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An early measuring of the Holy City, forgotten for over a century: Westphal's Jerusalem map of 1825

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Abstract

In 1822 and 1823 three young German scholars, Peter von Medem, Gustav Parthey and Johann Heinrich Westphal, undertook a research expedition to Egypt and Palestine. One major result of this journey was a very accurate map of Jerusalem: "Jerusalem und seine nächsten Umgebungen" ("Jerusalem and its environs"), published in 1825 by Heinrich Berghaus in his journal *Hertha*. Together with Franz Wilhelm Sieber's plan of 1818 this map belongs to the very first "modern" maps of Jerusalem, based on measurements and new scientific research results. In addition, the sketches, as well as extracts from Parthey's and von Medem's diaries, formed the material for Berghaus' memoir to his *Map of Syria* in 1835. This article deals with the background of the voyage, the production, publication and reception of the map, and the complex network of actors involved, based on recently discovered archival sources. Moreover, the map became forgotten in the 19th and 20th centuries. Apart from Berghaus, the map was actually never used by later cartographers of Jerusalem and no longer mentioned in studies concerning the history of the city's modern cartography.

Zusammenfassung

Drei deutsche Gelehrte, Peter von Medem, Gustav Parthey und Johann Heinrich Westphal, unternahmen 1822/23 eine große Forschungsreise nach Ägypten und Palästina. Ein wesentliches Ergebnis dieser Reise war die Karte „Jerusalem und seine nächsten Umgebungen“, die 1825 von Heinrich Berghaus in seiner Zeitschrift *Hertha* veröffentlicht wurde. Diese Jerusalemkarte beruhte auf umfangreichen, vor Ort durchgeführten Vermessungen und Kartierungen und zählt mit dem wenig älteren Plan von Franz Wilhelm Sieber zu den ersten „modernen“ Jerusalemplänen. Die Reisetagebücher der Forschungsreisenden wurden zehn Jahre später erneut von Berghaus für sein Memoir zur Karte von Syrien ausgiebig genutzt. Auf der Basis vielfältiger und neu entdeckter Quellen wird die Entstehung und Rezeption dieser Karte sowie die Einbindung der verschiedenen Akteure in ein komplexes Netzwerk am Beginn der Profilierungsphase der akademischen Palästinaforschung dargestellt. Abgesehen von dem Einfluss und Interesse von Heinrich Berghaus an der Reise und der Jerusalemkarte wurde diese in den folgenden Phasen der Palästinaforschung nicht mehr rezipiert und geriet nahezu in Vergessenheit.

Keywords Palestine research, 19th century, Jerusalem, History of Cartography

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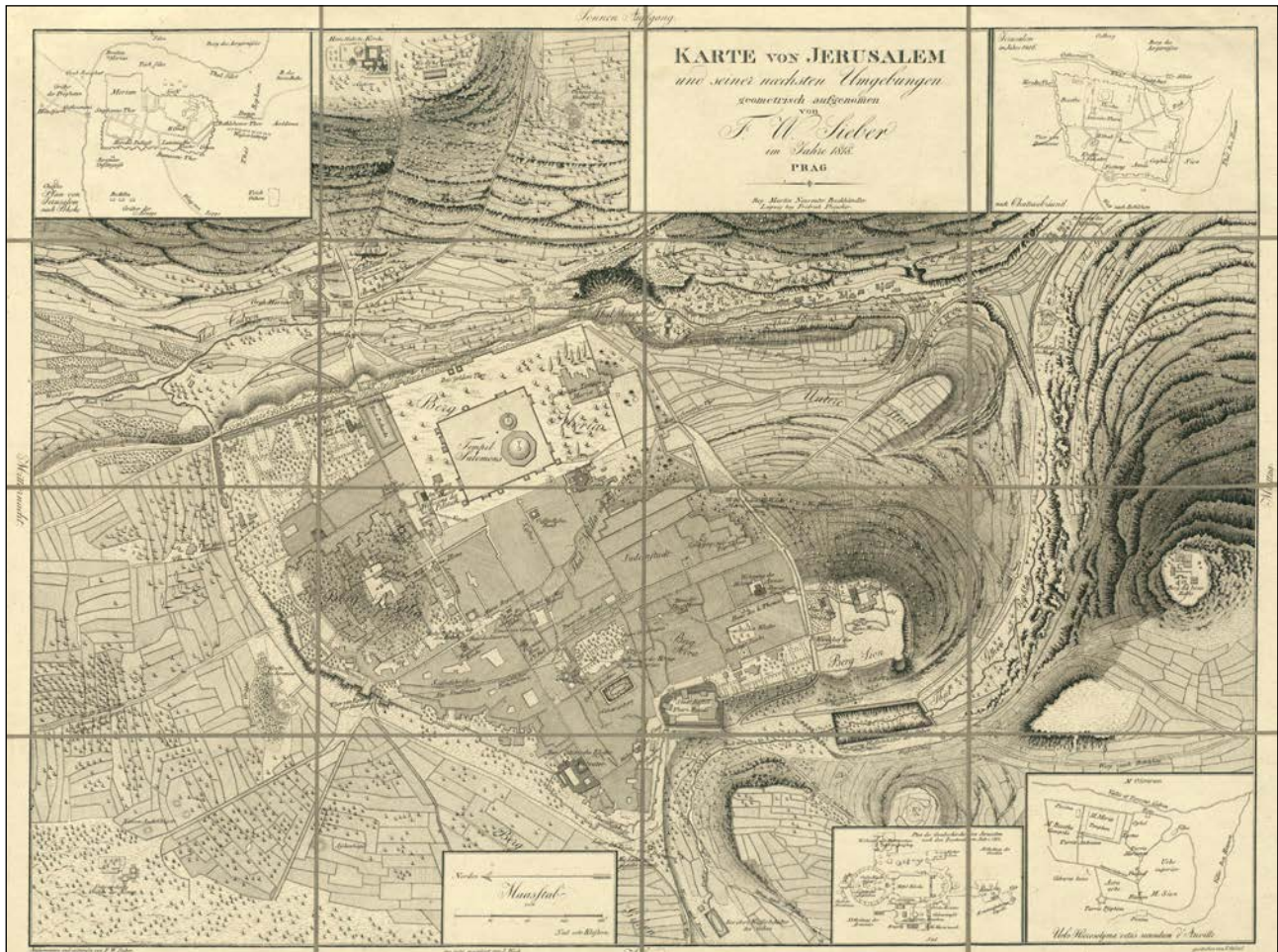


Fig. 1 Sieber's map of Jerusalem, Prague 1818, lithograph, 58 x 43 cm

1. Introduction

Jerusalem, the Holy City, sacred for the three monotheistic religions, had naturally been a central theme in the modern scientific study of the Holy Land, beginning in the late eighteenth century. One of the first stages of such a study must be its cartographic depiction (cf. in particular *Rubin* 1999). All research on the history of the city's geodetic measuring and mapping names the Austrian naturalist from Prague, *Franz Wilhelm Sieber* (1789-1844) (*Wunschmann* 1892; *Wurzbach* 1877) as the first to publish what can be accepted as a "measuring map", a map based on measurements in the field, of Jerusalem in a modern sense. After visiting the city in 1818 *Sieber* published, still in the same year, the map "Karte von Jerusalem und seiner naechsten Umgebungen" (*Sieber* 1818), and five years later his itinerary (*Sieber* 1823). *Sieber's* map (Fig. 1) is accepted by all scholars, who have studied the subject, as the first map of Jerusalem based on geographical and topographical data collected through

measurements, which he performed during the six weeks in which he studied the city. The map has been praised for its relative correctness as well as for being a pioneering map which, for example according to the Swiss physician *Titus Tobler* (1806–1877), "forms a turning point" in the city's cartographic depiction (*Tobler* 1858: 11f.; cf. *Rubin* 1999: 161; *Goren* 2003: 62f.).

Sieber had been the first visitor to Jerusalem, who used relatively "modern" measuring instruments in order to represent the city, in contrast to all his predecessors, including those who visited the city. Most of them presented only drawings based on observation, usually drawn from the position of the Mount of Olives. *Sieber's* map received much attention in the modern studies of the Holy City's cartographic history, an issue which has been dealt with intensively. Consequently, all studies on the history of Jerusalem cartography, from *Ritter* to *Ben-Arieh* and from *Tobler* to *Rubin*, agree that his map started a new phase in the cartographic presentation of the

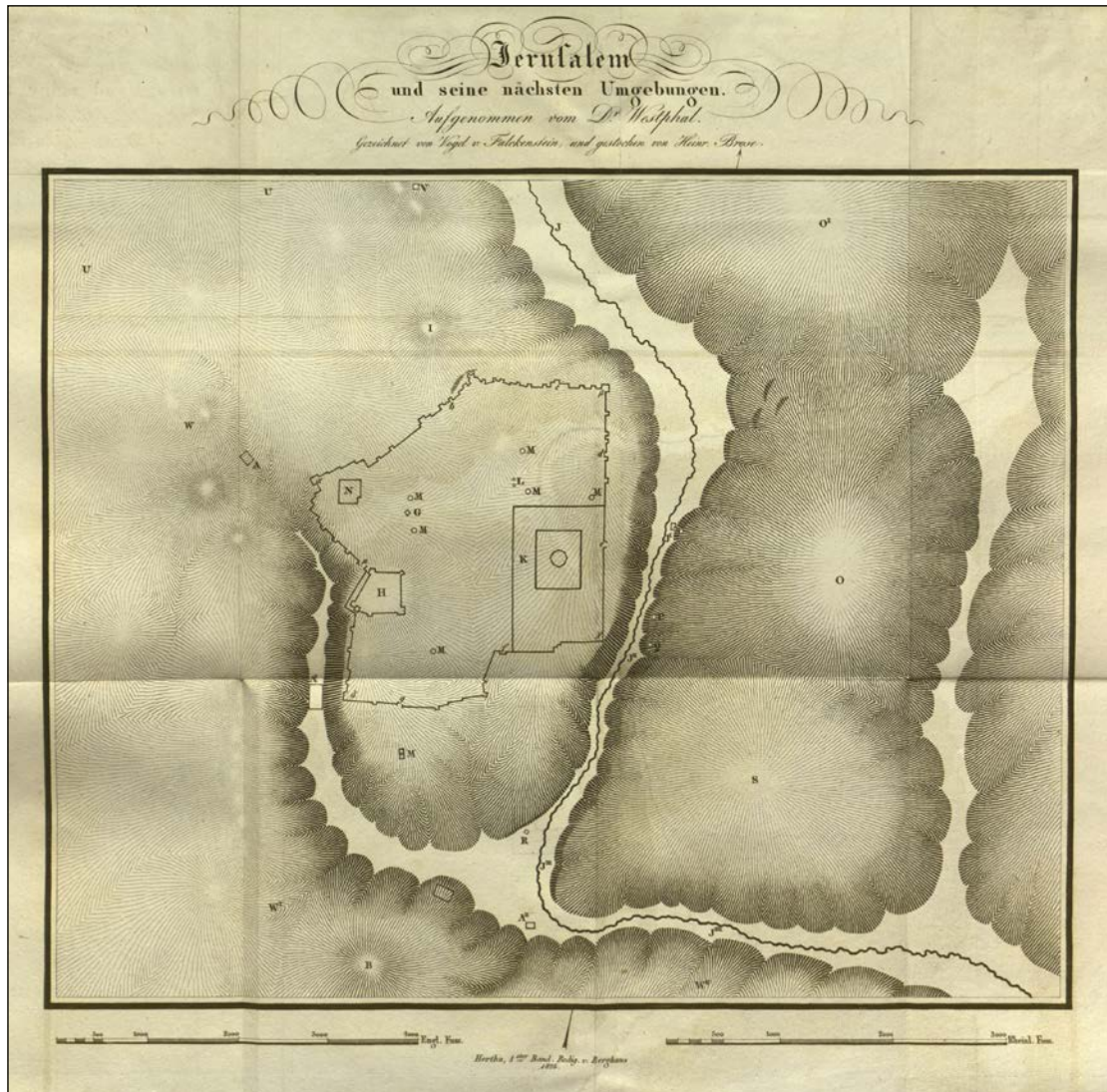


Fig. 2 Westphal's Jerusalem map, Hertha 1825, copper engraving, 22 x 27 cm

city (Ritter 1866: IV, 8; Tobler 1867: 145, Ben-Arieh 1973: 64; Rubin 1999: 161f.; Tishby 2001: 37f., 154f.; Goren 2003: 62f.; Rubin and Goren 2010: 407ff.).

The second measuring, undertaken by *Johann Heinrich Westphal* in 1823 and published by *Heinrich Berghaus* in 1825, in contrast, was completely forgotten and hardly mentioned in these studies. *Westphal's* map was an important step in the modern cartography of Jerusalem, and probably of the Holy Land in general, influenced by what had already been accepted in European cartography for a century and more: An accurate map needs accurate field work, using as advanced instruments as possible. The military engineers of *Napoleon's* army were the first to use such instruments in the countries east of the Mediterranean. But the process advanced slowly, probably due to dis-

turbing geo-political conditions. The first who used instruments after the French surveyors were scientific travelers like *Westphal* and *Sieber*, private scholars driven by individual motives. It took twenty more years until Jerusalem had been sufficiently surveyed and mapped, and more than fifty years until this had been conducted for the whole country (Goren 2002; Schattner 1951). Consequently, *Sieber's* as well as *Westphal's* map can be regarded as significant steps in this process, leading from Jerusalem's imaginary and mostly painted maps – to an accurate and modernly-accepted cartographic depiction of the city.

This paper aims at presenting the excursion of the three German travelers *Westphal*, *Parthey* and *Medem* and its story, the essential biographical aspects of the participants and their connections to contemporary explor-

ers of the region, and to describe the sketches, recently retrieved, and the published, but forgotten, map.

2. A journey to the Holy Land in 1822/23 and its results

Three young Germans, *Reichsgraf Peter von Medem* (1801-1877) from Kurland, the young philologist *Gustav Friedrich Konstantin Parthey* (1798-1872) from Berlin and the mathematician and astronomer *Johann Heinrich Westphal* (1794-1831) from Schwerin, traveled in Egypt and the Holy Land in 1822/23. The only immediate publication that came out from this voyage was a four-pages report printed in 1825 in the first volume of the periodical "Hertha" which had been initiated, edited and published by the Berlin cartographer and publisher *Heinrich Berghaus* (1797-1884). "Hertha" was only one publication project of Berghaus. After 14 numbers between 1825 and 1829 the series already stopped, but the journal was an important forum for the scientific community, especially for *Alexander von Humboldt's* German articles in that period (*Engelmann* 1977: 137ff.). *Westphal's* report was accompanied by a map of Jerusalem ("Jerusalem und seine nächsten Umgebungen"), actually being the second measuring map of the city that we know about (*Westphal* 1825c) (Fig. 2).

On returning to Berlin, *Parthey* inherited the renowned publishing and bookselling house "Nicolai'sche Buchhandlung", in which he published his philological works, which were distinguished by a big and variegated scientific apparatus. He also became one of the leading personalities in the Royal Prussian Academy of Sciences in Berlin (*Jonas* 1887). The diaries of the three travelers were never published, but parts of it were used by *Berghaus* when preparing his "Map of Syria", published ten years later in 1835 (*Berghaus* 1835a, b). *Berghaus* also used *Medem's* detailed travel journal for establishing distances, and he published extracts of the diary in the map memoir. *Parthey's* list of Arabic and Latin place names helped *Berghaus* in avoiding mistakes, and his descriptions of topographical characteristics were a big help in understanding the physical structure of the country. Because of the fact that before 1825 *Westphal* was in Italy and *Medem* in Kurland, it seems possible that only *Parthey* played an active role in the publication. Showing his appreciation for these two sources and their value, *Berghaus* added them to the memoir which, according to his cartographical perception, followed the publication of the map (*Berghaus* 1835a: 39ff.).

The map, as well as the diaries, were used by some contemporary – and later especially by German – scholars. But, probably due to the place and language of the publication, and the appearance of more advanced measuring maps of Jerusalem, especially the "Plan of Jerusalem" (1835) by the English artist and architect *Frederick Catherwood* (1799-1854), the map and the additional material was relatively quickly forgotten. Probably we can find one explanation in the fact that in comparison to *Sieber's* map the cartographical result of *Westphal* was much more reduced and with less information visualised by rather simple cartosemiotic methods but, as we will see, in a very detailed accuracy. *Westphal's* map was not used and even hardly mentioned in the scientific studies concerning Jerusalem or Palestine, even if *Berghaus*, then a leading cartographer in Berlin (*Engelmann* 1960a, b, 1977; *Goren* 2003: 92ff.) had used it, and *Carl Ritter* (1779-1859) was acquainted with it, mentioning details in volume 16 of his "Vergleichende Erdkunde", published in 1852:

"Selbst noch in neuerer Zeit, als der bekannte Geometer *Dr. Westphal* und *Dr. G. Parthey* im J. 1823 später nach dem von *Sieber* 1818 herausgegebenen Plane von Jerusalem diese Stadtmauern messend zu umschreiten versuchten, um sie mit den Maaßangaben des *Fl. Josephus* vergleichen zu können, wurde ihr Leben von den benachbarten Dächern mit Steinwürfen und Flintenschüssen bedroht, so daß sie zurückziehen und den Hypothesen weitem Spielraum über diesen wichtigen Gegenstand überlassen mußten, doch einen Vieles bessern, zumal die Stadtmauern berichtigenen Plan von Jerusalem publiciren konnten" (*Ritter* 1852: 307)¹.

Ritter, who could, of course, have received the information from *Parthey*, refers to the publication in the journal "Hertha". *Titus Tobler* followed him, when in 1858 he published his "Planography of Jerusalem", as a memoir to the map of the city and its environs, elaborated together with the Dutch naval officer, landscape painter and cartographer *Charles William Meredith van de Velde* (1818-1898). But *Tobler's* commentary was very short, only writing that the map "is praised as greatly superior" to the work of *Sieber* (*Tobler* 1858: 12).

The young cartographer from Berlin, *Heinrich Kiepert* (1818-1899), made use of the sketches for his map of Jerusalem accompanying *Edward Robinson's* (1794-1863) and *Eli Smith's* (1801-1857) epoch-making work, "Biblical researches in Palestine" (*Robinson and Smith*

1841; cf. Goren 1999; Goren 2003: 83ff.). Describing the sketches in his map memoir, he did have some reservations. On the one hand, Kiepert wrote, *Westphal's* measurement contributed to correct an error “upon the direction of the wall from the Yâfa Gate north-westwards, (which hitherto has been erroneously given on all plans as due West) ...” (Kiepert 1841: 39), but added, that “by means of [using] these [sketches] it was possible to fix several points very definitely”. He criticised the Jerusalem map of 1823 as being “a very imperfect reduction from that sketch, with false and arbitrary shading” (Kiepert 1841: 39, note 2).

The map is mentioned in both nineteenth-century bibliographies of Palestine literature, by *Titus Tobler* (1867) and *Reinhold Röhricht* (1890). The former writes about *Westphal*, refers to the paper and to *Ritter*, mentions *Parthey* [not *Medem!*] as travel companion, and comments that “die beschreibung des terrains ist nicht besonders gut”², a proof that he did see the map (Tobler 1867: 149). *Röhricht*, who used *Tobler's* work, adds some information, gathered from *Berghaus* (Röhricht 1890: XV; cf. Goren 1995). The published map “ist gezeichnet vom Premier-Lieutenant Vogel v. Falkenstein u. gestochen von Heinrich Brose” (Röhricht 1890: 358)³.

The map and *Westphal's*, respectively *Berghaus's*, text were also mentioned in a review of contemporary studies of Jerusalem published in the geographical periodical “Das Ausland” in 1856. It deals mainly with the idea of organising a big scientific conference of German orientalists in Jerusalem, which originated in a conversation by *Ernst Gustav Schultz* (1811-1851), first Prussian consul to Jerusalem, with his friend *Philipp Wolff* (1810-1894), minister and orientalist from Rottweil in Württemberg. The latter presented the idea in 1847 on a conference of philologists in Basel (Hoffmann 1856; Wolff 1848, 1857; Goren 2003: 200f., 243ff.).

In some of the twentieth-century studies of the history of the scientific study of Jerusalem the map is mentioned, too. In his pioneering paper dealing with the first measuring maps of Jerusalem, *Yehoshua Ben-Arieh*, who used *Tobler's* and *Röhricht's* bibliographies, wrote that the works of the mathematician *Westphal* and his friend *Parthey* were especially worth mentioning (Ben-Arieh 1973: 64; Ben-Arieh 1974). *Rehav Rubin* followed *Ben-Arieh*, mentioning them, only by name, in the Hebrew version of his study of the maps of Jerusalem; they are, however, not mentioned in the English version, published twelve years later (Rubin 1987: 144; Rubin 1999: 53).

Westphal gets some more attention in *Haim Goren's* study of German Palestine research, but then *Goren* could not trace the original sketches (Goren 2003: 64).

The five sketches were detected by the authors during research in the Map Department of the Staatsbibliothek zu Berlin (Berlin State Library). This was indeed a total surprise, as we certainly knew about the existence of the map (Goren 2003: 58, 64), but we never expected to find the original sketches.

3. The participants of the journey

Apparently, the sources mention the same three young Germans, who, as will be pointed out, got to know each other during their academic studies and went to the East together (first reported in *Berghaus* 1835a: 21). But a detailed study of nineteenth-century sources raises also a question mark on this fact.

Born in Schwerin in 1794, *Johann Heinrich Westphal* received a good and even advanced education in his hometown, joined the Lützow Free Corps in 1813 and fought in Mecklenburg, Denmark and the Ardennes (Meusel 1827; Brüssow 1833; Günther 1897). At the end of the wars and the signing of the Treaty of Paris in November 1815, he returned immediately to his studies at the University of Göttingen, where he found a concentration of leading scholars in the fields of natural sciences as well as political, historical, human and cultural studies. One of his teachers was the mathematical genius *Carl Friedrich Gauss* (1777-1855). In Göttingen he was also exposed to the atmosphere of explorative voyages, initiated and realised by the scholars with the aid of the vast library and natural-history and geographical collections. Many planned excursions, others returned, told their stories and issued publications – scientific books or itineraries (cf. Denecke 1996). *Westphal* received his doctorate in 1817, with a thesis on the *Kräfteparallelogramm*, “parallelogram of the force” (Westphal 1817). It seems that this event in his life was followed by a long period of unrest, and, being affected by the Göttingen atmosphere, he continuously searched for challenges and adventures. In 1817 he started as a school teacher, and at the end of the same year he found himself employed as professor of geography at a high school in Danzig. Three years later he went to Stettin where he lectured on astronomy and prepared himself for the voyages. In 1822 he left for the first one, to Egypt, Palestine and southern Syria. Following his return he moved to live in Naples as an

independent scholar, conducting many excursions in Italy and Sicily, an island which he visited five times. In 1830 he reached the Nile for the second time, probably again with *Parthey*, this time going to Upper Egypt and Nubia. He seemed not to estimate his real strength and health, as already in September 1830, while exploring Sicily again, he was hit by a hard colic and fell dead from the donkey he was riding. He was buried, almost anonymously, in the churchyard of Termini Imerese in Sicily.

All this means that he had only a dozen years of activity, much of which he spent traveling. This makes the volume and richness of his publications, mainly in the field of astronomy (*Westphal* 1820a, 1820b, 1821, 1822), and later travel guides and descriptions of Italy and some of its regions, even more remarkable. Some of these were printed under the name of *Justus Tommasini* (*Westphal* 1829; *Tommasini* 1825, 1828).

Westphal was already dead in the 1840s, when his partner *Gustav Parthey* continued the research on Palestine, though, as mentioned, he did not reach the country on his second Egyptian voyage in 1830, on which he published a two-volume description (*Parthey* 1834-40). Originating from a wealthy family, *Parthey* had the possibility of intensive traveling and studied in Berlin and Heidelberg. After returning from his first voyage to the East, he inherited the "Nicolaische Buchhandlung", which he managed until his death. He became famous as a collector of items in various fields and a generous supporter of libraries and collections. Most of his time was devoted to his own scientific research, and he published intensively in the leading German geographical periodicals of his time, including *Berghaus's* "Annalen" and the journals of Berlin's Geographical Society (for aspects of his biography and bibliography: *Parthey* 1871; *Jonas* 1887; *Koebel* 1955).

During the 1840s, *Parthey* was an active member in the Berlin Geographical Society, presented contributions in the meetings and published a number of letters containing results of the researches conducted by Colonel *Anton Albert Heinrich Louis von Wildenbruch* (1803-1874), Prussian consul to Beirut from 1843 to 1848 (*Goren* 2003: 181ff.). Most important of these are the first published letter, providing a general description of Lebanon, the leaders of the different groups and their residence, topographical data, copies of old Greek inscriptions, and more of the same, and the second letter with a detailed description of *Wildenbruch's* routes in Lebanon and Palestine, including measurements and accompanied

by maps drawn in *Heinrich Mahlmann's* (1812-1848) lithographic institute. The third paper includes a long list on angle measurements taken from protruding points in Lebanon (*Ritter* 1844; *Parthey* 1843, 1846).

In Paris *Parthey* frequently visited the salon of *Princess Dorothea von Medem* (1761-1821) from Kurland, where he became acquainted with many eminent personalities. The princess, well known for her social connections and activity, had moved from Berlin to Paris in 1809 (*Jonas* 1887: 189f.; *Allgemeine deutsche Real-Encyklopädie* 1835: 413f.). It is highly probable that it was in this social environment that he came in contact with the third participant of the journey to the East.

Peter von Medem belonged to an old aristocratic family the roots of which were in Scotland, but which reached Germany in the tenth century, settling first in Saxony and Brunswick, with parts of it moving on and settling in Livonia, today Estonia, and Kurland, the western part of Lithuania. Their eastern principality was governed by the Teutonic Order, most of the time as an independent territory, and only in 1795, after a long rivalry between Poland and Russia, became a province of the latter. *Peter*, who belonged to the *von Elley* branch, studied, like *Parthey*, in Berlin in 1818 and from 1819 to 1820 in Heidelberg. We do not have many biographical details, only that he returned to Kurland after the journey, that he managed the family's estate, and got married in 1825 (*Zedlitz-Neukirch* 1837: 380ff.; *Allgemeine deutsche Real-Encyklopädie* 1835: 412ff.). A contemporary source wrote that *Peter von Medem*, who traveled in Egypt and Jerusalem in 1825, later became Russian ambassador to London and Paris, but the author certainly mistakes *Peter* for his brother *Paul* (1800-1854) (*Allgemeine deutsche Real-Encyklopädie* 1835: 414).

We hold only few testimonies to the excursion, most of them included in *Westphal's* letters, in *Berghaus's* memoir to his "Map of Syria" (*Berghaus* 1835a), and in the participants' biographies. In addition, there is the German traveler and explorer *Eduard Rüppell* (1794-1884), who gives a comparatively long list of explorers who performed geodetic measurements, "astronomers" as he calls them, whom he met during his travels in Egypt. Among them, he mentions "*Dr. Westphal* from Mecklenburg, who ascended the Nile with **three** [our emphasis, *H.G., B.S.*] of his friends" (*Rüppell* 1823b: 182f.). Accepting the fact that he did see them, it is clear that at least one person joined the three Germans. The fact is, that the "Who is Who in Egyptol-

ogy" claims that *Medem* traveled in the Levant together with *Baron Alexander von Üxküll* (1800-1853), and on their tour along the Nile until the third cataract they were joined by *Théodore de Lesseps* (1802-1874), whose younger brother, *Ferdinand* (1805-1894), who arrived in Egypt only in 1832, received world fame as initiator, planner and performer of the digging of the Suez Canal. It is no surprise that also *Üxküll* studied in Göttingen (*Dawson et al.* 1995: 283 and 422).

As expected, the three explorers were hosted in Jerusalem at the Franciscan "Casa Nova", which belonged to the St. Saviour convent, "a very big and expanding building, [...] in two narrow and smelly rooms", with hardly enough light and fresh air. The many names which covered the walls, of "famous and not famous travelers", testified that these rooms had hosted visitors for over a hundred years (*Westphal* 1825c: 386).

Some information is included in one of *Westphal's* letters which had been addressed to "Mr. Prof. Knight *Bode* in Berlin", published in the "Astronomisches Jahrbuch" and later copied by *Berghaus*, following the publication of the map (*Westphal* 1825b, 1827). The famous astronomer *Johann Elert Bode* (1747-1826) had established this periodical in 1774 and had edited it for 51 years from then. He led and managed the observatory in Berlin for 39 years (*Bruhns* 1876; *Schwemin* 2006). *Westphal* gives here some information concerning the voyage:

"Während meines Aufenthalts in Rom, im Winter 1821/2, faßte ich den Entschluß, zum Vergnügen und zur Belehrung, eine Reise nach Aegypten zu machen. Zwei meiner Freunde, der Reichsgraf Peter von Medem und der Dr. Gustav Parthey, hatten dieselbe Absicht und denselben Zweck, wir schlossen uns daher an einander an (*Westphal* 1827: 191; cf. also *Westphal* 1825b: 16)⁴.

Westphal considered himself an "astronomical traveler" ("Astronomischer Reisender"), whose aim was to reach countries which so far had not been measured astronomically. He needed the appropriate instruments, because he had only a "good seconds clock". He could find and purchase some of them in Malta, on his way to Egypt, where he found a "bad" 6-inches sextant, an even worse artificial horizon, and a mediocre field-glass. He tried to improve these instruments, reaching only a partial success, and looked for every way to improve his future observations. A riot against the Egyptian ruler *Muhammad Ali* (1769-1849) pre-

vented them from continuing towards the village of Dongola in Upper Egypt. On their way back from Syria they reached Smyrna and Constantinople, and on 8th March 1824 they went on shore in Trieste. *Westphal* chose to spend the summer in Italy and returned to Germany only in the winter (*Bode* 1824).

Most of *Westphal's* letter deals with a discussion, perhaps a misunderstanding, between *Westphal* and *Rüppell*. The latter, born in Frankfurt, had received a significant inheritance, which, reinforced by a gift for business and the right acquaintances, liberated him from financial worries. On his first visit to Egypt, in 1817, *Rüppell* met *Johann Ludwig Burckhardt* (1784-1817), shortly before the latter's death. *Burckhardt* suggested him to devote himself to the scientific study of the Orient, and *Rüppell* followed this advice, returned to Europe in order to get the right preparation. He joined the newly established "Senckenbergische Naturforschende Gesellschaft" in Frankfurt, and all his future activity was dedicated to its service (*Martens* 1949; *Goren* 2003: 57ff.). In 1822, he went on his second exploration to the East, this time as an expert for mineralogy, joined by the physician *Michael Hey* as a surgeon and conservator. The Khedive *Muhammad Ali* supplied them with a letter to the governors of the regions they aimed to visit. One of the important results of their exploration of the Sinai Peninsula was the first modern – and accurate – description of Aqaba, the northern shore of the gulf, correcting the accepted belief that the northern end of the gulf had two small gulfs and a peninsula between them (*Rüppell* 1823a, c; *Zach* 1823). Returning to Cairo, they continued south and spent three years in Upper Egypt and the South. *Rüppell* was "the first scientific explorer" that entered Kurdufan, today the central part of Sudan. Two other German explorers, the biologist *Christian Gottfried Ehrenberg* (1795-1876) and the physician and naturalist *Wilhelm Friedrich Wilhelm Hemprich* (1796-1825), who spent eighteen months (within a six-years exploration project) around the Red Sea in the years 1823-24, met him in Egypt, and did not hide their frustration from the fact that "money flowed from him in streams" (*Humboldt* 1826; cf. *Stresemann* 1954; *Goren* 2003: 60ff.). *Rüppell* conducted two more excursions in the region, in 1826 and 1830-34, and arrived at many scientific achievements, including an impressive accuracy in his hypsometric measurements and his maps (*Ritter* 1866: 46ff.).

The four German explorers, i.e. *Rüppell* and *Westphal* with his two companions, met while travers-

An early measuring of the Holy City, forgotten for over a century: Westphal's Jerusalem map of 1825

ing Egypt. In the above-mentioned letter he sent on 8th December 1823 from Luxor to the periodical "Correspondence astronomique", Ruppell named all "astronomer" explorers he met and wrote that Westphal, whom he met in Cairo, wanted to purchase from him a telescope, and did not give up the idea although he, Ruppell, denied the request (Ruppell 1823b). Westphal responded in detail in his letter, repeatedly using the words "wrong" ("falsch") and "not truth" ("Unwahrheit"). It seems that Ruppell had been impressed by Westphal being an "Astronom" and his control of the right instruments,

but they could obviously find no agreement in using, exchange or sale of the scientific instruments. Ruppell was aware of his own independent and superior position as he wrote, that

"Aucun de ces messieurs ne voyage pour son propre compte; ils ont tous formé des engagements, reçu des instructions, contracté des obligations qui les gênent plus ou moins, qui les rendent dépendans, et les exposent à la merci de leurs commettans; aucun n'a eu le bonheur que j'ai en de etc. ..." (Ruppell 1823b: 183; cf. Westphal 1827: 193 and 1825b: 17)⁵.

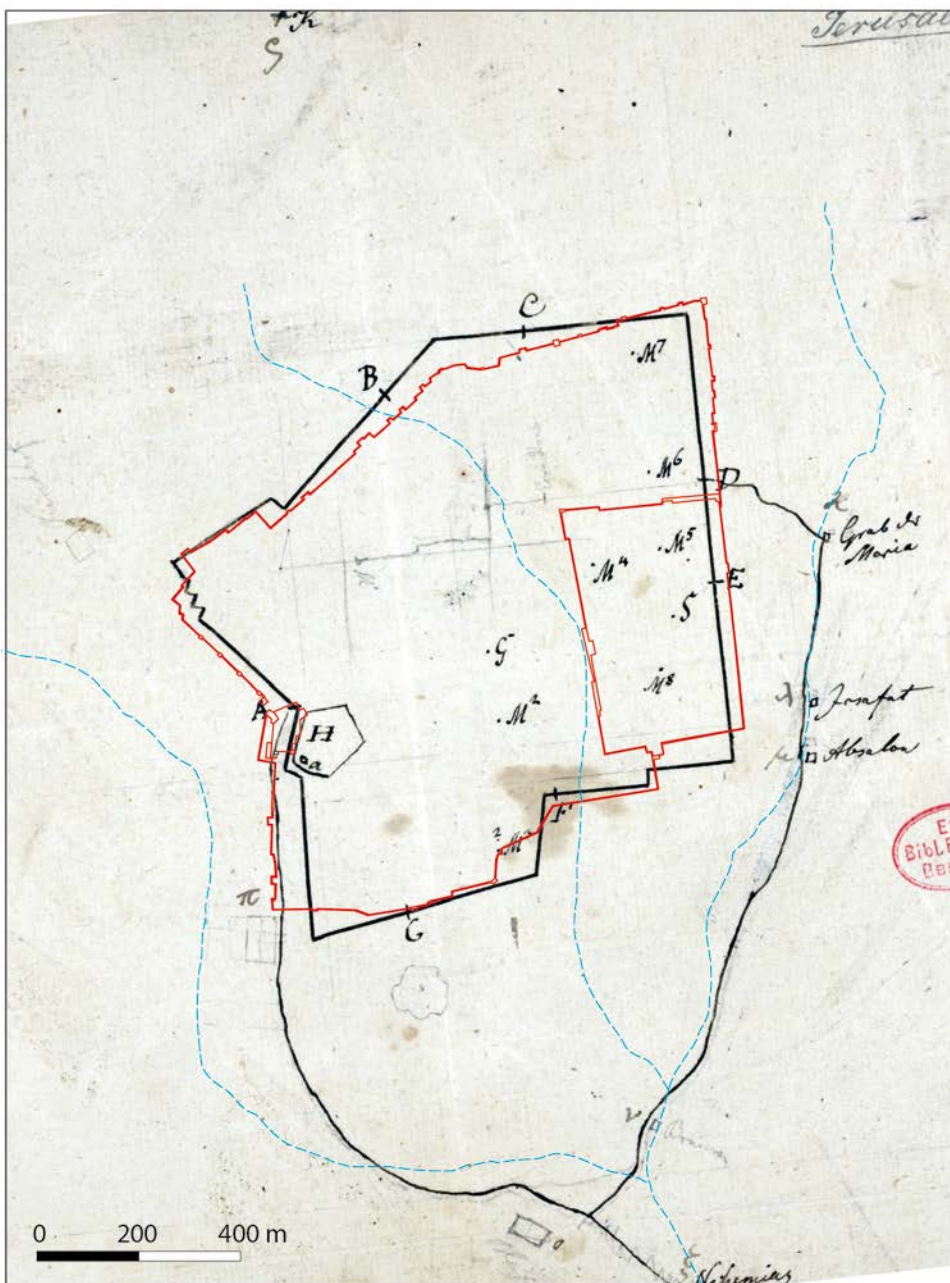


Fig. 3 Map analysis of Westphal's sketch no. 1. The red line shows the actual wall line. (cartography: Tamar Sofer)

Westphal claimed that Rüppell was again absolutely wrong and that he should be more careful in what he chose to publish (Westphal 1825b, 1827). The controversy between Rüppell and Westphal shows a typical example of an academic debate in the scientific journals of the nineteenth century. The content of the debate seems for us today relatively trivial, but with the historical context in mind the story tells us something about field work and research practice, as well as rivalry and opinion leadership within the scientific community.

4. On the sketches, accompanying texts and the map

The six sketches found in the map department of the Staatsbibliothek zu Berlin (Berlin State Library) are dated to 1823 and identified as Westphal's. They were sketched, mostly by a pencil, on transparent – probably parchment paper, measuring 40 x 30 cm⁶. The sketches themselves are of course of different sizes and a bit smaller.

Together with the published map, Berghaus also presented an explaining text from Westphal's diary, "aus dessen Tagebuch während einer Reise durch den Orient in den Jahren 1822 und 1823" (Westphal 1825c: 385)⁷. This diary enables us to assess some points in Westphal's work and its conditions, as well as the knowledge he possessed concerning the city. When arriving in Jerusalem, he comments that "ist der Anblick der Stadt und der kahlen sie umgebenden Berge keinesweges reizend zu nennen"⁸ (Westphal 1825c: 385f). He uses the letters U, A, W for his detailed descriptions of the mountain chains surrounding Jerusalem. An example for this is his description for the Mount of Olives:

"An der Ostseite liegt ein Berg O, von welchem gegen Nordwesten eine sich krümmende Bergkette ausgeht [Mount Scopus, H.G., B.S.]. [...] Der Oelberg O ist der höchste von den, die Stadt umgebenden Bergen; er mag etwa vier bis fünfhundert Fuß höher sein, als dieselbe. Er ist wenig bebaut, fast nur mit Oelbäumen; doch trifft man oben ein Dorf [e-Tur, H.G., B.S.] und am Abhänge einige Gärten" (Westphal 1825c: 386f.)⁹.

Following the description of the mountains and mountain chains, Westphal moves to the valleys, mainly a detailed study of the Valley of Josaphat, i.e. the valley of the Kidron stream, in all of its length. The seven city gates are described in detail, three of them are mentioned as closed. The walls themselves, though in a

relatively acceptable condition, according to Westphal, will not stand a long bombardment of field cannons. On some of the wall-towers one can still observe small, almost unused, cannons. Also the small citadel cannot be defended over a longer period of time. Most of the fields outside the walls around the city are not cultivated.

Westphal continues with the description of more sites, inside and outside the city, and their marking on the map. He finishes with another detailed and relatively long description of the Graves of the Kings, which "sind bei weitem nicht so merkwürdig, als manche Reisebeschreiber und die Einwohner von Jerusalem sie gerne machen möchten"¹⁰ (Westphal 1825c: 390).

The following short descriptions of the sketches are given in the same order as they were scanned. There is no clear genealogy of the drawings, but no. 5 and 6 show the highest information density; they were produced probably after the other sketches.

Sketch no. 1: Upper left 2186, upper right Jerusalem (1823). The city walls are given in black ink, stronger than in no. 4. The seven gates are labeled A-G and explained in the key: A Bethlehem, Hebron or Jaffa Gate; B Damascus Gate; C Ephraim or Herod's Gate; D St. Stephen's or Lion's Gate; E Temple or Golden Gate; F Dung Gate; G Zion's Gate.

The Citadel, H in the key, is marked as a pentagon. Inside the Citadel we can see David's Tower as a small square, marked a, and given in the key, too. The location of David's Tomb, outside Zion's Gate, is marked with a weak line. The other sites, in the sketch and in the key are: S Solomon's Temple; G Holy Sepulcher; K Graves of the Kings, north of the city.

Inside, in weak lines, some of the streets are given. Seven mosques are marked with M and numbered 2-8. Two lines illustrate the valleys and streams on both sides of the city, the one from Jaffa Gate to the south, and then east, along which mark the Sultan's Pool and the Pool of Siloam (Silon in the text). It meets with the stream that flows from near the Lion's Gate to the south, along which are shown Maria's Grave and the monuments of Josaphat and Absalom. The combined stream goes from Siloam to the fountain of Nehemias, which is Ein (the fountain of) Rogel¹¹.

Cartographer Tamar Sofer compared Westphal's sketches to a recent map of the old city and its surroundings (Figs. 3 and 5). She concentrated on check-

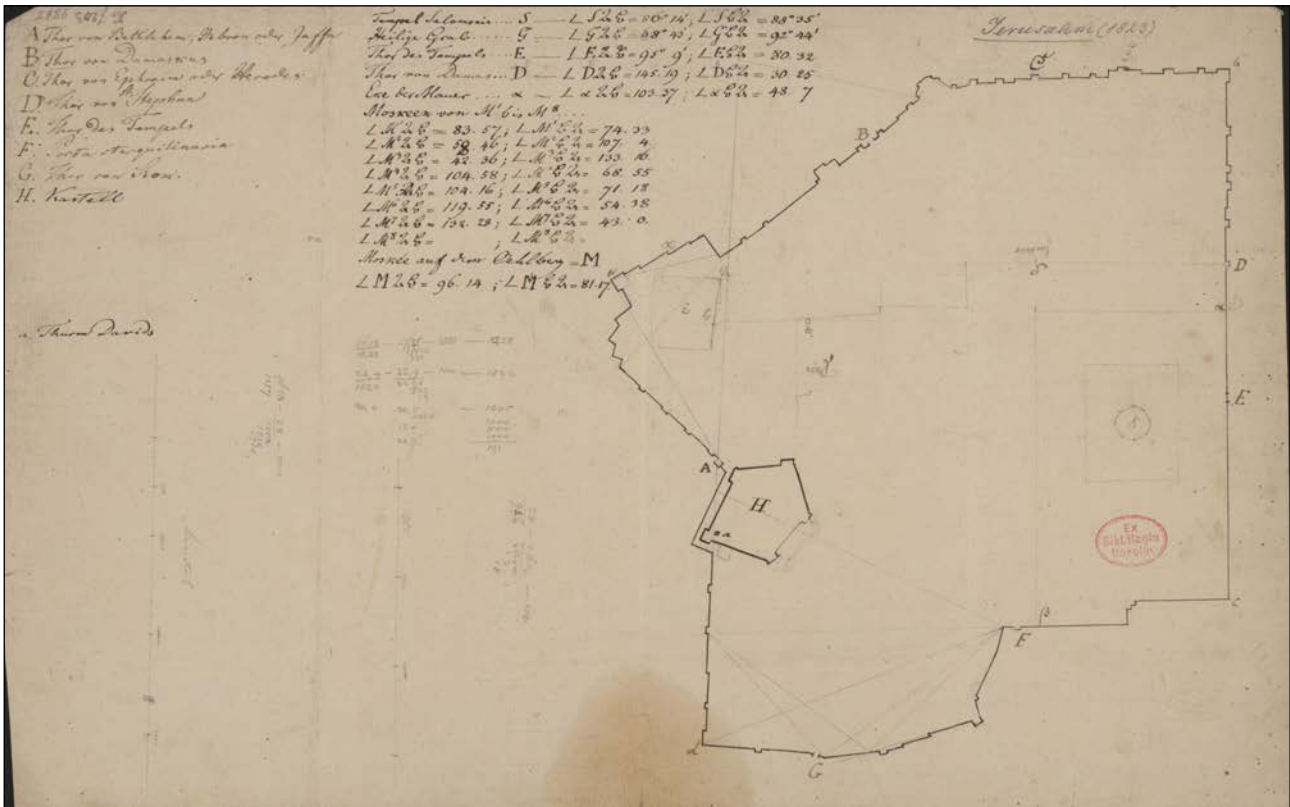


Fig. 4 Sketch no. 2 (Source: SBB-PK Kart. X 1374-2)

ing the depiction of the walls as well as of some central features within them: the Temple Mount and the Citadel. These are the main features that *Westphal* presented in his sketches. The comparison reveals a correctness and accuracy which are unexpected and surprising, taking into account the time and conditions in which the measurements were taken, as well as the simple instruments. Surely, there are some clear differences, especially as to the city width, i.e. the distance between the eastern and western walls.

Sketch no. 2 (Fig. 4): 2186 upper left, Jerusalem (1823) in weak script. Because of the smaller scale, the line of the walls is much more detailed than in no. 1, and presents corners, towers, extensions and angles. Inside the city walls lines of angles are measured between different points; some of the streets and the Temple Mount are drawn. The gates and the Citadel are given as in sketch no. 1. Along the key, there is a list of points to which locations had been calculated and coordinates given: S Solomon's Temple; G Holy Sepulcher; E Temple's Gate; D Damascus Gate. This latter is certainly a mistake, as this letter marks St. Stephen's Gate, i.e. Lion's Gate, and Damascus Gate is B. It might be a simple mistake, a slip, but it might also derive from the fact that St. Stephen's tradition shows his stoning

place to be north of Damascus Gate and "the corner of the wall" (α). As the four major corners of the walls are marked a-d, it is difficult to identify this corner here, but from sketch no. 5 it is clear that the north-western corner is meant. We can find a list of eight mosques inside the city (1-8) and another one on the Mount of Olives. All mosques have an exact location. Here again, the comparison with today's map presents *Westphal's* relative accuracy, especially in the route of the city wall, its towers and their location.

Sketch no. 3 has the same titles. We can see a weak sketch of the city walls, and the topography around is given by hatchings, including valleys. Points outside the city are marked, but there is no key. In the centres of the four sides the points of the compass are given as N, W, S and O(st).

Sketch no. 4 shows the city walls, with the same title. A cross shows the four winds. Inside the city, without writings, we find the Temple Mount, the Citadel, and the Latin (Franciscan) Convent, outside the walls the Sultan's Pool, the "Blood Field" (Potter's Field)¹². Other marked sites are: Fountain of Siloam, Tomb of Abshalom, Josaphat, Maria's Grave and the Graves of the Kings. Inside the city eight points are marked with W, some of

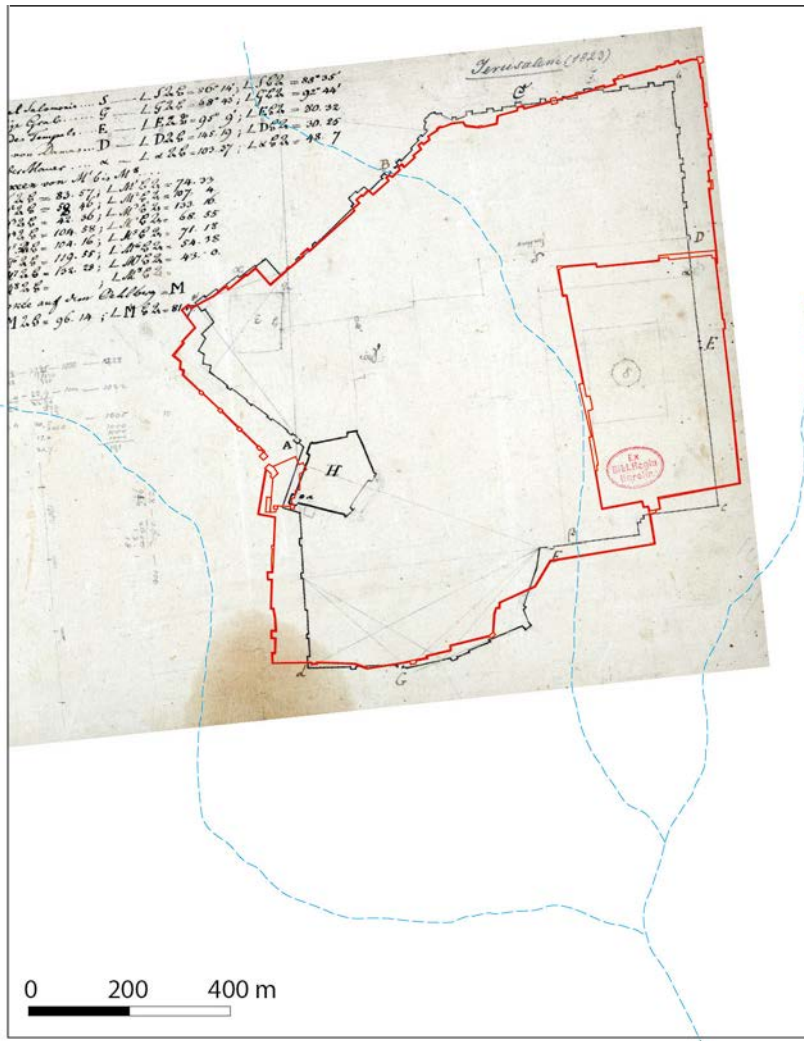


Fig. 5 Sketch no. 2 (Source: SBB-PK Kart. X 1374-2)

them numbered, and it is clear that here somehow the M for mosque was turned upside-down. The only writing inside the walls is "Ecce Homo". Outside, on Mount of Zion, we see one mosque, Nebi-Daud (David's Grave).

Sketch no. 5 and 6 are very similar. Sketch no. 6 (Fig. 6) seems to be the one prepared for the publication, as it is in brown colour, the hatchings and the lines are "cleaner" and more delicate. Both represent the "full-est" sketch, a summary of all the former ones. In addition to the regular titles and the compass rose, there is, for the first time, a scale bar, giving the distances in English feet (the scale bar is 4000 English feet long, equal to 1219.2 metres). There is no legend or any other text, but most of the letters used in the other sketches are also given here (seven mosques inside the walls and one on Mount Zion, Temple Mount, Citadel, Latin Monastery, seven gates, Holy Sepulcher, the E corner). It is quite clear that the creator of the sketch used an explaining text with a key, most probably the

text which accompanied the map in 1825 (Westphal 1825c). The main issue of the map is the topography, which is given in hatchings, inside and outside the walls. The gorge of the Kidron is marked by a line followed by the letter J (Josaphat). Different summits are marked with letters, B on the south, I north, O and S for the two summits of the Mount of Olives in the east. The letter A marks water reservoirs, as the Mamilla, Sultan and Siloam Pools. R presents the Gichon Spring, and T stands for Ein Rogel. The monuments along the Kidron are marked P and Q. The letters U and W are presented in some points outside the city and show mountain chains. Inside the walls there are also some slopes, as from the Golgatha to north-east, from the north-eastern city corner to south-west, around the Citadel and in the northern part of Mount Zion.

The comparison with the present-day geometry shows the same advantages and disadvantages of Westphal's work. The problem arises from the wrong

phal. Gezeichnet von Vogel v. Falckenstein, und gestochen von Heinr. Brose". It means that *Berghaus*, editor and publisher, was not satisfied with the raw material, according to his note which had been added to the publication:

"Da das Stechen des Plans nach der Originalaufnahme des Hrn. Westphal nicht zulässig war, so unterzog sich Hr. Vogel von Falkenstein, Premier-Lieutenant im k. preuß. Grenadier-Regiment Kaiser Franz, der Mühe, eine neue Zeichnung für den Stich zu bearbeiten. [...] Daß dieses durch die Zeichnung des Hrn. von Falkenstein, eines eben so gründlichen als sorgfältigen Terrainkenners, und durch den treuen Stich des Hrn. Brose, an Genauigkeit Nichts verloren habe, glaube ich, mit Recht, versichern zu können"¹³ (*Westphal* 1825c: 385 note).

As demonstrated above, after returning from the East, *Westphal* chose to move to southern Italy, and *Berghaus* might even hint at the fact that he had not been involved in the later publication. *Berghaus* recruited two of the leading mapmakers in Berlin. *Eduard Vogel von Falkenstein* (1797–1885), who reached the rank of a Grenadier General, had already participated in the 1813 battles and became officer at the age of 17. In 1822 he started commanding the topographic office of the Prussian General Staff, performing measurements. His biography concentrates on his military career, and his geodetic occupation is scarcely mentioned (*Poten* 1896).

Karl Heinrich Brose (1783–1861) was a well-known map engraver in Germany, who during the Napoleonic conquest preferred to work in Paris. He prepared many important pioneer maps, including intensive work for *Berghaus* (*Löwenberg* 1876).

Berghaus could add some technical details, e.g. the scale of 1:12,500 for the published map, which means that it is a bit smaller than the original sketch.

In contrast to the sketches 5 and 6, the map shows a much larger area, to the west and even more to the east of the city. It enabled the producers of the map to include, for example, also the valley east of the Mount of Olives, and not only the western one. They did not leave any "blank space" on the map, the hatchings fill also the whole area inside the walls. On the bottom the map has two linear scales, the one in English feet (0.3048 m) and the second in Rheinland (Prussian) feet (0.314 m).

5. Summary

The three young Germans, who set their foot on the road to Egypt and Palestine in 1822 and 1823, nobleman *Peter von Medem*, philologist *Gustav Parthey* and astronomer *Johann Heinrich Westphal*, did not differ much from others who went to that region in those early years of the nineteenth century. But they did join the very early stages of geographical exploration of these countries, which, especially with regard to Palestine, was still in its infancy. Their voyage had a very special aspect, as they returned home with results of geodetic work, led and mostly performed by *Westphal* in Jerusalem. The sketches, as well as *Parthey's* and *von Medem's* diaries, formed the material for a publication in 1825, in the first volume of *Berghaus's* newly founded geographic periodical "Hertha". During the following years, mainly until the mid-century, the published map had been mentioned and used by leading Palestine scholars who had access to the German material, mainly *Carl Ritter* and *Titus Tobler*. But since then the map as well as the sketches became forgotten and were absent from most studies concerning the history of the geographic and cartographic research of Jerusalem. Contemporary studies knew, at the most, to mention *Westphal* as somebody who had measured in Jerusalem, and nothing more. This is a remarkable fact, taking into account his, and his companions', pioneering as well as accurate work.

This paper aims at reestablishing the background of the voyage that led to the publication of the map, as well as of its participants, and its story and course. It wants to reconstruct all the stages in the creation of this pioneering map of the Holy City, in order to allow it to take its worthy place in the narrative of Jerusalem cartography, as the second measuring-map, only five years after that of *Sieber*.

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Notes

¹ "Even in modern times, when the famous surveyors *Dr. Westphal* and *Dr. Parthey* tried to step off the city wall by measuring, after the 1818 map by *Sieber* in 1823, with the purpose to compare it with *Flavius Josephus*, their life was threatened by stone's throws and rifle fire from the neighboring roofs and they consequently had to back out and the hypotheses about this important issue grew again; but luckily they could publish a new map with corrected city walls" (*Ritter* 1852: 307).

² "The description of the terrain is not very good" (*Tobler* 1867: 149).

³ "is drawn by first lieutenant Vogel v. Falckenstein and engraved by Heinrich Brose" (*Röhricht* 1890: 358).

⁴ "During my stay at Rome in the winter 1821/22 I decided to make a journey to Egypt, for pleasure and for education as well. Two friends of mine, count Peter von Medem and Dr. Gustav Parthey had the same plan and because of that we traveled all together" (*Westphal* 127: 191).

⁵ "None of these gentlemen travels on their own account; they have all signed contracts, received instructions, received obligations that hinder them more or less, that make them dependent, and make them subject to the mercy of their sponsors, none of them has the luck that I have had to etc. ..." (*Rüppell* 1823b: 183).

⁶ SBB-PK, Kart. X 1374, no title, but written "Jerusalem 1823". According to the old catalog: *Westphal*

⁷ "from his diary during the journey to the East in the years 1822 and 1823" (*Westphal* 1825c: 385)

⁸ "The sight of the city and of the bleak surrounding mountains is not charming at all" (*Westphal* 1825c: 385f).

⁹ "On the eastern side there is a mountain O, where a curving mountain range begins in northwestern direction [Mount Scopus, H.G., B.S.]. [...] The Mount of Olives O is the highest one surrounding the city; probably 400 to 500 feet above the

city level. It is not much cultivated, only with olive trees; but on the top there is a village [e-Tur, H.G., B.S.] and on the slope there are some gardens" (*Westphal* 1825c: 386f).

¹⁰ "are not nearly so curious as propagated by some travel writers and inhabitants of Jerusalem" (*Westphal* 1825c: 390)

¹¹ To the old tradition from the books of the Macabees, identifying in Ein Rogel the place in which, at the order of the prophet *Hieremias*, the eternal fire was hidden after the destruction of the first temple, and rediscovered following the return of the exile from Babylon under *Nehemias*. See for example *Smith* 1908, I: esp. 74, 80f.

¹² Matth. 27, 8

¹³ "The engraving of the map after the original sketch by *Westphal* was impossible. Because of that, first lieutenant Vogel von Falckenstein managed to elaborate a new drawing. [...] I am absolutely sure that, after the drawing by Falckenstein, who is a thoroughly expert of the terrain, and after the detailed engraving by Brose, the map is still exact" (*Westphal* 1825c: 385 note).

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