Reconnaissance flights were performed by Bavarian air squadron number 304 (AF304b) between September 1917 and September 1918 as part of the operations of the German-Turkish Alliance towards the end of WWI. The aerial and ground photographs that resulted from these flights constitute an important tool for the study of the urban landscape of Palestine at the end of the Ottoman period, and as a baseline for a comparative topography for today.

In 1917, Fliegerabteilung 304b (AF304b) – Bavarian Air Squadron number 304 – arrived in Palestine and settled in Iraq el-Manshiyeh. The Bavarian AF304b started its train journey from the German town of Schleissheim north of Munich in July 1917, and continued for three weeks, passing through Vienna, Budapest, and Belgrade to Istanbul, the capital of the Ottoman Empire at the time. During their stay in Istanbul, five squadrons were destroyed in a sabotage attack. From that city, which was suffering much damage and destruction at the time, AF304b continued its journey towards Palestine through the Ottoman provinces. The rail journey went through Eskisehir, Konya, Karapinar (Taurus), Aleppo, and Rayak, eventually reaching Jaffa.

The arrival of AF304b was one part of a larger operation by which Germany was attempting through its alliance with the Ottoman Empire to extend the theatre of war from Palestine to Egypt via the Suez Canal. Through this extension the Germans were aiming to severely hamper communications between England and India, thereby preventing British troops and materiel from passing through the Suez Canal in order to reduce pressure on the German western front, and also disrupting the supply of goods from Asia, mainly from India, which would seriously weaken British industry.

Early in 1916, the Prussian air squadron FA
300 – also known as Pasha I – had arrived in Palestine on a mission to eliminate ground targets. It consisted of fourteen Rumpler C.1 flying machines and a workforce of ten pilots and six observers. This ratio of fourteen machines to ten pilots reflects the quantity of reserve equipment and materiel allocated for this mission. Despite their numerical inferiority the German pilots retained air sovereignty over Palestine and Sinai until the fall of 1917.

During the second half of 1917, German air power in the region consisted of three Prussian air squadrons AF301, AF302 and AF303, and the Bavarian air squadron AF304b, and was considered a substantial German triumph. The air force unit consisted of twenty-four officers, including new pilots and seven observers, in addition to 215 meteorologists, engine-mechanics experts, electricians, welders, carpenters, upholsterers, aerial photographers, weapons experts and other specialists.

The Germans made several attempts to cross the Suez Canal between 1915 and 1917, but were foiled by the British, who maintained control over the Canal. In November 1917 British forces conquered Gaza under the leadership of General Allenby. By the time the German squadrons reached Palestine, in late September 1917, General Allenby’s forces were already firmly entrenched in Palestine, and it was difficult for the squadrons to cross Sinai into Egypt, so they stationed themselves in Palestine with headquarters in Nazareth.3

The German air force units had to face an unfamiliar climate and harsh geographical conditions, and they were receiving limited supplies. It also became important for them to monitor their surroundings very closely. The only means available to them to maintain
an overview of the area of operations between Damascus and the Lebanese coast, and from the Sea of Galilee to Cairo, was monitoring these areas from above, and that was the mission assigned to AF304b. Aerial photographs were a good resource that would complement the sparse maps available to the German-Turkish forces, and they assisted them by providing an overview of the topography of the region and of British military movements and infrastructure.

The Bavarian air squadron AF304b formed a part of the Ottoman-German force trying to check the northward advancement of the British under General Allenby. The squad leading the mission of AF304b settled in Iraq al-Manshiyeh, thirty-two kilometers northwest of Gaza, and was able during the period between October 1917 and August 1918 to take 2,872 photographs, covering Palestine, Lebanon, Jordan, Cairo and the Pyramids of Giza.

Although the main goal of the air squadrons was to follow the movements of the British army in the area and monitor military operations on the ground, the pilots were asked by Theodor Wiegand9 of the German Archaeological Institute to take photographs of the ancient historical sites in the area. During its four missions AF304b covered the coastal plains, the mountains extending from Lebanon to Hebron, the Jordan Valley and the eastern part of the Jordan River. These missions resulted in an outstanding archive documenting the landscape of the area during the years 1917 and 1918.

Captain Franz Walz (AF304b), Lieutenant Erich von Heimburg, Captain Hans-Eduard von Heemskerck, Lieutenant Fritz Berthold (AF304b) and Lieutenant Karl Heussenstamm (AF304b) in front of the tents on the airfield of the AF304b at Iraq al-Manshiyeh. Source: Flieger und Luftschiffer (http://www.buddecke.de).
These aerial photographs did not only contain data of great value to cartographers, they showed all the details on the ground. According to the French ethnologist Marcel Griaule “the aerial photograph is a talking map,” and this applies exactly to these photographs. Aerial images of Jerusalem, Jericho, Caesarea, Acre, and the Dead Sea are evidence of the targeted documentation of AF304b. In addition, churches and other Christian religious sites in Jerusalem, Bethlehem and Nazareth also attest to the aerial-archaeological mission that AF304b was commissioned to perform in Palestine.

The aerial photographs show historical remains of what the Germans viewed as biblical, Crusader, and Ottoman sites, as well as some early Jewish settlements in Palestine. However the most spectacular photos are those of the pyramids of Giza, which were released right after the return of AF304b to Munich, and reproduced in books and reports on the course of the war in the Middle East. They were so sensational that some observers considered them fakes.

In 1918, the German forces found themselves in desperate conditions. From spring to autumn of that year, only fifty-nine pilots and observers were in the field, and they had only five operational aircraft, two of which Captain Walz, the commander of the AF304b, was trying to save from the advancing forces of the Allies. In this operation the British captured Captain Walz along with thirty-five of his men. On 30 October 1918, the Turkish-German and British troops reached a truce. On 14 November 1918 the surviving Bavarian
The air force arrived in Istanbul, and on 4 March 1919 they left Turkey by ship, arriving at Wilhelmshaven on 31 March 1919, from where they were transported to Bavaria.\(^5\)

In 1937, Fritz Berthold, an observation officer and writer who accompanied pilot Richard Euringer in his flight missions over Palestine, published a novel titled *Vortrupp “Pascha”: Roman der ersten Expedition Deutscher Flieger in die Wüste* [Vanguard Pasha: a novel about the first mission by German airmen over the desert] which contained descriptions of the land as observed from AF304b planes.\(^6\)

In 1925, Gustaf Dalman, a German Protestant theologian and philologist who was the first director of the German Evangelical Institute for Antiquity in Jerusalem, serving from 1902 to 1917, became the first to interpret the aerial photographs of AF304b from a cultural point of view. In his book *Hundert Deutsche Fliegerbilder aus Pälestina* [One Hundred Aerial Photographs of Palestine], Dalman reproduced a selection of one hundred and one photographs that mostly show biblical and other sites of historical interest. Until recently, this volume remained the only published resource presenting some of the most important photographs taken by AF304b.\(^8\)

The book has three main sections. The first is by Dalman himself, containing an introduction and a detailed description of the Holy Land divided into six main parts: the Judean Mountains (38 plates); the Judean Hills and Coastal Lands (6 plates); Samaria and Galilee (13 plates); the Mediterranean Coast (11 plates); the Jordan Valley and the Dead

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Edited map showing the areas that were covered by AF304b. *Source: University of Tubingen Library.*

Sea (17 plates); and the East Bank of the River and the North (15 plates). An additional aerial photograph of the mountainous village of Rammun was added following the one hundred aerial photographs making the total number of plates in the book one hundred and one. Also included are some explanatory sketches prepared by the cartographer Wilhelm Goering.
The second part is written by Dr. A.E. Mader, the director of the Palestine image repository at the Bavarian War Archives at the time. It consists of an essay explaining the value of the aerial photographs to various fields in the study of Palestine, mainly geology, meteorology, topography and geography, in addition to their use in the extremely important task of understanding British military tactics during that period. The third part includes a report on the mission of AF304b in Palestine by Freiherr (Baron) von Waldenfels, and a survey of the aerial photographs taken by Wilhelm Goering, in addition to a catalogue of all aerial photographs taken between September 1917 and September 1918.9

In his introduction Dalman refers to the Madaba Mosaic Map as the earliest known attempt at documenting the topography of the Holy Land, and he returns to it later when describing the various places depicted therein. He also surveys the work of various travelers and pilgrims who documented Palestine pictorially and cartographically at various times, including Bernhard von Breydenbachs (1483), Jean Zullarts (1586) Cornelius de Bruyn (1698), and others who focused on places associated with events in the life of Jesus, such as Ludwig Mayer, Clark Harper and David Roberts. This is followed by a description of the different photographs that were taken in Palestine after the mid-nineteenth century by people who were either serious photographers on a professional mission or amateurs visiting the area as pilgrims or tourists.10

The one hundred and one aerial photographs selected by Dalman have been
accessibile to the German-speaking public since 1925. They constitute the first accurate
documentation and description of the topography of Palestine and parts of Jordan, Syria,
Lebanon and Egypt. Although they were useless as military material at the time, since they
did not include any coverage of British military bases or movements and only focused
on places that are either of religious or touristic importance to readers and viewers, they
are of very great value today because they document the existence and condition of the
majority of towns and villages in the last year of the Ottoman Empire.

Since 1919 the aerial photographs taken by AF304b in Palestine have been preserved
at the Bavarian War Archives. In 1973 Fritz Berthold, one of the observers on the mission
of AF304b in Palestine, deposited the written journals of AF304b with the Bavarian
War Archives. These documents include the weekly reports to the Turkish-German
headquarters in Nazareth, circulars, ground photographs, aerial photographs, reports on
activities related to the eleven-month mission of AF304b and the original typewritten
report of the reconnaissance flight over the northern Negev on 8 November 1917.11

Each of the heavy glass negatives of the aerial photographs taken by the reconnaissance
flights of AF304b supplies useful details: the top left margin cites the number of the
squadron, the ordinal number of the flight, the date and hour of the shot, the name of
the main locality photographed, and the altitude at which the photograph was taken
(although the last two items contain some mistakes). The glass negatives also cite the

Plate number 25, page 34 of Hundert Deutsche Fliegerbilder aus Palestina “The Northern Road to Jerusalem
form Ramallah and al-Bireh – from the east.” Source: Bavarian State Archives.
focal distance of the camera and an indication of due north, and some of them include in the right margin the automatically recorded readings of the lateral and vertical deflections of the camera at the time of the shot.

The 2,872 photographs, comprising both aerial and ground photographs that are now available on the website of the Central State Archive of the Bavarian State Office for Surveying, constitute an important resource for the study of many aspects of the landscape of Palestine and other territories at the end of Ottoman rule in the region. These photographs offer an overview of the region’s topography as it was almost one hundred years ago, and as such are of great significance to geographers, historians, and researchers working on urban cultural history.

Today, these aerial photographs are being extensively referred to in studying the development of historic city centers, since they constitute the earliest detailed record of their size and morphology. They can also be used to show the urban fabric and buildings existing before the British Mandate period. In addition, the high resolution of the images makes possible a close examination of the urban landscape which leads to a better understanding of the details of Palestinian towns and villages. Comparing the content of AF304b aerial photographs with the cadastral British maps, the archives of the municipalities (or village councils), and later maps and aerial photographs allows urban historians to draw thematic maps that display in detail the development of these city
centers. Techniques used by German WWI-era air squadrons to take aerial photographs were not as sophisticated as those used in aerial photography today, so their output was not geometrically corrected photographs (orthophotographs), and thus they provided a bird’s-eye view of the Palestinian landscape and unique documentation of Palestine as it was at an important point in its history. The ground photographs, although few, show some of the major stations at which AF304b halted on its journey from Schleisheim in Germany to Iraq al-Manshiyeh, along with other places the crew visited in Palestine. They thus offer an important survey of conditions in different locations near the end of WWI.

Mapping the sizes of the different towns and villages, and the relations and connections between them, is another way in which these aerial photographs can be used. The size of Ramallah and al-Bireh, the connection of the village of Battir to Jerusalem, or the size of Hebron, or Gaza city, in 1917-18, when compared with their condition today, will reflect the dramatic change in the Palestinian landscape during the last century. But perhaps the most dramatic role of these aerial photographs would be in mapping the villages that were depopulated, their inhabitants expelled from their homes, after the Israeli occupation of Palestine in 1948 and 1967.

These aerial photographs document a very important phase in the modern history of Palestine. They bear witness to the end of the Ottoman Empire, the beginning of Jewish settlement and the British Mandate in Palestine. They are also valuable resources in

Solomon’s Pools to the south of Bethlehem, 11-06-1918. Source: Bavarian State Archives.
different fields of study such as archaeology, history, geography and urban development. Proper scholarly use of these aerial photographs will surely lead to further research and the re-evaluation of previous studies in various fields, resulting in more accurate or even radically different conclusions regarding the Palestinian cultural landscape.

Nada Atrash is the Head of the Research and Training Unit at the Centre for Cultural Heritage Preservation. She is the preparer of the two nomination documents to inscribe Palestinian sites on UNESCO’s World Heritage List, and is currently researching the urban development of Bethlehem after the mid-nineteenth century.

Endnotes
1 Iraq al-Manshiyeh is located 32 km northeast of Gaza. It is one of the depopulated villages. In 1949 its inhabitants were expelled by Israeli forces and eventually re-settled in al-Aroub refugee camp located between Hebron and Bethlehem.
2 Andreas Bönste, Die Vergessene Mission [Film], (Germany: Bayerische Rundfunks, 2005).
4 Theodor Wiegland (1864-1936) is a German


6 Berlin: Vier falken verlag, 1937.

7 Gustaf Dalman, Hundert Deutsche Fliegerbilder aus Pälestina, (Gütersloh, Germany: Deutschen-Pälestina Institut, 1925).

8 In 2005, the Central State Archive of the Bavarian State Office for Surveying digitized their repository of these photographs and made it available to the general public on their website. (http://www.gda.bayern.de).

9 Gustaf Dalman, Hundert Deutsche Fliegerbilder, 3.

10 Gustaf Dalman, Hundert Deutsche Fliegerbilder, 4.
