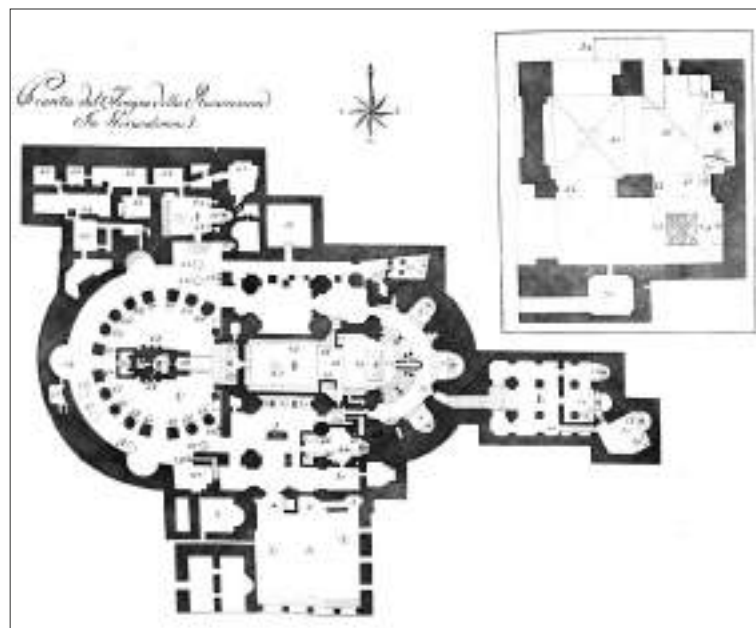
Right:

Plan of the Basilica of the Holy Sepulchre with inset of a Plan of Mount Calvary.

G.F. Mariti, *Istoria del Tempio della Resurrezione, o sia Della chiesa del Santo Sepolcro in Gerusalemme detta dai Greci Anastasis e Martyrion scritta da Giovanni Mariti accademico fiorentino, Livorno, Carlo Giorgi del Real Palazzo, 1784.*

An agronomist, antiquarian and author who wrote on a plethora of subjects, and an intellectual with wide-ranging interests, **GIOVANNI F. MARITI** became famous in Europe above all for his trips to the Orient. After losing his father at an early age, he moved to Livorno with his step-father, Calvani, a merchant from Volterra. From here he set off for the Levant, becoming a business agent for a British merchant, O. Watson. On Cyprus, up until 1767, he was also chancellor at the British consulate, a representative of the Empire, and of the Grand Duchy of Tuscany. Before returning to his native Italy, at the start of 1768, he was in Syria and Palestine, where he studied local topography, the habits and customs and history of the peoples there, the status of women, and the coexistence of differing traditions and religions. This was the source of his material, reflections, and information that lay at the foundation of his extensive writings and travelogues. During his diplomatic post, he began his most famous work, later translated into several languages, entitled *Viaggi per l'isola di Cipro, per la Storia, e per la Palestina*.

The *Istoria del Tempio della Resurrezione*, from which the plan shown here is taken, is dedicated to Monsignor Stefano Borgia of Propaganda Fide. In the foreword, the author confesses to having been inspired to conduct a careful analysis of the Holy Places, and in particular of the Holy Sepulchre, by the confused hotchpotch of impressions and imaginative claims found in previous treatises, both by people who trusted the information handed down from earlier times, and by people who had never actually set foot in the places themselves. His aim was to highlight the incongruencies and unreliability of their statements by using direct observation as his basis. His floor plan of the *Basilica* is drawn on the basis of measurements that he took himself, in situ.



11

LOUIS N.-PH.-A. DE FORBIN

(1777-1841)

Right:

Plan of the Basilica with perspective view of the Holy Sepulchre.

L.N. De Forbin, *Voyage dans le Levant en 1817 et 1818, Paris, de l'Imprimerie Royale, 1819.*

The text, published in two volumes (460 + 65 pp.) is followed by an atlas in folio form (670 x 503 mm), with a large folding plan of the Holy Sepulchre of Jerusalem at the back.

DE FORBIN (1777-1841), painter and antiquary. He showed an interest in the art of drawing from a very early age. A pupil of Jacques-Louis David, after serving in a cavalry regiment he went on a trip to Italy, where he was appointed chamberlain at the court of Paolina Bonaparte. In 1816 Forbin succeeded Vivant Denon as curator of the Musée du Louvre, and the other museums of France. After he fell into disgrace in the eyes of Paolina, he was sent by Napoleon to Portugal. In 1817 he boarded a ship at Toulon for a trip to the Middle East together with the painters Pierre Prévost and Léon Matthieu Cochereau, and the architect Jean-Nicolas Huyot, having been authorised to purchase antiquities for the Louvre. The account of this trip, *Voyage dans le Levant*, contains the plan shown in the illustration.

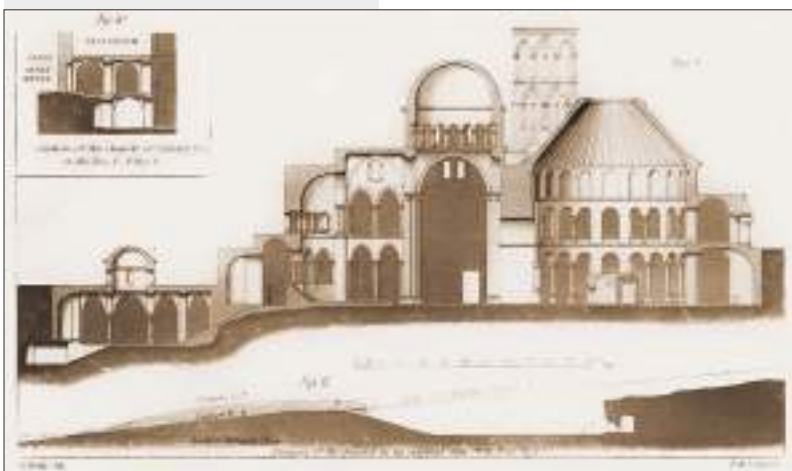
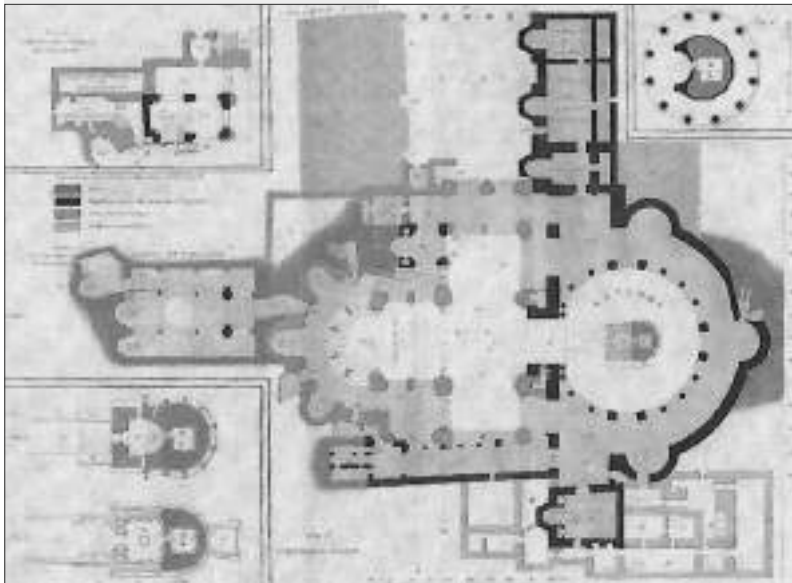


12

JOSEPH J. SCOLES

(1798-1863)

J.J. Scoles, "Rilievo della Chiesa del Santo Sepolcro" published by Robert Willis in: *The architectural history of the Church of the Holy Sepulchre at Jerusalem*, J.W. Parker, London 1849.



Above:

General Plan of the Church and its adjacent Chapels, as they existed before the fire of 1808. Insets: Plan of Calvary Chapels upon the mezzanine floor; Plan of the present Holy Sepulchre; conjectural Plan of the Holy Sepulchre as originally fitted up by Constantine.

Below:

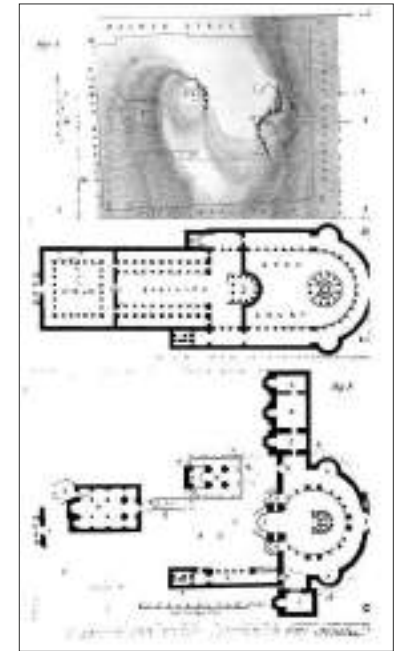
A Section of the church from East to West. Insets: a Section through part of the rock of Calvary and its Chapels; a set of East and West Sections of the original state of the ground placed upon the same level.

JOSEPH JOHN SCOLES was an English Gothic Revival architect, who designed several Roman Catholic churches. He was apprenticed in 1812 for seven years to his kinsman, Joseph Ireland, an architect largely employed by Dr. John Milner, the Roman Catholic bishop. In 1822 Scoles left England and devoted himself to archaeological and architectural research in Rome, Greece, Egypt, and Syria. He published in 1829 an engraved "Map of Nubia", and a map of the city of Jerusalem. In 1826 he returned home and resumed his practice. Scoles was elected a Fellow of the Royal Institute of British Architects in 1835, was honorary secretary, and vice-president in 1857-8. To the society's proceedings he contributed papers principally on the monuments of Egypt and the Holy Land, the outcome of his early travels¹.

His measured map (1825) of the church of the Holy Sepulchre, Jerusalem, with his drawings of the Jewish tombs in the valley of Jehoshaphat, was used by **ROBERT WILLIS**², as the basis for plates 1, 2 and 3 of his treatise

The architectural history of the Church of the Holy Sepulchre at Jerusalem (London 1849). In note C, in the appendix, R. Willis gives some history of the materials from which he compiled the Plans and Sections in his Plates. He cites the work of Father Bernardino for its known characteristics of completeness, and because it was accompanied by detailed descriptions and measurements. However, while he regards the plan as reliable because it is accurately drawn, and because it was not significantly altered in the reconstruction after the fire of 1808, the same cannot be said for the elevations, which he believes to be wrongly surveyed in part, and in part the product of a Classical interpretation. To this end, he backs up his observations by comparing Bernardino's surveys with those of Le Bruyn and other authors, and to compile his tables he makes use of the particularly accurate work of Scoles. Finally, Willis emphasises that the drawings are a personal elaboration based on «my own view, although based upon fairly correct data», and that he submits them «to the criticism of future observers, and shall be most grateful for corrections, or for additional information». The text by Willis appears in the second edition (1849) of the volume by G. Williams, *The Holy City*. The surveys by Scoles, published by Willis, are also reproduced in chapter three of Charles M. De Vogüé's work: *Les églises de la Terre Sainte*, Paris, 1860 (pp. 118-232). See especially plates XVIII, XIX and X, which Jeffrey corrects on the basis of observations made on the scene, for the layout of the vaults.

From above: Plan of the supposed state of the ground at time of the Crucifixion; Plan of the Basilica of Constantine; Plan of the churches, as rebuilt by the Caliph Hakem in 1010.



¹ Biographical information in: <http://www.victorianweb.org/victorian/art/architecture/scoles/index.html>; Nicholl, Samuel Joseph (1897). "Scoles, Joseph John". In Lee, Sidney

(ed.). Dictionary of National Biography. 51. London: Smith, Elder & Co.

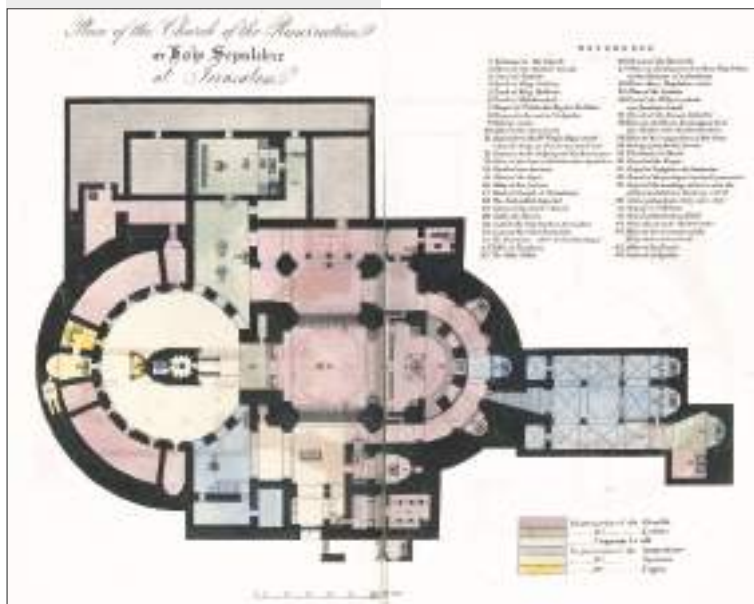
² See note 11 p.127 of this volume.

13

GEORGE WILLIAMS

(1814-1878)

Colour Plan of the *Basilica* of the Holy Sepulchre, each hue individuating the properties of the different Communities.



G. Williams, *The Holy City: or, historical and topographical notices of Jerusalem; with some account of its antiquities and of its present condition, with additions, including An architectural history of the Church of the Holy Sepulchre, by R. Willis*, London, J.W. Parker, West Strand, Cambridge, T. Stevenson, 1845.

On p. 296 there is a colour floor plan of the Church, more accurate than the previous illustration by Scoles. The different colour washes indicate the properties of the different faiths.

GEORGE WILLIAMS (1814–1878) attended King’s College, Cambridge. He was ordained in 1837, and accompanied Bishop Alexander as chaplain to Jerusalem from 1841 to 1843. He was England’s greatest authority on the topography of Jerusalem in his day, and received a medal from the King of Prussia for literary merit based on his two-volume work, *The Holy City*. In this well-illustrated work, he draws on both physical and literary evidence to conclude that the case for the traditional site is sound, while also surveying the great city’s history and character. Throughout his career, he served many posts at various academic institutions, including King’s College and Cumbrae College, and was made honorary canon of Winchester Cathedral in 1874.

This work supports the traditional location of Calvary against the challenges of contemporary scholarship. Since the opening up of Palestine to foreign travellers in the 1830s, there had been intense interest in locating places described in biblical narrative. The author’s intention was to carefully study the topography of the ancient city, and assess the veracity of the location of the places in the Passion of Christ. He investigated the likely location of the city walls (whether or not they included the site that was being studied), and presented and debated a wide range of suppositions, comparing them to each other (Dr. Robinson, Dr. Schultz, Mr Smith...), before concluding that “the tradition relating to the Holy Sepulchre, so far from being invalidated by the consideration of its locality, is much confirmed” (p. 69). He analyses the various moments in history, connecting them to the descriptions of pilgrims and travellers, and with the historical sources of Eusebius, the Bordeaux Pilgrim, Cyril’s, and Arculfus. He criticises the approach of Mr. Fergusson (who had never been to Jerusalem), and does not approve of his hypothetical reconstructions, and says his theories cannot hold. He confirms the reliability of the *Architectural History* of the Church of the Holy Sepulchre, as written «from the pen of Professor Willis», who so fully established the identity of the present site with that of the original Sepulchre.

14

CHARLES J.-M. DE VOGÜÉ

(1829-1916)

From left:

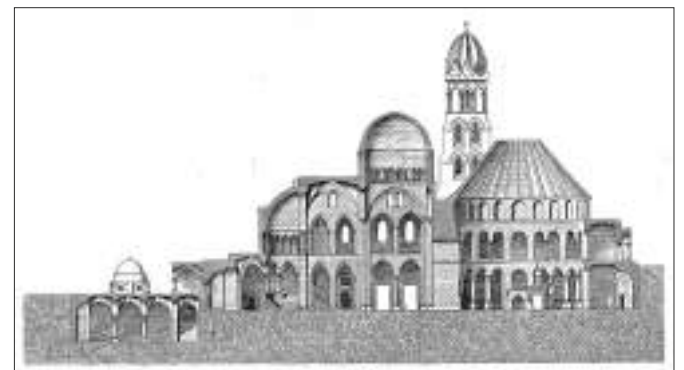
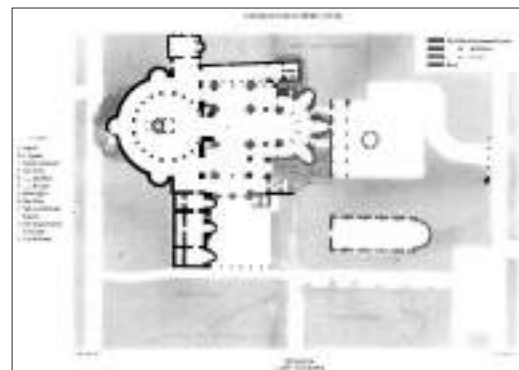
Plan of the *Basilica* of the Holy Sepulchre, with individuation of the different building phases.

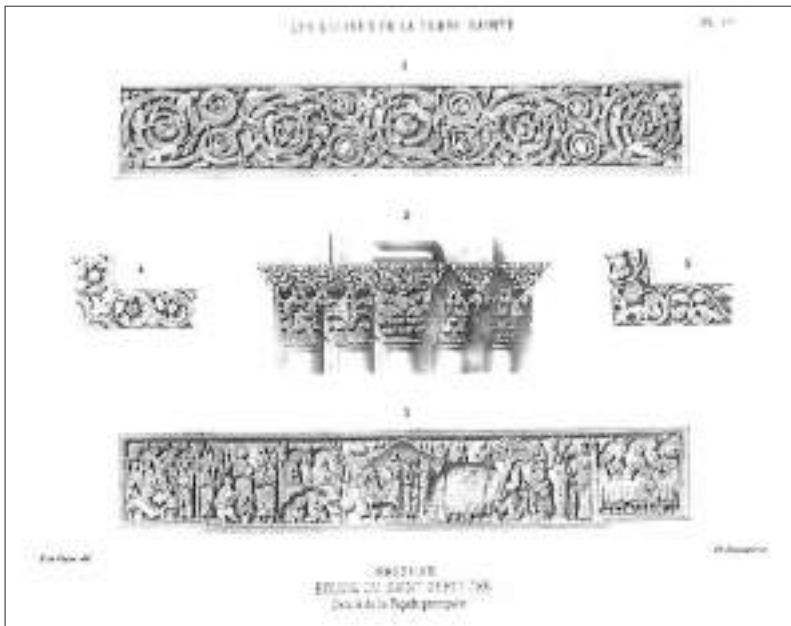
Longitudinal Section of the *Basilica* as it was in the XII century.

Ch.J.M. de Vogüé, *Les églises de la Terre Sainte. Fragments d'un voyage en Orient*, Victor Didron, Paris, 1860.

CHARLES-JEAN-MELCHIOR DE VOGÜÉ (Paris 1829–1916) was a French archaeologist, diplomat, and member of the Académie Française. In 1849 he was attached to the French Embassy in St. Petersburg. After his father's arrest during the French coup of 1851, de Vogüé gave up diplomacy to focus on archaeology and history in Syria and Palestine.

Named as a member of the Académie des Inscriptions et Belles-Lettres in 1868, he continued to publish learned articles on churches in the Holy Land, the Temple of Jerusalem, and Central Syria. After the fall of the Second Empire, Adolphe Thiers





Details of the Main Facade of the Basilica.

appointed him as Ambassador of France in Constantinople in 1871, and then to Vienna in 1875¹.

Melchior de Vogüé laid the basis of the scientific study of the architectural history of the Church of the Holy Sepulchre. In his monograph (1859), the question of the architectural structure of the Church was addressed, and many previously unknown sources were introduced into scientific use. The author conditionally identifies four stages in the architectural history of the shrine, giving each of them a name. The following periodization was offered: the *Basilica* of Constantine (326–614); the Church of Modestus (614–1010); the Church of Constantine Monomachos (1010–c. 1130); and the Church of the Crusaders (c. 1130–1808). The naming periods suggested by the scholar were firmly established in the archeographic tradition of studying the architectural history of the shrine. However this periodization is incomplete; L.-H. Vincent, F.-M. Abel, Ch. Coüasnon, V.C. Corbo would later set out from these foundations to supplement the historical reconstruction of events involving the *Basilica*².

¹ C. RENÉ, "Notice sur la vie et les travaux de M. le Marquis de Vogüé", in: *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 62e année, N. 6, 1918. pp. 442–473.

² E. LAVRENTIYEVA, "The Architectural History of

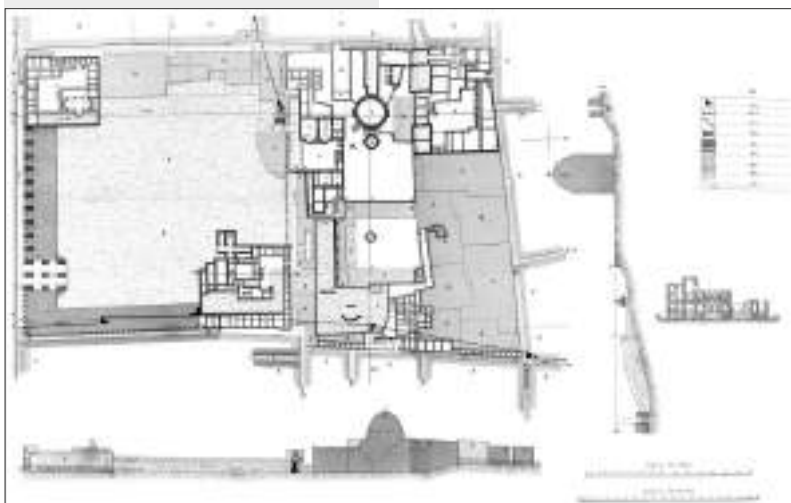
the Church of the Holy Sepulchre in Jerusalem: the Question of the Periodization of Melchior De Vogüé", Proceedings of the 2019 International Conference on Architecture: *Heritage, Traditions and Innovations* (AHTI 2019), <https://doi.org/10.2991/ahti-19.2019.11>

15

ERMETE PIEROTTI

(1821-around 1880)

Plan and Sections of the whole Complex of the Holy Sepulchre with the roof of the Basilica, the Hospital of the Knights of St. John and underground passages.



E. Pierotti, *Jerusalem explored, being a description of the ancient and modern city, Vol. II, (I text; II Plates)*; translated by Thomas George Bonney, London 1864.

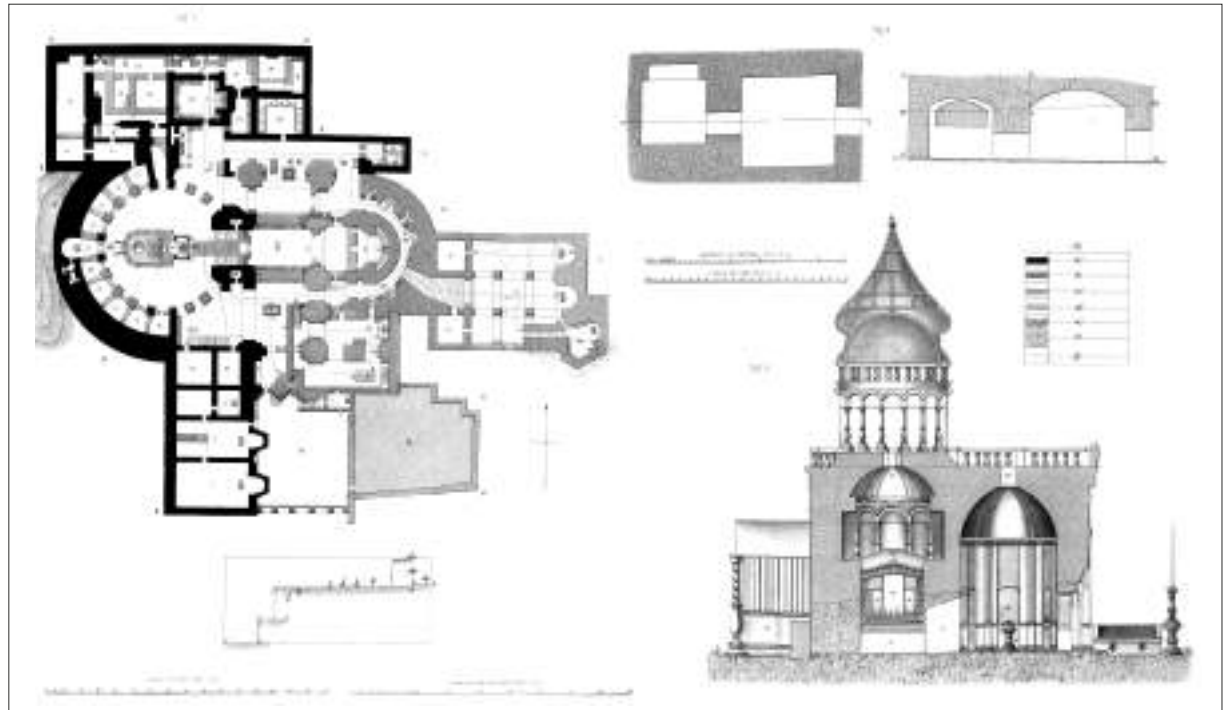
ERMETE PIEROTTI (1821-around 1880): few details of his biography are known. A former Captain in the Corps of Royal Piedmontese Army Engineers, he expelled from the army for alleged theft (1849), travelled to Jerusalem in March 1854, with a view to fulfilling his dream of studying the Holy Places. He stayed there until 1861, studying biblical and archaeological history. He was appointed to serve as a consultant to the renovation works of the Temple Mount. He took part in various construction enterprises in Jerusalem, and was appointed as the City Engineer of Jerusalem. This position enabled him to visit sites which were closed to Western scholars, in particular the Temple Mount and the Mosques. Using his official position and connections, Pierotti became the first European researcher to investigate the archaeological sites, monuments, and underground passages of the Temple Mount, and compile a detailed map of the area. He was also behind the purchase of the first Russian lots in Jerusalem¹. The book *Jerusalem Explored* is the outcome of long historical and archaeological study in Jerusalem². His theories, admittedly not presented in a scholarly way, differed widely from those of eminent representatives of the contemporary Victorian establishment, who launched a violent attack against him, first for an alleged breach of copyright, and then by making public a document revealing some embarrassing aspects of his years in the Piedmontese army. Pierotti was thereby compromised and lost all credibility in the eyes of the British public³. Nevertheless, a British researcher, Charles Warren, in conducting further studies, decreed that the maps by the worthy Italian engineer, although in some cases somewhat rough-and-ready, and imprecise, could only be disputed as regards the dimensions of the underground features that he visited. Surprisingly, Pierotti's maps show underground channels that are actually in line with more recent research. For that matter, George Williams formally defended them (1864) at the annual meeting of the Oxford Architectural Society⁴. Indeed, the maps by the young engineer from Modena remained of vital importance for all later scholars.

Right:

Plan of the construction phases of the *Basilica of the Holy Sepulchre*; on the right, Plan and Sections of the *Aedicula*, outlining the building stratigraphy.

Below:

The Chapel of St. Helena.



Above, from left:

Perspective views: the *Katholicon*, the *Aedicula* under the Great Dome of the *Rotunda* and the *Calvary Chapel*.

¹ An account of Pierotti's activities in Palestine in the service of the Russians can be found in: K.A. VAKH, "Ermete Pierotti in the Russian Service: New Biographical Discoveries", *Zeitschrift des Deutschen Palastina-Vereins* 130(2):194-204 2014.

² For his scientific works, cf. K.A. VAKH 201, p. 203: «Two years after the publication of his first scholarly works in Jerusalem in 1856 – two topographical plans of Jerusalem and a plan of the Church of the Holy Sepulchre – Pierotti published two more detailed studies on the same subject, based on his own

archaeological investigations. Pierotti's book was published in Madrid in 1858, financed by and dedicated to the Queen of Spain. In 1858-1860, when Pierotti was collaborating with the Russians, he published nothing. In 1861-1862 he was engaged in compiling a hand-drawn atlas of Palestine. He left the Holy Land in August of 1861, after his patron and friend Surayya-Pasha left his post as governor of Jerusalem. In 1863-1864 he probably lived in London, where he published English translations of his most significant scholarly works: *Jerusalem Explored*, which was dedicated to Napoleon III (there is an Italian edition); and *Ancient and Modern Customs of Palestine*. Hounded by accusations of plagiarism, and after a passionate polemical exchange, Pierotti was forced to leave

the country. His next book, financed by Rothschild and also dedicated to Napoleon III, appeared in Paris in 1865 under the title *La Palestine actuelle dans ses rapports avec la Palestine ancienne*. In 1865 he made his way to Italy, and attempted to secure the support of King Vittorio Emanuele, to whom he dedicated another book, *Rivista generale della Palestina antica e moderna*. He managed to obtain an official permit for this dedication. In his introduction, addressed to the Italian king, Pierotti mentions an audience which took place "in February of last year", i.e. in 1865, when he had the opportunity to present his manuscript to the king. Page 66 of this book contains a list of Pierotti's publications. It also mentions books due to appear soon: *La Grande Carta della Palestina*, dedicated to King Vittorio Emanuele, and *Scene Arabe*, which seems to represent the researcher's literary efforts. In his last known book, Pierotti turned to Russia once more. In essence it was a French translation of *Rivista generale della Palestina antica e moderna*, and was dedicated by the author to "the autocrat of all Russia", Emperor Alexander II».

³ J.-Y. LEGOUAS, "Saving Captain Pierotti?", *Palestine Exploration Quarterly*, Vol. 145, 2013 - Issue 3, 231-250.

⁴ G. WILLIAMS, *Dr. Pierotti and his assailants, or, A defence of "Jerusalem Explored": being the substance of a paper, read before the Oxford Architectural Society at their annual meeting June 6, 1864, and now published by their request*, London, Bell and Daldy; Cambridge, Deighton, Bell, and Co, 1864.

16

CHARLES W. WILSON

(1836-1905)

C.W. Wilson, *Ordnance survey of Jerusalem, made with the sanction of the Right Hon. Earl de Grey and Ripon, Secretary of State for War, by Captain Charles W. Wilson, R. E., under the direction of Colonel Sir Henry James director of the Ordnance Survey. Pub. by authority of the Lords Commissioners of Her Majesty's Treasury, London, H.M. Stationery Off., G.E. Eyre and W. Spottiswoode, 1865.*

Major General Sir **CHARLES WILLIAM WILSON** (1836-1905) obtained a commission in the Royal Engineers in 1855. In 1864, Baroness Angela Burdett Coutts helped finance the Ordnance Survey of Jerusalem¹ and volunteers were called for from the Royal Engineers to carry out the work; Wilson was selected. The aim of the work was to lay the basis for the improvement of the water supply of Jerusalem. In addition to producing a topographical map of the city and its immediate environs, in 1865 the survey party carried out a series of levels from the Mediterranean to the Dead Sea, which established the relative levels of the two bodies for

the first time. Jerusalem was surveyed according to standard Ordnance Survey practice, at scale 1:500, 1:2000, 1:2.500 and 1:10.000. The plans of the city and its important buildings, along with 90 diagrams and 83 photographs, were published by the Ordnance Survey in 1866. It was the first time that the topography of Jerusalem had been so accurately recorded. While Wilson was still in Palestine engaged on the Survey, the Palestine Exploration Fund was founded, and commissioned Col. Chas. Wilson to make a plan of the Holy Sepulchre Church. As George Jeffery² stated: «This plan agrees in a general way with the older plan made by Scoles for Williams "Holy City". It is more accurate and detailed than the older work, and with the plans made by Herr Schick at about the same period forms the basis of most modern investigations of the Holy Site».

While this plan was more accurate and detailed than the one by Scoles, Wilson was not satisfied with the results. In a letter to Hayter Lewis, dated August 23rd 1889, he wrote: «My men were not accustomed to survey interiors and I remember they complained of the difficulty of making a good plan of the church. I have never been quite satisfied with that plan, which was hurriedly made and is incomplete in many respects» (PEF Archives/LEW/1/251)³.

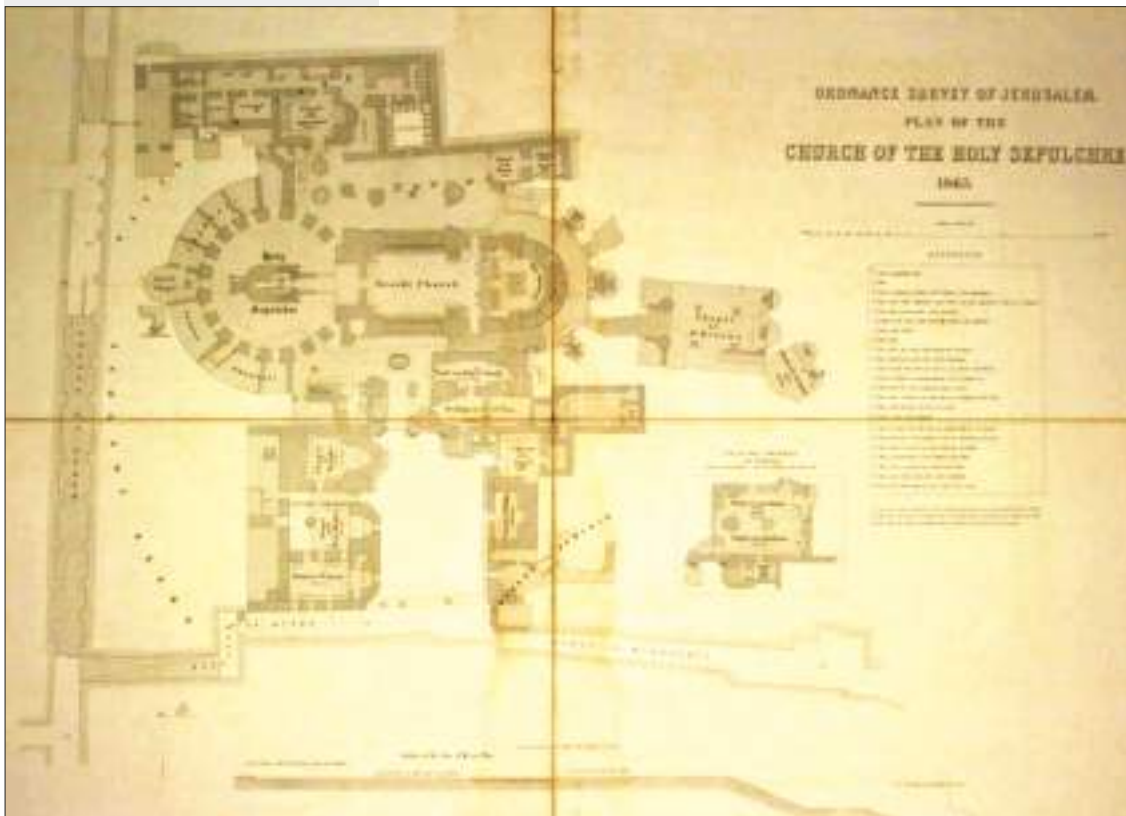
There is an important precursor of Wilson's

survey that should be mentioned. This is the "Plan of Jerusalem" (1835) by Frederick Catherwood (1799–1854)⁴, an English artist and architect who visited Greece, Turkey, Egypt, and Palestine, and with Joseph Bonomi the Younger made drawings and watercolours of the ancient remains there. On 13 November 1833, Frederick Catherwood dressed up as an Egyptian officer and, accompanied by an Egyptian servant «of great courage and assurance», entered the buildings of the mosque of Omar with his drawing materials. «During six weeks, I continued to investigate every part of the mosque and its precincts». Thus, Catherwood made the first complete survey of the Dome of the Rock, and paved the way for many other artists in subsequent years, such as William Harvey, Ernest Richmond, and Carl Friedrich Heinrich Werner. In 1837, Catherwood was elected to the National Academy of Design as an honorary member.

¹ The Ordnance Survey of Jerusalem (1865) was the first modern cartographic and archaeological survey of Palestine. It contains McDonald's exquisite gold-toned albumen prints, which display a vivid picture of Old Jerusalem, remaining an authoritative source on the location of the city's ancient buildings. The

preface states that: «The survey of Jerusalem was undertaken with the sanction of the Right Hon. Earl de Grey and Ripon, Secretary of State for War, in compliance with the request of the Very Rev. Dean Stanley, who, on the part of a Committee interested in endeavouring to improve the sanitary state of the city, requested

his Lordship to allow a survey of it to be made under my direction, with all the accuracy and detail of the Ordnance Survey of this country, the Committee undertaking at the same time to pay the entire cost of the proposed survey, which was estimated at about 500 pounds. I consequently drew up minute instructions for



Plan of the whole Complex of the Basilica of the Holy Sepulchre, flanked by the Christian Road.



making the survey, and selected Capt. Charles W. Wilson, R.E., and the following party of Royal Engineers from the Ordnance Survey, to execute the work, viz., Serj. James McDonald, Lance-Corp. Francis Ferris, Lance-Corp. John McKeith, Sapper John Davison, and Sapper Thomas Wishart. They left England on the 12th September 1864, arrived in Jerusalem on the 3rd October, and immediately proceeded to the work of selecting and measuring base lines, and establishing the triangulation for the survey of the city and the neighbourhood, which is represented on Plate I. In addition to the requirements of the Committee, I sent out a Photographic Apparatus to enable Serj. McDonald, who is both a very good surveyor and a very good photographer, to take photographs of the most interesting places in and about Jerusalem, and I instructed Capt. Wilson to examine the geological structure of the country, and to bring home specimens of all the rocks, with their fossils. I also made application through the Foreign Office for a letter to be sent to the Turkish Government, requesting that instructions might be sent to the Governor of Jerusalem to afford Capt. Wilson

and the party every assistance and protection in the execution of their work; and our thanks are due to his Excellency Izzet Pasha, for the cordial manner in which, under his orders, they were enabled to enter the Mosque of Omar, the Church of the Holy Sepulchre, the Citadel, and other public buildings, and to make minute surveys of them».

² G. JEFFERY, *A brief description of the Holy Sepulchre Jerusalem and other christian church in the Holy City*, Cambridge, University press, 1919, pag. 228.

³ SH. GIBSON, J.E. TAYLOR, *Beneath the Church of the Holy Sepulchre, Jerusalem: the archaeology and early history of traditional Golgotha*, Palestine Exploration Fund, London 1994, pp. 1-2.; Wilson's interest in measurements led him to publish, in 1903, a scholarly essay: *The ancient cubit and our weights and measures* (London, The Committee of the Palestine Exploration Fund). Wilson was chairman of the PEF at the time of his death.

⁴ Y. BEN-ARIEH, "The Catherwood Map of Jerusalem", *The Quarterly Journal of the Library of Congress*, vol. 31, n. 3 (July 1974), pp. 150-160.

Map of the City of Jerusalem, Ordnance Survey 1864/65.

17 CONRAD SCHICK (1821-1901)

C. Schick is the author of a large number of reports on the Holy Places, and on the city's water resources, only published later. His first article in English was published in *The Palestine Exploration Fund Quarterly Statement*, in 1877. His report on "The site of the Church of the Holy Sepulchre at Jerusalem" was published in the *Quarterly Statement* for July 1898, pp. 145-154.

CONRAD SCHICK (1821-1901), a missionary and architect, lived from 1846 in Jerusalem, "where he started his work as superintendent of the House of Industry to teach mechanical trades to young men". Ever since boyhood he showed a great aptitude for making models, a great capacity for observation, and a considerable talent for surveying and the analysis of technical aspects. He also wrote books (1887, 1896) on the Temple and the Temple Mount area, and continued surveying Jerusalem until his death, creating large wooden scale models of the ancient town and the Holy Sepulchre compound¹.

His topographical surveys were made use of by later research, including the Jerusalem Nouvelle by Vincent and Abel, and the measured plan (1918) by Clapham and Newnum. Schick's investigations into Jerusalem's ancient urban topography and the site of the Sepulchre are linked, together with those (1864) by Col. Wilson, with the survey campaigns carried out, or sponsored, by "The Palestine Exploration Fund"². His architectural knowledge of Jerusalem was a great help to Charles W. Wilson, with whom he cooperated.

His first article in English appeared in *The Palestine Exploration Fund Quarterly Statement* in 1877.

His report entitled "The site of the Church of the Holy Sepulchre at Jerusalem", published in the *Quarterly Statement* for July 1898 (pp. 145-154), focuses on a number of unresolved problems relating to the Church of the Holy Sepulchre. The first concerns the Rock of Calvary, the second discusses the rock in St Helena's Chapel, and the third focuses on the area outside of the Rotunda wall. In it, he examines the parts of rock closest to the buildings themselves, trying to resolve a number of doubtful points, and to provide his own interpretation, comparing what he surveyed himself and what other scholars had written. He illustrates the conclusions he inferred from detailed on-site inspections, giving the measurements of the differences in altitude between the built structures and the rock, including the cisterns, which he indicates in the sections attached to the report. He then moved on to examine a number of parts belonging to the Roman Catholics, correcting their location, and making new drawings of the plano-altimetric profile of the escarpments, without overlooking other problematic parts, such as the church of St. James, the Chapel of Mary Magdalen, and the chapel of the Forty Martyrs, behind which, after a number of rooms, he found another cistern of considerable size, located between the the west side of the churchyard and the church of St. James of the Armenians on the east side of the churchyard, which he identified as the remains of



Plan of the whole block of the *Basilica* of the Holy Sepulchre, outlining the relationship to other buildings, cisterns, streets and to the rock scarp.

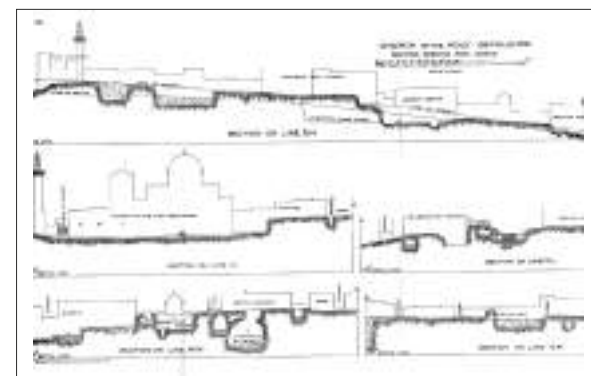
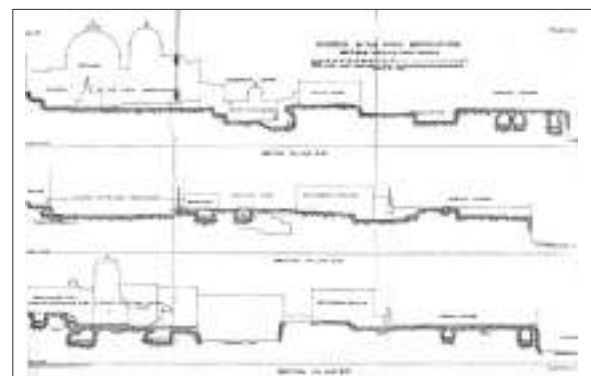
From left:

Wood model of the Complex of the Holy Sepulchre, handmade by Schick himself (Christ Church Heritage Centre, Jerusalem). Colours correspond to the different properties, as stated in the "Status Quo": blue for Greek Orthodox, brown for Franciscans, gold for Armenians and white for the ex-Patriarchate, now muslim property. The Bell-tower and the Facade are missing (photos by the Author).



From left:

Longitudinal Sections through the whole block of the *Basilica*, showing the rock levels.



the Church of Mary, which would then have stood across the present church court. Finally, he mentions a number of rooms «belonging to the Copts at the rock-cut tombs of Joseph». The floor plan presents a number of important features: it extends the survey to the whole area of the block where there are Constantinian features, it shows the margin of the scarp slope of the rocky bed on which the walled structures rest, and it accurately positions the numerous cisterns dug into the rock throughout the area. The various parts which he gives a description of in the text are identified by a letter, and the traces of the longitudinal and transverse sections (represented on the next two plates) are shown, in an evident desire to illustrate the site's orography. In his "Notes and Explanation to the Plans and Elevations of the Site of the Church of the Holy Sepulchre", Schick states that: «The longitudinal and transverse sections give the rock levels at the different points shown by the red sectional lines, the datum line being taken at 2,420 feet above the Mediterranean». Regarding the cisterns, which he locates by recording the relevant altimetric data, he notes that in some of these only the lower part is dug into the rock, while the upper part is made of stone masonry. Finally, he lays out some considerations regarding the time sequence of the rock parts, relating it to Jerusalem's urban growth. Schick states that he began the work in 1863 with a view to the creation of a «plan in plaster of the ground», since he had to construct a model of the Church. He built an outstanding model of the Church of the Holy Sepulchre, in which the various components of the church

appear during different historical periods. It was designed to explain and depict the changes to the Church throughout its long history, starting with its construction under Constantine, in the 4th century, and covering its later renovation during the Crusader period. This model was produced after the Crimean War, when a group of countries and churches decided to carry out extensive renovation of the Church of the Holy Sepulchre. Before starting the restoration process, Schick prepared the model in order to illustrate the complexities of the historic building, and the various stages and phases it had undergone, so that these would be taken into account³. His floor plan of the Holy Sepulchre is still used as a basis to render, in illustrated form, the parts that come under the various communities (the *Status Quo*).



¹ H. GOREN AND R. RUBIN, "Conrad Schick's Models of Jerusalem and its Monuments", in: *Palestine Exploration Quarterly*, 128 (july-december 1966), pp. 103-124.

² In 1915 Sir Charles Watson wrote a short text to commemorate the golden jubilee of the PEF. Cfr.: J.J. MOSCROP, *Measuring Jerusalem: The Palestine Exploration Fund and British Interests in the Holy Land*, Leicester University Press, 1999; Y. BEN-ARIEH, *The Rediscovery of the Holy Land in the Nineteenth Century*, Jerusalem, 2007.

³ N. AL-JUBEH, "Conrad Schick: Pioneering Architect, Archaeologist, and Historian of Nineteenth-Century Jerusalem", in: *The Jerusalem Quarterly*, January 2019, pp.7-18.

Plan of Russian properties East from the *Basilica* of the Holy Sepulchre.

18

CHRISTOPHE E. MAUSS

(1829-1914)

Wilson's comparison between his relief and the method used by Byzantine architects to trace the Plan of the *Rotunda*.

Ch.E. Mauss, *Note sur la méthode employée pour tracer le plan de la mosquée d'Omar et de la rotonde du Saint-Sépulcre à Jérusalem*, in *Revue Archéologique*, third series, T. 12 (july-dec. 1888), pp. 1-31.

Ch.E. Mauss, *Église du Saint-Sépulcre à Jérusalem. I. Les deux portes occidentales & la chapelle Sainte-Marie. II. Recherche de la mesure ouvrière du Saint-Sépulcre & conséquences de cette recherche*, Paris, 1911.

The work, with original illustrations, was compiled between 1869 in Jerusalem and 1903 in Paris.

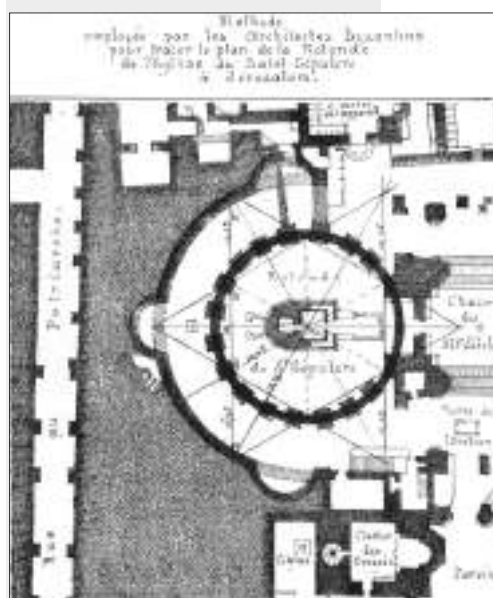
CHRISTOPHE EDOUARD MAUSS (1829-1914) was an architect who trained at the school of Constant Dufeux. He became the leader of many archaeological expeditions to Salonica, Smyrne and Alexandria. In 1862 he was sent by the French government to Jerusalem for the restoration of the Church of St. Anne, where in 1873 he discovered the Pool of Bethesda.

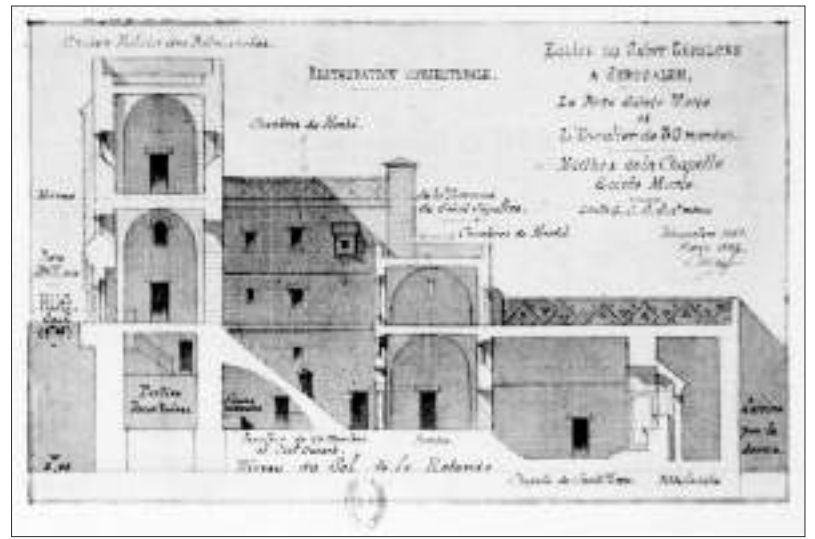
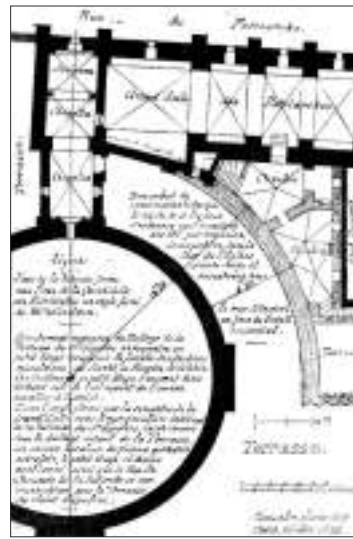
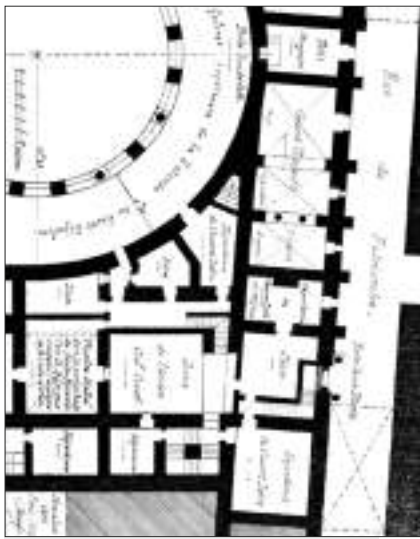
He joined the exploration expedition headed by F. de Saulcy (1807-1870), a French archaeologist tasked with the exploration of the Dead Sea and the Land of Amon across the River Jordan. One of his most significant works at this time was the reconstruction of the dome of the Church of the Holy Sepulchre in Jerusalem. This work was undertaken in collaboration with M. Eppinger (1822-1872), an architect who was sent by the Russian government, and who stayed in Jerusalem between 1860 and 1864, and whose chief mission was to plan and build the new Russian compound in Jerusalem. Mauss drew up the itinerary from Jerusalem to Karak, and from there to Chaubak (the Crusader castle north of Petra). He drew the maps of these two towns, which appear in *A study of Crusader military monuments in Syria*, by G. Rey. M. Christopher Mauss¹, who was made a Knight of the Légion d'Honneur in 1866, became especially interested in issues pertaining to ancient metallurgy.

On the occasion of the fire of 1949, Father Vincent later claimed that «it was only thanks to the foresight of Charles Mauss, the French architect who supervised the construction of the 1869 dome, that a cataclysm was averted. Mauss had covered the inner face of the dome with fire-resistant concrete plates, sealing off the cracks between the stones»².

In his *Note sur la méthode employée...*, as well as a careful reinterpretation of the architecture of the Church of the Holy Sepulchre in the light of history and of the surveys made up until that time, he proposes a methodology, drawn from M. Viollet-le-Duc, for mapping out the Square du Temple, in Paris, which is based on equilateral triangles, and he claims that, since all *Rotundas* in Europe were built in tribute to the one in the Holy Sepulchre, he tried to apply the same method to the Jerusalem *Rotunda*. The design of the plan of the *Rotunda* derives from the intersection of two equilateral triangles, the apexes of which determine the external circumference, with their intersecting points determining the internal circumference (pp 12-13).

Also interesting, in the *Église du Saint-Sépulcre à Jérusalem*, is the study of the two doors mentioned by the historian Edrisi in 1154, the Western Door and the Door of Saint Mary. The former gave access directly to the upper gallery of the *Rotunda*; the latter gave onto a flight of 30 steps leading to the interior parts of the building, where the property





From left:

Western Gate and St. Mary's Gate: Plan at the upper level of Galleries in the Rotunda.

Plan of the ancient Chapel of the Patriarchs, partially demolished in 1867.

St. Mary's Gate: Section on the 30-steps stair.

of the Greeks and Armenians is located. He then made drawings and assessments, based on the surveys by Col. Wilson, to establish that the flight of steps covered the difference in height between the Way of the Patriarchs and the ground floor level of the Rotunda. He supported his work with a careful survey of the iconography and previous descriptions.

He also analyzed in detail the whole zone comprising the Chapel of Saint Mary and the ancient Chapel of the Patriarchs, partially demolished in 1867. The appendix is accompanied by a "Recherche de la Mesure ouvrière de La Rotonde du Saint-Sépulcre et conséquences de cette recherche".

¹ He also published: *L'église de Saint Jermie d' Abougosch avec une étude sur le stade au temps de Saint Luc et de Flavius Josephé*, 1892; *La Pile de Charlemagne et le Sa du Prophete*; *Les poids français comparés au poids anglais*; *Le Rail Wafy de Musee egyptienne du Louvre*, 1895. Then, *Une Etude sur Le Rectangle des Khorsabald et La Theorie generale des mesures antiques*, which was followed in 1898

by the *Loi de la Numismatique musulman, Classement par series et par order de poids des monnaies arabes du Cabinet des medailles de Paris*. Among his later years' collection of publications on Egyptian and Syrian archeology we note studies on *La Colonne du temple elamite de Chouchinak au Musee Morgan au Louvre* and *Le Lion de Khorsabad et le Lion de Suse* and *Sur Les mesures ouvrières*. He was

also interested in ancient Norman measures. We must also cite his work on Emmaus and on the Tomb of Saint Anne in Jerusalem. https://fr.wikisource.org/wiki/N%C3%A9crologie_Christophe_Edouard_Mauss.

² FATHER L.H. VINCENT, "Note sur le St.-Sépulcre", Mar.6, 1952, CADN R S-S, box 1480.

19

CH.-S. CLERMONT GANNEAU

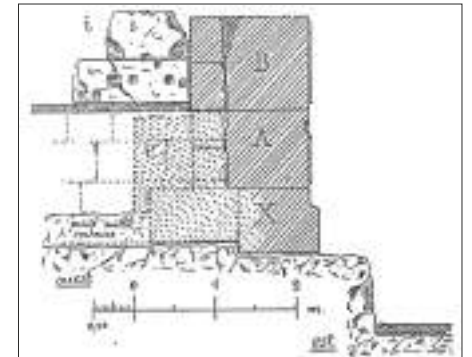
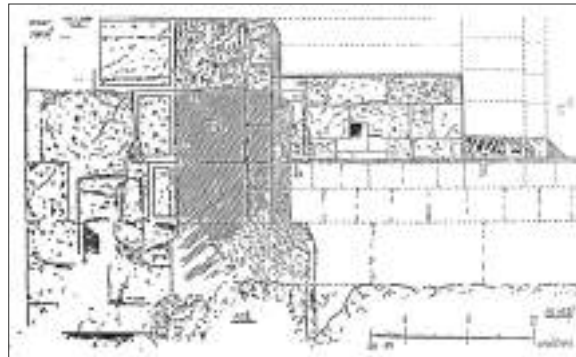
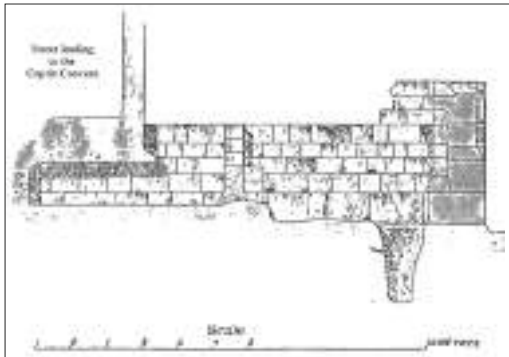
(1846-1923)

Ch.-S. Clermont-Ganneau, *The Holy Sepulchre*, Palestine Exploration Fund, 1877, vol.9, p.76-85.

Ch.-S. Clermont-Ganneau, *Archeological Recherche in Palestine during the Years 1873-1874*, Palestine Exploration Fund, 1899.

CHARLES-SIMON CLERMONT-GANNEAU (1846 –1923), a French archaeologist and Orientalist. After an education at the Institut National des Langues et Civilisations Orientales, he joined the diplomatic service as dragoman to the Consulate in Jerusalem, and afterwards in Constantinople. In 1871, Clermont-Ganneau identified the biblical city of Gezer with that of Abu Shusha, formerly known as Tell el Jezer.

In the same year he discovered the Temple Warning inscription in Jerusalem. In 1874 he was employed by the British government to take charge of an archaeological expedition to Palestine. His discoveries included the rock-cut tomb of the biblical Shebna. He explored and discovered many tombs in Wady Yasul, a valley immediately south of Jerusalem. He was the first to make archaeological soundings at Emmaus-Nicopolis. He was subsequently entrusted by his own government with similar missions to Syria and the Red Sea. He was made chevalier of the Legion of Honour in 1875. Following a period serving as vice-consul in Jaffa, from 1880 to 1882, he returned to Paris as secrétaire interprète for oriental languages, and in 1886 was appointed consul of the first class. He later accepted an appointment to become director of the École des Langues Orientales, and Professor at the Collège de France, and was a member of the Imperial Academy of Sciences, in St Petersburg.



Section drawings from excavations and wall stratigraphy.

He wrote a large number of publications on Semitic inscriptions, and questions involving the history and archaeology of the ancient East, including *L'imagerie phénicienne e la mythologie iconologique chez les Grecs*, published in Paris in 1880. He also left a well-known *Recueil d'archéologie orientale* (8 vols., 1885-1924)¹.

In his 1877 article on "The Holy Sepulchre", he discusses the Tomb of Joseph of Arimathea, and the frieze over the South Door. He would later write about the Holy Sepulchre again in his collection of essays, *Archeological Research in Palestine*, published in 1899, where Ch. IV deals with "Excavations on Russian Ground near the Church of the Holy Sepulchre", with the intention of continuing the work begun by Sir Wilson. The accompanying illustrations relate to section drawings from excavations and wall stratigraphy, as well as decorative details such as capitals and cornices.

Ch. V, entitled "The Church of the Holy Sepulchre", illustrates decorative details, inscriptions and pilgrims' graffiti. Many of Clermont-Ganneau's illustrations are reproduced in the *Jérusalem Nouvelle* by Vincent and Abel, in their study of the ruins of the Russian Hospice and the monastery of the Copts.

¹ https://it.wikipedia.org/wiki/Charles_Simon_Clermont-Ganneau.

20

ARCHIBALD C. DICKIE

(1868-1941)

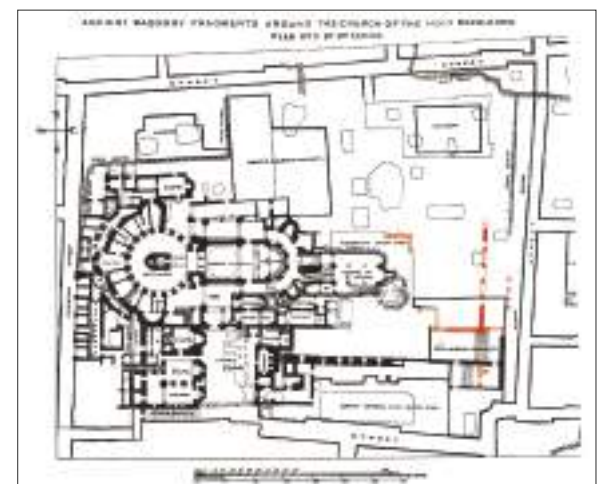
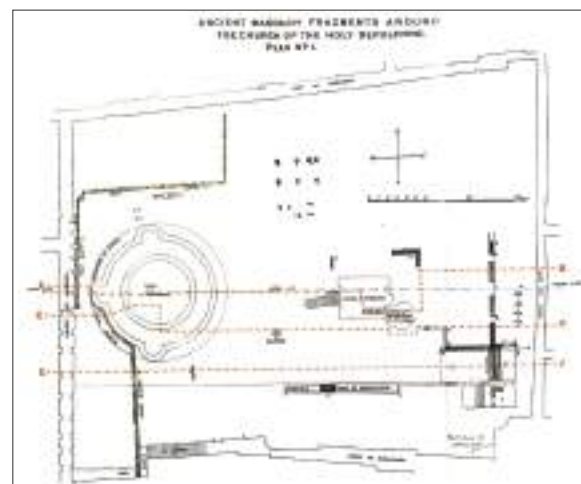
A.C. Dickie, *Masonry Remains Around the Church of the Holy Sepulchre*, "The Palestine Exploration Quarterly", vol. 40 (1908), pp. 298-310.

ARCHIBALD C. DICKIE (1868-1941) was appointed Architect on the P.E.F. Expedition at Jerusalem in 1894, where he collaborated in the excavation campaigns with Dr. F.J. Bliss¹, who, in the introduction to the volume *Excavations at Jerusalem*, praised him for his valuable general input, and for the way he compiled the illustrations to the volume. On his return from Palestine, he practiced in London (1898-1912), and was Master in Design at the Architectural Association School, London (1910-12). In 1912, he was

From left:

Survey of the ancient masonry fragments around the *Basilica of the Holy Sepulchre*.

Overlapping of surveyed fragments on Schick's Plan.



21 GEORGE JEFFERY (1855-1935)

From left:

Plan of the *Basilica* of the Holy Sepulchre and Augustinian Convent, as originally built in 1150, traced from the Ordnance Survey Plan of 1864.

De Vogüé's Plan of the *Basilica* with the position of the Church of St. Maria Latina as corrected by G. Jeffery. The Plan, in turn, seems to have been copied from the Plan made by Scoles in William's "*Holy City*".

appointed Professor of Architecture at Manchester University, and he was Professor Emeritus from 1933 until his death². In his 1908 essay, he describes the relations between the surveyed remains of the Constantinian constructions and the remaining parts of the *Basilica* of the Holy Sepulchre, using the Ordnance Survey plan, although, in order to make it easier to understand, he omitted the existing features. He also used the plan of the buildings drawn up by Schick, on the same scale as the previous one, to better identify the various parts. As he himself made clear, he did «not intend to attempt any restoration theory, but simply to give a record of investigation up to date», in an awareness of the difficulty of the undertaking. The largest and most important remains are those within the Russian hospice. He goes on to describe and locate the differing masonry techniques of the fabric of the building, also finding analogies with other buildings, and giving details of construction and decoration.

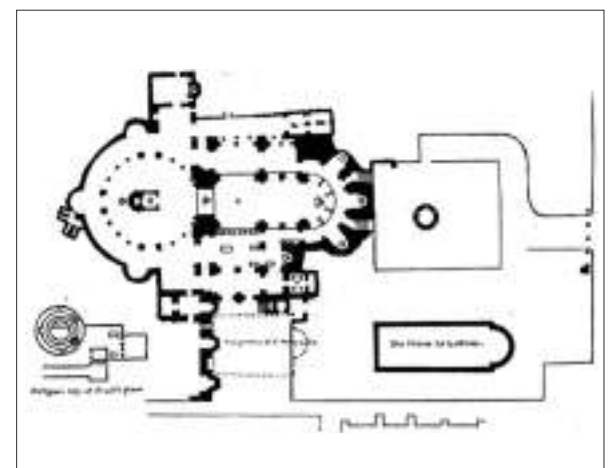
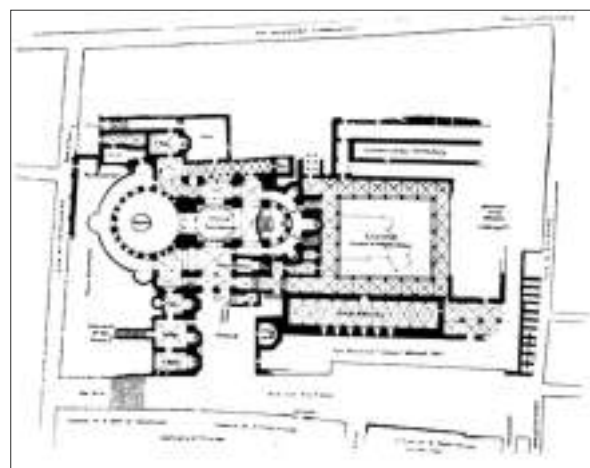
¹ F.J. BLISS AND A.C. DICKIE, *Excavations at Jerusalem 1894-1897*, London, Palestine Exploration Fund, 1898.

² <https://tandfonline.com/doi/pdf/10.1179/peq.1942.74.1.5>.

G. Jeffery, *The Buildings of the Holy Sepulchre, Jerusalem: Measured Plans and Sketches*, Florence, 1895; "The Church of the Holy Sepulchre", Jerusalem, in: *Journal of RIBA*, 17, pp. 709-98, 1910; *A brief Description of the Holy Sepulchre. Jerusalem, and other Christian Churches in the Holy City, with some account of the Medieval copies of the Holy Sepulchre surviving in Europe*, Cambridge University Press, 1919.

GEORGE JEFFERY (1855-1935), architect. He was Curator of Ancient Monuments in Cyprus from 1903 until his death¹. He wrote *A Brief Description of the Holy Sepulchre, Jerusalem*, compiled on the basis of new surveys, records of which have not been found, but which we know were published in 1895, and *The Buildings of the Holy Sepulchre, Jerusalem: Measured Plans and Sketches*, Florence, 1895.

This account of the church of the Holy Sepulchre was based on notes by the author, who was also an architect, George Jeffery (1855-1935), made a few years earlier, which first appeared in 1910 in the *Journal of the Royal Institute of British Architects*. The book is in four parts. The first covers the history of the church, from early Christianity through the Middle Ages, and into modern times. The author describes the buildings following the same criterion as visiting medieval pilgrims, as he himself states on page 70², from the 12th century plan to the *Rotunda*, to the Tomb, the *Chorus Dominorum* and the North Transept, the chapel of Calvary and the other spaces. The Augustinian monastery and the traces of Santa Maria Latina may be considered under separate headings. To this end he corrects, on De Vogüé's plan, the position of the church of Santa Maria Latina. Part II is a description of the monument and the nearby Augustinian monastery. It includes information based on archaeological discoveries of early vestiges of the church, as well as contemporary observations. Part III deals with the lesser shrines of Jerusalem, including those within the city walls as well as the suburban churches. The final part of the book is about the medieval reproductions of the Holy Sepulchre in different parts of Europe, including the Church of Santo Stefano in Bologna, Italy, and the Church of Vera Cruz at Segovia, Spain. The book is illustrated with a total of 57 plans and drawings of the Holy Sepulchre, showing many stages of its construction. It concludes with an index and detailed chronological tables on pages 220-28. Among the tables is an ecclesiastical



chronology of Jerusalem from 333 to 1733, in addition to a chronology of the civil government of Jerusalem from 333 until the Turkish occupation in 1517. This book was published in 1919 by the Cambridge University Press. George Jeffery was active in the preservation of ancient buildings in many parts of the Near East and Middle East, most notably in Cyprus, where for about the last 30 years of his life he was curator of ancient monuments³.

¹ K. EMERICK, "British Conservation Practice in Cyprus, 1878 to 1939: a Case Study", in his *Conserving and Managing Ancient Monuments: Heritage, Democracy, and Inclusion* (Woodbridge, U.K.; Boydell Press for The International Centre for Cultural & Heritage Studies, Newcastle University). Among his publications is the authoritative *Description of the Historical Monuments of Cyprus*,

published in 1918 and frequently reprinted. His public contributions include the supervision of the construction of the Cyprus Museum from 1908. More recently Jeffery's diaries have been studied and published by Despina Pilides.

² «In attempting to describe the buildings as they stand at the present moment it is perhaps best to follow the custom of the medieval pilgrims, who invariably begin their accounts

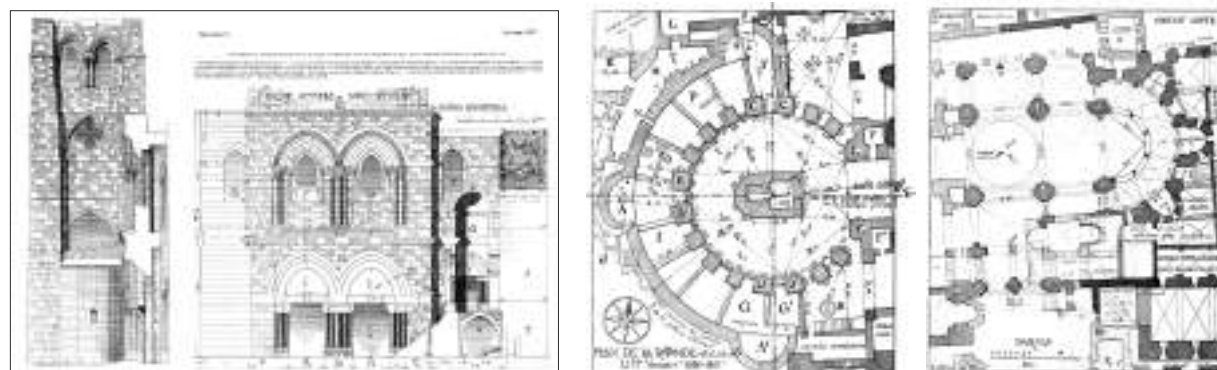
with the *Anastasis*, and then follow the course of the daily procession which is still conducted to the different stations in a certain order by Franciscan monks, who in a sense act as *ciceroni* of the monuments for the pilgrims and tourists of modern days coming from the West – from Europe and America».

³ <https://www.wdl.org/en/item/17618/>.

Louis-Hugues Vincent, Felix Marie Abel, "Jerusalem: Recherches de topografie, d'archeologie et d'histoire", tome Second, Jerusalem Nouvelle, avec Préface par M. Le Marquis de Vogué de l'Académie Française, Paris, 1914.

LOUIS-HUGUES VINCENT (1872-1960) was a Dominican archaeologist and friar, taught at the École Biblique et Archéologique Française in Jerusalem, where he lived at St Stephen's monastery (Saint Étienne), barring periods when he stayed in France during the two world wars. He conducted research at almost all the archaeological sites in the Holy Land. His reputation as an archaeologist was established in 1907 when he published the first survey of the results of archaeological excavations in Erez Israel (*Canaan d'après l'exploration récente*).

An honorary member of the Académie des Inscriptions et Belles-Lettres, and awarded the Légion d'Honneur, he published several volumes and numerous articles in the *Revue Biblique*, of which he was editor between 1931 and 1938¹.



FÉLIX-MARIE ABEL (1878–1953) was a French archaeologist, geographer and Dominican. One of the greatest experts in the geography of Palestine, he led numerous expeditions, also in the Dead Sea area. He joined the Dominicans in 1902, associating himself with L-H. Vincent and P. Lagrange at the École Biblique, where he became Professor. In 1940, Pope Pius XII appointed him Consultor at the Pontifical Biblical Commission².

The monumental work *Jérusalem: Recherches de topografie, d'archéologie et d'histoire* by L-H. Vincent and F-M. Abel was published over a 14-year period. The first volume is entitled *Jérusalem Antique*, while the second is *Jérusalem Nouvelle*, consisting in parts 1 and 2. The first is dedicated to *Aelia Capitolina* (the Roman colony and ruins of the Russian Hospice and of the Copt monastery), the second to the Holy Sepulchre and the Mount of Olives. Parts Three and Four are dedicated respectively to Mount Zion and the "second-order" Sanctuaries, and to St-Anne and the Sanctuaries outside the city. In addition to the countless drawings that accompany the text, giving further illustrated information, there is the fifth part, containing the Tables referring to all the issues studied in the work. The second volume (*Jérusalem Nouvelle*) was published in Paris in 1914, after many years spent by the authors in a critical analysis of previous sources and studies, with detailed surveying of some essential parts, such as the Rotunda, the facade, the southern colonnade, and the chapels of St Helena and St Mary, as well as Calvary, which he provides

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LOUIS-HUGUES VINCENT

(1872-1960)

FÉLIX-MARIE ABEL

(1878-1953)

From left:

Basilica, Survey of the Facade and cross Section on the axis of the main Entrance (A).

Survey of the Plan of the Rotunda.

Survey of the Katholicon, with the Chorus Dominorum.

Below:

Wall stratigraphy details of the Rotunda.



plans and sections of, showing relative heights, as well as the adjoining structures, including the Constantinian Baptistery and the Tomb of Joseph of Arimathea. It represents, before the monographic work by P. Virgilio Corbo (1981), the pinnacle of research on the *Basilica* of the Holy Sepulchre, with an investigation of the construction phases of the complex.

In the foreword, M. de Vogüé considers this monumental research work to be definitive, having been carried out analysing all the previous studies, and coordinating first-hand measurements and minutely-detailed investigations, calling "Jérusalem Nouvelle" an archeological work. The wealth of illustrations and iconographic material accompany the text in an equally detailed way, supplementing existing material and surveys with new surveys that have constituted a vital reference point for the many subsequent studies, starting with the article by C. Couasnon in 1972.

The importance of the work lies not just in the accuracy of its illustrations, but also in the fact it is a reliable record of the state of the buildings at the time. In a letter to the architect Barluzzi in March 1951, Vienna points out that P. Vincent's survey work was conducted «room by room, noting their compass bearings, a compass which varies over time, and the North back then is certainly neither astronomical North, nor the current magnetic North. Naturally, these are only small differences»³.

¹ W.F. ALBRIGHT, "In Memory of Louis Hugues Vincent", *Bulletin of the American Schools of Oriental Research*, No. 164 (Dec., 1961), pp.

1-4; O.R. SELLERS, "Louis-Hugues Vincent. In Memoriam", *The Biblical Archaeologist*, vol. 24, No. 2 (May, 1961), pp. 62-64.

² Referred to in R. DUSSAUD, "Le R. P. Félix-Marie Abel", *Syria*, 1951, vol. 28, pp. 374-375.
³ cf. BAGATTI.

23

ALFRED W. CLAPHAM

(1883-1950)

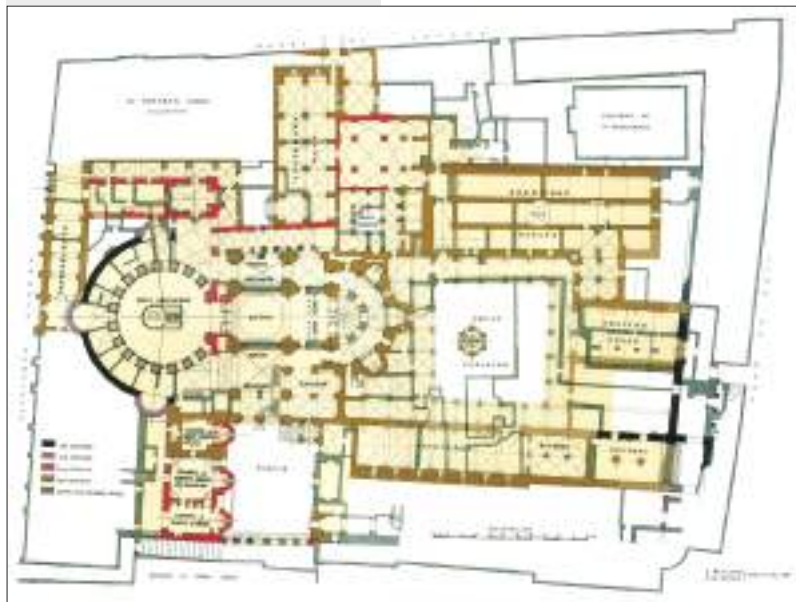
A.W. Clapham, "The Latin Monastic Buildings of the Church of the Holy Sepulchre, Jerusalem", in: *The Antiquaries Journal*, 1(1), 1921, pp. 3-18.

Sir **ALFRED WILLIAM CLAPHAM** (1883-1950), President of the Society of Antiquaries of London, devoted much of his life to the Royal Commission on Architectural Monuments for England.

His interests mainly involved Romanesque architecture. Worthy of mention are the two volumes on Romanesque Architecture in England, published in 1929 and 1934. During World War I he served in the Royal Sussex Regiment, entering Jerusalem with Allenby's troops.

The survey he conducted in 1918, in collaboration with **E.G. NEWNUM**, was published as a table separate from the text, accompanying the essay "The Latin Monastic Buildings of the Church of the Holy Sepulchre at Jerusalem", in *The Antiquaries Journal*, vol I, n.1, January 1921 (pp 3-18), subsequently used also by Camille Enlart¹. As later stated also by Denys Pringle², in volume three, *The City of Jerusalem*: «Although the area was surveyed by Conrad Schick in the 1860s to 1890s, the first and only detailed study of the medieval buildings themselves was undertaken by A.E. Clapham and E.G. Newnum in 1918».

As Clapham stated, this survey set out «only to deal with the church so far as a sketch of its history and development form a necessary preface to the study of the Norman priory, which housed the canons during the brief but extremely interesting period of the Latin kingdom». Indeed, it was no easy task to analyse these monastic buildings during Turkish dominion, and the author took the opportunity, during his five-month stay in Jerusalem, to carefully document the condition of the places, and especially the Great Cloister, the Chapter-House, the Dormitory, the Refectory and the Infirmary Cloister, which make up the whole complex³.



From left:

Plan of the *Basilica* and its surroundings: colours outline the different bulding periods.

¹ C. ENLART, *Les Monuments des Croisés dans le Royaume de Jérusalem. Architecture religieuse et civile* ("Bibliothèque archéol. et histor. du Service des Antiquités de Syrie", t. VII et VIII). Foreword by M.P. Léon, Paris, 1925-1929, 2 vols. As the author states «Plate 1-2 reproduces, with the gracious authorisation of the author and of the Royal Society of

Antiquaries in London, the excellent survey of the church of the Holy Sepulchre and of its annexes, carried out by Mr Clapham and Mr Newnum, and published in 1922 in *The Antiquaries Journal*».

² D. PRINGLE, *The Churches of the Crusader Kingdom of Jerusalem: A corpus*. 5 Vols. Cambridge University Press, Cambridge 1993-2009.

³ In 1993 a new article appeared on the cloister of the Holy Sepulchre, by E. GRABINER ("Le cloître du Saint-Sépulchre") in: *Bulletin Monumental*, Tome 151 N°1, année 1993. pp. 169-180. The drawings are by H. Delhumeau, on the basis of the drawings by W. Clapham, E.G. Newnum (1918) and P. Corbo (1982).

24

WILLIAM HARVEY

(1883-1962)

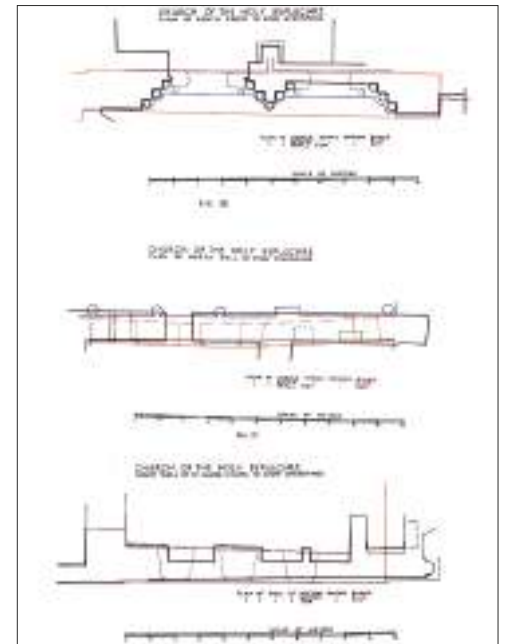
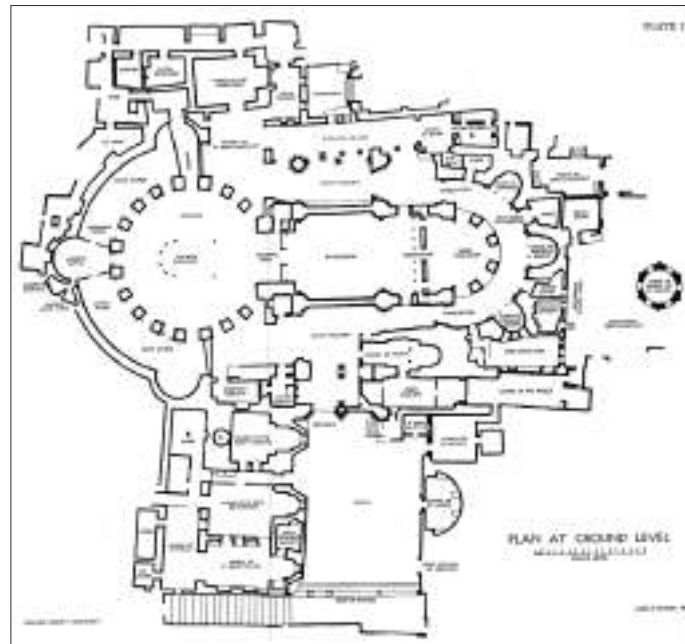
From left:

Plan at the ground level of the Basilica of the Holy Sepulchre.

Horizontal Sections on out of plumb portions of wall at different levels (outlined in red, blue and black).

W. Harvey, *Church of the Holy Sepulchre, Jerusalem. Structural Survey, Final Report by William Harvey, Oxford University Press, London, 1935.*

The new survey campaigns of the *Basilica* – and in particular of the *Anastasis* with the *Aedicula* of the Holy Sepulchre – carried out during the British administration of Palestine (1919-1947), set themselves the goal of establishing the seriousness of the structural damage caused by the very strong earthquake of 11 July 1927, assessing the degree of safety of the architectural features, prior to taking the vital technical measures to conserve the building, which it was thought was now close to collapse. Following the request by the Greeks to be able to rebuild the dome of the *Katholicon*, which was seriously damaged in the quake, concern over the risks deriving from the inadequacy of the support arches designed to bear the great weight of the new dome led the Mandatory Power to order (1933-34) special checks on the stability of the monument, appointing the architect **WILLIAM HARVEY** (1883-1962) to carry these out. He was educated at Regent Street Polytechnic, and Royal Academy Schools, London. He was a Royal Academy Gold Medallist in Architecture, and travelled as a student in Greece, Egypt and Palestine. He worked as an architectural assistant, and then as manager in different offices, before becoming a freelance working architect and architectural writer. It is clear from his publications that he had a specific interest in building dynamics (statics), and in aspects of the construction of ancient buildings¹.



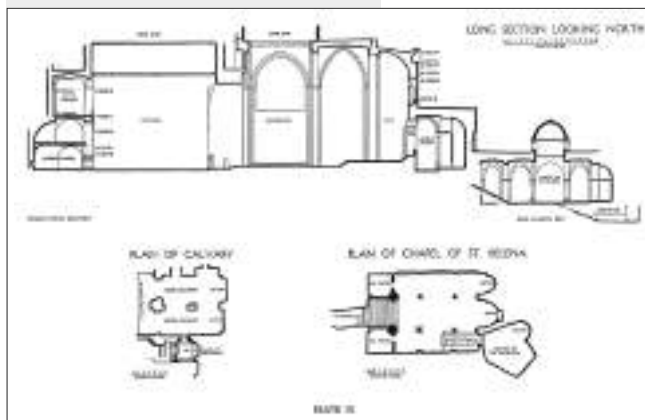
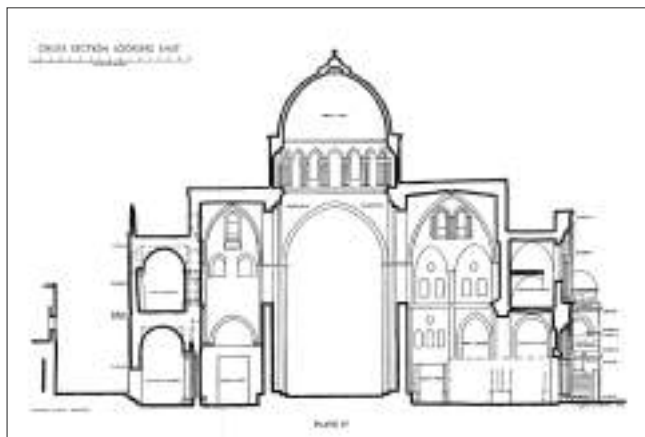
Before his *Final Report*, Harvey had drawn up five other reports: the date of the preliminary report is not known, while the others are dated respectively 28-9-1933, 28-10-1933, and 8-11-1933. The report forwarded to the Custodian of the Holy Land was dated 19 March 1934.

In 1935 Harvey – who had meanwhile ordered immediate measures to shore up the perimeter walls and the facade (that was about to collapse outwards), and to bond together the pilasters of the *Rotunda* (created after the 1808 fire by incorporating the pre-existing supports) with a ring of steel girders – published a rather alarming report in which he highlighted the danger that the structures might collapse.

The *Final Report*, in 1935, is in three parts: «The first describes the present structural state of the Church, and causes of decay. The second describes the measures of permanent repair necessary for its conservation. The third enumerates certain alterations which seem desirable on archeological, or in certain instances on utilitarian grounds».

Harvey sets out in six points the problematics that were the cause of most concern, as Luigi Marangoni would report soon afterwards in his report, and in reference to which he would conduct his evaluations and technical inspections:

1. Perimeter wall of North Transept bowing outwards;
2. Perimeter wall of South Transept (facade) bowing outwards;
3. Wall of apse of *Katholicon* (Choir of the Greeks) bowing outwards;



4. Break-up of the masonry of the pilasters of the Rotunda, and their tendency to come apart (vertical and partly horizontal damage);

5. State of bell-tower;

6. State of the arch west of dome of Katholicon.

After Marangoni's inspection, on 16 and 17 April 1935 Harvey was thus able to make further evaluations, using a new armature, of the roof of the South Transept and the large arches below the dome of the *Katholicon*, as recorded in the additional notes in the definitive report (pp. 13-15). In his conclusions regarding the causes of decay, Harvey gives great importance «to the thrusts from the dome of the *Katholicon*, and also to a lesser extent from the roof of the *Rotunda*. Contributing causes are the individual thrusts of the subsidiary vault. [...]». Other significant contributing elements are: «the poor mortar used, the comparative thinness of the main walls, and the small area of the building in proportion to its height». The frequency of earthquakes, and the disastrous fire of 1808, had played a role in speeding up the evolution of the decay. Other factors undermining the state of the building are natural agents, for exterior parts, and ill-advised attempts at restoration as regards interior surfaces. Finally, the pavement of the entire church was already found to be in very poor condition even back then, except for the pavement of the *Katholicon*. The report is accompanied by extensive photographic documentation showing instances of break-up and decay, with consideration given to the most important features that were out of plumb. Lastly there are the tables with floor plans and elevations.

Harvey does not go into detail regarding the *Aedicula* of the Holy Sepulchre, regarding it as separate from the structural complex, and even going as far as to suggest it should be dismantled, and possibly restored to «its earlier form».

¹ He was the author, among other things, of *The Church of Nativity at Bethlehem* and of *The preservation of St Paul's Cathedral and Other Famous buildings: "A Text book on the New science of Conservation, including an Analysis of Movements"*, in *Historical Structures prior to their Fall* (London, Architectural Press 1925) and *Structural Survey of the Church of the Nativity, Bethlehem* (London, Oxford University Press, 1935).

From above:

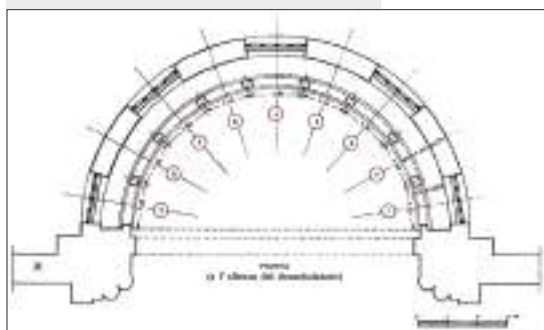
Basilica of the Holy Sepulchre, cross Section looking East; longitudinal Section looking North; Plan of the Calvary; Plan of the Chapel of St. Helena.

25

LUIGI MARANGONI

(1872-1950)

Apse of the *Katholicon*, upper Plan, highlighting the position of the Arches.



L. Marangoni, *La chiesa del santo Sepolcro in Gerusalemme. Problemi della sua conservazione*, edited by Custody of the Holy Land, Venice, 1937.

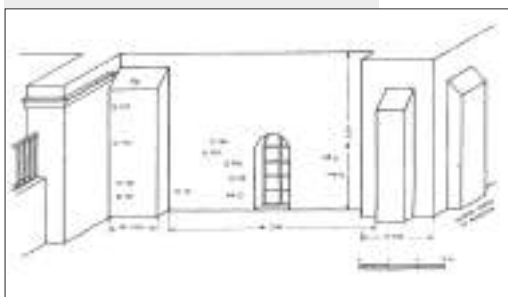
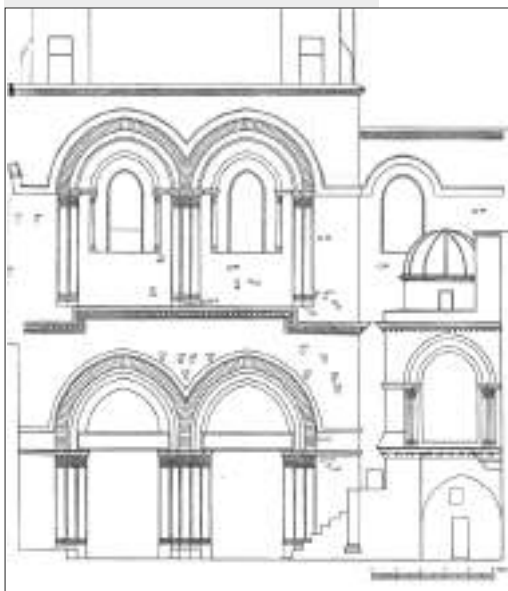
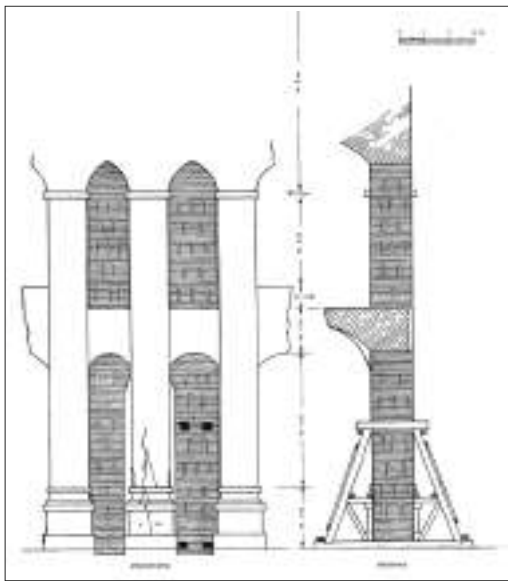
The work consists of 154 pages, with 18 illustrations in the text and 21 separate tables.

LUIGI MARANGONI (1872-1950) graduated in Civil Engineering in 1894 at the school of application for engineers in Padua. His name is associated above all with the history of restorations of St Mark's *Basilica* in Venice, where he worked as assistant engineer since 1904, becoming Chief Engineer on 14 May, 1910. That same year he was invited to Constantinople by the Turkish government, to assess the static condition of Hagia Sophia, and in 1934 he was asked to go to Jerusalem by Father Nazareno Jacopozi, Custodian of the Holy Land, to assess the structural state of the *Basilica* of the Holy Sepulchre, collaborating with the architect Barluzzi, from 1940 onwards, on the plans for the new *Basilica*¹.

The Latin Community, alerted by Harvey's predictions, tasked Marangoni with surveying and monitoring the system of cracks. After reporting on the six instances of decay examined by Harvey, Marangoni put forward his own "Proposal for the methodical study of the monument", and finally drew up a "Note on the definitive report presented by the architect from the British Government" in June 1935², with 11 drawings relating to the stress tracking devices applied to the individual architectural elements that were the subject of investigation.

The surveys, and the application of the 265 monitoring devices on the areas of damage, were carried out between 26 February and 19 March 1934, with the collaboration of Barluzzi, with technical assistance for the surveys from Giovanni Marè.

As well as containing numerous photographs and details taken from the tables of Vincent and Abel (1914), Marangoni's volume contains a large «floor plan of the church of the Holy Sepulchre and its adjacent buildings», specially redrawn (1937) by A. Sartorio on the basis of the survey (1878) by A. M. Clapham and G. Newnum.



Before starting his own investigations, Marangoni questioned Harvey himself, asking him how long he had been studying the decaying features of the monument, and what surveying systems he had used. The latter replied that he had been working on it for seven months, and that, despite the prediction of a possible imminent collapse, only the sloping walls had been surveyed, using a plumb line, and that he did not apply any measuring device to the damaged masonry. So the actual evolution of the movements under way were not known. Nevertheless, when the work was delivered, only one of the 265 monitoring devices that were set in position had actually broken. This supported a less alarming prognosis than that by Harvey.

A similar view was expressed by the architects Orlandos and Paraskevopoulos, who were called in as consultants by the Greek Community.

As H. Vincent states in a 1938 essay³, he and F.M. Abel had already noted, on the occasion of the surveys carried out between 1908 and 1912 on behalf of the Biblical School, fairly worrying symptoms of the static unreliability of the complex, although he refrained from referring to these in his famous 1914 work *Jérusalem Nouvelle*.

Some years after the start of the British Mandate, M.E.T. Richmond, the Director of the Antiquities and Historical Monuments Service of Palestine, had manifested his own concern over the static conditions of the Holy Sepulchre, before the seismic events of 1927, devoting himself to studying repair work on the monument.

At the end of October 1937 a new seismic tremor, albeit much more less severe, rekindled concerns over the future of the monument, which had only been subjected to temporary consolidation works, since no definitive restoration plans had yet been established.

The shoring up operations envisaged by W. Harvey continued until 1939. As noted by Father Baldi of the Studium Biblicum Franciscanum in Jerusalem, the obstacles deriving from the *Status Quo* arrangements made it impossible to make provision in a systematic way for the necessary maintenance and restoration measures. This hindered the regular development of definitive measures to stabilize the building, and indeed, fearing the risk of imminent collapses following further seismic events, as early as 1939 Mons. Testa appointed two architects, Barluzzi and Marangoni, to draw up a wholesale reconstruction project of the *Basilica* that would reflect the original Constantinian layout, which was never followed up on⁴. Coinciding with the start of their studies, in 1940, new topographic survey work was carried out by Ferdinando Vienna, with the assistance of Emilio Sartorio as draughtsman.

Given the impossibility of following through with the reconstruction project, and given the continuing concerns over the future of the building as a whole, Ferdinando Forlati⁵ suggested, in spring 1954, after an on-site visit, static restoration solutions that might allow significant parts of the ancient complex to remain, integrating partial additions with the aim of obviating the current difficulties in the practice of religious worship.

¹ Biographical details by A. CAPANNA in *Dizionario Biografico degli Italiani*, vol 69, 2007 Rome.

² pp. 83-91.

³ H. VINCENT, "L'Eglise du Saint Sépulcre in péril", in: *Comptes-rendus des stances - Académie des Inscriptions et Belles Lettres*, 82, n. 5, 1938, pp. 426-433.

⁴ *Il Santo Sepolcro di Gerusalemme. Splendori - Miserie - Speranze*, with a foreword by Monsignor G. Testa, Bergamo, Istituto Italiano d'Arti Grafiche, 1949. Published on the VIII centenary of the consecration of the Crusader Basilica, 15 July 1149.

⁵ Ferdinando Forlati (1882-1975), an engineer and architect, worked especially in Veneto, where he dealt with salvaging and renovating significant buildings belonging to the Region's monumental heritage (eg Castelvecchio in Verona, Palazzo dei Trecento in Treviso). From 1910 until 1926 he was an architect for the Soprintendenza dei Monumenti in Venice; in 1926 he became Superintendent for Antiquities and Works of Art for the Friuli Venezia Giulia Region. During his long career, he personally documented all restoration and consolidation work. Indeed, he wrote very many articles in specialist periodicals - *Palladio*, *Arte Veneta*, *Bollettino d'Arte*, *Le Arti*, *Memorie Storiche*

Forgiulesi, *Emporium*, *Quaderni di Restauro*, *Archeografo Triestino*, *Architettura e Cantiere*, and *Atti e Memorie della Società Istriana di Archeologia e Storia Patria* - and contributed articles to the published proceedings of various conferences.

⁶ After the war, and the creation of the State of Israel, contacts between the three Christian communities, with a view to restoration work on the Holy Sepulchre, resumed in 1954. The Greek Orthodox Community called in the architect Orlandos, the Custodian of the Holy Land appointed the architect Coupel, from the Antiquities Service of Lebanon (replaced in 1955 by Trouvelot), and the Armenian Patriarchate called in Altounian (who died in 1958, being replaced by Edouard Utudjian). After Orlandos retired for health reasons, his position as mission leader was taken by Prof. Chatzidakis, a conservator at the Byzantine Museum of Athens, together with Jean Travlos as architect. The restoration project, presented in 1959 by Orlandos, Trouvelot and Utdjian, received the approval of the three Communities. This involved solely the part of the building constructed by the Crusaders in the first half of the 12th century. After some preliminary investigations of the foundations, the work began in 1962.

From above:

Proposed solutions for the restoration of the *Rotunda* (pillar 10).

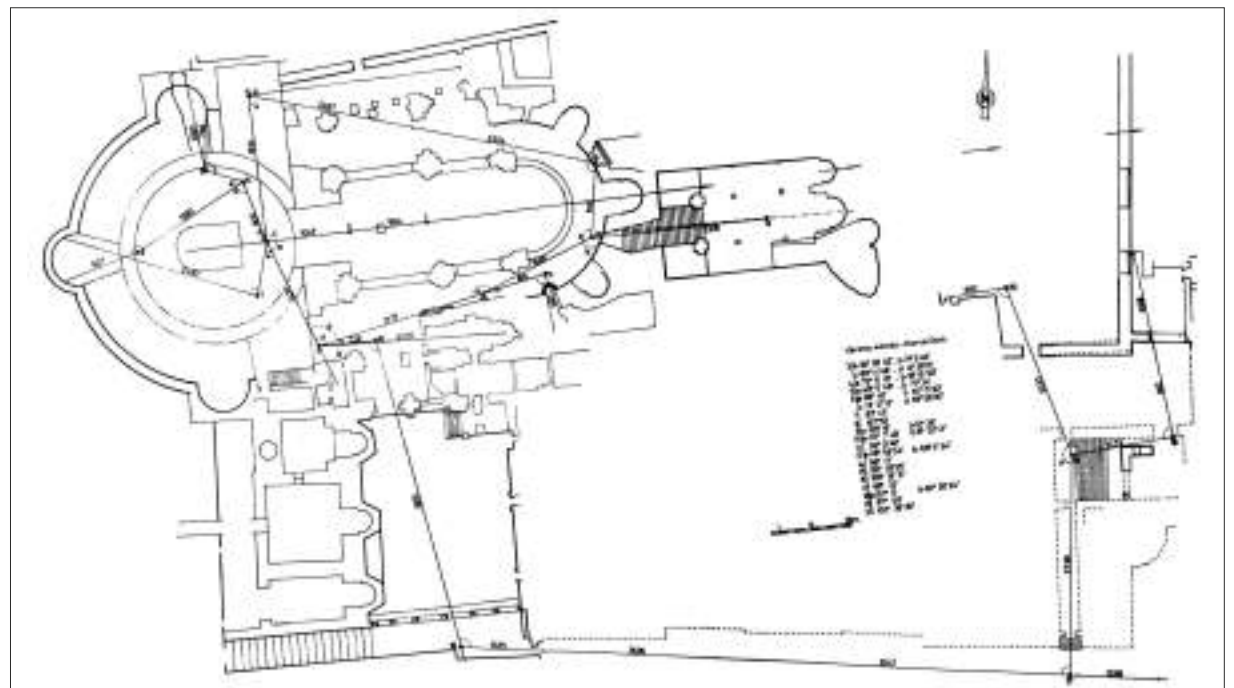
Facade of the *Basilica*: the small circles with progressive numbers mark the placement of crack detectors.

Wall West of the South Transept, at the terrace level: placement of crack detectors.

F. Vienna (1940), B. Bagatti, "La triangolazione del S. Sepolcro di Vienna-Sartorio" (1940) In: *Liber Annuus*, (1971) vol. 21, pp.149-157.

On the occasion of the New *Basilica* Project entrusted to L. Marangoni and A. Barluzzi, Father Bagatti asked the engineer **FERDINANDO VIENNA** (1883-1962), and a draughtsman, Emilio Sartorio, to create a new floor plan of the Holy Sepulchre, and to include the ancient remains conserved in the Russian Hospice¹, with the aim of resolving matters regarding previous floor plans, by defining the relative and absolute position of these ruins, and establishing in particular the angle of the ancient wall, which had at times been drawn as obtuse (C. Schick, 1885; Ordnance Survey, 1890; A.W. Clapham and E.G. Newnum, 1918), and other times as a right-angle (G. Jeffery, 1910; P.L.H. Vincent, 1911). In support of this request, there was also the opportunity of using «more modern means of recording». In a letter sent to Father Bagatti on 25 October 1951, F. Vienna wrote «[...] now, with a survey backed up by a traverse of considerable topographical precision, we can try to reconstruct on safe grounds». In a subsequent letter he added that he had also determined the astronomical alignment to correct the alignment determined by Father Vincent with the use of a compass.

The Vienna-Sartorio surveys would later be used also by P. Corbo for his studies and his reconstructions; Father Bagatti ended his article suggesting that it be used for all future finds, insofar as it was a «guarantee of the exactitude of the relative positions of the various parts».



Plan of the *Basilica* of the Holy Sepulchre: reproduction of the table 2 of Father Corbo's monograph (1981), where the basic triangulations used for the survey are represented; Magnetic North is also represented but the scheme of the operations for its astronomical research is omitted, as Father Bagatti had already done.

The survey also included the elevations, but only the floor plan itself features in the publications; moreover Vienna himself complained, in a letter to Barluzzi, that his plan had not been correctly included in Table XXIX of the volume entitled *Il Santo Sepolcro di Gerusalemme. Splendori. Miserie. Speranze* by Mons. Testa, which had different aims, and he proposed a separate publication «in a form that might serve some purpose». But, as still happens today in the case of metric surveys, there is no interest in the scientific aspect of measuring on the part of the community of historians and architects, despite the fact that they use those measurements for their own speculations. Vienna himself would write to Barluzzi saying: «Our work is undoubtedly a contribution of a scientific nature, given the method adopted, to knowledge of the Monument, and so it ought to be usefully made known to academics» (p. 156) and, whilst recognizing that P. Vincent also did not make use of a topographical grid to check his measurements, but that he proceeded with a compass, room by room, and that the results therefore suffered from uncertainties in the positioning, albeit small ones, the Vienna-Sartorio study never resulted in anything being published.

¹ These remains were found to be of great importance for drawing up suggested reconstructions of the Constantinian phase.

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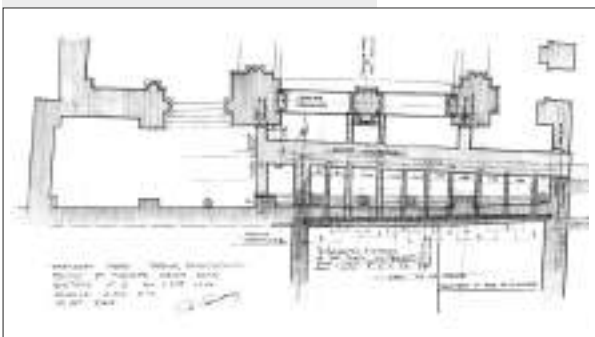
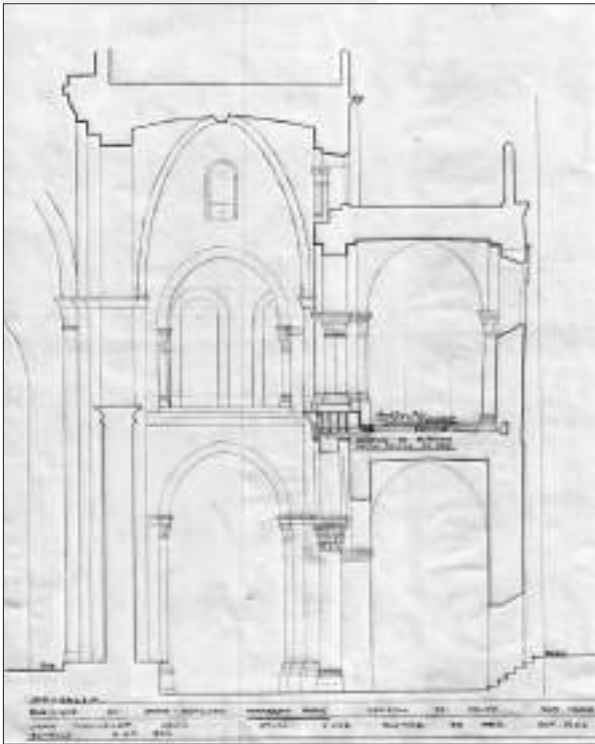
CHARLES COÛASNON

(1904-1976)

Below:

North Transept of the *Basilica*, Section detail with scheme for the placement of an iron beam.

North Transept of the *Basilica*, Franciscan Tribune, study for structural consolidation by use of reinforced concrete beams and rods.



Ch. Coüasnon, "Les travaux de restauration du Saint-Sépulcre", in: *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 110 année, n. 2, 1966. pp. 209-226.

CHARLES COÛASNON, (1904-1976), an architect working on historical monuments in Ille-et Vilaine as of 1936, a Dominican since 1943 and Superintendent in 1950 at the Saint-Etienne Monastery in Jerusalem, was nominated head of the technical office of the church of the Holy Sepulchre in Jerusalem in 1955. His most important works include participating in the Tell el-Far'ah and Qumran excavations, the restoration of the Holy Sepulchre in 1967, and the restoration of the church of St Anne in Jerusalem, after the 1967 bombing, and of the monastery of Abu Ghosh, 1970. His publications include: *Analyse des éléments du IVe siècle conservés dans la Basilique du S. Sépulcre à Jérusalem*, Akten des VII. Internationalen Kongresses für Christliche Archäologie, 1965; *The Church of the Holy Sepulchre in Jerusalem*, London, Oxford Press, 1974; and "Les travaux de restauration du Saint-Sépulcre", in: *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 110 année, n. 2, 1966. pp. 209-226¹.

After the famous 1927 earthquake that caused serious damage to the structures, noted by Harvey (1935) and later by Marangoni (1937), the monument required consolidation and restoration. Dating to this period are, especially, the photos of the southern facade supported by steel scaffolding, and the pictures attached here of the dome of the *Katholicon* damaged by the earthquake and during the dismantling of the cross. In 1959 the Communities agreed on the restoration plans presented by Orlando, Trouvelot, and

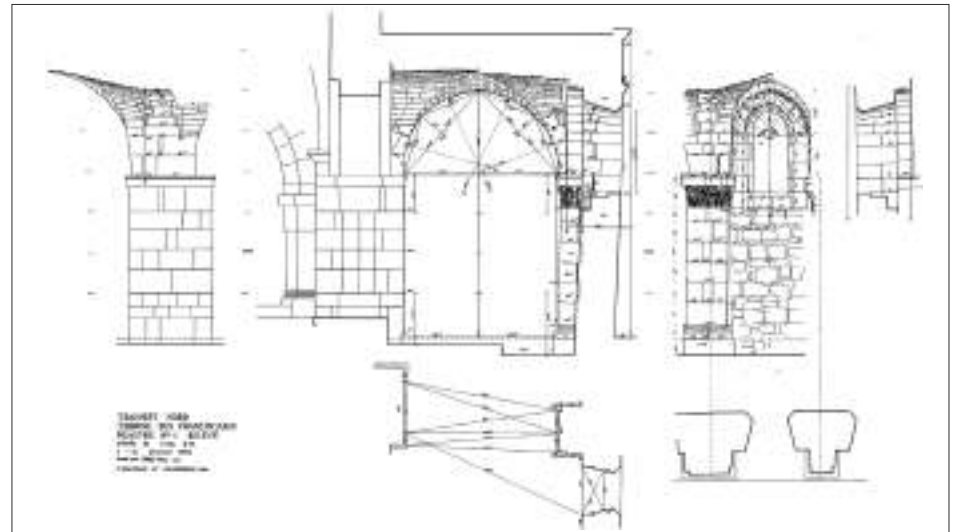
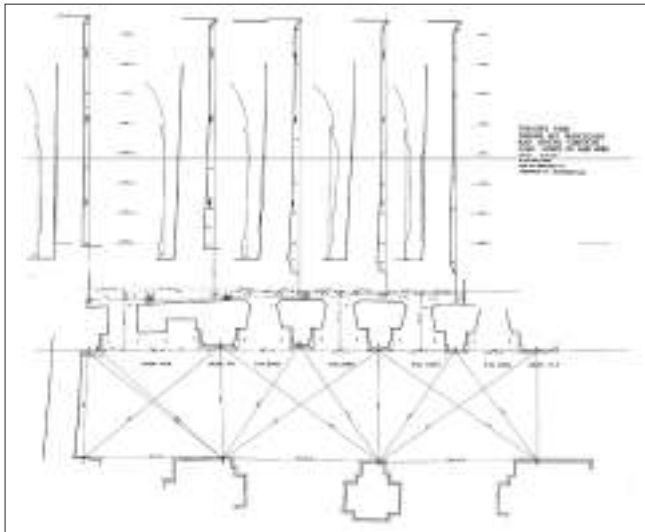
Utudjian. Indeed, the work began in 1962. A technical bureau was responsible for progress of the building work. This was composed of three architects, one to represent each of the three Christian Communities. M. Ekonomopoulos represented Chatzadakis and Travlos; Diran Voskeritchian represented Utudjian, and Coüasnon represented Trouvelot. The technical bureau forwarded to the architects the reports, surveys and photographic documents for drawing up the site instructions, and to make sure they were executed.

Dating to those years are the surveys carried out up by Coüasnon. They are representations of various types, aimed at different goals: from sketchier drawings to study the structures, and the plans to consolidate these structures, to more detailed drawings with descriptions of the form and size of the walls, showing how the stones were laid, and technical drawings regarding the North Transept of the Franciscan tribune, and the construction of the new rooms in their monastery, up to and including a very detailed definition of certain decorative features such as capitals, plinths and cornices. Almost always the drawings are annotated with measurements, and perhaps also with verifications of previous surveys.

In his timely account of the works, "Les travaux de restauration du Saint-Sépulcre" published in 1966, Coüasnon does not refer to the surveys he made, but the information acquired during his work on site is at the basis of his *Schweich Lectures* (1972) to the British Academy, in which he discussed the problem of the appearance of the original monument, with various graphic reconstructions that basically relate to two hypotheses: a) the Tomb was located inside a circular building (Vincent and Conant support this notion); b) the Tomb was in a courtyard, in the open air (Willis, Dalman, and Dyggve came out in support of this idea, backed more recently also by Professor Krautheimer).

The results of Father Coüasnon's study are also based on surveys made in the past, as well as on the more recent drawings by Father Virgilio Corbo, published in the *Liber Annus*, published from 1962 until 1969, while the publication of the more complete three-volume monograph appeared later on (1981). For his reconstruction drawings, Coüasnon employed a British draughtsman, Terry Ball². In the archive of the Custodian's Office, at the Church of the Flagellation, technical drawings were found, dated 1966, meticulously recording the geometric anomalies of the North Transept of the Franciscan tribune, as well as the way the stone courses of the walls were laid, with extensive true range multilaterations and heights. He was also responsible for axonometrical reconstructions explaining possible ways in which the building's layout evolved through time. G.S.P. Freeman-Greenville notes that the difficulty in taking on board in a timely way the updated versions of Corbo's studies, still in progress, was at the origin of a number of errors in texts that were contemporary with Coüasnon, regarding him as more reliable than he really was. «Canon Ronald Brownrigg's *Come, See the Place: the ideal companion for all travellers to the Holy Land*, 1985, still treats Fr Coüasnon as having had the last word, and prints plans some of which are erroneous»³.

Since the major earthquake of 1927 and after the fires of 1934 and 1949, all the works, and thus the surveys, focused on consolidation of the various parts in order to make them safe. Given the complexity of the structure, and the need for considerable financial resources, the priorities were established on the basis of urgency. This led to a fragmentary approach, reinforced by the frequent lack of coordination between the various Communities within the *Basilica*. Studies thus became sector-specific, addressing different portions of the building, as and when. On one hand surveys would be geared towards individual projects, while on the other they would record the progress of restoration work, with particular attention to archaeological aspects which, from this time on, would start an important line of investigation. Excepting the surveys by Virgilio



From left:

North Transept of the *Basilica*, Franciscan Tribune: Plan at the molding level and Sections of the North wall (drawing by T. Ball).

North Transept of the *Basilica*, Franciscan Tribune: survey of the pillar n. 1 (drawing by T. Ball).

Corbo (1981), Lavas-Georgopoulos (made in the years 1993-1999) and the one published here by this author's team, concerning the whole complex, the others are limited to individual parts (Katsimbinis, Gibson-Taylor, Diez Fernandez, Seligmann-Avni, NTUA), interpreting their findings in ways that sometimes contradicted each other. One need only consider the different opinions held by Corbo and Couâsnon regarding the reconstruction of the *Anastasis*, whereas both men refute some of the conclusions of Vincent and Abel, despite the fact they remain an essential reference point for any study of the *Basilica*.

¹ www.persee.fr/doc/crai_0065-0536_1966_num_110_2_11968.

² William Thomas (Terry) Ball (1931-2011) was one of Britain's best-known and most influential artists in the field of graphic reconstruction. Born into a family with Irish roots, his mother encouraged his interest in art, and, after WWII, during which he was evacuated to North Wales, Terry went to Wimbledon School of Art. In autumn 1952 he began studies at the Royal College of Art in London. In 1957 he went to Jericho, where he joined the archaeologist Kathleen Kenyon, drawing finds recovered

from her excavations. He fell in love with Palestine and its people, and it was during the restoration of the Church of the Holy Sepulchre in Jerusalem that Terry first grasped the value of reconstruction drawings. One of his earliest works, drawn during the Six-Day War in 1967, shows the church as it was rebuilt in the 1040s. Terry's works were not "artistic impressions", but carefully considered and meticulously argued reconstructions. The process began with lengthy discussion on site, choosing the most appropriate viewpoint, and considering the missing elements of architectural detail, such

as the form of the roof. Draft after draft would then follow, with Terry putting questions to his collaborating historian, ensuring the accuracy of detail for the proposed date of reconstruction. He was also a prolific letter-writer. In 1992, he was appointed MBE and was elected a fellow of the Society of Antiquaries of London (biographical details taken from <https://www.theguardian.com/culture/2011/mar/22/terry-ball-obituary>).
³ G. FREEMAN-GRENVILLE, "The Basilica of the Holy Sepulchre, Jerusalem: History and Future", in: *Journal of the Royal Asiatic Society of Great Britain & Ireland*, 119(2), 1987, pp.187-207.

28

CHRISTÓS KATSIMBINIS

Ch. Katsimbinis, "The uncovering of the eastern side of the hill of Calvary and its base. New lay-out of the area of the Canons' Refectory by the Greek Orthodox Patriarchate", in *Liber Annuus*, XXVII, 1977, pp. 197-208.

The architect **CHRISTÓS KATSIMBINIS**, tasked with carrying out the restoration work in the area behind the rock of the Hill of Calvary, also embarked on a series of investigations, at the same time, in one of the most interesting areas of the complex as regards history and archaeology. He noted the need to inform researchers and visitors of the discoveries made in what may be described as the centre of Christianity. All the restoration work was carried out, right from the start, under the supervision of the Greek Orthodox Patriarch. The area involved was the Canons' Refectory, in the south-east section of the Church, behind the Hill of Calvary and the Chapel of the Crown of Thorns, the Crusaders' part of the Church. This area was used by the order of Canons as a refectory and kitchen in the lower part; the upper part consisted of small rooms where the Canons, Guardians of the Tomb, lived. Under the floor of the Refectory were two cisterns used for rainwater.

There were three phases in the progression of the work. It began in March 1958 under an engineer, A. Mallios, and was later resumed between 1970 and 1973 under the supervision of the architect Economopoulos, before continuing up to March 1974 in line with a new programme of works that took into account the needs of restoration and full utilization of the area by the Canon

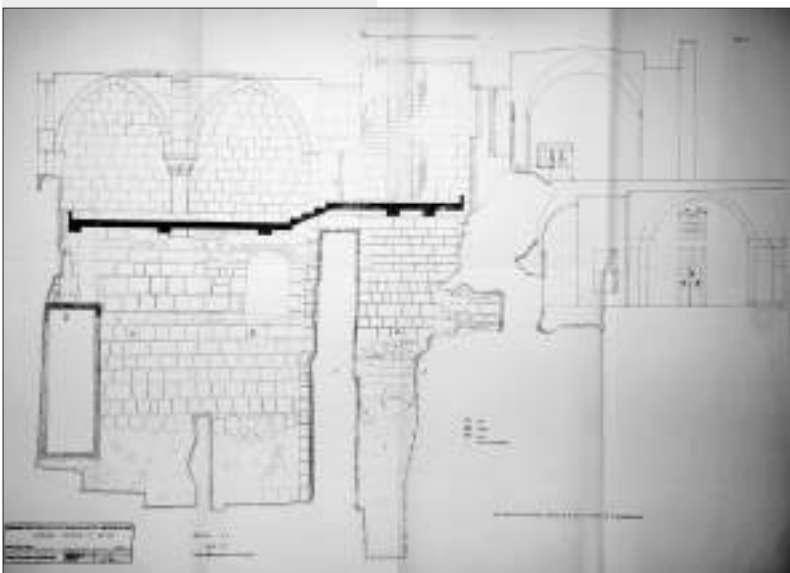
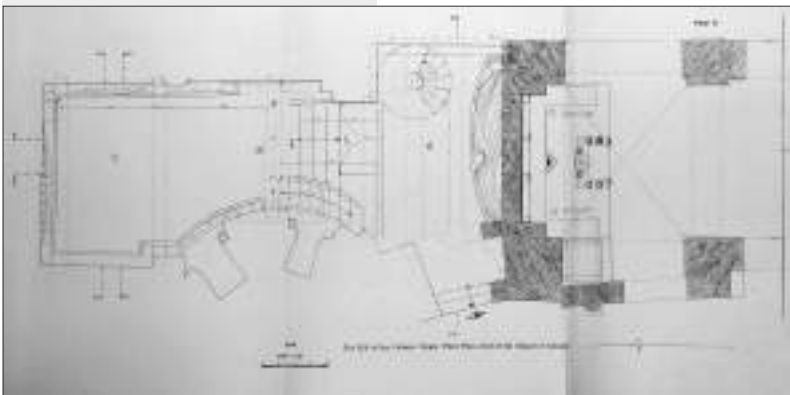
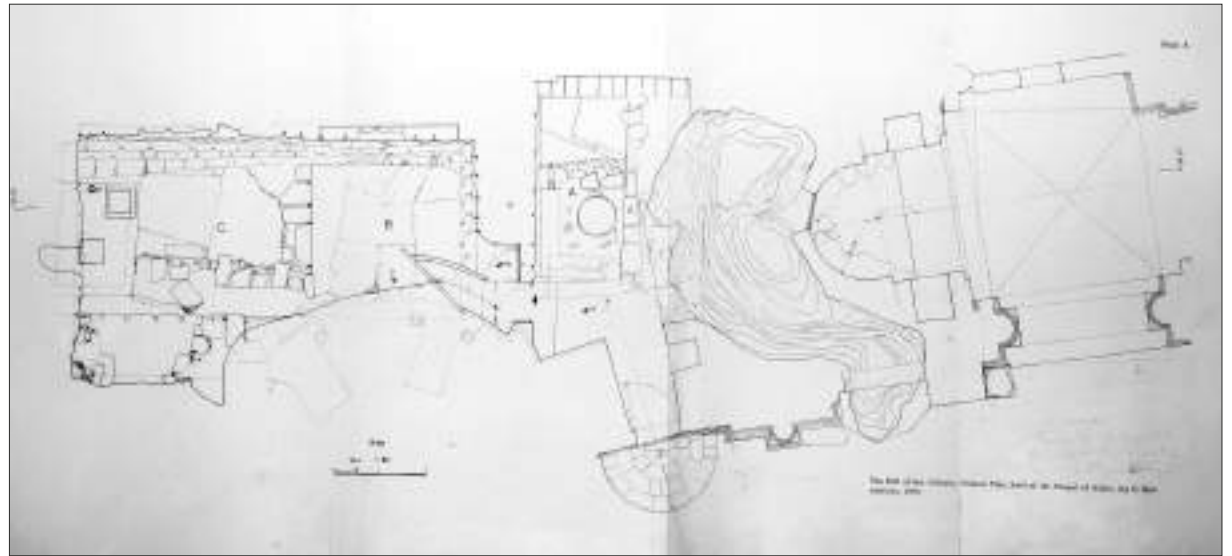
Right:

The Hill of the Calvary: ground Plan, level of the Chapel of Adam.

Below:

The Hill of the Calvary: upper floor Plan, level of the Chapel of Calvary.

The Hill of the Calvary: Section A-A, East to West.



Fathers as a refectory, or a waiting room after the Holy Mass in the *Katholicon*, or in the Church of the Hill of Calvary. The difficulty of working in such a stratified palimpsest is clear: «Any work which was carried out should not hide or ruin the remains of the various architectural parts which were characteristics of the continual interventions over the centuries for the purpose of strengthening the building after the great catastrophes it had suffered»¹.

A certain space had to be rendered accessible and made functional, opening it up for visits by pilgrims and tourists but also, at the same time, without covering up the important archaeological features. Also, the need to collect rainwater for drinking purposes was met by creating a cistern, while a drainage system was also created to remove used water.

When work was extended below the surface, this was an opportunity for a series of archaeological investigations carried out under the direction of the Inspector General of Antiquities, Manol Chatzidakis, an expert in restoration work at the Church of the Holy Sepulchre. During the excavation, the remains of older buildings were found, as well as remains revealing the existence of a quarry for stone, and a stone conduit pipe. On this occasion, new floor-plans and elevations were compiled showing the wall stratigraphy, which would be the main research strategy used by the archaeologist Florentino Diez Fernandez².

¹ C. KATSIMBINIS, "The uncovering . . .", op. cit. p 203.

² Father Piccirillo reports that Father Florentino continued the subsoil excavation at the invitation of the architect Katsimbini. Between May and August 1977, Father Florentino carried out investigations between the Rock and the wall, in a very narrow and cramped sector, setting out from the depth reached by previous interventions, that had stopped at the

level of the floor of the small cave. Basically, the previous investigation had been broken off at the level of a layer of fill, into which architectural elements had been thrown, along with terracotta material. These elements included a pagan altar. The fill covered a kiln full of tiles, associated with a low wall, both of which had their upper parts cut off (JSTOR, www.jstor.org/stable/27925979).

V. C. Corbo, *Il Santo Sepolcro Di Gerusalemme: Aspetti Archeologici Dalle Origini al Periodo Crociato*, Franciscan Printing Press, 1981.

Father **VIRGILIO CANIO CORBO** (1918–1991) was an archaeologist and friar of the Custodianship of the Holy Land. In Palestine since 1928, he entered the college of Franciscans (Friars Minor) in Emmaus. A former student at the Studium Biblicum Franciscanum in Jerusalem, he graduated in Rome from the Pontifical Institute of Oriental Studies.

His first excavation experience came under the guidance of Father Bellarmino Bagatti. He focused his first investigations on Byzantine monasteries in the Judaean Desert. He began a long career of research and teaching. He conducted intense archaeological activity, especially carrying out excavations at various sites in the Holy Land: in Bethlehem between 1946 and 1954, on the Mount of Olives in 1959, and at Herodium, Bethlehem, between 1962 and 1967. He continued the excavations at Machaerus, from 1967 until 1981, and later in a Byzantine *basilica*, in the monastery of Mount Nebo, and in the ancient city of Magdala.

His name is particularly connected to two sites: Cafarnao, where he found a 1st century BC house, later attributed to Peter the Apostle; and the *Basilica* of the Holy Sepulchre in Jerusalem, where he excavated for more than 13 years, starting in 1960, on the occasion of restoration work carried out by Father Coüasnon¹.

The monumental monographic work by Virgilio Corbo, published in 1981, comprises three volumes: the first contains the text, the second the tables, and the third the photographic documentation. It may be regarded as the most complete and up-to-date account of the archaeological excavations conducted over 13 years. The opportunity was provided by the restoration work in the zone of the Patriarchate (now the Franciscan monastery) and the rooms constructed in the Constantinian courtyard between the *Patriarchio* and the *Anastasis* in September 1960. Trial trenches and excavations were carried out in the crucial areas of the *Basilica*, with the prime aim of checking the stability of the Crusader structures. The author himself notes that «the real archaeology of the Holy Sepulchre began only in 1960 with the commencement of restoration work. Before that date, those who dealt with the monument only did so at the surface level, namely not only without the help of excavations, but, worse still, without even stripping off the plaster»². He was referring to the removal of plaster from the walls which, for the first time, enabled a study of the characteristics of the wall structure, and masonry techniques, in the various construction phases. In the text, every chapter is preceded by extracts of descriptions of the period being considered, with particular regard for the works of Bernardino Amico

and Eleazar Horn, to provide a representation of the complex prior to the fire of 1808 and the restoration by Komninos. As usual, Father Corbo also complained of the difficulties encountered in surveying and studying the private areas of each Community. Despite the fact that since 1963 he was regarded as the archaeological expert by all the Communities, it was not always possible for him to work in the areas that came under the responsibility of the Greeks and the Armenians. Excavations were conducted by the Latins in the *Patriarchio*, in the Constantinian courtyard, in the transept of the *Anastasis*, in the zone of the garden, and in the chapel of the Discovery of the True Cross. In addition to these, in the raised part, there was the gallery of the *Anastasis* and the area above the arches of the Virgin on the northern side of the *Triportico*. As for the private sections of the Greeks and Armenians, Father Corbo had the chance of following the work of digging up infill, and stripping the walls, although he was sometimes denied the possibility of making surveys and taking photos (such as in the area of the *Katholicon*). Even utilitarian works, such as the new drainage system cut from north to south in the area of the *Rotunda* and in the southern courtyard, helped to discover important elements. The text in the first volume analyzes and describes the excavations in detail. This was not the first account, indeed others had been published, albeit only in partial form, in *La Terra Santa*, and in *Liber Annuus* by the Studium Biblicum Franciscanum. The text, which is deliberately brief, sets out to only show what is necessary for an understanding of the archaeological problem, at times dwelling on personal impressions on the way the restoration work was conducted, with the aim of providing useful recommendations for the future.

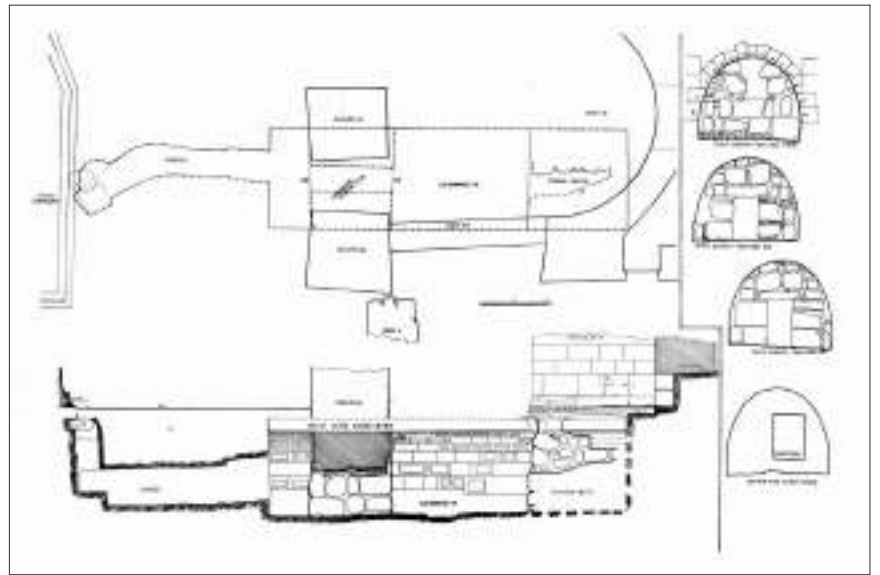
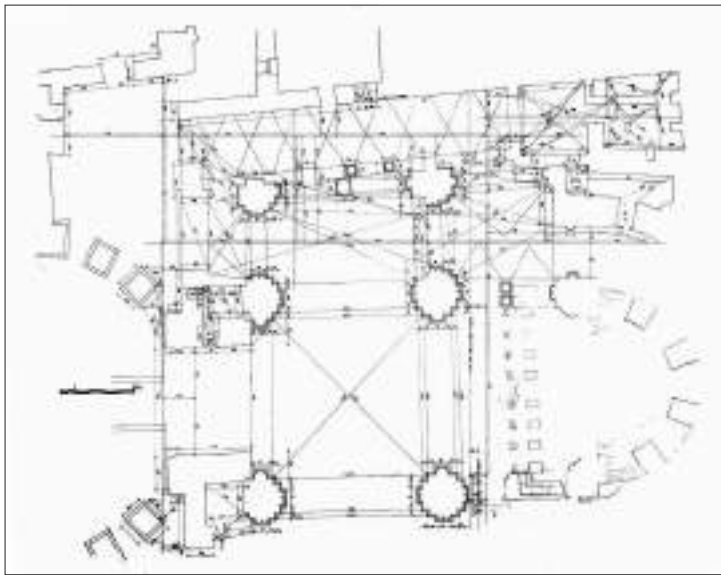
He especially deplored the system, still inspired by Viollet-le-Duc, of filling in lost parts, warning that in the future it would not be possible to distinguish between reworked parts and the original parts. He did not agree with the ostracism over the use of cement mortars, and the decision to only use lime mortars.

He also lamented the questionable taste of introducing new parts, and the lack of coordination between the Communities in their approach to restoration, with results that were most often “indigestible” insofar as they compromised the formal coherence and original harmony of the monument. It is written in Italian, and contains summaries in English to allow the work to be more widely-known.

The second volume reproduces 68 plates with extensive captions which make it possible to understand the volume independently. The first plate is a general ground plan of the Holy Sepulchre in the three main periods, in different colours. After the triangulations by Vienna-Sartorio (plate 2), plate 3 describes the 5 Constantinian blocs, to provide a unified planimetric representation, and showing in black the parts verified directly by Corbo or by the proprietary Communities. This is followed by the reconstructions of the

Plan of the archaeological remains in the North Transept of the *Basilica*.





Above, from left:

Ground Plan of the *Chorus Domini* (*Katholikon*), of the Arches of the Virgin and of the Prison of Christ.

Hadrianic underground, Chamber 68, in the area of the Anastasis.

Below, from left:

North-South Section looking West of the Transept of the Anastasis.

Room (at present a winding staircase) between the Chapel of St. Mary Magdalene and the Gallery upon the Crusader Transept.

floor plans (plates 4-7) in the 11th and 12th centuries, showing in black the changes compared to the previous phases. Having established an overall view, the subsequent plates show the surveys carried out during the 13 excavations, with differing details, sometimes with simplified details to make them easier to understand, sometimes very full of information on the wall palimpsests and excavation stratigraphy, accompanied by detailed measures and notes, in Italian and English.

The last two plates show a reconstruction of the site of Calvary³ and a hypothetical reconstruction of the *Capitolium*⁴. Father Corbo's work is still an essential reference work today for studies of the *Basilica*.

¹ G.C. BOTTINI (ed), "Padre Virgilio Corbo. Una vita in Terra Santa", in: *Museum* 12, Jerusalem 1994. Father Corbo's previous publications include: *Gli scavi di Kh. Siyar el-Ghanam (Campo dei Pastori) e i monasteri dei dintorni*, Jerusalem 1955; *Ricerche archeologiche al Monte degli Ulivi*, Jerusalem 1965; "Cafarnao. 1: Gli edifici della città", in: *Studium Biblicum*

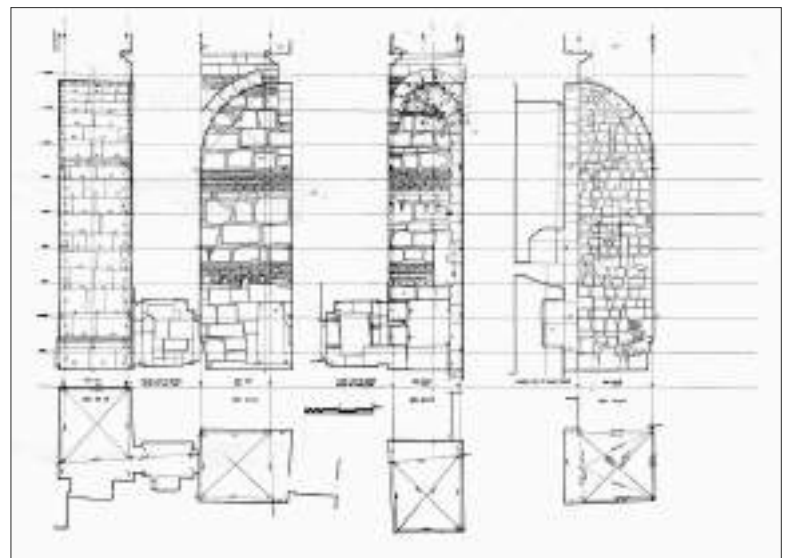
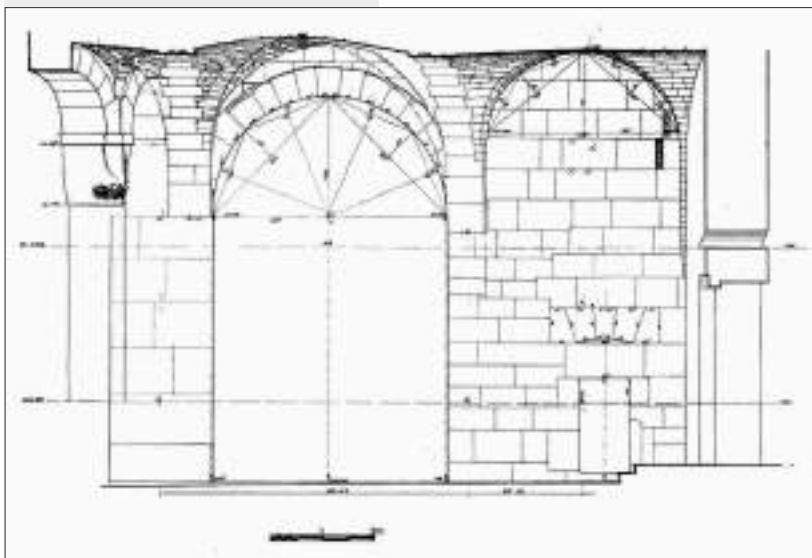
Franciscanum, 19, Jerusalem 1975; "Resti della Sinagoga del primo secolo a Cafarnao", in: "Studia Hierosolymitana III" (*SBF Collectio Maior*, 30), Jerusalem 1981.

² V.C. CORBO, *Il Santo Sepolcro ...* op. cit., p. 22.

³ On the basis of recent excavations, soundings, and chance finds, we can draw a suf-

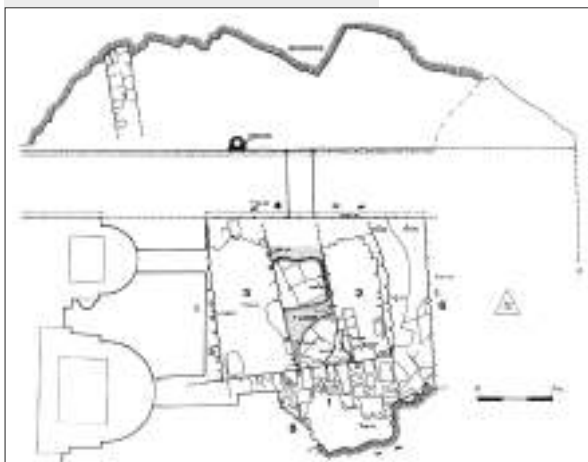
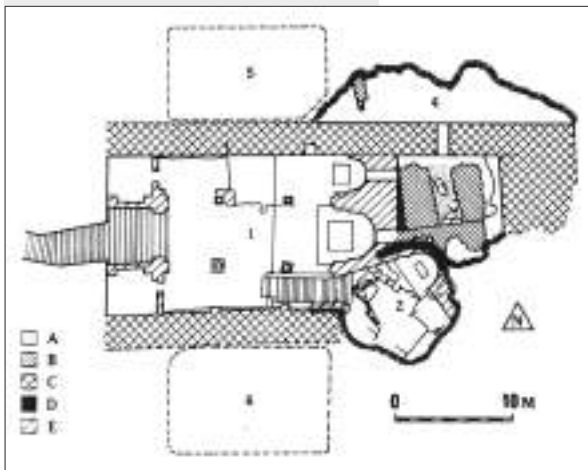
ficiently reliable idea of the topographical setting of Calvary, and the changes which occurred in three subsequent periods.

⁴ «Though our reconstruction cannot be conclusive, it is not simply groundless, since it takes into account some archeological data and foreign parallels». CORBO, plate 68.



J.E. Taylor, S. Gibson, *Beneath the Church of the Holy Sepulchre Jerusalem, The Palestine Exploration Fund Monograph, London, 1994.*

JOAN E. TAYLOR is an archaeologist and historian of early Christianity. A graduate of Auckland University, New Zealand, she took a 3-year postgraduate degree in Divinity at the University of Otago, and then went to the British School of Archaeology in Jerusalem (Kenyon Institute), as Annual Scholar, in 1986. She was later awarded a PhD in early Christian archaeology and Jewish Christianity at New College, Edinburgh University. In 1995 she won an Irene Levi-Sala prize in archaeology for the book version of her PhD thesis, *Christians and the Holy Places* (Oxford: Clarendon, 1993, rev. 2003). She joined the staff of King's College, London, Department of Theology and Religious Studies, in 2009, and in 2012 became Professor of Christian Origins and Second Temple Judaism. She also writes narrative history, novels and poetry¹.



From above:

Plans of the Chapel of St. Helena, of the Cave of the Invention of the Cross and of the Chapel of St. Vartan, showing the area of excavations, cisterns and related periods.

Plan of the Chapel of excavations in the area of the Chapel of St. Vartan.

SHIMON GIBSON is a British archaeologist who has been working in the Holy Land for the past 40 years. In 2017 he was appointed Professor of Practice in the History Department at the University of North Carolina at Charlotte. Gibson undertook his academic studies at the Institute of Archaeology, University College London, where in 1995 he completed his PhD on Landscape Archaeology in the southern Levant. From 1995 to 2017 he was a Senior Associate Fellow at the W. F. Albright Institute of Archaeological Research in Jerusalem. Between 1996 and 1999 Gibson served as Assistant Director of the Excavations and Surveys Department in the Israel Antiquities Authority. From 2000-2017 he headed up the Archaeology Department of the University of the Holy Land in Jerusalem.

Over the past 20 years Gibson has conducted numerous archaeological excavation projects and field surveys. He has directed excavations at Sataf, Modi'in, Suba, and in Jerusalem. He is currently co-directing excavations on Mount Zion.

Gibson is the author of more than 100 research articles, and for more than two decades he served as Chief Editor of the archaeological journal *Bulletin of the Anglo-Israel Archaeological Society*. He is co-author of two scientific monographs on the antiquities of Jerusalem (on the Church of the Holy Sepulchre, and another on the Temple Mount), and he co-edited the *Archaeological Encyclopedia of the Holy Land* (2000) and *The Illustrated Dictionary and Concordance of the Bible* (2005). His works include: *Jerusalem in Original Photographs* (2003); *The Cave of John the Baptist* (2004); *Flights into Biblical Archaeology* (2007); *The Final Days of Jesus* (2009); and *Tourists, Travellers and Hotels in Nineteenth-Century Jerusalem* (2013), and he recently co-edited (with D. Vieweger) *The Archaeology and History of the Church of the Redeemer and the Muristan in Jerusalem* (Oxford, 2016)².

The archaeological investigations begun in the 1960s, with the help of the aforementioned, more modern stratigraphical approach, include those conducted by the Armenian Patriarchate in the Chapel of St. Vartan, east of the St. Helena Chapel.

The text consists of two parts, and sets out from a discussion of the authenticity of a graffiti image of a boat that was found during the excavations in St. Vartan's Chapel. Joan Taylor began her studies on the graffiti in 1986, and in the course of his investigations she went to Edinburgh to meet Svend Helms, who was present at its discovery, in 1971. In 1987 she met Shimon Gibson who was working with Magen Broshi in the St. Vartan's Chapel area³. The examination of the graffiti became the pretext for an overall review of the excavation findings. However, in considering the Chapel of St. Vartan and the boat graffiti, Taylor and Gibson only address some of the unresolved questions, as they themselves state in the introduction. After underlining the great confusion and absence of publications and systematic excavation reports, they urge the continuation of the investigations also using the most up-to-date methods of analysis: «A number of methods exist for archaeological work within standing structures which could be utilised during future programmes of investigation in the church. One of these is structural analysis, a method of looking at types and quality of masonry within their sequence of construction [...] A programme of structural analysis

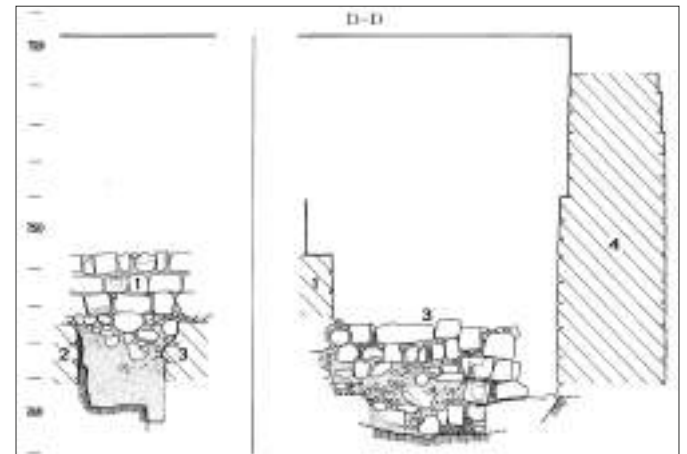
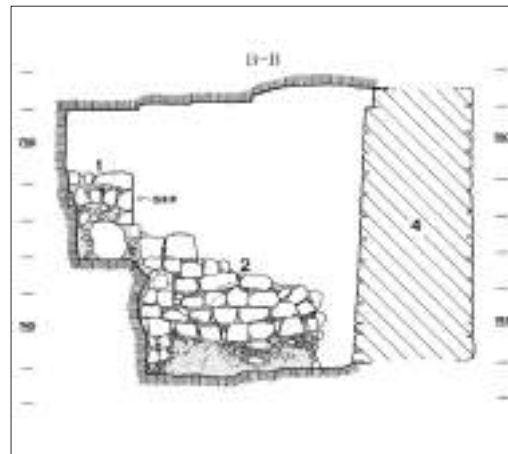
carried out with a select number of stratigraphic probes in problematic areas beneath the church floor could provide the vital data necessary to help elucidate the archaeological history of the area».

In the first part of the volume, they explore detailed questions relating to the issues they directly investigated: "The excavations in the Chapel of St. Vartan" (Chapter 1) and "The Jerusalem ship drawing" (Chapter 2). In the second part they relate the findings with historical and archaeological research in the whole complex, and express considerations regarding the area prior to Christian constructions. The drawings reproduced in it refer to the excavations described in Chapter 1 that were directly followed by Gibson, even though he was only invited to take part later on by Magen Broshi. Indeed, the first excavations, beneath the floor that then consisted in small stones, were undertaken following an accord signed in 1964. As reported in the history of the excavations, in 1970 the Armenian Patriarchate decided to investigate the eastern wall of the Chapel of St.

From left:

Excavations in the Chapel of St. Vartan: Section B-B.

Excavations in the Chapel of St. Vartan: Section D-D.



Helena. Digging was carried out by a group of labourers under the direction of Archimandrite Guregh Kapikian. In October 1971, Archibald Walls and Svend Helms of the British School of Archaeology in Jerusalem supervised the general progress of the excavation, and carried out an architectural survey. In November 1971 a ship drawing was found on a stone built into the eastern end of the wall. Plans and elevations of the area were prepared by Walls, and the baulk sections of the trench were drawn at the same time by Helms. Further excavations were carried out without archaeological supervision during the years 1972-75, when Magen Broshi was asked by Bishop Kapinian to supervise the progress of the excavations until February 1976. In November 1975 Shimon Gibson was asked by Magen Broshi to join him in the investigation of archaeological remains being uncovered in the area of the Chapel of St. Vartan. Gibson prepared a detailed plan of the archaeological remains, and a final, revised plan was drawn in August 1976. Elevations and sections were also produced at the same time. New excavations were carried out during the years 1977-1980, with some archaeological help provided by Father Florentino Diez Fernandez. A plan of the northern extension of this excavation area was prepared by Gibson (1978), and additional measurements and documentation were recorded by Gabriel Barkay between 1977 and 1981. A further excavation was begun in 1980, when restoration and consolidation work was carried out to make the area more accessible to visitors.

¹ https://en.wikipedia.org/wiki/Joan_E._Taylor

² <https://history.uncc.edu/people/dr-shimon-gibson>

³ M. BROSHI AND G. BARKAY, "Excavations in the

Chapel of St. Vartan in the Holy Sepulchre", in: *Israel Exploration Journal*, vol. 35, no. 2/3, 1985, pp. 108-128. JSTOR, www.jstor.org/stable/27925979.

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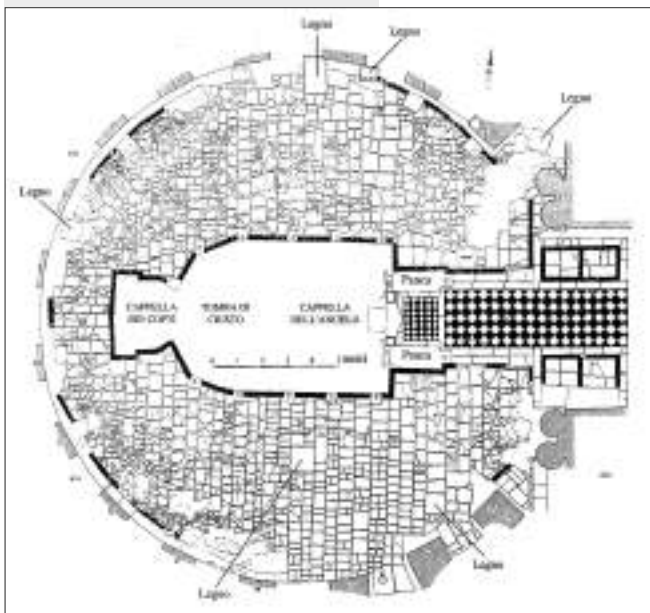
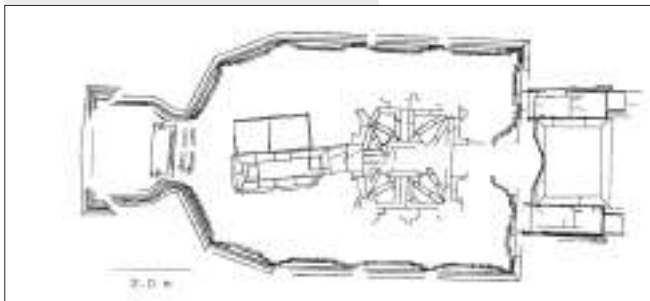
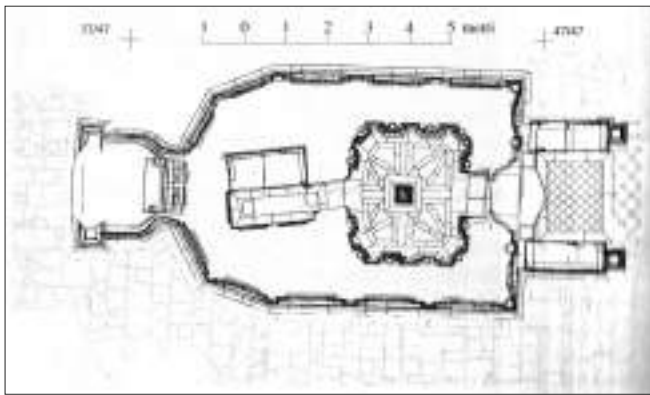
MARTIN BIDDLE

M. Biddle, *The Tomb of Christ*, Sutton Pub. Limited, Stroud, Gloucestershire, 1999.

MARTIN BIDDLE (1937), British archaeologist and academic. He is an Emeritus Fellow of Hertford College, Oxford, and Honorary Fellow of Pembroke College, Cambridge. His work was focused on medieval and post-medieval archaeology in Great Britain. He has lectured on over 35 Swan Hellenic Cruises around the Mediterranean and in the Middle East, and India. He and his wife Birthe Kjølbye-Biddle were jointly awarded the Frensd medal of the Society of Antiquaries of London in 1986 for their work on Christian Archaeology. Biddle was elected a Fellow of the British Academy in 1985, and was appointed OBE in 1997. In May 2010 he was made Honorary Freeman of Winchester. In June 2014, he was awarded a CBE – Commander of the Most Excellent Order of the British Empire – for ‘services to archaeology’.

Martin and his wife, Birthe, formed an archaeological team, introducing new recording techniques in the discipline of archaeological excavation, and training a large number of archaeologists. Their approach has been used in topography and historical archives, treating all periods from the Iron Age to the post-medieval with equal weight. He was in charge of excavations at Nonsuch Palace, Winchester, Repton, and the Church of the Holy Sepulchre.

For some years previously G.S.P. Freeman-Grenville had urged that accurate surveys of the *Aedicula* be carried out, and, between 1989 and 1996, Martin Biddle and his wife were engaged in these archaeological investigations and surveys, conducted thanks to funds made available by Gresham College, Bayerische Rundfunk and the British Council in East Jerusalem. The *Aedicula* of the Holy



Above:

Photogrammetric restitutions of the Aedicula of the Holy Sepulchre: Plan views.

Survey of the Plan of the Rotunda with detail of its flooring.

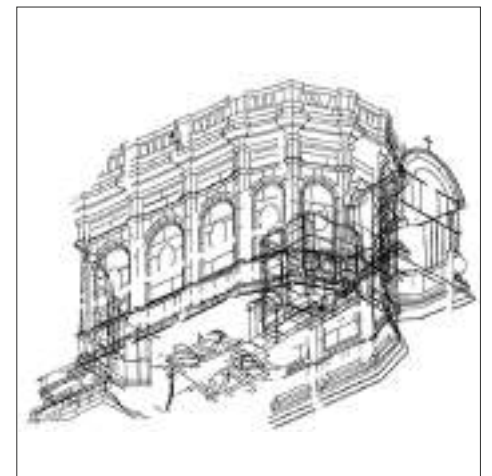
Sepulchre had suffered serious damage in the 1927 earthquake, and had been neglected by previous investigations because it was regarded as not being original. Its considerable state of deterioration led to a decision, in 1947, during the British administration, to create an iron frame for it, to prevent deformation of the external marble panels that presented severe out-of-plumb deformation, and to help to prevent a collapse. The frame was meant to be only a temporary measure, but it remained in place up until the recent restoration, which took place in 2016-2017, by a team from the NTUA². The photogrammetric survey of the tomb was undertaken by Professor Mike Cooper, Dr Stuart Robson and Roger Littleworth of the City University, London, funded by the Leverhulme Trust. The first reports on the work were presented in 1992³, and later published in a 1994 article⁴, before arriving at the definitive version in 1999, with a detailed, well-illustrated monograph. Many scholars and experts were involved in this mission. The Acknowledgments at the end feature a long list (to which readers are referred), conveying once again how complex it is to work in such a context. Transportation of instrumentation has always constituted a sizeable problem in itself⁵.

As well as the consolidated traditional methods, also used were analytical photogrammetry and 3D modelling, which were decidedly state-of-the-art methods at the time. For that matter, one should note that the rapid evolution of technology often makes techniques used in the past obsolete, and that, in any event, documentation procedures progress in line with technological developments, which open up new opportunities for investigation. This, from now on, would be the feature that would mark the approach of the research groups that would study the *Basilica*, one after the other. The technique of photogrammetry lends itself very well to a study of the state of conservation of the *Aedicula*, since it allows accurate recording of the anomalies and of instances of decay. Indeed, the published floor-plans and elevations were the most reliable of all those made up until that time. The survey also included the pavement of the *Rotunda*, on 1:20 scale. The text also states a desire to process the findings in a database, another innovative factor at the time.

The proceedings set out from the need to make a contribution to a check on the authenticity of the site, and, setting out from study of the building made in the years 1809-1820, to acquire information on the buildings that preceded it. The author uses a historiographical investigation to shed light on the hodgepodge of suppositions, going so far as to revise conventional dates. Confronted with the great jumble of existing data, Biddle sets out to «write a rigorous, detached and independent account, based solely on verifiable documentation». In fact, his findings, as he himself states, would only be verifiable after restoration of the *Aedicula* and the floor, operations that he hoped would be carried out as soon as possible, along with the dismantling and remounting of the lining and of the paving, “in line with the standards of modern archaeology”⁶.

Below, from left:

Photogrammetric restitutions of the Aedicula of the Holy Sepulchre: Elevation view; axonometric view.



The book consists in 8 chapters. The first chapter presents the state of research, and outlines the principles and procedures applied in his new study. The second presents the visual resources for the study of the *Aedicula*, according to the four main phases of its history: 1. from its inauguration by Constantine to its deliberate demolition by the Fatimid Caliph al-Hakim in 1009; 2. from its restoration in the first half of the 11th century until 1555; 3. from its restoration in 1555 by the Franciscan Boniface of Ragusa until 1808, when it was damaged by a fire; 4. from the restoration of 1809-10 by the Greek architect Komnenos of Mytilene to the present. The four subsequent chapters present the historical sources and inscriptions, in chronological order according to the aforementioned phases. The last two chapters introduce some new interpretations concerning the shape and survival of the rock-cut tomb and the Constantinian *Aedicula* (109-19), and some new discoveries concerning the present *Aedicula* (120-37)⁷.

¹ As well as the work cited above, his publications include: M. BIDDLE, D.M. HUDSON, "Future of London's Past. A Survey of the Archaeological Implications of Planning and Development in the Nation's Capital", 1 April 1973, *Publications/RESCUE*; M. BIDDLE, "Introduction". *Anglo-Saxon and Mediaeval Archaeology, History and Art, with special reference to Sutton Hoo: The highly important Working Library and Archive of more than 6,000 titles formed by Dr. Rupert L.S. Bruce-Mitford FBA, D.Litt., FSA, Wickmere: Merrion Book Co, 1989*; M. BIDDLE, G. AVNI, J. SELIGMAN, T. WINTER, *The Church of the Holy Sepulchre*, New York, Rizzoli 2000.

² See note 21 of the "Introduction" to this Chapter.

³ M. BIDDLE, M.A.R. COOPER, S. ROBSON,

"The Tomb of Christ, Jerusalem: a photogrammetric survey. Report of the work undertaken under the aegis of the Gresham Jerusalem project", *Photogrammetric Record*, (14/79): 25-43, April 1992. For a description of topographic and photogrammetric survey operations: M.A.R. COOPER, S. ROBSON, AND R.M. LITTLEWORTH, (1992), "The Tomb of Christ, Jerusalem: Analytical Photogrammetry and 3D Computer-modelling for Archaeology and Restoration", *International Archives of Photogrammetry and Remote Sensing*, Washington, 29 (5), pp. 778-85.

⁴ M. BIDDLE, "The Tomb of Christ: sources, methods and a new approach", in K. PAINTER (ed), *Churches built in ancient time: Recent studies in Early Christian Archaeology*, London 1994.

⁵ M. BIDDLE, *op. cit.*, pp. 163, 165.

⁶ M. BIDDLE, *op. cit.*, p. 21. Confirming his position as regards restoration operations tending towards dismantling, the academic states that this stone-by-stone reproduction, that can be reproduced on whatever scale, is suited for the work of dismantling and reconstruction, and is able to produce images, including sections, of the surface of every stone, on a 1:1 scale, so that it can become a guide to builders.

⁷ See, in this connection, the review by: J. PATRICH, "The edicule in the Church of the Holy Sepulchre - Martin Biddle, *The Tomb of Christ*" (Sutton Publishing Ltd., Stroud, Glos. 1999), *Journal of Roman Archaeology*, 15/2002, p. 688-690, published online by Cambridge University Press.

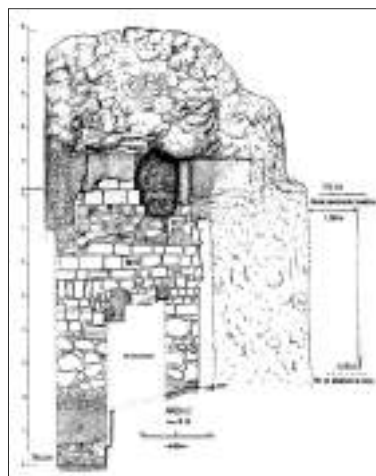
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FLORENTINO
DIEZ FERNANDEZ

Plan of the Cave of the Calvary.



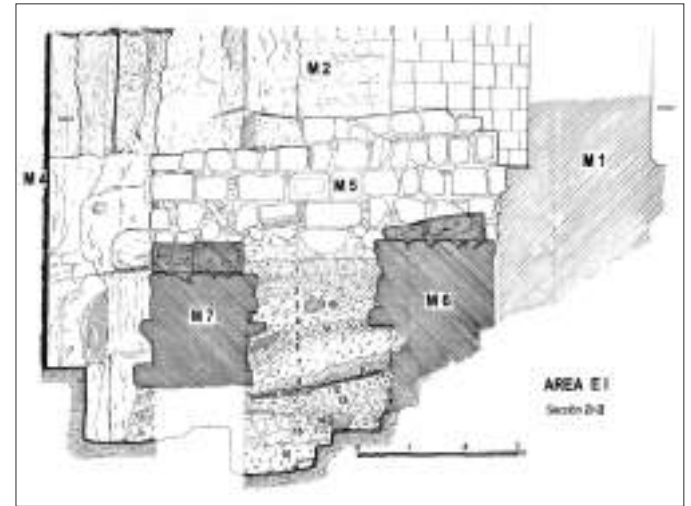
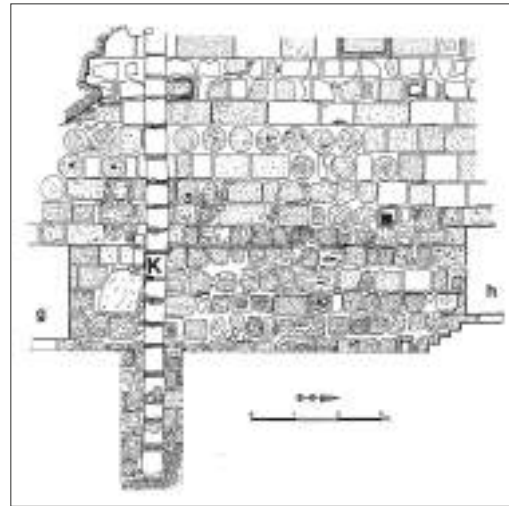
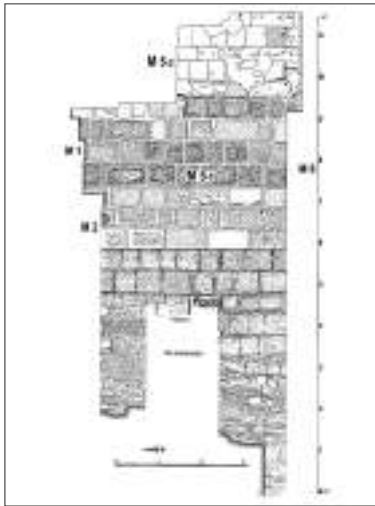
East Elevation and profile of the rock of the Calvary and Entrance to the Cave.



Fl. Diez Fernandez, *El Calvario y la Cueva de Adán: el resultado de las últimas excavaciones en la basilica del Santo Sepulcro*, Instituto Biblio y Oriental, Editorial Verbo Divino, Estella 2004.

FLORENTINO DIEZ FERNANDEZ, born in 1935, joined the Augustinians in 1948 and trained as a theologian at El Escorial, and as an archaeologist and Biblical scholar in Jerusalem, collaborating with the British Archeological School. Father Florentino gained his research doctorate from the Catholic University in Paris, and was director of the Spanish Biblical and Archaeological Institute in Jerusalem. After his first excavations at Mount Nebo and Cafarnaon, his most significant work consisted in the archaeological

investigations at the *Basilica* of the Holy Sepulchre, where he was called in to work on two separate parts: the St Helena Chapel, where Magen Broshi and Gabriel Barkay were already active for the Armenian Community, and the Calvary, where he worked as a student of the Studium Biblicum, and on behalf of the Orthodox Community and the architect Katsimbini. His first visit, as stated in the introduction, dated to 1975, on the occasion of the inspection of the boat drawing discovered in 1971 in the rock-cut cavity between the St. Helena Chapel and the Constantinian Martyrium, where pottery fragments, numismatic material, and human remains were also found. The first two chapters of the volume place the research areas in the wider critical context of the last 170 years, introducing the controversial problem of authenticity, starting with the topography of Jerusalem up to and including the most recent excavations. The third chapter is dedicated to the spaces behind the St. Helena Chapel (area E), and chapter 4 deals with Calvary (area C). The subsequent chapters continue by addressing the cave within the rocky promontory of Calvary, with an analysis of apocryphal literature of the first few centuries of the Christian era. The final chapters publish the excavation material, pottery from the Iron Age II period, the *Legio X Fretensis* tile-stamps, and the coins and bone remains that were found. The author laments the absence of previous systematic work on the pottery, which would have enabled parallels and conclusions, and states that he deliberately chose not to write a synthesis, in order to leave all the material in the hands of the reader, so that



Above, from left:

Stratigraphic surveys of elevation walls in the area at the back of the Chapel of St. Helena.

they might come to their own conclusions, thereby helping to provide a scientific basis for those deciding to go deeper into the issue in the future. The conclusions are written in Spanish and English, and are followed by the 71 plates (photos) and by the excavation plans. The method used by Father Florentino Diez is based on stratigraphical analyses, describing in detail the areas of investigation, constituting a valuable scientific contribution. In a review of the work, Father Piccirillo himself said that «for its thoroughness and precision in data, it is a direct continuation of the volumes by Father Corbo, who was the first to publish a schematic floor-plan of the Constantinian monument (Pl. 1, in part modified), clarifying and explaining a stratigraphy that is secure for the two test diggings (in room E1 behind St. Helena, and in room C behind the Rock of the Calvary), but which, in all likelihood, can be extended to all of the *Basilica*, and thus also to the trial excavations followed by Father Corbo, correcting their proposed stratigraphy»¹. Indeed, it is a scientific work that is dense and well-documented, bearing witness to the great analytical effort by Father Florentino Diez; however, while welcoming its analytical completeness, Father Piccirillo notes «typographical errors and oversights» in the text, and criticizes a number of conclusions prone to be too quick to take on board suggested interpretations that go “beyond the bounds of a prudent critique, that is always a good rule for an archaeologist»².

¹ M. PICCIRILLO, review: DIEZ FERNÁNDEZ F., *El Calvario y la Cueva de Adán. El resultado de las últimas excavaciones en la basilica del Santo Sepulcro*, Estella 2004, in: *Reviews, Liber Annus* 56, 2006, pp. 679-685.

² M. PICCIRILLO, *op. cit.*, p. 681.

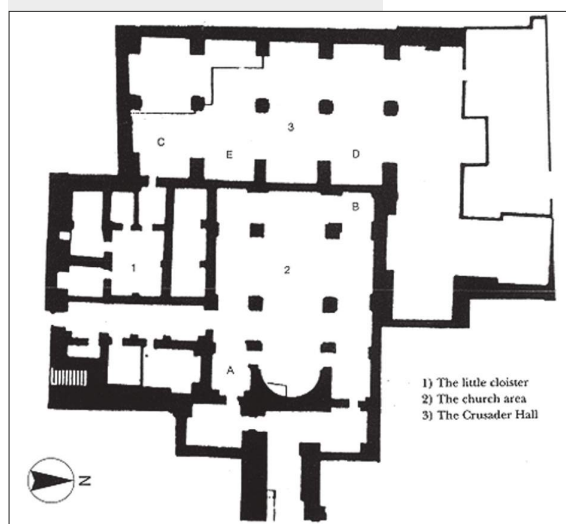
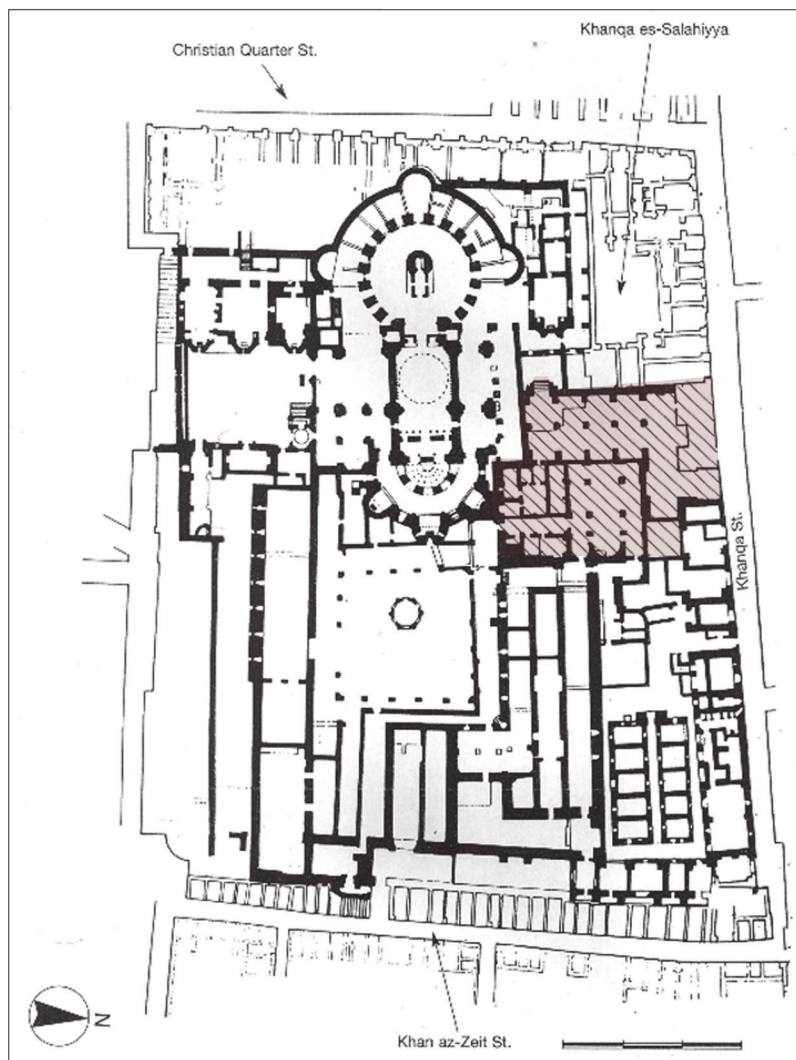
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GIDEON AVNI
JON A. SELIGMAN

G. Avni and J. Seligman, "New Excavations at the Church of the Holy Sepulchre Compound.", in: G. Claudio Bottini, Leah Di Segni and L. Daniel Chrupcala (eds.), *One Land – Many Cultures: Archaeological Studies in Honour of Stanislaw Loffreda OFM*, Jerusalem, Franciscan Printing Press 2003, pp. 153-162.

GIDEON AVNI is Director of the Excavations and Surveys Department of the Israel Antiquities Authority, and the former Regional Archaeologist of Jerusalem. He was awarded his PhD from the Hebrew University in 1997, where he is now a Lecturer, at the Institute of Archaeology. Over the past 25 years he has conducted archaeological surveys and excavations in Jerusalem, Beth Guvrin and the Negev desert. He has co-directed (with Jon Seligman) a large-scale survey and excavations at the Church of the Holy Sepulchre. In recent years he has led in-depth research and excavations at Ramla. He is the author of *The Archaeological Survey of Israel: Map of Har Saggi* (Jerusalem: Israel Antiquities Authority, 1992), *The Akeldama Tombs* (Jerusalem: Israel Antiquities Authority, 1996), and he co-authored *The 'Oded Sites—Investigations of Two Early Islamic Pastoral Camps South of the Ramon Crater* (Beer Sheva: Ben Gurion University Press, 1997), and *The Church of the Holy Sepulchre* (New York: Rizzoli, 2000).

JON ARON SELIGMAN (1961) has been Director of Excavations Surveys and Research Department of the Israel Antiquities Authority since 2012. He received his education at the Hebrew University and at the Institute of Archaeology, University of London. Over the last few years he has been involved in the composition of archaeological master plans for the City of Jerusalem and for the Old City of Jerusalem. He has directed numerous excavations, mainly in Jerusalem, Beth Shean and the Carmel, and his



research interests have focused on aspects of Roman, Byzantine and Medieval Jerusalem, and on ancient agriculture in the Jerusalem area. Together with Gideon Avni he has co-directed work in the Holy Sepulchre, and also work on ancient Georgian remains in Jerusalem. He is the author of numerous excavation reports and a series of master plans, and he is co-author, with Gideon Avni, of *The Church of the Holy Sepulchre* (New York, Rizzoli, 2000).

Their work is part of the archaeological research that followed the work of Father Corbo, which was often got under way in a fragmentary way because it is linked to the actions conducted autonomously by the individual Communities¹. The renovations beneath the Coptic Patriarchate, in 1997, were an opportunity to carry out excavations north of the complex, in order to provide the scientific basis for the consequential works at the site. The investigation was centred on the vaults under the Coptic Patriarchate, between the Church of the Holy Sepulchre to the south and the al-Khanqah al-Salahiyya Mosque to the north.

An initial test digging revealed the presence of an apse and a room measuring 15 x 20m, a previously unknown construction, adjacent to the Constantinian *Basilica*. Accordingly, Clapham suggested it be identified as a medieval church not otherwise known from reports².

The excavations carried out by Avni and Seligman focused on three separate spaces, as shown in the picture: 1- the "Little Cloister", which includes a series of rooms built around an open courtyard (no. 1); 2- the "Church" area, north of the "Little Cloister" (no. 2, excavation areas A, B); and 3- a large rectangular hall, west of the Church, that was constructed during the Crusader period. The southern wall of this hall is incorporated with the northern wall of the Church of the Holy Sepulchre, and its northern wall faces Khanqa Street.

These excavations enabled an interpretation of the findings, clearly distinguishing five construction phases.

The pictures reproduced in the text, aside from the identification of the excavation areas and interpretive schemes, do not however give measurements.

¹ For an analysis of excavations and research carried out in the last few years, see: J. PATRICH, "An overview on the archeological work in the Church of the Holy Sepulchre", in: *The Archaeology and History of the Church of the Redeemer and the Muristan in Jerusalem: A Collection of Essays* from a "Workshop on the

Church of the Redeemer and its Vicinity" held on 8th/9th September 2014 in Jerusalem, Archaeopress Publishing Ltd, 2016, pp. 139-161.
² A.W. CLAPHAM, "The Latin Monastic Buildings of the Church of the Holy Sepulchre", Jerusalem, in: *The Antiquaries Journal*, 1921, 1(1), pp. 3-18.

From above:

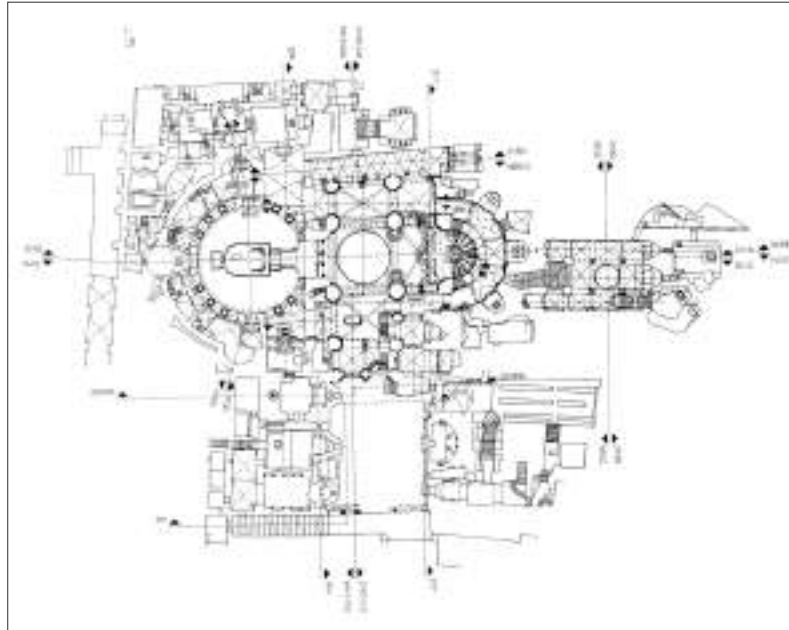
General Plan of the whole Complex of the Holy Sepulchre. The investigated area is picked out in red and it corresponds to the vaults under the Coptic Patriarchate, between the Church of the Holy Sepulchre (to the South) and the al-Khanqah al-Salahiyya Mosque (to the North).

Detail of the Plan of the investigated area, with the Little Cloister, the Church area and the Crusader Hall.

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DENNIS D. BALODIMOS
ANDREAS GEORGOPOULOS
GEORGIOS P. LAVVAS

Plan of the Complex of the Holy Sepulchre, carried out with both topographical and photogrammetric methods.

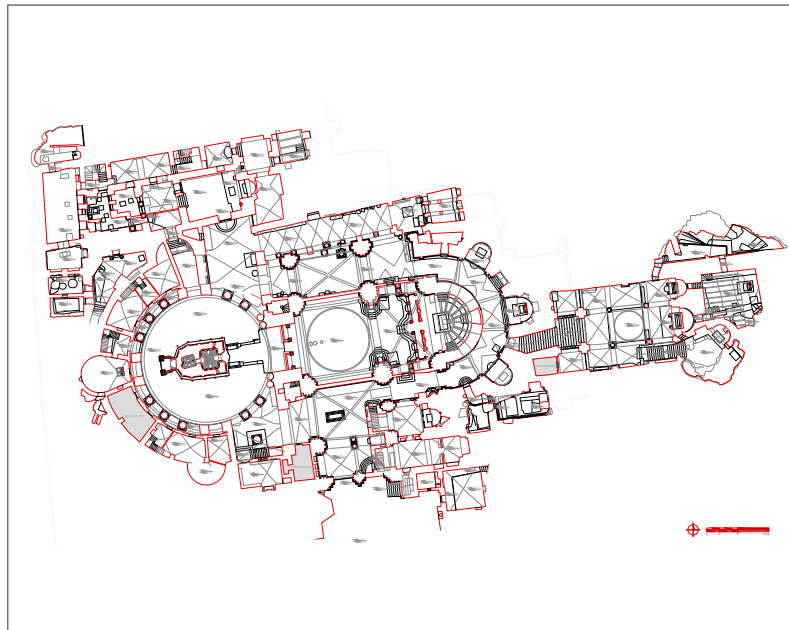


After the work by Father Corbo, involving archaeological excavations at the same time as restoration work, the next most exhaustive and graphically accurate survey campaign was the one conducted by the Laboratories of General Geodesy (Prof. **DENNIS D. BALODIMOS**) and Photogrammetry (Prof. **ANDREAS GEORGOPOULOS**) at the NTUA, in collaboration with the University of Athens (Prof. **GEORGIOS P. LAVVAS**). It was aimed at documenting the whole of the monument. The surveys were conducted from 1993 to 1999, and they will be discussed in detail in the following chapter, by the individuals who directed the surveys themselves.

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GRAZIA TUCCI
VALENTINA BONORA

Plan of the Complex of the Holy Sepulchre, carried out with both topographical and laser-scanner methods.



Over time, technological advances in the field of measurements have made it possible to survey spaces in their three-dimensionality. The survey campaign carried out in the years 2007-2011 by the University of Florence (**GRAZIA TUCCI, VALENTINA BONORA**) with 3D techniques therefore represents the most complete documentation of the condition of the site at that time. The findings can be considered a true and accurate database for information management and the conservation of the Complex. Chapters 2, 3 and 4 of the second part of this volume illustrate in detail the results obtained. Recently the same techniques were adopted by the University of Athens (NTUA) for the restoration of the *Aedicula*.

In his "*Treatise on the Plans and Images of the Sacred Building of the Holy Land (...)*" (see data sheet n. 2, p. 131), Bernardino Amico from Gallipoli also published this longitudinal section of the *Basilica* of the Holy Sepulchre, as the result of measurements taken directly on-site. The engraving associates the metric rigor of the information represented on the section plane, in a correct orthogonal projection, with an unusual and interesting description of the three-dimensional spaces in view. Although supported by an empirical perspective approach, the drawing effectively illustrates the articulation of spaces *beyond* the section plane.

We wanted to try out an equivalent representation, using geometric criteria similar to those used by Father Bernardino, starting from the data obtained from the new measurement campaigns. The image on the following page has a mainly evocative value and shows the same section with the elements in view obtained from the database of three-dimensional points detected. It therefore bears witness to the modern-day size of the *Basilica* of the Holy Sepulchre, to allow a visual comparison and provide an immediate reading of the transformations that have taken place.

