



JERUSALEM QUARTERLY

81

Spring 2020



PALESTINE FROM ABOVE SURVEILLANCE, CARTOGRAPHY, CONTROL (Part 1)

Combined Action: Aerial Imagery and the Urban Landscape
Nadi Abusaada

“Ground Truth”: Naqab from the Ground Up
Eyal Weizman

The Mughrabi Quarter Digital Archive and the Virtual Illés Relief Initiative
Maryvelma Smith O’Neil

Geographical Reconnaissance by Aeroplane Photography
H. Hamshaw Thomas

Caught between the Lines: Dayr Ayyub
Iyad Issa

Granular Realism: Dominant and Counter-Dominant Practices in the Naqab
Ariel Caine

Politics of Portraiture: The Studio of the Krikorians
Hashem Abushama

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PALESTINE FROM ABOVE

SURVEILLANCE, CARTOGRAPHY, CONTROL (Part 1)

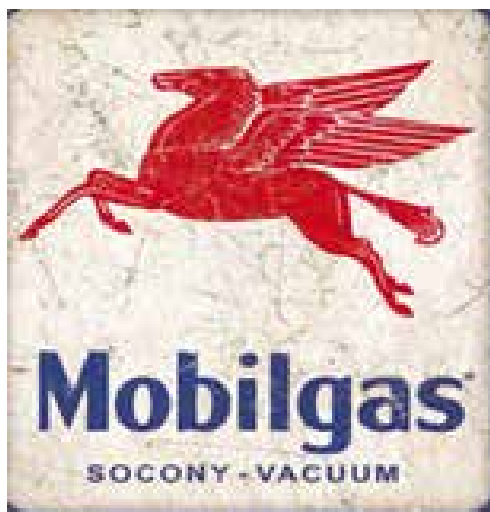
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EDITORIAL

Nocturnal Journeys and Conquest

Jerusalem from Above

The prophet Moses caught glimpses of the Holy Land twice in his lifetime – both from the towering heights of mountains surrounding Palestine: the first, from Mount Sinai when he received the tablets of the ten commandments; and the second, from the heights of Mount Nebo across the Jordan when he led the Israelites to “the land of milk and honey” and died before fulfilling his mission. In this he was spared the bloodbaths and massacres of Jericho and Jaba’a (Gib’on, where the sun stood still for the armies of Yehoshua bin Nun).



That we need to resort to religious imagery to highlight aerial perspectives is a marker of the continued fascination with, and domination of, religion in our lives. It continues to be a dominant factor in pilgrimage, land contestation, surveillance, and urban planning, among several themes of control discussed in this issue. But Moses and the Israelites have had no monopoly on ruling the skies. Muhammad made his nocturnal journey from Mecca to Jerusalem riding the legendary Buraq, the winged horse,

later appropriated by Mobil Oil (formerly Socony-Vacuum) in its conquest of Middle Eastern petroleum. According to the four gospels, Jesus ascended to heaven after his crucifixion from the Mount of Olives, instructing his followers to remain in Jerusalem until the coming of the Holy Spirit. During World War I, British and German pilots made sketches of the landscapes from the air imbued with religious glow – this can be gloriously reviewed in the Richard and Sydney Carline WWI watercolors painted for the Royal Air Force and the Imperial War Museum above Palestine. But all subsequent strategies for control were secular, and secularized events that nevertheless continued to use religious imageries aimed at justification and popularization.



Sydney Carline, Wadi Far'a gorge (on left) and the Jordan Valley (on right), 1919; online at www.wikiwand.com/en/Sydney_Carline (accessed 18 March 2020).

Two issues of the *Jerusalem Quarterly* (81 and 82) are devoted to the theme “Palestine from Above” which examines observing the Holy Land from the skies. The first volume addresses issues of control, surveillance, and mapping of Palestine from the early modern period of colonial penetration. This is the period that saw the American naval expedition to the Dead Sea in the 1830s, the Palestine Exploration Fund cartographic survey in the mid-nineteenth century (Conder and Wilson), and Père Antonin Jaussan’s social surveys in Nablus in 1927. The second volume will contain issues pertaining to ethnographic mapping, railroad construction, stereoscopic photography, and sketching Palestine from high altitudes. The subjects dealt with in both issues were enhanced by technological revolutions in military and civilian hardware: photography, survey mapping, aerial photography, stereoscopic imagery, and later digitization, satellite imagery, and surveillance technology.

These two issues of *JQ* are guest-edited by Yazid Anani, the Director of the Public Programme at the A.M. Qattan Foundation and former professor of architecture at Birzeit University. The publication of the second volume will coincide with an international exhibition at the Qattan Foundation curated by Yazid Anani in cooperation with Salim Tamari and Zeynep Çelik on the theme

of “Palestine From Above,” in which Palestinian and international artists, mapmakers, and photographers will look at many of those themes from a creative perspective. Al-Qattan “Palestine From Above” focuses on the two themes of hegemony and perspective in examining how the ongoing revolution of visual and sensorial technology contributed to redefining and recontrolling the Palestinian landscape and its future.

As we go to press, U.S. president Donald Trump’s much-heralded “Deal of the Century,” which was suddenly parachuted onto us from the skies, seemed to be in limbo – stymied by both the debacles of the Israeli elections and the spreading corona-related public disarray. President Trump’s intention to create an alternate Palestinian Jerusalem in the tiny hamlet of Abu Dis was deservedly rejected by the Palestinians as well as by the majority of Arab leaders. But looking more closely on the ground – as opposed to from the lofty heights of American diplomacy – we can see that this “deal” has set free the Netanyahu government and its right-wing ministers to realize long-desired plans that will deeply affect Palestinian Jerusalem, as well as the rest of Palestine. Shortly before the third round of recent elections, Prime Minister Netanyahu announced plans to build 3,500 new settler homes in E1 – the area between East Jerusalem and the sprawling Israeli settlement of Ma’ale Adumim. Israel aims to turn that area into an urban bloc, effectively bisecting the West Bank into northern and southern parts, an aim previously opposed by successive U.S. administrations but now, it seems, given cover by the “Deal of the Century.” Israel’s current right-wing minister of defense, Naftali Bennet, added a twist with his announcement on 9 March of the construction of a new “Palestinian road,” in E1, terming it a “sovereignty road.” (And he didn’t mean sovereign Palestine). A *Haaretz* editorial more aptly called it a “highway to apartheid.” While few have the stamina to read the entire 181 pages of the Trump plan, this issue of *JQ* teaches us to look carefully at the maps – the road in question appears on the “conceptual map” (see page 41 of the document). It may be that the whole “deal” evaporates together with the careers of its chief architects, but we cannot afford to be complacent about these developments being set in concrete, which could hijack the future of Jerusalem from its inhabitants, and from the whole Palestinian nation. Perhaps the last sentence of the “deal” is the truest: “The Palestinian story does not end here. Their story is just being written.”

We are happy to announce the Ibrahim Dakkak Award for the 2020 Outstanding Essay on Jerusalem goes this year to Hashem Abushama, a doctoral student at the University of Oxford’s School of Geography and Environment. His winning essay, “Politics of Portraiture: The Studio of the Krikorians,” appears in this issue of the *Jerusalem Quarterly*.

With the premature passing of Albert Aghazarian, the noted Jerusalem historian and public figure, this January, *JQ* has lost a dear colleague and devoted friend. We will miss him dearly.

Albert Aghazarian

“Killing It with Their Love”

Jerusalem 1950–2020

Albert Aghazarian was born in 1950, in the Armenian quarter of the Holy City, to parents who fled the 1915 Ottoman genocide of the Armenians. He obtained a bachelor's degree in political science at the American University of Beirut (AUB) and a master's degree in Arab and Islamic studies at Georgetown University. In 1979, upon his return from Washington, DC, he joined Birzeit University as a lecturer in cultural studies and was soon assigned director of public relations.

He was the deputy editor of the daily *Al-Quds*, between 1973 and 1976 and a founding member of the leading intellectual forum in Jerusalem – Multaqa al-Fikri (Arab Thought Forum) in 1977. Aghazarian was awarded a medal by King Albert II of Belgium, for raising international awareness of Jerusalem and Palestine, taking his place among the fifty highly influential people honored by the king.

Aghazarian was intimately involved with the *Jerusalem Quarterly*, as a writer and as a translator. In 1993 he expressed his anguished relationship to the city in an interview with *JQ* Editor Penny Johnson. “Every day, I discover a new dimension of the city. Our umbrella now is Palestinian; our framework is Arab-Islamic. I’m a historian. I know this could change in the future, but now the Palestinian component is the key to pluralism. The Zionist movement is out not just to marginalize the diversity of Jerusalem, but to eliminate it. I know they claim to love Jerusalem, but they are killing it with their love.”

The *Jerusalem Quarterly*
is pleased to announce the winner of the 2020

**Ibrahim Dakkak Award
for Outstanding Essay on Jerusalem**

Hashem Abushama

a Rhodes Scholar and a doctoral candidate at the
University of Oxford's School of Geography and the Environment

for his essay

**Politics of Portraiture:
The Studio of the Krikorians**

The winning essay is published on page 140



***The Jerusalem Quarterly* Jury:**

Rana Barakat, Member of the Editorial Committee

Khaldun Bshara, Contributing Editor

Rochelle Davis, Member of the Advisory Board

Rema Hammami, Member of the Editorial Committee

A number of additional essays received honorable mention as outstanding contributions on Jerusalem and will appear in future issues of the *Jerusalem Quarterly*.

Open for Submissions for 2021

**Ibrahim Dakkak Award for
Outstanding Essay on Jerusalem**

will be awarded to an outstanding essay that addresses either contemporary or historical issues relating to Jerusalem. The author of the winning submission will receive a prize of \$1000 and their winning essay will be published in the *Jerusalem Quarterly*.

Essays submitted for consideration should be from four to five thousand words in length (including footnotes), based on original research, and not previously published elsewhere. Preference will be given to young/junior/aspiring/emerging/early career researchers and students.

Please submit essays and a short bio (including current or previous affiliation with a recognized university, research institution, or non-governmental organization that conducts research) via email to jq@palestine-studies.org

Any images should be submitted as separate files with resolution of 600 dpi, if possible. Submitted images must have clearance from copyright owners.

The deadline for submissions is **31 October 2020**. A committee selected by the *Jerusalem Quarterly* will determine the winning essay.

INTRODUCTION

Accounts of Palestine from Above

Yazid Anani, Guest Editor

This special *Jerusalem Quarterly* issue¹ explores how the technology of mapping and imaging has been used to depict the Palestinian landscape from various elevations for a variety of uses: mapping, surveillance, art, planning, and other areas. Contributions tackle issues that vary from image representation of Palestine and its geography to the notion of what is of interest and disinterest in the eye of the colonial power versus what is not represented or captured and why. In this issue contributors examine uses of aerial photography to document railways, military installations, airports, roads, and other infrastructure; unpack urban planning paradigms through images; and scrutinize the issue of transformation of the landscape, and its natural/human causes. Several essays focus on technologies of surveillance and intelligence that have been developed historically to map and collect sensitive visual material that will eventually ensure ground control.

This introductory text explores historical and contemporary accounts offering interpretations on the meaning of gazing from the sky on the landscape of the “Little Continent” – the term used by German ethnographers in reference to Palestine – and the technology used to achieve the purpose of this type of exposure. These accounts serve as a prologue to conversations among several authors and artists on how to decipher the ideological layers behind aerial photography and mapping of Palestine since the last century up to today.

1

In her book *Close Up at a Distance: Mapping, Technology & Politics*,² Laura Kurgan refers to very distinctive images captured by NASA that have changed the global perception of earth – the *Blue*

Marble, 7 December 1972. The image is somehow disconcerting, due to its abstraction onto a flat circular map. It is a very provocative image that depicts our planet Earth in universal harmony without any traces of borders, nationalism, poverty, famines, tyranny, wars, religion, conflicts or technology. This image played a significant role in elevating the notion of planetary unity and the rise of universalism in issues of humanity and the environment.

The same image was reproduced again via photos taken by NASA's Terra satellite in 2002; however, this time it was a little different, the image being composed of several photographs knitted together from the satellite's quarterly observations, at a spatial resolution of 1 square kilometer per pixel. NASA made a subsequent release in 2005, referring to this series of images as *Blue Marble Next Generation*.³

In 2012, there were again two more images, of the Western and Eastern Hemisphere, called *Blue Marble 2012*, assembled from data collected by the Visible/Infrared Imager Radiometer Suite (VIIRS) on the Suomi NPP satellite taken through six orbits over a period of eight hours.



Blue Marble, a photograph of Earth taken on 7 December 1972, by the crew of the Apollo 17 spacecraft en route to the moon at a distance of about 29,000 kilometers; Africa, Antarctica, and the Arabian Peninsula are visible. Photo courtesy of NASA.

The 2012 *Blue Marble* images are no longer simple one-shot photographs taken by an astronaut in space, but a synthesis of massive quantities of remotely sensed data collected by satellite sensors. The difference between the generations of Blue Marbles sums up a shift in paradigm in the classical way of thinking about images, what they represent, the data and information they reveal, and the ways we interpret them. The 2012 versions of *Blue Marble*, which are somehow similar to the more sophisticated version one can now experience from Google Earth, present us with images that humans are unable to see with their own eyes, due to its full three-dimensional structure. It is made of layers of data collected and assembled over time and adjoined around a wireframe sphere to produce a rotatable model of Earth at a resolution of at least half a kilometer per pixel. As time goes by these images evolve into a more complex database, where historical data is inserted, and new data uploaded into the model.



Blue Marble composite images generated by NASA in 2002. NASA created these two images to exhibit high-resolution global composites of Moderate Resolution Imaging Spectroradiometer (MODIS) data. Photo courtesy of NASA.

The shift in the technology of image making since 1972 raises a series of fundamental questions about the interrelation between physical space and its representation, virtual space and its realization. The accessibility to vast amounts of satellite data compiled in the form of a diminutive three-dimensional Earth can be done by anyone from a mobile phone. Applications such as Google Earth allow users to rotate Earth with a finger, a simulation of divine power against all laws of physics. From some websites dedicated to vegetation analysis, or monitoring mining operations, 30-centimeter-high resolution images can be obtained instantly in the blink of an eye.

Mythology and religion encompass multiple examples that depict the power of looking from high altitudes over certain geographies for purposes of supremacy and control. These examples unpack several virtues of power gained from having the advantage of looking from the sky over an expanse of landscape. The morals that are found in these fables establish a surprisingly sensible foundation from reading the historical and contemporary gaze on Earth and the landscape from high altitudes.

One renowned biblical story that underlines the test of temptation for territorial possession and self-inauguration to a throne is the story of Jesus and Satan on the Mount of Temptation. After failing attempts to lure Christ to turn stones into bread and throw himself down from a high pinnacle in Jerusalem, Satan's final maneuver was teleporting Jesus to the Mount of Temptation in Jericho and showing him all the kingdoms westward toward the Mediterranean coast and eastward across the Dead Sea and the fertile Jordan Valley.



James Tissot (French, 1836–1902), *Jésus tenté dans le désert* (Jesus Tempted in the Wilderness), 1886–1894, opaque watercolor over graphite on gray wove paper, Image: 8 7/8 x 13 5/16 in. (22.5 x 33.8 cm). Photo courtesy of the Brooklyn Museum; online at (brooklynmuseum.org) tinyurl.com/vzzb5pz (accessed 16 March 2020).

Satan tempted Jesus by offering him all the wealth of these kingdoms seen from the summit of the mountain, if Jesus would only bow down and worship him. Jesus resisted the temptation of the lush green and fertile Jordan valley amidst its barren landscape, where Herod chose to build his lavish palace, followed later by another extravagant palace for the Umayyad caliph Hisham ibn Abd al-Malik, and where the Roman general Marcus Antonius had given

Cleopatra the rich balsam and date groves of Jericho as a token of their love. That exact position from the top of the mountain where the eye can register the expanse of the landscape – not normally experienced from lower altitudes and from daily life inside a human settlement – incites a temptation to rule and conquer. Jesus resisted this temptation although provoked by his human nature of greed and possession.

Whether from sixteenth-century hot air balloons, or by means of satellite remote sensing, there is a long technological history of installing eyes in the sky for spying, mapping, and sustaining reign and control over a vast landscape which cannot be sighted from the ground.

3

It is not only the visceral feeling of a temptation to reign and possess that can strike one when gazing over the landscape from above, but also the invisibility of details and every day human processes which become concealed from the eye. The same exact feeling that renders man-made divisions and borders obsolete can be read in Raja Shehadeh's book *A Rift in Time* when he described his feelings upon looking at the Jordan Rift valley from the top of Mount Arbel.

The hill on which my wife, Penny, and I were standing on that clear, crisp day at the end of 1996 is called Mount Arbel. It is one of the highest points on the plateau of Galilee. Below me I could see all too clearly the new geography of the land stretching out before me [. . .] From this precipitous cliff in what might be described as a wide trough surrounded by high hills, I could observe the beautiful sweep of the Great Rift Valley encompassing Lake Tiberias and stretching beyond it northwards into Lebanon. In the distance was Mount Hermon, which in Arabic is called Jabal al-Sheikh because of the resemblance between its snowcapped top and the white turban worn by sheikhs (headmen).

This was a good spot from which to get a sense of the flow of the Rift Valley, which extends from the Taurus Mountains in southern Turkey to Mozambique in East Africa. Viewing this relatively small stretch, one could still observe how the valley's basin contains lakes and rivers surrounded on both sides by higher ground, creating what in some areas resembles rock walls [. . .] The surrounding land is full of volcanic rocks and solidified lava in the form of basalt. Not far from where the Arab village of Hittin once stood there is evidence of faulting responsible for the dramatic split between the rock hill on which I was standing and the one just north of it, between which lies Wadi al-Hamam.⁴



Yri Raysper, *View from Mount Arbel*. 2013. Online at ([ccsearch.creativecommons.org](https://creativecommons.org/licenses/by/4.0/)) tinyurl.com/t9jwnb3 (accessed 19 March 2020).

Shehadeh's perception of the geography from maps and images was transformed into a different manifest of relations from above. The rift and its features were suddenly animated from merely lines on a map into a geographical continuity expanding in front of his eyes. No more lines that demarcate borders, and no more dots intoning locations of villages and cities. A sense of universalism emerges beyond borders and nationalism, parallel to the *Blue Marble* image of 1972.

4

The Orient Flight of the *Graf Zeppelin* to Egypt via Palestine in 1929 is a journey that portrays two different yet complementary gazes on the biblical landscape from above.⁵ On the one hand, the Jewish Zionist guests viewed the "Promised Land" with a biblical imagination that asserts the Zionist claim and the ongoing *aliyah* (immigration) to Palestine. On the other hand, the German evangelical guests were overwhelmed with Oriental curiosity and romanticization of Palestine in a mission to connect the biblical and historical past of the land with the landscape today.

On 20 March 1929, the German consul in Jerusalem received a letter from the British Mandate permitting the *Graf Zeppelin* arriving from Berlin to fly over Palestine. The letter underlined that landing was absolutely forbidden except in cases of emergency.



Zeppelin over Tower of David, 11 April 1931. G. Eric and Edith Matson Photograph Collection, Library of Congress, Prints and Photographs Division, Washington, D.C. Online at ([loc.gov](https://www.loc.gov/tinypurl.com/v4o8nco)) [tinyurl.com/v4o8nco](https://www.loc.gov/tinypurl.com/v4o8nco) (accessed 10 March 2020).

On board the German airship LZ-127 *Graf Zeppelin* in 1929 – the airship flew over Jerusalem twice, the Orient Flight on 26 March 1929 and the Egypt Flight on 11 April 1931 – were 41 crew members and 28 visitors. Among them were: Dr. Wolfgang von Weisl, one of the founders of the Revisionist movement and a leader in the Zionist struggle for establishing a Jewish state; the president of Württemberg, Dr. Eugen Bolz; Theodor von Gerard the former German Minister of Transport; Count Ferdinand von Zeppelin's daughter Countess Bradenstein; Mrs. Tony Zander, member of the Reichstag; Erich Koebitz, minister of justice in the government of the Reich; Paul Loebe, Chairman of the Reichstag; Albert Pflueger, president of the parliament of Württemberg; Dr. Herman Badet, high official in the Prussian Interior Ministry; members of Parliament, Wilhelm Kayel and Joseph Jose; Lady Drummond

Hey, representative of the Hearst newspaper conglomerate; senior members from the Prussian Ministry of Commerce, Ministry of Finance, and Ministry of Economy; and a representative of the German Navy.

In the gondola, guests were ushered to their rooms. The small guest rooms of the first-class luxury liner were elegantly furnished. The topnotch chef presented his dinner menu for ham cooked in Burgundy wine with mixed vegetables followed by various cheeses and butter, while the guests gathered in the dining area wearing camel wool blankets embroidered with the Zeppelin logo, and raised their beer and wine glasses to the commencement of the journey to the Holy Land and exotic Orient. To some guests, especially Dr. Wolfgang von Weisl, the flight to Jerusalem was an inspection of the “Promised Land” from the sky and an imagination of Palestine as Jewish national home.

On Tuesday 26 March 1929 at 4 o’clock the *Graf Zeppelin* reached Haifa bay at the speed of 130 mph. After 40 hours of flight the *Zeppelin*’s guests were surprised by a jubilant welcome from the ground arranged by the residents of the German Colony⁶ who had gathered since noon at the foot of Mount Carmel. From above, the guests waved back at the crowds who greeted the *Zeppelin* with flags and ribbons. The ship hovered in circles over the sign “Willkommen” made of white painted wooden planks, then departed south along the shoreline, flying above the Crusader fortress of Atlit, then over the Palestinian village of Qisarya and the ancient ruins of the Caesarea imperial Roman fortress. The *Zeppelin* continued over the newly planted areas of eucalyptuses in the settlement of Hadera and around the settlement of Zichron-Yaacob, then continued to the newly built settlements of Netanya and Herzliya. From afar before them rose from the sand Tel Aviv, the crown jewel of the Zionist dream, bustling with crowds celebrating the advent of the *Zeppelin*. Many were Arab tourists from Egypt and Syria, and other guests from the cities of Nablus, Jenin, and Jerusalem. Wherever the droning sound of the *Zeppelin*’s engines was heard, cars in the streets stopped, and people cheered by clapping their hands and waving their hats. The streets were crowded with people. Some automobiles had a mission of escorting the hovering *Zeppelin* over Tel Aviv where the engines were stopped and muted. Three big bags of confetti were emptied from the gondola to cheer the celebrating crowds below.

One of the navigating officers of the ship, a man named Lehman, described the arrival to Jerusalem in his diary:

Onward we flew toward Jerusalem. Unfortunately, we were a few hours too late. Even while we were approaching, the full moon rose red as blood and threw its magical light over the city. We could do nothing but make a few turns over the holy place and thus extend our greetings. From below we must have looked like a fiery chariot.⁷



Hugo Eckener and Zeppelin designer Ludwig Dürr aboard LZ-126, 1924. Online at (airships.net) tinyurl.com/uyowqzr (accessed 10 March 2020).

With a special assortment of wines, dinner was served while guests awaited sunset as they hovered toward Jerusalem. Drinking a special wine for the occasion, the guests slowly watched in reverence the first light cast over the historic areas. The largest mail drop in the history of the *Zeppelin* took place over Jerusalem; the guests observed the parachute-fall of four mail sacks as the whirring sound of the *Zeppelin*'s engines was heard in the neighborhoods of Jerusalem.

In his memoirs Captain Hugo Eckener wrote about turning the aircraft towards the Dead Sea:

The Dead Sea is nearly 1,300 feet below sea level. We were tempted by the possibility of flying our Zeppelin in significantly lower height than sea level. Jerusalem lay at an altitude of 2,600 feet, and within fifteen minutes we were over the tip of the plateau from which there is a steep drop to the Rift Valley where in its bottom lay the Dead Sea. It was night, and the rising full moon with its pale light barely illumine, the great lake extended in semi-darkness, mysterious like the underworld. Slowly we sank lower, carefully groping the way lower and lower until we were flying a few hundred feet above the water. We looked up at the peaks towering above us as if from a basement. It was a strange feeling to be on a boat that normally soars high above the sea, and now flies a thousand feet below it. We opened a few bottles of Rhine wine, and celebrated the event⁸

After 81 hours and 5,000 miles the Zeppelin returned to Friedrichshafen. The Orient Flight and especially the experience of the Holy Land from above was engraved dearly in the memories of the guests.

5

The First World War had a very powerful resonance in the British and Australian imagination. Many artists served in the war; some of them fought alongside their fellow soldiers and others served as non-combatants, documenting and portraying their experience of war. The British through the Ministry of Information as well as the Australian Imperial War Museum had officially employed war artists who shaped, through their paintings and drawings, the visual narration of the war and the representation of the geographies where it took place for generations to come. Such artists were commissioned mostly by liberal politicians who encouraged them to draw what they wanted and to represent and to record what they saw.⁹ There was very little censorship or overall control of what the war artists painted. The heritage of paintings and drawings done by these artists serving during the war in Palestine along with their memoirs, letters, and books depict not only their national patriotic views of the war but were also framed by the Anglo-Israelism beliefs and the divine right given to the British to cleanse the land from its Ottoman assailants.



Sydney William Carline, *The Destruction of the Turkish Transport in the Gorge of the Wadi Fara, Palestine*, 1919, oil on canvas, H 33.8 x W 41.7. Photo courtesy of Imperial War Museums. Online at (iwm.org.uk) tinyurl.com/kg6u2gl (accessed 16 March 2020).

Both brothers were sent by the Royal Flying Corps (RAF) to Palestine and Syria to record through their artwork evidence for the role played by RAF and Royal Australian Air Force (RAAF) squadrons in the destruction of the Ottoman forces during Allenby's Sinai and Palestine campaign September–October 1918. After the Carlines were recalled in November 1919, Sydney held an exhibition in London in 1920 of over 300 works from Italy and the Middle East.

The new aerial aesthetics depicted by the brothers focuses on representing aerial vistas as virgin landscapes stripped from any indication of local culture. Like an eagle leaping onto its prey, the paintings glorify RAF and RAAF as the protectors of the sacred landscape cleansing “the Ottoman infestations” in an attempt to erase and replace their culture with that of its true owners.

6

Historically, Palestine from above has always been a place to gaze back at the holy landscape out of different ideological necessities and positions.¹⁰ The written, photographic, and illustrated material that has been extensively produced on Palestine from above serves as a rich resource that reviles the hegemonic intentions of those who possess the power and technology to gaze from the sky. From parables that assert the sudden blood rush that occurs when prophets and heroes gaze on the landscape from above, tempting them to dominate the geography at sight, to the moment of watching Earth from the moon for the first time, raises fundamental questions about the environment and deterritorialization. The holiness of the Palestinian landscape has been a curse to those who live on it, as they are seen as an affliction to its sacredness or as part of the exotic Orient which lies under the colonial deposal. However, the technology of the skies continues its mission of reconnaissance and data collection from above for purposes of surveillance and control.



“The Heron TP drone is an [Israeli] assault vehicle. Its speed is 370 kph at an altitude of 7,400 km and it can stay aloft for 70 hours at a height of 14 km.” Debkafile, 15 August 2015, online at (debka.com) tinyurl.com/wh6jgqa (accessed 10 March 2020).

Palestine from the sky is historically part of a straightforward colonial war of subjugation and control, which must be waged through cutting-edge photography, cartography, remote sensing and surveillance, hand-in-hand with operations of armies on the ground. However, in contemporary times, it has become a complex technology of security vis-à-vis prevention. Israeli aviation technology deploys remote sensing, aerial surveying, and compressed geographical data into surveillance datasets which significantly increase the ability of Israel to monitor and quantify data about the Palestinian population. With the support of computer-aided algorithms, feature recognition, and remote audio surveillance, juxtaposed with layers of on-ground meta data from the health, social, and educational sectors, as well as social media, the Israeli government accumulates hybrid complex datasets that aim at analyzing and predicting patterns of behavior within the population for purposes of their security apparatus and biopolitics.

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Endnotes

- 1 The two issues of *JQ* 81 and *JQ* 82 under the title “Palestine from Above” will also serve as an introduction to an exhibition under the same title to be held at A. M. Qattan Foundation in August 2020, Ramallah.
- 2 Laura Kurgan, *Close Up at a Distance: Mapping, Technology & Politics*, (New York: Zone Books, 2013).
- 3 The land surface data were acquired from June through September of 2001. The clouds were acquired on two separate days: 29 July 2001, for the Northern Hemisphere and 16 November 2001 for the Southern Hemisphere. The images were rendered in Electric Image and composited in Adobe Photoshop in late January 2002.
- 4 Raja Shehadeh, *A Rift in Time – Travels with My Ottoman Uncle* (New York: OR Books, 2011), 31.
- 5 The text is based on two main references: Dieter Leder, *Wenn es doch Tag gewesen wäre!* (Meersburg: Topo-Verlag, 2007) and Fred F. Blau and Cyril Deighton, *The Orient Flight of LZ 127 Graf Zeppelin* (Chesterfield: Germany Philatelic Society, 1980).
- 6 The German Colony was established in Haifa in 1868 by the German Templars. It was the first of several colonies established by the group in the Holy Land. Others were founded in Sarona near Jaffa, Galilee, and Jerusalem.
- 7 Hugo Eckener, *My Zeppelins* (New York: Putnam Press, 1959).
- 8 Eckener, *My Zeppelins*.
- 9 John Fairley, *Horses of the Great War: The Story in Art* (Barnsley, UK: Pen & Sword Books, 2015).
- 10 W. J. T. Mitchell, “Holy Landscape: Israel, Palestine, and the American Wilderness,” *Critical Inquiry* 26, no. 2 (Winter 2000): 193–233.

Combined Action

Aerial Imagery and the Urban Landscape in Interwar Palestine, 1918–40

Nadi Abusaada

The introduction of aerial photography in the early twentieth century revolutionized not only the nature of warfare, as it became apparent in the First and Second World Wars, but also the representation and interpretation of the landscapes depicted in these photographs. In Palestine, a place that had long been represented by Orientalists and biblical scholars as the Judeo-Christian Holy Land, the advent of aerial photography with the Great War was an opportunity for the emergence of new frameworks for the exterior and distant interpretations of the landscape. From the Great War onwards, the major campaigns for the aerial documentation of the country's landscape were a product of either the war effort or sustaining British imperial aspirations in Palestine during the Mandate period. Although Orientalist descriptions of Palestine as the biblical Holy Land persisted, they were supplemented by a new warfare-induced and technically and scientifically oriented imageries that accounted for the topographical, geographical, and built features of the landscape and its urban built environment.

With this in mind, and following Jeanne Haffner's assertion that the view from above provided by aerial photographs brought with it a "new science of social space,"¹ this study assesses some of the major applications of aerial power in Palestine, specifically aerial photography in the period between the Great War, when aerial photography in Palestine was first introduced, and the 1936–39 Arab revolt, known as the Great Revolt, in the British Mandate period. It is divided into three main sections: the first, traces the early experimentations in aerial photography by both the

Bavarian-Ottoman and Australian-British sides of the Great War on the Palestine Front and some of the innovations in the sciences of cartography and geography that accompanied these experimentations; the second, locates British counterinsurgency operations during the Arab revolt in Palestine within the emergence of British imperial “air control” strategies after the Great War; and finally, examines the case of the destruction of the Old City of Jaffa in May–June 1936 through demolition operations that had been documented in a series of aerial photographs, showcasing an example of one of the most drastic imageries and, to some extent, consequences of the view from above.

The study primarily relies on archival research and collections at the Australian War Museum, Bavarian State Archives, British Library, and Israel State Archives, where many of the aerial photographs of Palestine’s urban landscape in the interwar period are located. It also relies on a series of publications from this period including, most notably, the works of Captain H. Hamshaw Thomas and Gustaf Dalman, who contributed a great deal to extending the usages of British and Bavarian wartime aerial photographs on the Palestine Front into purposes that included, but also exceeded, direct warfare operations. Especially important for the study of British activity during the Great Revolt in Palestine is a British government report titled “Military Lessons of the Arab Rebellion in Palestine” published in 1938, which has rarely been examined in academic scholarship on the revolt. Taking into consideration the colonial nature of most of these sources and archives, this article follows Ann Laura Stoler’s call for reading colonial archives “along the archival grain” to unpack and tap into the “colonial common sense” that appears in their aerial views and their shifting imageries and alterations of Palestine’s landscape.²

“Reality Seen from Above”

As it did elsewhere, the Great War brought to Palestine a plethora of advancements in warfare technology. Among the most significant of these technologies was the development of aerial imagery, combining the most recent innovations in airplane technology and photography. Although earlier iterations of aerial photography had appeared years before the war, it was in the Great War that their most systematic use to date materialized. In Palestine, from 1915 onwards, as the confrontations between the British-Australian and Ottoman-Bavarian forces began to intensify, and as the battles began to shift from Beersheba and Gaza in the south toward Palestine’s northern districts, Bavarian and Australian air squadrons began to play an instrumental role in the war effort. While this role also included direct aerial bombing, as with the heavy bombing campaign conducted by the No.1 Squadron of the Australian Flying Corps (AFC) on Ottoman forces along the Gaza-Beersheba line in March 1917 and other similar operations, the squadrons’ primary role was aerial reconnaissance for purposes of tracking enemy movements and the study of enemy camps to inform strategic planning.³

By the end of the war, Bavarian and Australian airplanes had captured thousands of aerial photographs of Palestine, which are currently located in the Bavarian State Archives and the Australian War Museum (figure 1). These photographs were often overlapping and, at least for the Bavarian aerial photographs as evident from their geolocation, mainly concentrated along Palestine's coastal and central regions, and the territories surrounding the Jaffa-Jerusalem railway line passing through Lydda and Ramla, which was one of the most strategic connections and sites of battle during the war. On some of the photographs, simple hand-drawn markings appear, indicating the locations of enemy camps and facilities. The more refined analysis of the aerial photograph's content, however, was conducted by consulting military guidebooks, which enabled the approximation of enemy facilities and numbers in each encampment by including guidelines on enemy tents and their capacities, communication networks, and infrastructure networks.⁴ Hence, unlike previous wars where the enemy was only visible from the ground and in the battlefield, military operations and strategies during the Great War largely depended on the dual ability of exerting aerial power and taking aerial photographs, and the ability to interpret them and use them to approximate enemy size and predict their movements.

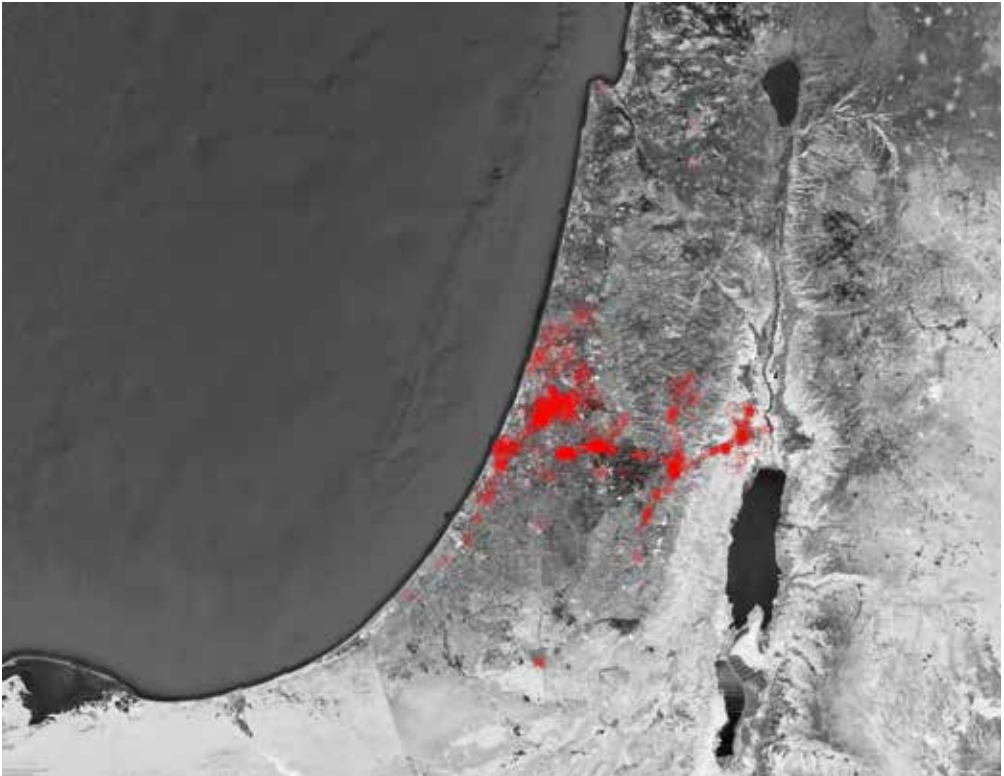


Figure 1. Mapping of locations of Bavarian aerial photographs in Palestine during WWI, 1916–18. (Mapping by author. Sources: data – Bavarian State Archives; base map – Google Earth, 2019.)

In addition to their use for locating and assessing enemy troops, wartime aerial photography was also instrumental for devising new methods of cartographic production. The Palestine Front was among the earliest sites where these innovations appeared during the Great War. It did not take long for the British, following their advancement into central Palestine, to realize the significant shifts in the nature of the front. Unlike in Sinai and the Naqab, where they were faced with an open and largely uninhabited landscape, in central Palestine, the British had to face defense lines in the main towns and to adjust to new forms of trench-based warfare, built-up obstacles, and populated areas.⁵ The Palestine Exploration Fund (PEF) pre-war maps that the British had been using since the start of the war were inadequate for this kind of warfare and, as a result, they decided to carry out new cartographic initiatives which, due to the inaccessibility of the enemy-controlled regions they wanted to cover, had to rely heavily on aerial photography.

With the start of 1918, important innovations in cartographic practices based on aerial reconnaissance on the Palestine Front began to materialize. These innovations were led by Captain H. Hamshaw Thomas who utilized the supply of Bristol Fighters and five well-trained No.1 Squadron AFC pilots who risked flying at low altitudes, and devised new cartographic methods that catered to the hilly nature and dense urban habitats of Palestine's central region. These methods involved new techniques both in taking overlapping photographs in air that aimed to minimize distortion, and in their compilation by the survey officer on the ground who aligned the aerial photographs with the reference of fixed points from previous maps (figure 2).⁶ More than three thousand square kilometers of the country were mapped using this new technique of map production in both 1:20,000 and 1:40,000 scale series.⁷ Upon returning to his academic position at Downing College Cambridge after the war, Thomas published several academic papers on the "valuable lessons"⁸ in mapping learned on the Palestine Front, and suggested that the aerial photography and mapping techniques developed during the war, including on the Palestine Front, possessed "great potentialities as an instrument of scientific research,"⁹ particularly in the fields of geography, geology, botany, meteorology, and archaeology.

Around the same time Thomas was publishing his papers on the scientific uses of aerial photography based on British wartime activity on the Palestine Front in Britain, in Germany, Gustaf Dalman was preparing his book *Hundert deutsche Fliegerbilder aus Palästina* (One Hundred German Aerial Photographs from Palestine) which he published in 1925, based on the Bavarian wartime aerial photographic collection. Like Thomas, Dalman was also interested in the potentials of aerial photography beyond warfare and military operations. As someone with a profound interest in biblical archaeology and a long experience working in Palestine, however, Dalman was mostly interested in how wartime aerial photography could be used to geographically interpret Palestine's landscape and urban development. This consideration was not entirely new for the Germans,

as some of the Bavarian aerial photographs captured during the Great War had been intended to serve the archaeological work of Theodor Wiegand in Sinai and southern Palestine.¹⁰ But Dalman also sought to move beyond archaeology. In his book, Dalman dismisses the pre-photographic representations of Palestine's landscape as overtly romanticized, biblified, and based on ideological distortions rather than historical and geographical study. Further, while he celebrates the works of early professional photographers in the region, like the Bonfils studio in Beirut, he is critical of their tendency to cater their photography to tourist and market demand for selective photography of specific "antiquities" and monumental sites rather than to the geographical and historical study of the landscape.¹¹

Dalman saw in the aerial photographs of Bavarian Air Squadrons 300 and 304 on the Palestine Front an opportunity to move beyond these trends. To him, "only aerial photographs could replace the artificial assembled images [of the landscape], with reality seen from above, including the site alongside its surroundings, the exterior conditions of its existence, its traffic potentials, and the actual traffic routes until today."¹² For each Bavarian aerial photograph Dalman included in his book, he added a textual description of their visible topographical and geographical features, neighborhoods, road networks, and important buildings and sites. Unlike the biblical accounts of Palestine's physical landscape common among his contemporary Orientalists and biblical scholars, or the photographic albums of the Holy Land sold to tourists, Dalman's "scientific" descriptions acknowledged the features of urban modernity and urban change that the

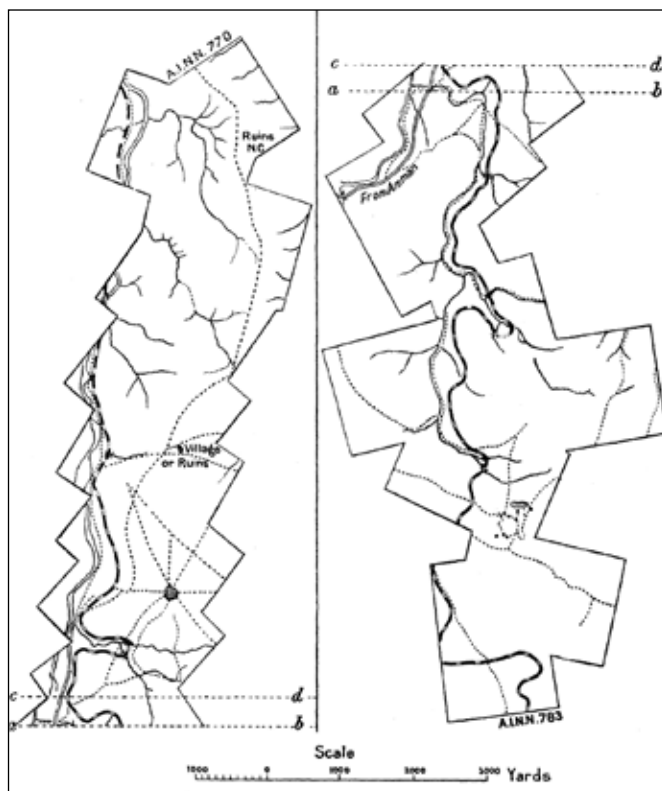


Figure 2. "Example of reconnaissance map worked up from a strip of overlapping photographs," from Captain H. Hamshaw Thomas, "Geographical Reconnaissance by Aeroplane Photography, with Special Reference to the Work Done on the Palestine Front," *Geographical Journal* 55, no. 5 (May 1920): 349–70, online at doi.org/10.2307/1780446 (accessed 19 February 2020).

country had been witnessing since at least the mid-nineteenth century. His descriptions of the main urban centers, including Jerusalem, Jaffa, and Haifa highlighted their physical transformations and their modern urban developments in the form of wide boulevards, railway networks, new ports, and *extra muros* neighborhoods. For each of these features, Dalman's textual description included a numerical reference of its precise location on the photograph (figure 3).

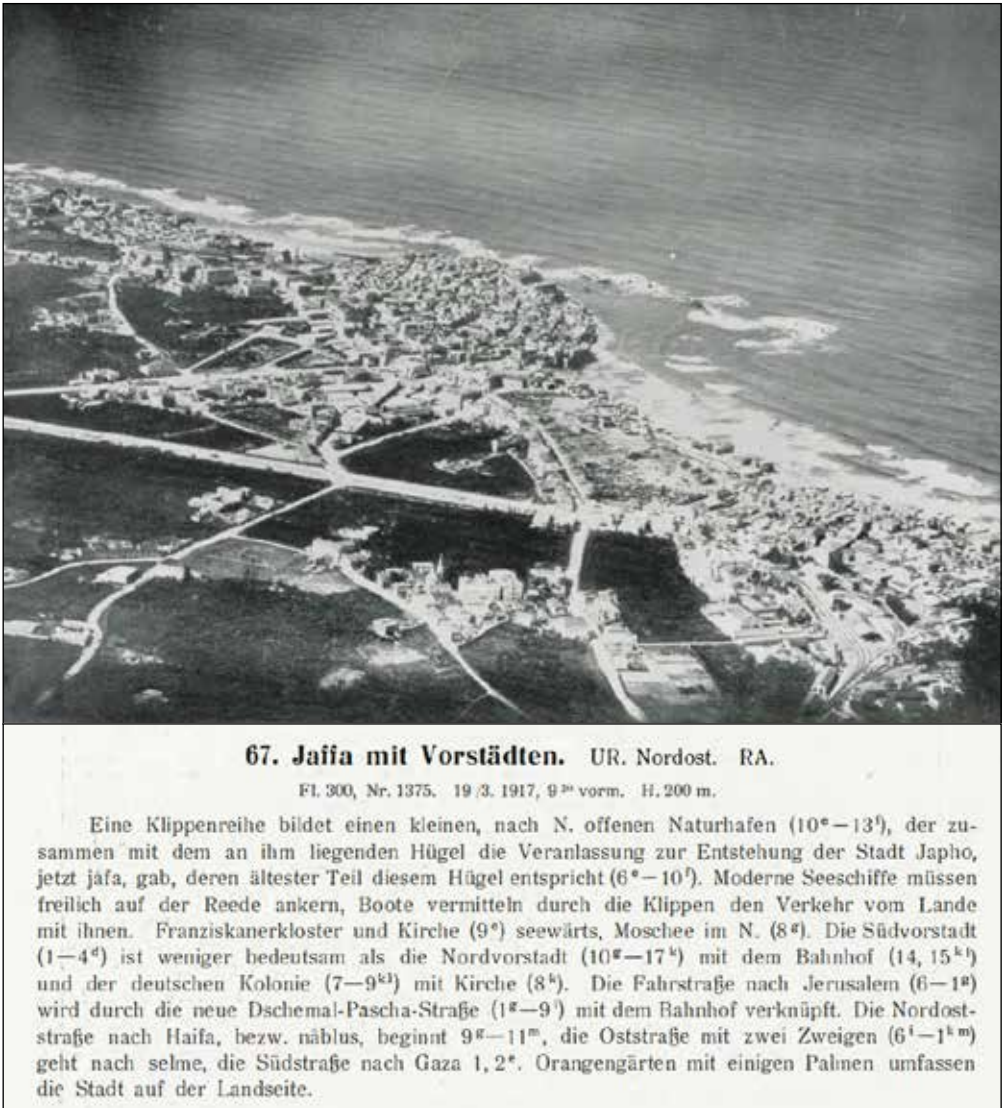


Figure 3. Bavarian aerial photograph titled “Jaffa with Suburbs” and Dalman’s textual description of it, with numerical references to the location of key sites that appear on the photograph, including the Franciscan monastery, rail station, German colony, excursion to Jerusalem, Djemal Pasha Boulevard, and the southern street to Gaza among others. Gustaf Dalman, *Hundert deutsche Fliegerbilder aus Palästina* (Gütersloh: Bertelsmann, 1925), 76 and 77.

In a sense, post-war publications like those authored by Dalman and Thomas indicate that the role of aerial photography both throughout and following the Great War had far exceeded its uses for military operations. One of the major effects of the wartime advent of aerial photography was in the shifts it influenced in representing and interpreting the urban landscape through new apparatuses of estimation and calculation. The Palestine Front was a primary site where some of these key shifts materialized, particularly with the British-led innovations in cartographic production using aerial photographs and the German utilizations of aerial photographs for archaeological surveys and for leading new “scientific” forms of interpreting physical geography and the urban built environment. In the two instances, the distance of aerial photographs enabled the objectification of the landscape below and its abstraction into a series of recognizable features which allowed for both its study and conquest. While highly significant in World War I and its immediate aftermath, these aerial objectifications and abstractions proved to have more radical usages in the Mandate period, as the British administration sought to tame the 1936–39 Great Revolt in Palestine.

“Combined Action”

For the British, the Great War was the start, not the end, for experiments in exerting aerial power in the Middle East. The most radical operations carried out by the British immediately after the war took place in Iraq, where they devised a new strategy of “air control” that was primarily intended to serve their imperial interests against the 1920 Iraqi revolt. In her vital work on British counterrevolutionary activity in Iraq, Priya Satia shows that the explanation of why these new strategies of the Royal Air Force (RAF) were deemed by British experts as specifically suitable for Mesopotamia lie not only in financial reasons (as air power was more economical to operate than ground action), but also ideological motivations based on their conviction that “aircraft could rule the desert.”¹³ Satia explains:

These various experts deemed Mesopotamia peculiarly suitable for air operations, better than Europe, for aesthetic as much as topographical reasons: its presumed flatness promised many landing grounds, little cover to insurgents, and the possibility of “radiating” British power throughout the country from a handful of fittingly spartan bases, while the reality of its varied and protean topography, when acknowledged, was held to offer ideal training for the RAF, exposing it to every sort of terrain – mountains in Kurdistan, marshes in the south, riverain territory in between, and so forth. The difficulties of communication in Iraq made “the idea of using aircraft” “extremely tempting”; they could annihilate distance in hours.¹⁴

The specificity of British “air control” operations to Mesopotamia meant that they were not translatable to other contexts of counterrevolutionary activity in densely populated urban environments in Britain, Ireland, or even for the purpose of suppressing the 1936–39 Arab revolt in Palestine.¹⁵ In his memoirs, Sir Arthur Harris, whose role as the RAF Air Officer Commanding-in-Chief during World War II acquired him the epithet “Bomber” Harris, and who briefly joined the RAF in their operations in Palestine during the Arab revolt following his service in Iraq, asserts that “it had never been proposed to exercise the same kind of air control over Palestine as over Irak [*sic*].”¹⁶

This, however, did not mean that aerial operations were not important for the British in the duration of the Arab revolt in Palestine. It meant rather that these operations had to operate differently, taking into consideration not only the hilly and densely populated nature of Palestine’s topography but also the nature of the revolt itself and British policy in Palestine at the time which, in the context of an established civil administration, had to balance between civil and military considerations. This latter consideration was an issue of major tension among the British military and civil forces in Palestine, as elucidated in an encounter between Harris and Bernard Montgomery (“Monty”), who was in charge of an infantry division during the Arab revolt, upon the latter’s arrival at the headquarters in Haifa. Recalling the encounter, Harris reports that Monty greeted him with “aircraft, aircraft, this is no job for aircraft. It’s a job for policemen.”¹⁷ To which Harris responded that “while [he] recognised that it was a job for policemen and not for aircraft, or for soldiers for that matter, the strength and determination of the rebels and the weakness of the police in arms and numbers were in themselves sufficient reason for using all the few military and air resources available.”¹⁸

For the duration of the revolt, especially with the organization of Arab armed bands, most British engagements operated in close cooperation between aircraft and ground troops, or as the British called it, “combined action.”¹⁹ The nature of British confrontations in Palestine during the Arab revolt was very distinct from what they had to deal with in World War I. Unlike the Ottoman-German troops, Arab armed bands in Palestine had no headquarters or key communications that could be targeted. The armed bands were always on the move and their activities depended on maintaining a high degree of elusiveness and unpredictability. For the British, the challenge was to concentrate their forces as quickly as possible and to strike the Arab bands before they were able to move. Aircraft were regarded as the “most suited weapon”²⁰ to carry out such an operation. Nonetheless, the ability of aircraft to target the bands could not be achieved unless efficient organization and communication with the ground was successfully realized – two concerns that were at the heart of the strategies the British devised to tame the Arab revolt in Palestine. Among these strategies was dividing the country into four aircraft zones, where each zone is primarily the commitment of one squadron or detachment, and the installation of a number of RAF mobile wireless sets in trucks (known as “Rodex” vehicles) and distributed widely among army detachments. As soon as contact was made with the Rodex or the aircraft, conforming to the frequency of the aircraft zone, a call for air support to that zone would be made immediately by the central Air Striking Force (figure 4).²¹

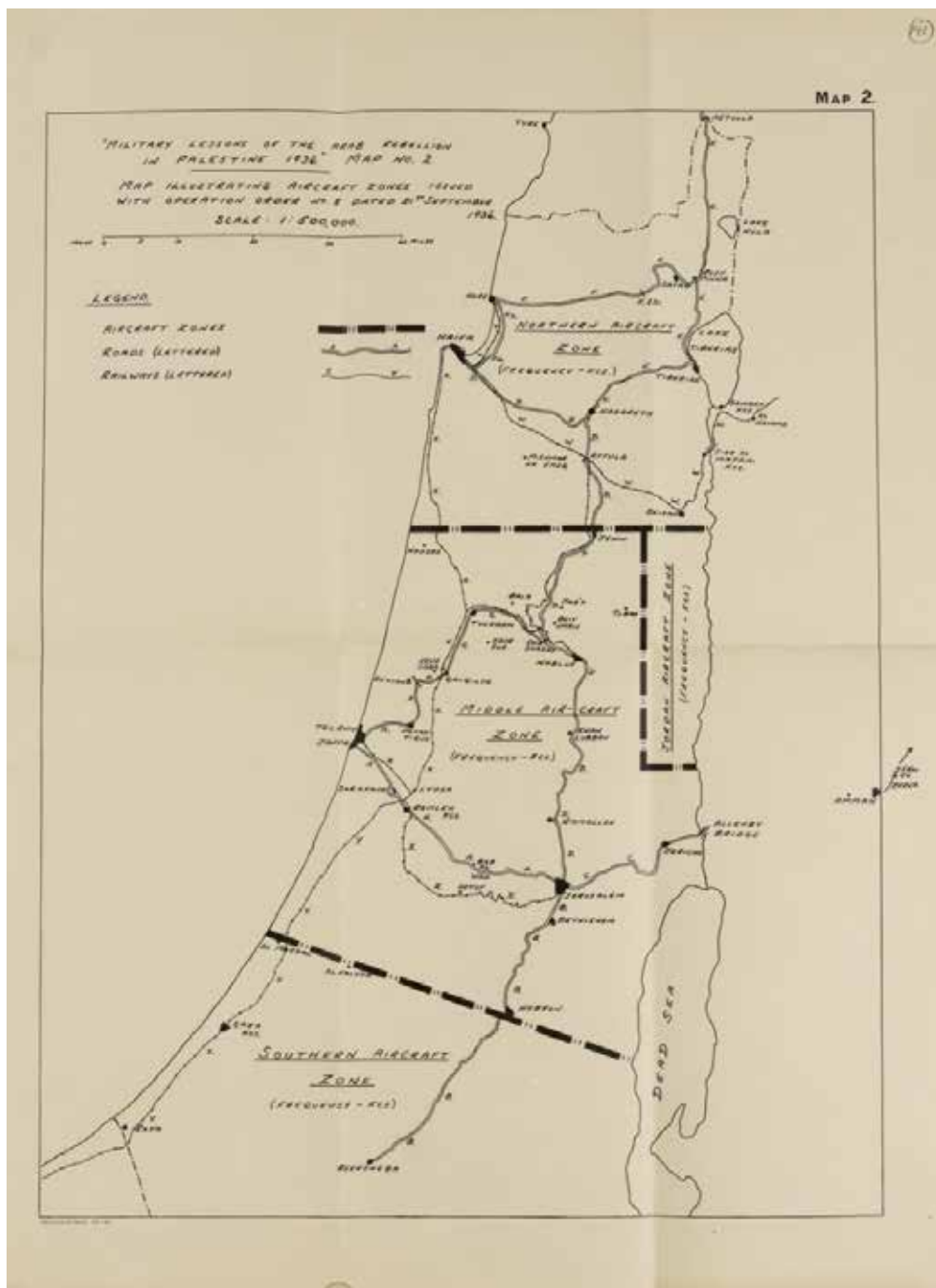


Figure 4. "Map illustrating aircraft zones issues with operation order no.8 dated 2 September 1936" in "Military Lessons of the Arab Rebellion in Palestine 1936," (1938), 104 IOR/L/MIL/17/16/16, British Library: India Office Records and Private Papers, 104.

Through the aerial partitioning of Palestine and the system of air-ground communications that the British devised during the Great Revolt, they were able to carry out four forms of “combined action”: first, offensive action against armed bands, which was mostly a result of a call sent from the ground and answered by the Air Striking Force. An operation carried out on 28 July 1936 in Bab al-Wad which resulted in the killing of eleven Arabs, and an even greater action carried out on 24 September 1936 in the Nablus hills which resulted in more than fifty Arab casualties, forty-one of which were caused by air action, and the dropping of thirty-three bombs, both illustrate the drastic nature of these actions²²; second, aerial reconnaissance, which included reconnaissance to locate the enemy, ground reconnaissance, and reconnaissance to detect sabotage on main communication lines; third, the use of aircraft for the escort of military vehicle convoys and, less frequently, of trains carrying troops and equipment; and finally, the use of aircraft for intercommunication and supply of troops, which was necessary in only one or two cases throughout the duration of the revolt. For the British, these forms of “combined action” were especially important for carrying out their imperial counterinsurgency strategies during the Great Revolt, to the extent that they reported in 1938 that “there can be few operations on record in which co-operation between aircraft and small military detachments were clearer and more effective than they were in Palestine.”²³

“Operation Anchor”

A duality of construction and destruction characterized the physical effects of British counterinsurgency strategies during the Great Revolt on Palestine’s landscape. On the one hand, the British built enormous reinforced concrete police stations and posts in and around the major urban centers – later known as “Tegart Forts,” after Charles Tegart, a police officer who was transferred from India to Palestine in December 1937 to serve as the Inspector General on security matters.²⁴ These expensive and enormous concrete fortresses, which remarkably altered the country’s landscape, were instrumental in maintaining British control over urban centers and served as strategic frontiers that hindered the movement of the Arab rebels. At the same time, the British relied heavily on building demolitions as a form of punitive action, especially in the main urban centers, allegedly targeting buildings from which fire had been detected or buildings that had harbored rebels. Demolitions were, for the most part, a military assignment alone, though police advice was usually sought as to which houses were to be demolished. In some cases, sappers were summoned and the demolition was carried out immediately, while in other cases houses were marked for destruction, by daubing them with large circles of white paint, and demolition was withheld until “such time as further punishment became necessary.”²⁵

The most drastic punitive operations of this nature were carried in a series of actions against the coastal Arab-majority city of Jaffa between 30 May and 30 June 1936, which the Zionists later referred to as “Operation Anchor.” By the 1930s, Jaffa’s

urban expansion beyond the pre-nineteenth century walled city had exceeded the early signs of growth visible in its Bavarian aerial photograph from the Great War published in Gustaf Dalman's book (figure 3). Nonetheless, in Operation Anchor, the British were specifically interested in the Old City of Jaffa, not the new neighborhoods of al-Manshiyya or al-'Ajami that had been growing alongside the city's northern and southern shores. The Old City's danger for the British had to do with its population's socioeconomic status, mostly comprised of boatmen whom they saw as "desperate men who had nothing to lose and much to gain by an appeal to force."²⁶ As they explain:

The Old City of Jaffa had long been a hotbed of lawlessness and revolt, and as such had usually set the example for rebellious activities all over the country. Its inhabitants had the reputation of being the toughest of all Arab elements, consisting mostly of boatmen of Greek descent who earned their living handling lighters in the Port of Jaffa, a difficult and dangerous occupation. Their natural dislike of authority had been greatly increased by the fact that they more than any other Arab community had suffered directly from the influx of Jews. They had seen Tel Aviv grow at their very doorstep into the biggest town in the country, and with its growth many of the commercial glories of Jaffa had departed as business tended more and more to centre in Tel Aviv.²⁷

For the British, it was not only the Old City's population that posed a problem, but also its architecture and layout:

Built upon a low hill flanked on one side by the sea, it completely dominated the Port and such buildings as the police station and barracks and the District Commissioner's offices, which lay in the New City. Moreover, its houses formed a veritable rabbit warren through which dark and narrow streets turned and twisted into a maze in which the level of one street would often be the roof of the house in the one below and where few passages were so wide that they could not be spanned by the reach of a man's arms. It represented in fact an exceedingly complicated trench system with vertical sides some thirty or forty feet high, which could readily be converted into a regular citadel.²⁸

Hence, the densely built fabric of the Old City, difficult to navigate by military troops, and its topographical advantage over the New City, were also seen as a great drawback for the British force's ability to subdue its population without an extreme and demolition-based operation.

The operation against the Old City was carried out in four consecutive phases. In the first phase, the British led retaliatory shootings against houses from which fire had been directed, using Vickers guns and rifle grenades, to which the Arab rebels in the

Old City responded using a variety of weapons, including automatics. In the second phase, British forces rounded up all of the city's available notable figures, shopkeepers, and householders in the affected area and forced them to work, along with municipal workers, in clearing up the outskirts of the Old City. In these two actions, the British drove the Arab rebels to their innermost hideouts in the very center of the Old City, which facilitated the implementation of the demolitions in the third and fourth phases. This included driving two roads through the Old City – from east to west in a straight line, and from north to south in a curved line – by means of demolitions.²⁹

On 16 June, RAF airplanes flew over the Old City, dropping leaflets that called upon the inhabitants of the Old City to evacuate their homes by seven o'clock to enable demolitions to take place, which were described by the government as being "for the improvement of the Old City."³⁰ The leaflets were a major source of panic among the local residents, as an Arabic article published in *al-Difa'* newspaper the following day illustrates:

The residents of Jaffa woke up yesterday morning to the sound of a plane that was hovering right above the roofs of the city. Shortly after, it began dropping a large number of leaflets on the Old City [...] The leaflet was printed in the government press in Jerusalem, and as soon as the residents read it they panicked, and the children tossed what the airplane had dropped in the Saraya square, located between the Government House and the Police Barracks.³¹

Local residents rejected the operation and considered "urban improvements" a false pretense for what was, to them, a clear instance of a politically motivated military operation. On the same day they received the leaflets, as *al-Difa'* also reported, the affected residents of the Old City decided to send letters of complaint to the High Commissioner and the Governor of the Southern District objecting to the nature of the operation and expressing its drastic consequences for the Old City's population, most of whom were poor and unable to pay the costs of their temporary rent and resettlement.³² Despite this, the British government proceeded with their operation's third and fourth phases as had been planned.

Unlike the extensive coverage of the events in Jaffa in *al-Difa'* and other local newspapers which remained close to the events on the ground and expressed the devastation of the Old City's population, official British reporting on the events barely makes mention of the local inhabitants aside from their description as "rebel elements." Rather, on the pages of the 1938 "Military Lessons" report as part of a section on "Punitive Action," the brief description of British military strategy in Jaffa is supplemented by a series of six aerial photographs. These aerial photographs were taken by RAF Squadron No. 6 which, along with documenting the operations, was also tasked with conducting aerial reconnaissance of the area east of Jaffa to detect any movements that might suggest an attempt at "outside interference."³³ The photographs, taken in bird's eye view, depict the city both before and after the demolition operations

(figure 5). In these photographs, points marked A, B, C, and D appear indicating the A-B line of demolitions for the third phase, and the C-D crescent for the fourth phase demolitions. Hence, in the aerial photographs, the action against the Old City appears as merely a technical operation – the simple mechanical drawing of a line between two points which, on the ground, translated into the strategic opening of “good wide roads through the old labyrinth of alleys.”³⁴ In reality, though, as evident from a series of ground photographs taken after the demolitions, the operation violently obliterated the physical structure and fabric of the Old City and displaced its local inhabitants (figures 6 and 7).³⁵ The operation was so severe that the British contended that it “mark[ed] the end of organized resistance in the towns” and was the main cause behind the transfer of the main rebel activities to the hills from June 1936 onwards.³⁶

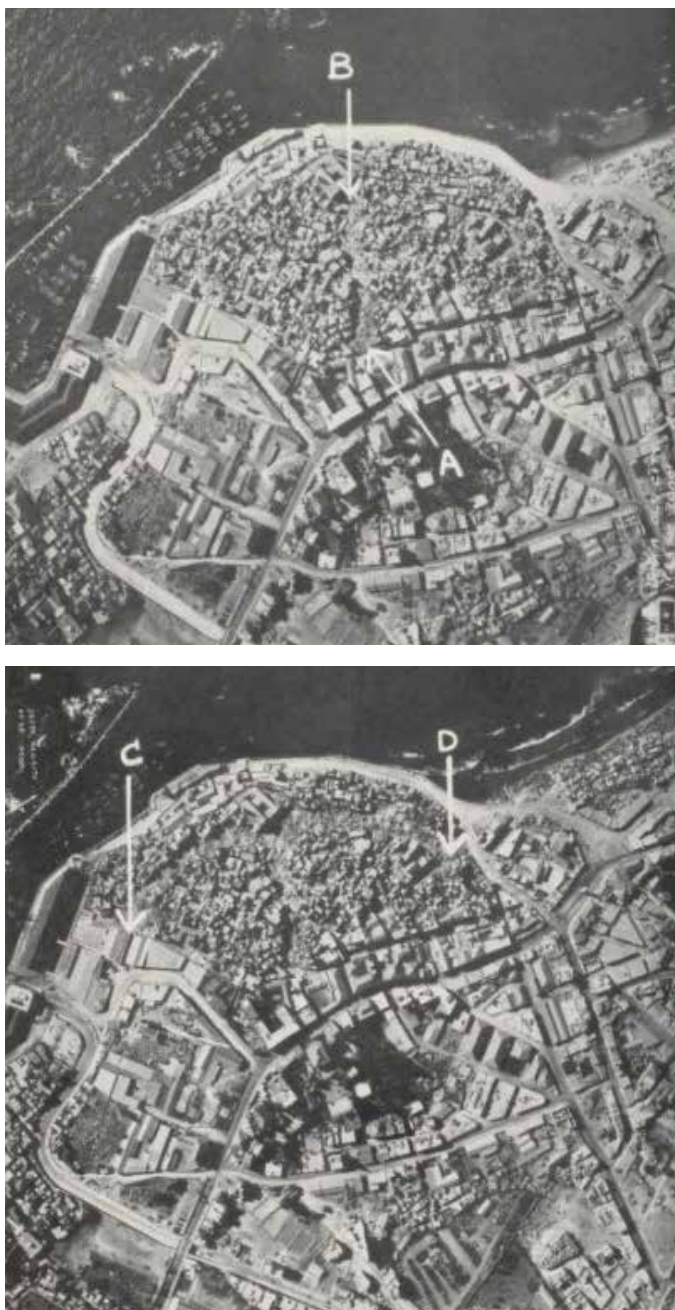


Figure 5. Two aerial photographs of Jaffa that appear in a 1938 British report, captioned “Demolitions completed on 18 June between points A and B,” and “The second stage of Demolitions – The circular road C-D completed on the 20/30. June” in “Military Lessons of the Arab Rebellion in Palestine 1936,” (1938) IOR/L/MIL/17/16/16, British Library, India Office Records and Private Papers.



Figures 6 and 7. Two ground photographs of the Old City in Jaffa following the British demolition operations during the Great Revolt (1936–1939). Israel State Archives 12/4141/4.

Conclusion

The developments of aerial power and aerial photography in the interwar period were a global phenomenon, not limited to the Middle East or Palestine. Nonetheless, in examining some of the principal aerial activities of the Germans and the British in Palestine during the first half of the twentieth century, it is evident that Palestine, both as a strategic frontline during the Great War and as a mandated territory in the decades that followed, was a site where major developments had taken place in the motivations behind and science of aerial photography. These developments, which were mainly experimental and born out of situations of crisis, were crucial in serving both German and British interests in direct warfare and military surveillance and, for the latter, for maintaining imperial control and crushing attempts at anticolonial insurgency in its colonial territories. With this in mind, it is not surprising that whereas German aerial photography in Palestine had ceased with the Great War, British aerial navigation in Palestine was exacerbated in the post-war period and was instrumental to the British administration's taming of the 1936 Great Revolt.

For the British, the nature of aerial power and uses shifted considerably between the Great War and the Arab revolt. This was not merely due to the two decades difference that separated the two events and the technological advancements in aerial warfare that had taken place in them, despite the importance of these shifts. Rather, it was mainly due to the different type of "warfare" in the two situations, and the starkly different nature of the "enemy." In the Great War, the British were fighting against clear military targets with traceable lines of infrastructure, logistics, and communication. Hence, through aerial surveillance, the ability to study these elements and their size and position within the landscape was directly linked with the ability to target them, and gain warfare advantage. In the case of the Arab revolt, however, the main British target was the local population. While in urban settings, as in Jaffa, aerial power granted the British great advantage, this was not the case with the rural mountains. There, armed rebel bands were elusive and constantly on the move and, for the British, flying at close distance to the ground posed a high risk. It is under these conditions that the British had to devise a new strategy of ground-air intercommunication, or "combined action," as the basis for their counterinsurgency activity.

The applications of aerial photography in interwar Palestine were, undoubtedly, heavily motivated by military operations. Nonetheless, it would be inaccurate to suggest that aerial photography served military tasks alone. In this period, aerial photography was also central to the shifting imperial conceptions of Palestine's landscape that departed from, albeit not entirely replaced, its traditional representation as the biblical Holy Land. Unlike nineteenth-century paintings and ground photographs of specific historical monuments in Palestine, aerial photographs depicted the *vue d'ensemble* of the urban landscape in the present. Thomas's writings on the potential usages of aerial photography in cartography, and Dalman's use of aerial photographs in the study of

Palestine's topography, geography, and urban change exemplify the rising interest in the scientific potential of aerial photography. The scientific approach to the landscape extended beyond both warfare operations and biblical references and articulated imperial visions through new discourses centered around measurement, accuracy, and abstraction. This, however, did not mean they were any less colonial. In interwar Palestine, aerial photography was instrumental for carrying out archaeological investigations, geographical surveying, and urban planning – all of which had been carried out in service of British colonial visions.

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Ground Truth

Reading Aerial Images of the Naqab from the Ground Up

Eyal Weizman

By the time this text is printed, the residents of the Bedouin village of al-‘Araqib, a dozen or so kilometers north of Beersheba on the northern threshold of the Naqab/Negev desert, will have recorded the village’s 174th demolition. The largest of these demolitions, in 2010, involved almost a thousand Israeli policemen riding fleets of trucks and bulldozers, using clubs, tear gas, and rubber bullets to drive the residents forcefully out of their improvised ramshackle structures. At its most populous, the village numbered about four hundred people, mostly from the extended al-Turi family. Now only a small core of a dozen or so inhabitants remains, within the grounds of the old al-Turi cemetery, right next to the graves. The current demolition count started only in the early 2000s, but the first expulsions had already begun in 1951, three years after the end of the 1948 war, when the Israeli military turned its attention to the Bedouins and started expelling them, as it did with other Palestinians.

Almost ninety thousand Bedouins, some 90 percent of their population in the Naqab, were pushed over the Egyptian and Jordanian borders. The rest were scattered internally and concentrated in a limited area in the more arid parts of the desert. Since then, at irregular intervals that sometimes lasted months, other times decades, the original inhabitants of al-‘Araqib and their descendants have exercised their “right of return,” physically, persistently, continuously, on the ground, rebuilding after every cycle of demolitions. Traces on the ground – wells, structures, ruins, and,

most importantly, the cemetery – keep that possibility of return alive. Returns are followed by expulsions, as the Bedouin Nakba continues.

The cycle of returns, demolitions, and confrontations escalated in the early 2000s after al-Turis returned to build their village next to their ancestral cemetery. By then, the area had been radically transformed: al-‘Araqib was no longer part of the open frontier of the desert’s edge, but had become a small landlocked “island” surrounded on all sides by Israeli agricultural settlements, forests, military bases, a highway, a railway, and a major waste disposal facility.

The recent cycle of demolitions, like those of other illegalized Bedouin settlements, form the most recent chapter in what the Israeli establishment and the media now calls “the battle over the Negev”: a systematic state campaign meant to uproot the Bedouins, concentrate them in purpose-built towns located mostly in the desert’s more arid parts, and hand over their lands for the purpose of Jewish settlement.

When, several years ago, Sayah al-Turi filed a claim for his lands in the district court in Bir Sab‘a, he was ambivalent about engaging the Israeli legal system after already experiencing the way Israeli courts had refused to protect his and other Bedouin claimants, and after being imprisoned and fined several times for staying in his land. In all previous cases, the courts had ruled against the Bedouin plaintiffs and had upheld state policy.¹ Al-Turi was also aware that appealing to the court’s arbitration would give it and the Israeli state an aura of legitimacy. But the al-Turi family had gathered much evidence for his family’s ownership of his land – aerial photographs, land sale documents, and tax receipts; correspondence with Ottoman, British, and Israeli officials; and military orders testifying to his family’s and other Bedouin tribes’ settlement and cultivation practices in the northern threshold of the Naqab over the past 150 years that he believed no one could contest. The aim of the case was thus not only to reverse the dispossession of a single family, but also to confront the very foundations of the legal regime that enabled the dispossession of other Bedouins in the area.²

The Earth Photograph

One part of the case involved the interpretation of aerial photography. While it is on the surface of the earth that the entanglement of land use, politics, conflicts is played out, it is from the aerial perspective that it most clearly comes into view.³ The surface of the desert appears to be different, depending on the season when the photographs were taken. In late summer, the vegetation is closely shaven off the surface, and the territory appears translucent, revealing features on and under it that would otherwise be obscured by the light plume of seasonal weeds. The enhanced shadows of early mornings or late evenings can reveal subtle undulations in the topographical surface, traces of erasure that would not be visible from the ground. The relative dryness of the terrain conserves traces better than any other environment. The surface of the desert thus resembles a photographic inscription,

exposed to the direct and indirect contacts of human and climatic forces in a way similar to how film is exposed to light. This makes aerial images artifacts of double exposure: they are photographs of photographs.⁴ For those willing and able to read its surface closely, the desert can reveal not only what is present, but also the subtle traces of what has been erased: traces of ruined homes and small agricultural installations, of fields and wells that can sometimes be noticed under the grid of newly planted forests, as well as the dark stains of long-removed livestock pens.

Beyond the threshold of the desert, climate and photography interact in other ways, too. There is an inverse relation between humidity and visibility: the farther south one flies, the drier the air and the thinner and more conducive to vision and photography it becomes.⁵ From 15,000 feet, it is not only the surface of the earth that is being photographed, but also the air that is between it and the lens. The thicker and more humid the air, the less focused the rendering of the surface becomes. Atmospheric blur and distortion are thus not only reductions in information, but, inversely, a source of information themselves – a rough indication of the level of humidity.

But reading aerial photography must not only concern itself with reading the surface captured digitally or on film. It must also be concerned with the technology and politics that placed the camera up in the air in the first place, and it is often the military or other state agencies that have generated these images. The Naqab's airspace is currently the largest and busiest training area for the Israeli Air Force and has one of the most cluttered airspaces in the world. This airspace is partitioned into a complex stratigraphy of layers, air boxes, loops, and corridors dedicated to different military platforms: from bomber jets to helicopters to drones.

But it was not only the Israeli Air Force that has taken aerial photographs there. Two sets of aerial photographs have become important in relation to Bedouin land claims. The first was captured during the summer of 1918, at the end of World War I, by the German Imperial Air Force, and the second by the British Royal Air Force in the winter of 1945, toward the end of World War II. The reason that the area had been overflowed by both militaries is that during World War I, the threshold of the desert was a military frontier and a battle zone. In World War II, it was expected to be one. The black-and-white military sequences did not aim to record Bedouin life, agriculture, and cultivation, but did so inadvertently, mainly at the edges of military sites, in the margins of the photographs, always slightly out of focus. These two sources document the state of the Naqab during two different periods and in opposite seasons, capturing the threshold of the desert in each of its alternate states, arid (summer 1918) and in cultivation (winter 1945), and are thus important resources in confirming Bedouin presence and land use across time and different seasons.

To understand what is made visible within them, the photographs need to be put into context and compared with contemporary aerial images, as well as with images from the ground. These days, one can easily access satellite images of the area. But the publicly available satellite images of Israel are degraded, as a result of Israel's lobbying with the U.S. administration, to the coarse resolution of one meter

per pixel (it is half a meter per pixel almost everywhere else), one in which most structures in a Bedouin village lie under the threshold of visibility.

They are invisible to the state agencies that undertake continuous high-resolution aerial surveys of these sites, closely monitoring their expansion, but this top-down perspective is not available to the inhabitants of the villages. Google Earth and other mapping software, in line with the policy of the Israeli state and its cartographers since 1948, does not mark the illegalized villages or their access roads. They have also been written off all travel maps, to the extent that travelers, guided by GPS navigators, often encounter these communities unexpectedly.



The Bavarian State Archive in Munich contains 2,872 glass plates of aerial photographs of Palestine dating from 1918. Most were taken by the Bavarian Squadron 304 (Königlich Bayerisches Fliegerbataillon 304) which, together with four other German squadrons (about eighty-five aircraft in total), was part of the expeditionary force of imperial Germany that flew in support of the Ottoman military. These were the early days of aerial reconnaissance, a technology that became operational only toward the end of the war.

The context was the British invasion of the Ottoman Empire. In 1917, as the imperial British Egypt Expeditionary Force (EEF) progressed north from Sinai, the Ottoman armies fortified along the line they perceived to be the threshold of the desert – from Gaza through Bir Sab‘a to Hebron, about fifteen to twenty kilometers of today’s 200-millimeter isohyet, or rainfall measure. Their calculation was simple: attrition along the desert edge would keep the European soldiers in the arid part, with less water and pasture to irrigate and feed the tens of thousands of horses and mules on which their military campaign depended. The strategy was successful, and the EEF got bogged down south of Gaza. But the British forces finally broke through Bir Sab‘a, taking the town in a massive charge on the last day of October 1917. Some of the Ottoman units managed to escape and retreated a few kilometers north, stabilizing a second line of defense right through the hills of al-‘Araqib. From 1 to 6 November, the armies fought “several sharp little actions,”⁶ and the EEF managed to withstand an Ottoman counterattack along the al-‘Araqib stream. The battle incidentally coincided with another major political development. The Balfour Declaration – promising a national home for the Jews in Palestine – was signed on 2 November and published on 9 November, while the imperial armies were clashing along the aridity line in al-‘Araqib.

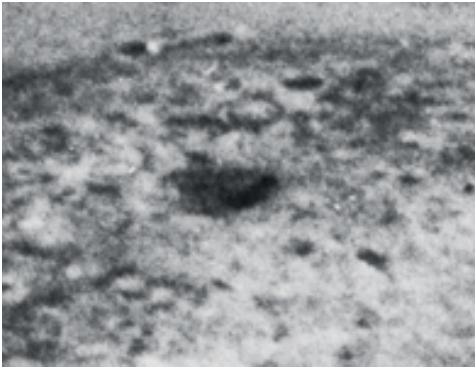
The Bavarian aviators of Squadron 304 joined the retreat of the Ottoman military. Understanding they were fighting a lost war, the pilots also took to photographing archaeological and religious sites with no strategic importance. This made them among the first to use aerial imagery for archaeological purposes.⁷ Their last task in the summer of 1918, a year of constant defeats and retreats, was to return and overfly

British military positions in the Naqab. Most of their photographs are oblique shots taken from hand-held cameras as the airplane tilted its wings. On 20 September 1918, a few days after the last documented photograph was taken, they surrendered to the British at the Afula airstrip in the northern valley. Surprisingly – perhaps because the significance of aerial imagery was not fully understood by all ranks of the British military at the time – they were allowed to keep their glass prints and brought them back with them to Munich, where they are now archived.⁸

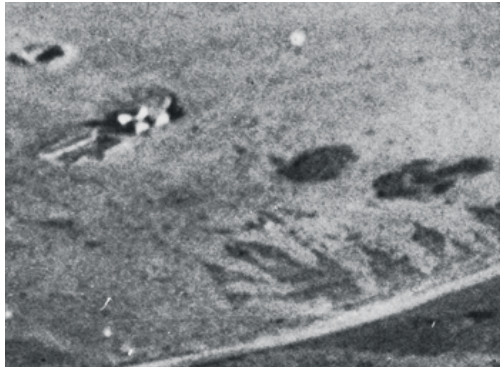
Despite exhausting the archive and its archivists, the closest photographs to the al-‘Araqib hills I could find were about one kilometer away in each direction. Because the surface of the desert appears barren in these photographs, the Bavarian images were presented by state lawyers seeking to demonstrate that Bedouins never settled in these parts.⁹ The photographs were taken in the summer months at the end of the war. The Bedouin tribes had been expelled from the area by the Ottomans because, after the fall of ‘Aqaba to Bedouin forces led by Auda Abu Tayi and T. E. Lawrence “of Arabia” in July 1917, the Ottomans believed, not without reason, that the Naqab Bedouins harbored animosity toward their empire and sympathies toward the British.

Reading these images requires a careful study of their surface at the highest possible magnification. It is then that these photographs start to reveal elements that are typical of Bedouin life at the threshold of the desert. These include structures and ruins, fields of cultivation next to the streams.

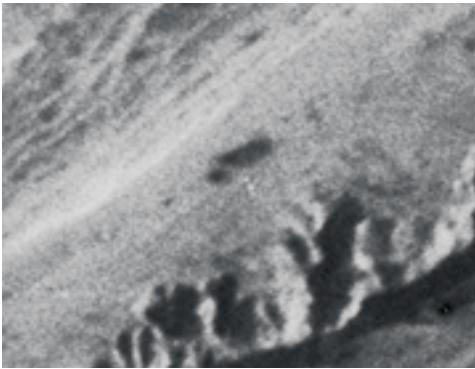




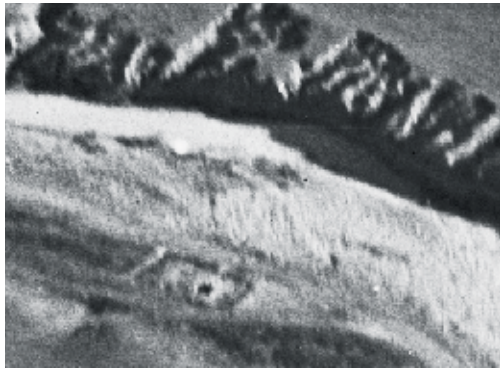
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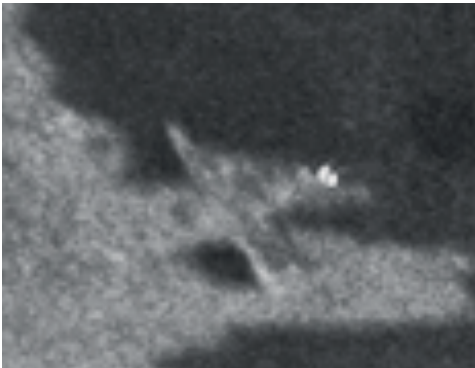
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5



6

Figures. 1 and 2. Tal al-Shari'a, Bavarian Squadron 304, 24 August 1918. This site is about one thousand meters northwest of al-'Araqib. The 1918 image contains traces of abandoned Ottoman trenches and fortifications. Marked within the white frames (nos. 1–6) and reproduced in the enlargements opposite are possible traces of Bedouin settlements consistent with Bedouin land use at the threshold of the desert.

Life at the Threshold of Detectability

A systematic air survey of Palestine was conducted only toward the end of World War II, when the techniques and technologies for producing a photographic series that could be tiled into a cartographic grid were developed as part of the war effort. The PS series (named after Port Said, the airport at the north of the Suez Canal from which the aerial flights took off, but often mistakenly referred to as the Palestine Survey) was produced between December 1944 and May 1945 by RAF squadrons transferred from the European front.¹⁰ During World War II, reconnaissance planes could fly longer and higher, and the cameras were now integrated into the aircraft's structure.

The photographic mission progressed from south to north. The reconnaissance pilots overflew al-‘Araqib on 5 January 1945.¹¹ After the survey was completed, the Hagana, the largest Zionist paramilitary force, managed to convince a sympathetic archivist to smuggle some of the negatives of the aerial photographs out of RAF archives. They printed and returned the originals before their absence was noticed. A number of these reproductions were included in the “Arab Village Files” – intelligence documents on Arab localities that were used by the Hagana in 1948 to occupy and ultimately expel the villagers¹² and that are now available in Israel's cadastral center in Tel Aviv – providing a benchmark record for the condition of Palestine before the establishment of Israel and, ironically, evidence for the existence of these villages.

January is the peak of the rainy season. The black-and-white photographs captured the northern threshold of the Naqab in a state of cultivation, almost completely covered with a patchwork of small agricultural fields. The photographs were submitted in a number of previous cases.¹³ But the state's argument that there are not many clear visible traces on the ground, benefited from the fact that Bedouin life leaves only gentle marks on the land and the inability of film to render these marks clearly, in the way that Western agricultural settlements would render.

Analysis of aerial images also requires some understanding of the material properties of negatives. From a cruising altitude of 15,000 feet, each of the nine-inch (twenty-three-centimeter) square films used by the RAF captured an area of about three-and-a-half square kilometers. The resolution of analog aerial photographs is measured by a unit called “line-pairs per millimeter” (lp/mm). It designates the number of pairs of white and black lines that could be captured within every millimeter of film. The Kodak Aerocon High Altitude panchromatic negative film used for aerial photography in full sunlight conditions at the end of World War II had a fine-grain resolution of thirty-five lp/mm – that is, it could potentially show seventy lines (half black, half white) within every millimeter of the negative. The width of a grain – the narrowest that a line could possibly be – is approximately 1/70 millimeters on the negative, which translates to 214 millimeters – roughly 20 centimeters, or 0.2 meters, on the ground.¹⁴ However, the 15,000 feet of atmosphere between the ground surface and the film surface reduced the effective resolution



Figure 3. The area of al-‘Araqib, image 5133, British Royal Air Force, 5 January 1945.

of the film to 50 centimeters, which means that the grain represents an area of half a meter in diameter on average on the ground,¹⁵ close to the image’s “threshold of detectability.”¹⁶ At this resolution the holes of wells and the gentle mounds of graves – crucial elements to identify – were close to the size of a single grain in the negative. It was thus necessary to consider both the materiality of the objects represented, a well or a hole, and the materiality of the surface representing it, the photographic negative.

Aerial images, such as the RAF photographs from 1945, are not unmediated copies of the world, but products of material relations between objects: one composed of celluloid plastic coated with gelatin emulsion with silver halide crystals, the other of stone, earth, and vegetation, a relation mediated by the prevailing conditions of the climate between them.

Ground Truth

A form of translation from the surface of the film to the surface of the terrain is referred to as “ground truth.” A variation of this process is used by meteorologists, remote sensing, or aerial interpreters to calibrate the analysis of images to the ground. This is necessary because there is never a one-to-one relation between aerial photographs – indeed between any photographs – and the reality they capture. Our interpretation of the “ground truth” method sought to establish relation between differently shaded silver salt grains, or between differently colored pixels, and the patch of earth they represent by patiently reading aerial images from the ground up. Inverting the process of aerial image interpretation, we first endeavored to study an element on the ground, then check how it registers in the historical aerial image, and then deduct how all other elements may do so.

A collaboration – between the al-‘Araqib village council; Forensic Architecture (an investigative agency I ran in London); Zochrot, an association committed to the memory of the Nakba; and Public Lab – sought to establish and socialize the production of “ground truth” in relation to the RAF photographs from 1945.

We did that by studying different elements on the ground, photographing them, and then taking a different kind of aerial image survey using cameras attached to kites. The way the latter task was achieved was by attaching a standard digital camera to the bottom part of a kite using rubber bands. Because this process involves communities in the task of aerial photography, it is also referred to by Public Lab as “community satellites.”



Figure 4. Images of kite photography survey, Ariel Caine and Hagit Keysar, 2016.

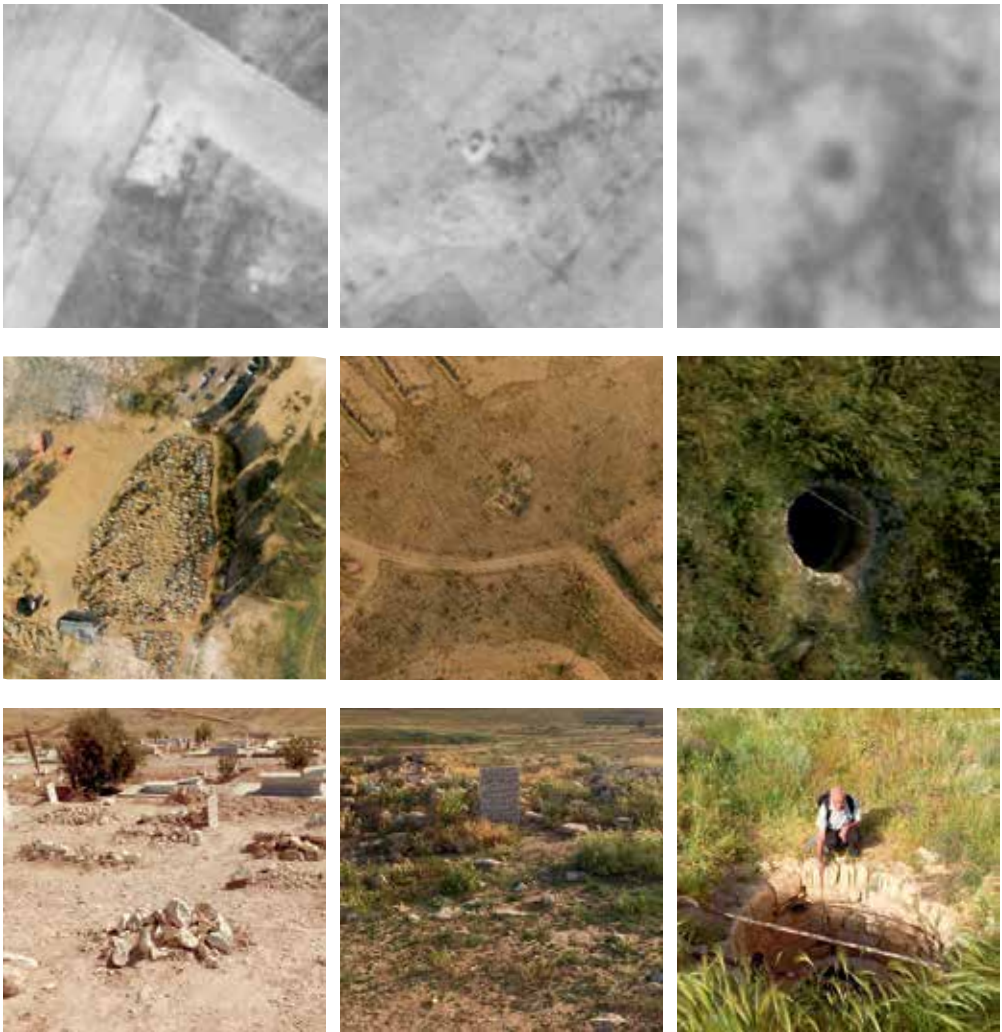


Fig. 5. Top row: RAF aerial photograph from January 1945; middle row: the aerial image taken from kites in 2016; lower row: ground images (2014–16). Left column: The al-Turi cemetery; middle column: The house of Sulayman Muhammad al-'Uqbi in al-'Araqib. The stone in the image below reads: “This is the house of Sulayman Muhammad al-'Uqbi (1914–1993). The house was built in 1936 and demolished after he and his clan were expelled in 1951. Right column: The well of Sulayman Muhammad al-'Uqbi, Nuri al-'Uqbi's paternal grandfather.

Photographs of the same element taken from multiple viewpoints from the kite could then be processed using special process called “photogrammetry” into an accurate three-dimensional model of the area.¹⁷ This survey can in turn be superimposed over historical aerial photographs.

The kite survey provided not only a precious record of al-'Araqib just before the last of its remnants – stone houses, dams, wells – are removed, destroyed or buried under new development or afforestation; it also helped us read the older set of aerial

images. The process of using the “community satellites” of kite photography lent itself to the task of “ground truth” because the aerial survey was undertaken while the feet of those taking the aerial images are firmly on the ground and every element captured in the aerial image can be simultaneously experienced on the ground. The process of establishing “ground truth” thus combines an archaeology of material traces on the ground with an analysis of the material properties of the photograph.

The Cemetery

As mentioned before, the anchor for the al-Turi family’s return was an old cemetery existing on their lands. The claim that the al-Turi cemetery did not exist on the 1945 photographs was made by aerial image interpreters employed by state commissioned aerial image interpreters and in a report by an Israeli organization called Regavim, itself funded by government bodies to “establish state sovereignty and government control over state land and act against ‘illegal land grabs’ by Palestinians.” In the Naqab, it concentrates on “Bedouin trespassers.”¹⁸

In December 2013, the group published a report that used a series of aerial and satellite photographs, the oldest being the aforementioned 5 January 1945, RAF image, to claim that al-Turi cemetery was not present on the site before the establishment of the state. The report demanded that the state immediately evict the remaining members of al-Turi family still living there.¹⁹

Working on this legal case as an expert witness for al-Turi family, I ordered the relevant 1945 photographs at maximum resolution from the Israeli cadastral center (the original negatives are in the RAF archive in Edinburgh but unavailable for researchers). At Forensic Architecture, we superimposed the 1945 image with the kite survey by matching the twists and turns on the al-‘Araqib stream – the only identifiable feature on the site after almost seventy years of development and transformation. Together with Aziz al-Turi we travelled through the ground holding the contemporary kite survey and the 1945 photographs in our hands. Shifting back and forth between the 1945, the kite survey, and what we saw on the ground demonstrated continuity between an aerial image and a ground image. But such continuity is not a simple trajectory of translation – images do not “reconcile” easily – they require a complex process of translation and counter-posing. Working through this process of translation we identified elements that still remained. Most of the wells were still in place — in the aerial image they were only registered as single black dots, a single silver salt grain unexposed to reflected light—some of the stone houses of years past were now present as stone ruins, the terraces and dams that the inhabitants of this area built along the little streams were mostly at the same spot we saw them in the 1945 image, testifying for continuity of agricultural practice over the generations. Most importantly, many of the thin white routes we could see in the 1945 photograph, representing well-trodden paths, matched those paths taken today. The paths of dirt routes are created through repeated use, and record the continuity of movement. They are a testimony for the ongoing relation

between location on the ground and thus for the continuity of cultural habits and patterns of life. This is reminiscent – as advocate Michael Sfrad who represented the Bedouin families commented when we brought these paths to his attention – to one of the cities described in Italo Calvino’s *Invisible Cities* where the different associations between people were represented by strings tied from one house to another representing the relation between people and things that constitute urban life.²⁰ In al-‘Araqib, the dense and continuous network of dirt paths tied together across the generations the living areas of tents, the places of wells, the small gardens by the dams, and indeed, the cemetery, indicating the continuity of traffic.

Zooming further in we were able to locate the cemetery within the 1945 photograph. In a small part of where the al-Turi cemetery can be found on the ground today, in the 1945 photograph there is a small area of lighter surface, usually the result of a well-trodden ground as one would expect from a frequented place. It stood out in contrast to its less walked on surroundings. The extent of the lighter surface is smaller than the contemporary extent of the cemetery, but in 1945, the cemetery obviously would have been smaller.

In a visit to the site in September 2014, Sayah al-Turi led me to the oldest part of the cemetery, where the graves were marked only by small piles of stones. It was only several decades ago that the Bedouin families of the area started using stone gravestones. One of these piles was the first grave on site, dated, he said, to 1914.²¹ By the time the 1945 photograph was taken, al-Turi explained, there were already about fifteen or twenty graves similarly marked with piles of stones. The piles of stone I could see on site were between a meter and a meter and a half long, and about half a meter in width. On the 1945 photograph, these would occupy the size of a single grain, or at most, two silver halide grains side by side. And indeed, in the lighter, distinctly frequented area of the cemetery, there were a number of darker grains indicating distinct objects.

The process of establishing “ground truth” allows us to read the graves back into the photographic grain. On the other hand, it also suggests that the state experts in aerial images, those claiming there is no cemetery to be seen on the ground – like other colonial travelers and cartographers – exercised an active form of “not seeing,” of visual denial undertaken both in the image and on the ground.

The white spots left on colonial maps of the seventeenth and eighteenth centuries were means of erasure: acts of “whiting-out” that led to the wiping out of entire native cultures. Those promoting aerial and satellite photographs over cartography tend to argue that the former are objective and neutral renderings of the surface that capture all things without the cultural prejudice of drawn maps, where a cartographer could decide what is important enough to show and what to leave out.

But photographs, whether from the air or from the ground, require close reading and interpretative labor, which can be politically and culturally conditioned. Such reading requires putting into relation information of different kinds and a close attention to detail and grain and as such an inverse reading of aerial images from the ground up.



Figure 6. Al-Turi cemetery, al-'Araqib. Photography project by al-'Araqib village, Hagit Keysar/Public Lab, Forensic Architecture, Ariel Caine, Zochrot.

Eyal Weizman is the director of Forensic Architecture. He is a professor at Goldsmiths and a Fellow of the British Academy. In 2007 he set up, with Sandi Hilal and Alessandro Petti, the collective DAAR in Bayt Sahur.

Endnotes

- 1 Al-'Uqbi v. the State of Israel, heard in 2009.
- 2 Israeli High Court of Justice Civil Case 7161/06 [in Hebrew].
- 3 Nuri al-'Uqbi, interview, 20 July 2014.
- 4 In 1913, Frederick Laws was the first to develop the practice of aerial reconnaissance for the British military. Looking from a light aircraft at a moist patch of grass in the air force base in southeast England from which his light aircraft took off, Laws could make out the imprint of "a dog, following a parade of soldiers, being chased off by the Sergeant" shortly after they had all moved on. F. C. V. Laws, "Looking Back," *Photogrammetric Record* 3.13 (April 1959), 28–29.
- 5 C. Donald Ahrens, *Meteorology Today: An Introduction to Weather, Climate, and the Environment*, 8th ed. (Belmont, CA: Thomson Higher Education, 2007), 110. A similar phenomenon is observed by Patricio Guzmán in his film *Nostalgia for the Light* (Nostalgia de la Luz), 2010. The relation between humidity and resolution is captured by a photographic term known as "dimensional stability," which measures the size-changes of objects caused by small deflections generated by different levels of humidity and temperature. High-altitude photography and the demands of photo interpretation thus require special media.

- 6 A. G. Macmunn and Cyril Falls, *Military Operations Egypt and Palestine*, vol. 2, part 2 (London: HM Stationery Office, 1930), 84–85. Military reports of this battle included in this text note the water shortage and the problem of obtaining drinking water for the thirty thousand horses, mules, and camels employed by the EEF. Some charges were delayed so the horses could be taken back to Bir Sab'a for watering. In other occasions, horses were thrown into battle without drinking for three days.
- 7 They had arrived in Beersheba in early October 1917 – their planes packed in parts on freight trains – just in time to see the British storm through the town on 31 October. The squadron managed to fly out and to land at a Gaza airfield, but a few days later, the city fell, too. The aviators managed to escape again, relocating this time to the north of Palestine. Some pilots, among them several Jews, were shot down and are buried in the German military cemetery in Nazareth. Squadron 304 was one of the first to record systematically archaeological sites from the air. Sites included Christian churches in Jerusalem, Bethlehem, and Nazareth, as well as older ruins in Jericho, Caesarea, Acre, and the Dead Sea. The sorties were also part of the Heritage Commando (Denkmalschutzcommando), which undertook numerous scientific surveys of ancient monuments. The organization was led by Theodor Wiegand, who also employed aerial photographs obtained from specially equipped kites. The images became important for aerial archaeology, because many places in Lebanon, Syria, Israel, and the Palestinian territories have since been built over. See *Image Collection Palestine*, ed. Lothar Saupe (Munich: Bavarian State Archives, 2010), photographs of Palestine recorded 1917–18 by the Bavarian Squadron 304.
- 8 Nada Atrash, "Mapping Palestine: The Bavarian Air Force WWI Aerial Photography," *Jerusalem Quarterly* 56 (Winter–Spring 2014): 95, online at (palestine-studies.org) tinyurl.com/s4n2x4y (accessed 12 March 2020).
- 9 Alon Tal refers to this presentation in *Pollution in a Promised Land: An Environmental History of Israel* (Berkeley: University of California Press, 2002), 350. The photographs were presented by Aviva Rabinovich, a Jewish National Fund botanist.
- 10 I wrote, erroneously, that "PS" meant Palestine Survey in *The Conflict Shoreline*; Fazal Sheikh and Eyal Weizman, *The Conflict Shoreline: Colonialism as Climate Change in the Negev Desert* (Göttingen: Steidl, 2015). The survey had a crucial part to play in the history of the area: less than a year after the photographs were taken, the Anglo-American Committee of Inquiry used these aerial images to calculate population numbers and levels of cultivation in order to draft one of the proposed lines of partition of Mandatory Palestine. In the Bir Sab'a district alone, they identified 8,722 tents and 3,389 stone houses (*baykat*) belonging to the Bedouin tribes of the area. Sandi Kedar, Ahmad Amara, and Oren Yiftachel, *Emptied Lands: A Legal Geography of Bedouin Rights in the Negev* (Stanford University Press, 2018). A map, "Distribution of the Nomad Population of the Beersheba Sub-district" was compiled from information that included the aerial photographs of 1945. Background information on the compilation of this map can be found in Appendices 3 and 4 of United Nations, General Assembly, Ad Hoc Committee on the Palestinian Question, Report of Sub-Committee 2 (1947), A/AC.14/32, online at (unispal.un.org) tinyurl.com/w3dmb67 (accessed 12 March 2017).
- 11 Dov Gavish, *A Survey of Palestine under the British Mandate 1920–1948* (London: Routledge, 2005), 245–48.
- 12 See: Ian Black and Benny Morris, *Israel's Secret Wars: A History of Israel's Intelligence Services* (London: Hamish Hamilton, 1991), 129; Gil Eyal, *The Disenchantment of the Orient — Expertise in Arab Affairs and the Israeli State* (Stanford: Stanford University Press, 2006), 85. For a good, accessible introduction to aerial photography and image resolution in World War II, see Denis Cosgrove and William L. Fox, *Photography and Flight* (London: Reaktion Books, 2010).
- 13 Yosef Ben Shlomo, "Expert Report for the Analysis of Aerial Imagery," 15 September 2009, sent to Nuri al-Uqbi.
- 14 The following is a more detailed technical explanation: For the making of the Port Said survey series, the RAF reconnaissance airplanes were photographing at an altitude of 15,000 feet. The focal length of the lens was 12 inches or 1 foot. The scale of the film is obtained by dividing the altitude by focal length. The scale of the negative film is thus 1:15,000, which means that every millimeter on the film represents 15 meters on the ground. Because the size of the negative film is 9 inches or 228.6 millimeters, the area

captured on each separate negative film is about 3.4 by 3.4 kilometers, or 11.5 square kilometers. The resolution of the film used by the RAF is 35 line pairs per millimeter. This unit, lp/mm, measures how many pairs of alternating black and white lines would fit within a millimeter on a negative. If there are 35 line pairs, each the width of at least a single grain, then in a single millimeter on the film there are 70 grains. The size of a silver salt grain is 0.014 millimeters. At a scale of 1:15,000 the size of the grain represents 214 millimeters of ground. However, given the atmosphere, the effective resolution is 50 centimeters per grain.

- 15 Eli Atzmon, interview, 29 April 2014.
- 16 Eyal Weizman, "Matter against Memory," in *Forensis: The Architecture of Public Truth*, ed. Forensic Architecture (Berlin: Sternberg Press, 2014), 361–78, 365.
- 17 See the essay by Ariel Caine, "Granular Realism: Dominant and Counter-Dominant Practices of Spatial Photography in the Naqab" in this issue of *JQ*.
- 18 See: Regavim, "Bedouin Myth #2 — Are the Bedouin Villages Historical?" 16 December 2013, online at (regavim.org) tinyurl.com/rym6ujl (accessed 12 March 2020); Regavim, "The Truth About the Bedouin in the Negev," online at (regavim.org) tinyurl.com/vhx8yod (accessed 12 March 2020). Political theorists Nicola Perugini and Neve Gordon explain that, "according to the organization's human rights narrative, Jewish settlers are victims of discrimination and the colonized Palestinians are the 'invaders' and 'silent conquerors' of Israeli national lands as well as the perpetrators of human rights violations against Jewish citizens of Israel." Nicola Perugini and Neve Gordon, *The Human Right to Dominate* (Oxford: Oxford University Press, 2015). A good resource for thinking about the politics of NGOs can be found in *Nongovernmental Politics*, ed. Michel Feher (New York: Zone Books, 2007).
- 19 In addition to the 1945 photographs, the Regavim report also presented Israeli Air Force photographs from 1956, 1965, and 1987 and a satellite image from 2010. It is only in the 1965 photograph, and from that date on, Regavim's report claimed, that it was possible to notice the cemetery in its early stages and a single tent next to it. Regavim's conclusion is that "the 'historic' village al-'Araqib, which the Bedouin claimed was established during the Ottoman period, was built at the end of the 1990s and thereafter." They wrote that in "the area where al-'Araqib is today, in 1945, no village or cemetery [existed] whatsoever." Regavim, "The Truth about the Bedouins in the Negev."
- 20 Italo Calvino, *Invisible Cities* (1985), "In Ersilia [. . .] the inhabitants stretch strings from the corners of the houses, white or black or gray or black-and-white according to whether they mark a relationship of blood, of trade, authority, agency. When the strings become so numerous that you can no longer pass among them, the inhabitants leave: the houses are dismantled; only the strings and their supports remain. From a mountainside, camping with their household goods, Ersilia's refugees look at the labyrinth of taut strings and poles that rise in the plain."
- 21 Interview with Shaykh Sayah al-Turi in the cemetery of al-'Araqib, 27 September 2014.

The Mughrabi Quarter Digital Archive and the Virtual Illés Relief Initiative

Maryvelma Smith O'Neil

*Are you saying there's an original sin?
True, there is. Deal with it.*
– Meron Benvenisti (2013)

Few spaces are more emblematic of Jerusalem today than the Western Wall Plaza, yet few people – including Palestinian and Israeli residents of Jerusalem alike – are aware of the destruction of the old Mughrabi Quarter that literally laid the groundwork for its very creation.

For the *longue durée* of almost eight centuries, the Mughrabi Quarter of Jerusalem had been home to Arabs from North Africa, Andalusia, and Palestine. However, within two days after the 1967 War (10–12 June 1967), the historic neighborhood, located in the city's southeast corner near the western wall of the Noble Sanctuary (al-Haram al-Sharif), was completely wiped off the physical map by the State of Israel – in flagrant violation of Article 53 of the Fourth Geneva Convention, which stipulates:

Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or cooperative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military operations.¹

Two decades prior to the Mughrabi Quarter demolition, Jerusalem's designation as a “*corpus separatum*” had been intended to depoliticize the city through internationalization, under



Figure 1. *Vue Générale de la Mosquée d'Omar*, Robertson, Beato & Co., 1857. Photo: National Science and Society Picture Library.

a special regime to be administered by the United Nations, as confirmed in UN resolutions 181 (1947) and 194 (1948). Two centuries earlier, the so-called Status Quo arrangement for the Holy Places had been codified by Ottoman decrees to negotiate conflict between and among different religions and religious groups over shared or contested religious sites. These legal obligations guaranteed all faiths access to their holy sites and the right to consent to any change, either in procedure or substance. Although sovereignty over Christian holy sites was of primary concern, the Status Quo embraced the Western Wall (claimed by Jews as the Kotel and by Muslims as al-Buraq), where Jewish challenges to the Status Quo began in the late Ottoman era and continued to escalate during the 1920s, culminating in the deadly riots of 1929.

The Status Quo was breached with the destruction of the Mughrabi Quarter and decisively inaugurated a still ongoing Zionist program to establish illegal “facts on the ground” in East Jerusalem – “facts” that concomitantly stripped the Quarter of communal assets (*awqaf*) in order to expand the Jewish Quarter to four times its pre-1948 boundaries.² Recent scholarship has investigated the systematic destruction and appropriation of non-Jewish heritage that the demolition initiated. New documentation and interpretation – of the immediate and the long-term impact of the Mughrabi demolition – are advancing a very vital discussion. This discourse is of critical urgency



Figure 2. Western Wall Plaza and Kotel/al-Buraq, 5 February 2020. Photo: Sani Zughayer.

given Israel’s master plans to further “Judaize” the city, including illegal excavations and tunneling in progress that gravely threaten the structural integrity of the Noble Sanctuary at the heart of Jerusalem. Organized provocations to the Status Quo at al-Aqsa Mosque along with the Israeli government’s construction plans for the area and heated debate about control of the Mughrabi Ascent, which provides access to the Noble Sanctuary for non-Muslims, further exacerbate the tense conflict.³

The Mughrabi Quarter may have been physically obliterated in 1967, but it remains intact – albeit in miniature – as part of the Illés Relief of Jerusalem (1873), an extraordinary topographic simulacrum of the Old City. The model’s creator, Stefan Illés, a Catholic Hungarian bookbinder from Pressburg (today’s Bratislava), resided in Jerusalem for nearly a decade (1864–73). After causing a sensation in the Ottoman Pavilion at the 1873 World’s Fair in Vienna, the Illés Relief traveled through Europe, where it was eventually purchased in 1878 by the Republic of Geneva and placed on display in the city center. In 1984, however, the model was sent on permanent loan from the Maison de la Réformation SA in Geneva to the Tower of David Museum in Jerusalem, where it yet remains. The artifact’s location, deep in an ancient cistern which discourages visitation, and the scant curatorial attention accorded it suggest discordance with the cultural politics of the institution.

Following years of neglect, the Illés Relief will soon be made available online to a global audience – in the form of an interactive digital replica – for unhindered investigation and exploration.⁴ This photogrammetric recording is of great intrinsic value as it has digitally preserved a rare historical artefact of outstanding universal cultural value.

The Virtual Illés Relief Initiative, that will be fully described later, begins with the digital recovery of the Mughrabi Quarter through a virtual archive. It will be website accessible, thereby enabling visitors to visually explore the destroyed quarter via screen-based visualization. In this way the path toward reimagining the vibrant Mughrabi Quarter involves a detour through the late-nineteenth-century European fad of relief maps – to the Illés Relief, rendered as a virtual replica.

Subsequent to the completion of the Mughrabi Quarter digital reconstruction, a global research initiative will be launched to digitally map the entire three-dimensional Illés Relief. International scholars and computer experts will cooperate to produce a detailed, interactive digital palimpsest of Jerusalem on which multiple versions of events and relevant historical phenomena will be overlaid, including maps, images, videos, texts, and oral narratives. The groundbreaking endeavor to digitally map the Illés Relief virtual facsimile will be collaborative, interdisciplinary, and open source, with the double objective: to encourage fresh enquiries and welcome ongoing contributions alike.

The Mughrabi Quarter under Muslim Rule

Pilgrims from the Maghreb (the northwestern region of Africa that comprised what is now known as Morocco, Algeria, Tunisia, and sometimes Libya) had an age-old connection with Jerusalem, first recorded during the rule of the Ikhshidids (935–69). Several notable Imazighen (Berbers) had settled in Jerusalem under the Fatimids (909–1171).⁵ Ibn Jubayr (1145–1217) claimed that every Muslim in Frankish Syria provided a testamentary bequest for the liberation of Mughrabi prisoners held by the Crusader Kingdom of Jerusalem (1099–1187).⁶

Following the reconquest of Jerusalem (1187) and the reconsecration of the Haram al-Sharif by Ayyubid Sultan Salah al-Din, his eldest son, al-Malik al-Afdal, established the Mughrabi Quarter about 1193 as a Muslim waqf – an inalienable charitable trust under Islamic law. The endowment was extraordinarily inclusive: “For the benefit of the community of Mughrabi of all description and different occupations, male and female, old and young, the low and the high, to settle in its residences and to benefit from its uses according to their different needs.”⁷ Every Mughrabi who chose to live in the waqf quarter was guaranteed habitation – “an unprecedented event in Islamic history.”⁸ Al-Afdal also provided funds for the establishment of the long, narrow Harat al-Sharaf neighborhood (contiguous to the Mughrabi Quarter) and Harat al-Maydan, both of which would be illegally confiscated by the State of Israel, along with more than a dozen other neighborhoods, then incorporated into the greatly expanded Jewish Quarter following the 1967 war.⁹

Al-Afdal founded al-Madrassa al-Afdaliyya in Jerusalem (1193–96) to disseminate Maliki jurisprudence. The madrasa, often referred to as al-Qubba due to its fine ashlar dome, was a spiritual lodestar for Maliki scholars from the Maghreb and Andalusia. It was

also the shrine (*maqam*) of Shaykh ‘Id, a venerated Sufi with whom the mosque became associated after his death in the seventeenth century. Benjamin Z. Kedar, emeritus professor of history at the Hebrew University and chairman of the board of the Israel Antiquities Authority (2000–12), who established its great architectural significance in collaboration with an Israeli Antiquities Authority team, correctly judged its destruction in 1967 as an “archaeological crime.”¹⁰

During the European Middle Ages, Mughrabis traveled to Jerusalem as pilgrims and/or to participate in its vibrant scholarly life. The Mughrabi Quarter was home to a diverse flock of immigrants from the Maghreb (Marinids, Hafsids, Berbers) as well as the Nasrids (the last Muslim dynasty in Iberia, who ruled the Emirate of Granada from 1230–1492). The famous Maliki judge and scholar Abu Bakr ibn al-‘Arabi al-Ishbili compiled the oldest Mughrabi description of a journey to Jerusalem during a three-year sojourn in Jerusalem (1093–96).¹¹ Mughrabis made distinctive contributions to Jerusalem, as renowned Andalusian mystic Muhyi al-Din ibn al-‘Arabi observed while visiting in 1206:

The Moroccans [Mughrabis] are very well remembered in this town because they did wonders in the defense of the Muslims. Their money is found there, and people use that money very often. The Moroccan mats, which are more beautiful than silk, are very well-known to everybody there. The red Moroccan felt is the desire of all savants and dignitaries, and al-Jahiz mentioned that in his book on trade.¹²

Jean de Tournai, a French textile merchant who visited Jerusalem in 1488 with a keen eye for attire, noted that, “Moors wear white, with head wraps of fine cotton or toile de Hollande.”¹³

During the first half of the sixteenth century, the population of the Mughrabi Quarter quadrupled. Its spiritual stature was enhanced in the next century due to the advent of notable Sufi shaykhs who joined high government officials already residing in the area. Most Mughrabis adhered to the Maliki doctrine. Among those who advocated for other schools of Islamic jurisprudence was Shaykh Muhammad bin Muhammed al-Tayyib Talafani of Morocco who attained the position of Mufti of Jerusalem in 1777. Rare manuscripts in three private Jerusalem libraries (al-Aqsa, al-Khalidiyya, and al-Budayri) preserve the records of twenty Mughrabi judges who served in Jerusalem, as well as Mughrabi scholars who resided or sojourned in the city.¹⁴

Mughrabi pilgrims were hosted upon arrival in two zawiyas at almost opposite corners of the quarter. The Mamluk zawiya (Qantar al-Umam al-Banat), a Sufi hospice endowed in 1303 by the scholar ‘Umar bin ‘Abdallah bin ‘Abd al-Nabi al-Masmudi al-Mujarrad, was the first waqf established by a Mughrabi for the benefit of Mughrabis in Jerusalem. His grandson, the mystic Shu‘aib Abu Madyan al-Ghawth, endowed another zawiya near Chain Gate (now Ha-Kotel Street) and assigned the lands of ‘Ayn Karim as waqf to sustain the zawiya and provide assistance to the Mughrabi.¹⁵ The top floor of the extant late-Ottoman building (referred to as al-Mughrabi Court in oral histories) preserves small cubicles for pilgrims and a mosque with a maqam. The plaque on the facade commemorates a waqf

made by a descendant, Shaykh ‘Umar al-Mujarrad al-Masa‘udi (1901) to finance a soup kitchen for the “poor and needy.” The family waqf holdings formed the most substantial part (70 percent) of the Mughrabi Quarter.¹⁶ However, after 1948, ‘Ayn Karim fell on the opposite side of the Green Line, and the waqf was effectively deprived of revenue-generating resources. At this time, the French colonial government stepped in to assume partial financial responsibility for the sustenance of Moroccans, Algerians, and Tunisians, disbursed by the consulate general in Jerusalem.¹⁷

Within the urban mosaic of Old City neighborhoods, the Mughrabi Quarter extended to roughly ten thousand square meters. Ottoman municipal archives document the integral role it played in the city’s economic, social, spiritual, and cultural life.¹⁸ Mughrabi artisans produced hand-made paper, belts, rugs, and metalwork. The aromas of paprika, pepper, cumin, and harissa sauce wafted through the air. In addition to notable religious edifices and al-Kitab school near the Dung Gate, the Quarter hosted a tribunal, local commercial enterprises, a mill, communal ovens, and numerous fruit trees in family enclaves. Several historic maps demarcate the large Hakurat al-Khatuniyya (Garden of the Noblewomen), located at the Quarter’s southeast corner, cultivated with fruit trees, vegetable plots, and pulse crops. Nineteenth-century photographs show a wild abundance of prickly pear trees brought from Andalusia after 1492. The neighborhood also included extensive archaeological remains from Roman and Byzantine periods and ruins of splendid Umayyad palaces. As French journalist Simon Pierre observed, albeit with a touch of hyperbole: “It was the perfect Moroccan city in the heart of Jerusalem.”¹⁹



Figure 3. Detail, Wilson Ordnance Survey (1864–65), Photo: The British Library.

When Chateaubriand visited Jerusalem in the early-nineteenth century he commended the Mughrabis, who were “sought after on account of their intelligence, and couriers esteemed for their swiftness. What would Saladin and Richard say if, suddenly returning to the world, they were to find the Moorish champions transformed into doorkeepers of the Holy Sepulchre?”²⁰ Mughrabis also guarded markets, public facilities, and city gates, and provided security detail for the wealthy and powerful. They were also chosen as imams of the Mughrabi mosque by the community on the basis of their knowledge, probity, and wisdom.²¹

Destruction of the Mughrabi Quarter

Fast forward to the second half of the nineteenth century, when the viability of the Mughrabi Quarter began to be severely compromised by the ambitions of the ascendant secular Zionist movement. A handful of wealthy Zionists attempted unsuccessfully to purchase the Western Wall. These included Baron Rothschild, who in 1887 tried to buy the entire Quarter in order to demolish it to create a plaza. Rabbi Chaim Hirschensohn and the Zionist Palestine Land Development Company also attempted to purchase the wall in 1895. Then, in 1914, with the Ottoman empire bankrupt and recently entangled in World War I, the Turkish governor of Jerusalem, Zeki Bey, offered unsuccessfully to sell the Mughrabi Quarter for a sum of £20,000. Five years later, in 1919, just after the League of Nations granted the British Mandate for Palestine, Zionist leader Chaim Weizmann sought to raise £75,000 to purchase the Mughrabi Quarter, demolish it, and relocate its residents, but the British upheld the Status Quo. Further Zionist challenges to the Status Quo continued to exacerbate tensions in the 1920s. A 1926 proposal by American Jewish millionaire Nathan Straus to initially lease and subsequently purchase the quarter was also rejected by the British, who again upheld the status quo ante. Three years later, in August 1929, deadly riots erupted between Jews and Muslims over access to the Western Wall after a cohort of Jews raised the Zionist flag and sang the Zionist anthem.²² In defiance of official prohibition by Mandatory authorities, militant Zionist rallies continued through the 1930s and 1940s.

Long-thwarted efforts to destroy the Mughrabi Quarter in order to appropriate the entire area finally fell into place following Israel’s victory in the 1967 war and belligerent occupation of East Jerusalem. On 8 June 1967, David Ben-Gurion firmly declared *sur place* to Teddy Kollek, mayor of West Jerusalem, who was accompanied by a National Parks Authority official: “The area must be cleared to reveal the wall.”²³

Forcible clearing began just two days later. At ten o’clock on Saturday, 10 June 1967, a volunteer demolition crew of private contractors, recruited by Zalman Broshi at the behest of Kollek, arrived in convoy through Zion Gate; they had been ordered to cloak their wreckage operation under cover of night. Broshi’s crew followed a rather sketchy hand-drawn plan conceived earlier in the day by architect Arie Sharon, president of the Association of Architects and Engineers, and an employee of the National Parks Authority. A handful of key officials signed off on the main instructions:

“Destroy blocks A and B except for the enclosure walls and buildings marked as C and D.”²⁴ The destruction, commanded by IDF Captain Eitan Ben-Moshe, would exceed the demarcated areas of the sketch.

Loudspeakers ordered residents of the Mughrabi Quarter to evacuate their homes. Former residents recall hastily gathering whatever possessions they could within several hours. Oral histories recount personal and collective experience of trauma. Destruction continued for two consecutive nights; excavators and bulldozers worked relentlessly under floodlights to flatten the mainly one-and two-story stone and brick-domed residences clustered densely along narrow alleyways. A security perimeter impeded residents from returning to retrieve documents and memorabilia – memorabilia subsequently buried or ground into rubble. It was organized ethnic cleansing, as exiled Mughrabi resident Ahmad Jaridi recounts in an oral history: “The Israelis had buses waiting at Damascus Gate for those who wanted to go to the bridge that leads to Amman. They gave chocolate to people who got on the bus.”²⁵

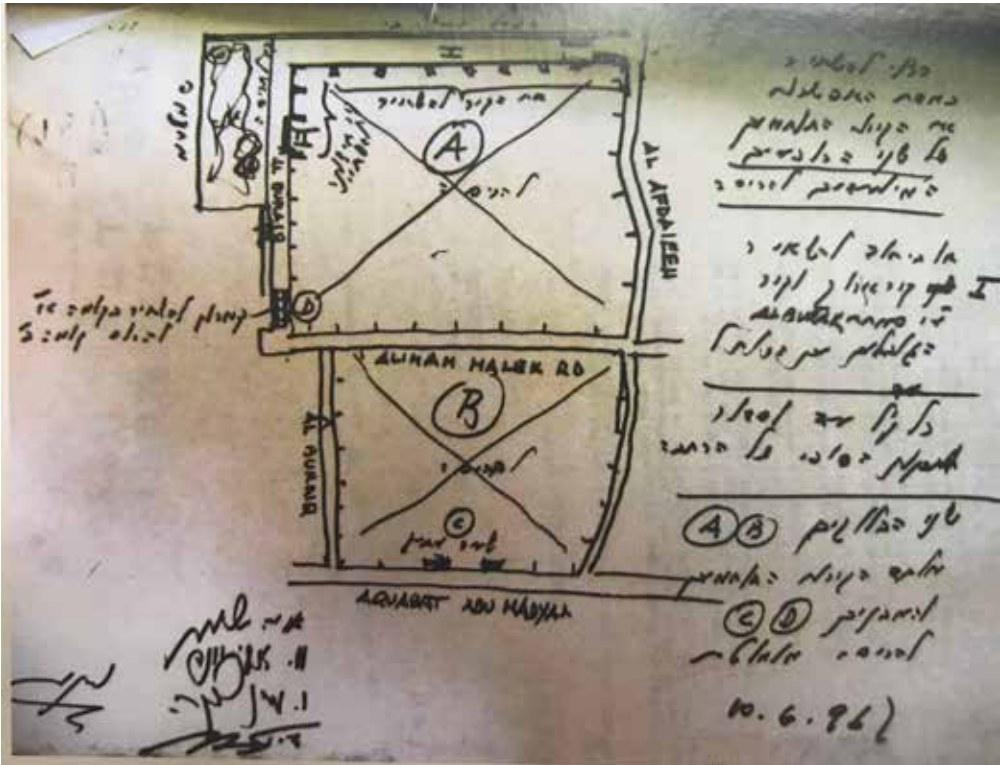


Figure 4. Mughrabi Quarter Destruction Plan, Photo: Israel State Archives GL - 3847/4.

By dawn of 12 June 1967, the historic neighborhood had been leveled. Eyewitnesses reported that homes seemed to have collapsed onto each other like a house of cards. One elderly woman was found dead in her bed; there were reportedly other corpses plowed over in the wreckage, but this is now impossible to confirm

officially. The entire neighborhood was gone. Historic monuments, among them two mosques and numerous properties belonging to the waqf, had been razed. Approximately 650 residents were evicted from 138 homes. At the end of July, Kollek wrote Broshi to thank him for leading such an efficient enterprise “to restore the glory of Jerusalem.”²⁶ Broshi’s contractors, who had founded a faux knighthood, the “Order of the Kotel,” during a three in the morning break from their demolition machines, would go on to meet annually to commemorate what they saw as a “heroic deed” of liberation and purification.²⁷

The ad hoc coalition of at least eighty military and civil officials shared a more fundamental motivation that Teddy Kollek later justified as “an act of war.”²⁸ Misinformation was deliberately circulated that the Mughrabi Quarter had been destroyed in the 1948 war. The local press abetted the dissimulation campaign. An article in the *Jewish Herald* (13 June 1967) claimed that, “Before the area was opened to the Jewish civilian population [in 1948], Israel sappers had blasted the Arab guardhouse and some other buildings to open up a wide square before the Wailing Wall – an area great enough to hold 100,000.”²⁹

Top decision-makers were extremely cautious to avoid personal culpability in the face of Article 53 of the Geneva Conventions. Their nexus of collusion left a deliberately thin paper trail. Major General Uzi Narkiss, head of the IDF’s Central Command, was the most senior authority to give the demolition order, according to Shmuel Bahat.³⁰ “Practical considerations were the determining factor in the demolition of the buildings of the Arab Quarter,” as Meron Benvenisti, Kollek’s deputy mayor (of Jewish Moroccan heritage), flatly stated.³¹

In riposte to this bald expression of ethno-nationalist ideology – cloaked as pragmatism – expressed by Israeli officials, Ruhi al-Khatib, then mayor of



Figure 5. Cropped Zeppelin Photo, 1931. Yellow lines added by author. Photo: Archiv der *Luftschiffbau Zeppelin GmbH*, Friedrichshafen, 193/008.

East Jerusalem, poignantly conveyed the human tragedy in a memorandum delivered to Dr. Ernesto Thalmann, UN envoy in Jerusalem, on 26 August 1967:

One hundred and thirty-five houses in the Mughrabi Quarter adjoining the Wailing Wall and adjacent to the two Mosques of Omar and Aksa, which are Muslim Holy Places, have been dynamited and razed by bulldozers. Because of this, 650 Muslim, all of them poor and pious persons living near the Muslim Holy Place, were removed from their homes and driven away, after having been allowed no more than three hours to evacuate their homes, which they had to do while the curfew was in effect. One can easily imagine the consternation of these families, who had to see to the removal of their property and take care of their children and their aged. One part of these buildings, comprising some houses and two small mosques, belongs to the Muslim Waqf. The other part was private property over which the Jews had no rights.³²

“The works undertaken on this site of the Old City [. . .] have given it the appearance of a gaping wound in the flesh of the City,” lamented René Maheu, sixth director-general of UNESCO, a few years later.³³ A broad esplanade of twenty thousand stone blocks laid over the ruins of the Mughrabi Quarter conceals that wound. However, psychic scars caused by forced displacement have not healed.

Scars of Destruction

In the immediate aftermath of the neighborhood’s destruction, the desperate Mughrabi diaspora sought emergency shelter with family and friends in the Old City, the Mount of Olives, Silwan, and other localities. Subsequently, some went to Morocco, others to Jordan or the West Bank. Many settled in refugee camps in Jerusalem, in Shu‘fat, and south of Qalandiya (al-Ram). Jerusalem’s Mughrabi community was scattered to the winds.³⁴

Kollek’s patently disingenuous remark that Mughrabi residents “had no special feeling for the place” is jarringly discordant with lived reality and memory.³⁵ The pain of exile resonates in video testimonies included in the Mughrabi Quarter Digital Archive. Nawal Qasem al-Daraji, wife of Mughrabi mukhtar Mahmoud Ahmed al-Maslouhi, who was pregnant with her first child at the time of the quarter’s destruction, expresses melancholy for the “old life, for the company of neighbors, especially the celebratory occasions, as well as the protection of people in need” – like the mukhtar’s sister who suffered from epilepsy. “It was a very close-knit community – like one big family.”³⁶ Aisha Ahmad al-Maslouhi recalls special preparation by the elderly women of traditional Moroccan couscous, and the “strong relations that don’t exist anymore and that we miss.”

Muhammad ‘Abd al-Jalil ‘Abid al-Mawludi al-Mughrabi (b. 1933) often visits

the family flat, on the top floor of the Zawiya ‘Umar al-Mujarrad al-Masa‘udi (al-Mughrabi Court) on Ha-Kotel Street, which originally belonged to his grandfather. The intimate vaulted chamber hosts a small museum of memory dedicated to the Mughrabi Quarter: its walls are lined with family documents, old photos of the quarter and its residents, historical books on Arab Jerusalem. Muhammad proudly dubs himself the “best historian of the Mughrabi Quarter” thanks to a remarkable recollection of many neighbors.³⁷ They all merit recognition, he affirms, citing each by name, due to the unjust fate inflicted upon them by the occupying state.³⁸

The Mughrabi Quarter’s demolition caused grave structural damage to what Dame Kathleen Kenyon described as “the finest medieval Muslim architecture outside Cairo.”³⁹ In 1968, Hasan Tahbub, director of the Muslim Waqf, wrote an official letter to Mayor Kollek to protest against breaches of waqf authority: experts had been denied access to inspect the condition of vaults and arches under the Tankaziyya school to prepare a technical report on the damages the site had sustained. Moreover, ongoing demolition and excavation work were being carried out without any notification, “in spite of the fact that the waqf department is the proprietor of all those properties and buildings.”⁴⁰

Just a year later, in 1969, Israeli authorities destroyed a unique architectural complex located adjacent to the historic Mughrabi Ascent, which comprised fourteen structures of great cultural and historical significance.⁴¹ The site, known as the Abu al-Sa‘ud complex (after the family that had resided there for centuries in service to al-Aqsa Mosque), included the Mamluk Jami ‘al-Maghariba, as well as the Sufi al-Zawiya al-Fakhriyya, attached to al-Aqsa Mosque, that had been endowed sometime before 1332 by Qadi Fakhr al-Din Abu ‘Abdallah, a profoundly religious Coptic convert to Islam.⁴² It had also been home to Yasir Arafat during early childhood (1933–36), following the premature death of his mother.⁴³

Those who are knowledgeable about the venerability and vitality of the Mughrabi Quarter and its illegal eradication surely experience intense cognitive dissonance upon entering the Western Wall Plaza through one of three Israeli checkpoints. Signs enjoin visitors to respect the place where the “Divine Presence always rests.” They are reminded – by way of large posters around the periphery depicting religious symbols



Figure 6. The logo of the Sawwaf Bakery, owned by Muhammad and Mahmud Sawwaf, advertising ka‘k and qarshala in Bab Harat al-Sharaf. From a bakery bag c. 1960. Photo: Maryvelma Smith O’Neil.

and citing scriptural quotations from the Hebrew Bible – of the eternal bond of the Jewish people to the site.

Kollek's deputy mayor Benvenisti, who actively participated in the destruction of the eight-hundred-year-old neighborhood which had been established as an inalienable waqf, engaged in casuistry when he later stated that this bond justified the grave transgression that had taken place there. When a young Israeli filmmaker who interviewed him in the plaza in 2013 alleged his moral responsibility for the demolition, Benvenisti retorted, "Are you saying there's an original sin? True, there is. Deal with it."⁴⁴

Many Jerusalemites – including Palestinian and Israeli residents of Jerusalem alike – do not know that a veteran Israeli politician, a Moroccan Jew, judged the forced expulsion of the Mughrabi from their old neighborhood as "original sin." Palestinians born after 1967 have little or no knowledge of the catastrophe that occurred there, even though Mughrabi diaspora continue to live in their midst. Although the Mughrabi Ascent is a highly contested site, the link between its name and the existence of an eight-hundred-year-old Quarter of Jerusalem, is not readily made by many – a great loss to Palestinian collective memory and shared identity.

When the old earthen ascent to the Noble Sanctuary collapsed during the harsh winter of 2004, a wooden pathway was built. It is the only entrance route for non-Muslims and is highly securitized. The Mughrabi Ascent was one of five highly contested sites included in the exhibition *Statu Quo: Structures of Negotiation*, held in the Israeli Pavilion at the 2018 Venice Biennale. The exhibition viewed these sites through the larger filter of the Status Quo agreements Israel is obligated to uphold. However, it gave concentrated focus to the critical use of architecture both as a system of daily organizational management and as a means of hegemony. Several models of the destroyed Mughrabi Quarter were included in the exhibition, which was viewed by one critic as, "the most concrete expression of the demolition of the quarter ever created by Israeli architects or academics, on a topic about which much has been written."⁴⁵

Construction by the Israeli government of a temporary ramp adjacent to the Mughrabi Ascent that began in August 2014 intensified political and religious tensions both in Jerusalem and regionally as a potential violation of the Status Quo at the al-Aqsa Mosque. Although it was soon dismantled under international pressure, the pathway remains one of the most politically charged and contested sites in the Old City and well beyond due to recurrent efforts by Israeli occupation forces to alter the Status Quo and provocative raids by settlers. The *Statu Quo* curators stated that, "The wooden bridge in its 'permanent temporariness' renders a postponed political solution and showcases monuments as active agents in the territorial conflict."

In the face of what is seen as a permanent state of political stagnation, the Mughrabi Quarter Virtual Archive enables former residents, both those interviewed for oral histories, and the entire diaspora community, to regain active agency in defense of the Mughrabi Ascent. Historical documentation confirms their right to participate in a timely political solution in the face of hegemonic plans for the former neighborhood that they once occupied.



Figure 7. Model of Moroccan Quarter, *In Statu Quo: Structures of Negotiation*, Israeli Pavilion, Venice Biennale, 2018. Photo courtesy: Mary Pelletier.

History of the Illés Relief, 1873–78

It is our great fortune that a miniature representation of the Mughrabi Quarter was preserved in the Illés Relief, a marvel of craftsmanship and a primary source artifact of enormous documentary value.⁴⁶ Like an analog version of Google Earth, the model provides a view – albeit an extruded, three-dimensional one – of what was then the regional seat of the Ottoman administrative district, known as the Mutasarrifate of Jerusalem, commonly referred to as Palestine, an independent province since 1872.⁴⁷

The eighteen square-meter, 1:500 scale model is named for its creator, Stefan Illés, who arrived in Jerusalem in 1864. He first worked as a bookbinder at the Franciscan Monastery of St. Saviour before establishing an independent atelier. He embodied enormous passion for the city by way of a meticulous eye, an effort to obtain verisimilitude, and meticulous craftsmanship. The Relief is an intricately detailed miniature rendering of the stony hill fortress of Jerusalem, set on a promontory, bordered by mountains and enveloped by deep valleys.



Figure 8. Illés Relief, Tower of David Museum. Photo: ARCH Jerusalem.

The Illés Relief is emplaced on a wooden framework divided into eight sections. Illés and two assistants painstakingly cut, melted, and shaped thousands of pieces of zinc; they then soldered, glued, and painted simulacra. The model is color-coded: ancient Jerusalem limestone was painted gray, modern buildings straw yellow, and natural areas green. Roads outside the walls were marked white; important roofs red and metal domes black.

Illés used the Ordnance Survey of Jerusalem undertaken by British surveyor Major General Charles Wilson (1836–1905) in eight months over 1864–65 as the topographic base-map for his model. He mirrored the natural topography, surface area, and built environment with its interpenetrating *harat* (neighborhoods), mirroring shared communal identity, be it shared place of origin, religion, or ethnicity. Although the city was predominantly Arab in its social landscape, confessional boundaries were porous and were only later demarcated by the British under the colonial pretense of creating a modern sectarian balance.

The model represents Jerusalem from the Mount of Olives (which is almost unconstructed except for the Church of the Ascension) in the east to the Russian Compound in the west; from the spring of Ein-Rogel in the southeast to Damascus Gate in the north. Two gates (Herod's and New Gate) had yet to be built. (These and many subsequent alterations that have been made since 1873 will be digitally mapped).

Illés represented in loving detail the extraordinary urban fabric and built heritage of the Old City, interconnected via an ancient network of one hundred forty streets, lanes, and ascents. His aerial view extends beyond the Ottoman walls to encompass the modernizing European suburbs. National flags identify newly established consulates and foreign residences that were connected to the world by recently installed telegraph poles (1865) outside Jaffa Gate. He also includes Mishkenot Sha'ananim – the first Jewish neighborhood established by British banker and philanthropist, Moses Montefiore, with funds bequeathed by New Orleanian tycoon, Judah Touro.

For six months the Illés Relief of Jerusalem was the star attraction of the Ottoman Pavilion at the 1873 Vienna World's Fair.⁴⁸ Relief models of cities were very fashionable in late nineteenth-century Europe, and Illés' eight-section model had been cleverly designed to facilitate transportation and display during a five-year European tour. From 1873 to 1878, viewers in London, Munich, and Cologne flocked, like avian pilgrims, to marvel at the panorama of the Holy City. It was especially well-received in major Swiss cities (Zurich, Luzern, and Bâle), where reliefs had become a popular way to inspire patriotism – uniting the country's ethnicities, religions, and language groups – after the federal constitution came into force in 1848.⁴⁹ Neuchâtel Pastor Félix Bovet, a distinguished Swiss professor of theology, educator, and bibliophile, wrote on 14 February 1878, "We do not believe it an exaggeration to state that – given the religious and poetic emotions [elicited] . . . the spectacle of this relief replaces a journey to Jerusalem."⁵⁰

The booklet printed in Bâle in 1878 for the Swiss tour of the Illés Relief advertised its special claim to fame: "The first accurate model of Jerusalem seen with a bird's eye view from the West." Its documentary and artistic value was further underscored: "The topographic relief gives a precise and detailed representation of Jerusalem and its surroundings; other works of this type have the major shortcoming of not having been created with the artist's eye, and consequently cannot give an exact and detailed representation of Jerusalem as it is today."⁵¹

A team of experts who verified the accuracy of the Relief in the Bâle booklet also stressed its very faithful scale model of Jerusalem at the time. Father Marie-Alphonse Ratisbonne, who enjoyed a “spectacular view of the Old City” from the terrace of his residence at the Monastery of the Religious of Notre Dame of Zion (located at the Ecce Home Arch on Via Dolorosa), praised the “astonishing exactitude of the ensemble even to the smallest detail,” judging it a “prodigious work [. . .] a relief photograph of Jerusalem.”⁵² Dr. Titus Tobler, the Swiss-German physician whose scholarly publications, fruit of four sojourns in the Holy Land (1835, 1845–46, 1857, 1865) which later earned him the epithet “Father of German Exploration in Palestine,” had advised Illés during its creation, as he attested:

The relief map of the city of Jerusalem and its environs executed by M. Illés is recommended for its scrupulous exactitude, in the measurement of the topography as well as the streets and buildings [. . .] I hope that others will take pleasure in it with the same degree as I have done, each time that I have examined it in detail, and I express the sincere desire that a great number of people will be interested in a work of art that is also instructive.⁵³

Tobler was part of a coterie of European Christians who traveled to Jerusalem in the second half of the nineteenth century to identify archaeological sites, using the Bible as their sole frame of reference for field research. Only French archaeologist Charles-Jean-Melchior de Vogüé (1829–1916) had formal training in archaeology. However, others transformed themselves into specialists on the ground in Palestine; by dint of hard work and practical know-how, they gained deep knowledge of topography and the histories of architecture. Tobler was well-acquainted with other autodidacts, such as Conrad Schick (1822–1901), the German missionary who settled permanently in Jerusalem in 1846. As Nazmi al-Jubei has observed, “Conrad Schick embodied the sum of imminent European concerns in Jerusalem in the second half of the nineteenth century, typifying the different historical and social sciences in combination with an unequivocally unique personality.”⁵⁴ Schick’s aptitude for model-making took on mature form in several exceedingly valuable exempla. Afforded unusual permission from the Islamic waqf to explore the Noble Sanctuary from the inside, Schick produced a rare wooden model that was exhibited, alongside the Illés Relief, in the Ottoman Pavilion of the famous Vienna World’s Fair.⁵⁵

Schick’s expertise as a model-maker stood out from the start. In 1859, he was asked to raise the standard of a geomorphic plaster relief map by H. W. Altmüller. His name figures boldly for having “improved and corrected” both quality and accuracy.⁵⁶ Fortunately, he did not remove the marking for the “Coffe [sic] House” near St. George’s Greek Monastery, which must have been a local meeting place for foreigners in Jerusalem, of which Altmüller seems to have been a habitué. Schick, Illés, and Wilson may have met there to exchange expertise during Wilson’s eight-month sojourn as leader of the British Ordnance Survey of Jerusalem.⁵⁷ Wilson’s biography describes the archaeological excavations, especially the “rough and difficult” explorations underneath the Noble Sanctuary (“rewarded by several discoveries”), as well as field research in Palestine in



Figure 9. *Altmüller Relief*, Custodia Terrae Sanctae, The Custodial Archive at Saint Saviour Monastery in Jerusalem. Photo: Robert Dawson.

which he was simultaneously engaged.⁵⁸ Five months before Schick died in 1901, he wrote Wilson to claim payment for work completed and pre-payment for architectural drawings of Jeremiah's Grotto (the Garden Tomb).⁵⁹ Evidence that the Europeans were a highly collaborative group is provided by the useful corrections and new discoveries appended to the 1876 edition of the British Ordnance Survey.⁶⁰ The Wilson Ordnance Survey enterprise merits serious study, along with the Arabic nomenclature for places and street names selected by Carl Sandreczki.⁶¹

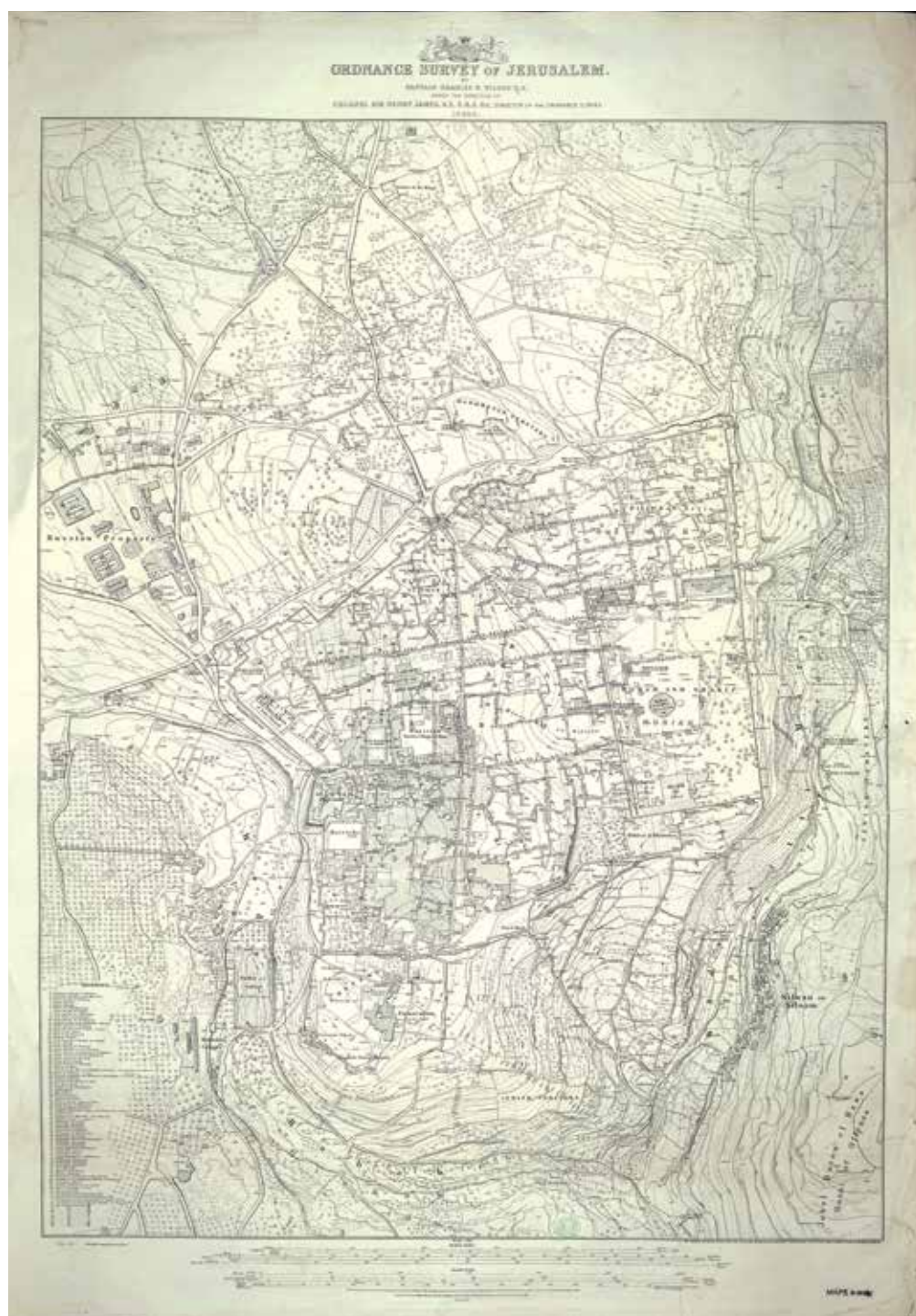


Figure 10: Wilson Ordnance Survey, 1865. Photo: The British Library.

The Illés Relief, from Geneva to Jerusalem

After its peripatetic journey through Europe, the Illés Relief finally found a permanent home in the Republic of Geneva. Gustave Moynier, president of the International Red Cross and major proponent of the humanitarian “Spirit of Geneva,” spearheaded the initiative for its purchase. Two appeals were launched in April 1878. Money flowed in from more than a hundred private donors, many from the city’s most distinguished families. The citizens of Geneva, from a wide social spectrum, also responded generously. Six thousand Swiss francs had been raised within a month, much by public subscription. The administrative council of the Société de la Rive Gauche contributed an additional 4,600 francs, thereby permitting the purchase of the model for CHF 9,500 on 26 October 1878 (estimated to be equivalent to at least CHF 220,000 in today’s economy). The remainder was designated for its installation in the Calvin Library of the Maison de la Réformation SA, a private evangelical association in Geneva that had assumed legal ownership. On 16 January 1879, the solemn installation of the Relief took place.

For forty years (1879–1919) the Illés Relief could be viewed two days a week. Then in 1920 it was removed to accommodate delegates to the inaugural meeting of the League of Nations. Henceforth, finding a suitable display venue became a challenge. Following a brief exhibition at Geneva’s Art and History Museum in 1963, it was relocated to several venues and eventually ended up in a locked depot of the Palais Wilson. On 6 April 1984, a University of Geneva art history professor unlocked the storage room for David G. Littman, accompanied by his wife and daughter. There they found the artefact for which Littman, a student at Hebrew University, had been searching.⁶²

On 20 September 1984, a convention was signed before a Geneva notary between two officials of the Maison de la Réformation SA and Littman, who represented the mayor of Jerusalem, Teddy Kollek. However, the lenders expressed their civic obligation to protect the inalienable property of the citizens of Geneva. The permanent loan contract stipulated an initial ten-year loan to the Municipality of Jerusalem, after which renewal would be automatic every five years – unless specified to the contrary, or if the conditions of the contract were not met.⁶³ The next renewal is scheduled for 20 September 2024.

The Virtual Illés Relief Initiative

Global audiences will soon be able to explore and inspect Illés’ Jerusalem, beginning with the destroyed Mughrabi Quarter, thanks to the recent digitization of the Relief as part of a groundbreaking project – The Virtual Illés Relief Initiative. The Initiative consists of three parts: first, the Mughrabi Quarter Digital Archive, a content-dense website currently underway that aims to recover the Quarter’s past; second, the extensive digital mapping of the entire virtual Illés Relief in order to create an interactive, annotated model housed online; third, a digital museology

exhibition enabling visitors to interact with the Relief through Augmented and/or Virtual Reality.⁶⁴

The Mughrabi Quarter Digital Archive will be launched in the spring of 2020 on the internet. A website will offer a navigable 3D model of the Quarter as it stood in 1873, an orthographic map as well as a media-rich archive, that includes a series of video diaries from witnesses and survivors of the 1967 destruction.

Following this first phase, a global research campaign will initially focus on the histories of Jerusalem during the Ottoman era (1517–1917) by gathering then analyzing data to digitally map the entire virtual Illés Relief. Users will be able to navigate the Old City according to both place and time, excavating layers of geo-referenced data in the city's built topography and exploring its transformation over four centuries. This interactive web platform will incorporate data that showcases the living city, inhabited by Jerusalemites who shared a communitarian ethos and multiple identities.

After the completion of the initial phase, the virtual Relief will be transformed into an experiential, spatial immersion installation, allowing viewers to experience the intricate, interwoven histories of Jerusalem thanks to a range of virtual and visualization technologies. Debuting in Switzerland, the interactive installation will be designed for portability in order to travel around the world to audiences far and wide. In conjunction with the digital museology exhibition, a unique VR film will transport viewers on a narrated time-travel tour of the Old City.

As a legacy project, the Virtual Illés Relief Initiative will be developed in various chronological phases over the course of a prospective ten-year period. The interactive platform will be regularly updated to reflect and incorporate ongoing contributions from scholars spanning myriad academic disciplines.

It is hoped that The Mughrabi Quarter Digital Archive and The Virtual Illés Relief Initiative will catalyze vital new discourses, especially vis-à-vis contested sites in Jerusalem, reinvigorating a commitment by the international community to uphold its legally designated status as “corpus separatum.” By making cultural heritage of outstanding universal value accessible to a global audience, especially when this heritage is increasingly under threat, it is also hoped that this Initiative will actively engage the global community in crucial debates about the very urgent role heritage plays in shaping the precarious future of Jerusalem.

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Endnotes

- 1 Convention (IV) relative to the Protection of Civilian Persons in Time of War, Geneva, 12 August 1949, Article 53 (Prohibited Destruction), online at (ihl-databases.icrc.org) tinyurl.com/vabdkpg (accessed 11 December 2019).
- 2 Nazmi al-Jubeḥ, *Harat al-yahud wa harat al-maghariba fi al-Quds al-qadima: al-tarikh wa al-masir ma bayna al-tadmīr wa al-tahwīd* [The Jewish Quarter and the Mughrabi Quarter in the Old City of Jerusalem: History and Destiny between Destruction and Judaization] (Beirut: Institute for Palestine Studies, 2019); 'Adnan 'Abd al-Rāziq, *Harat al-yahud fi al-Quds: bayna al-haqā'iq wa al-tadlīl* [The Jewish Quarter in Jerusalem: Between Facts and Delusion] (Cyprus: Dar Manshurāt al-Rīmal, 2013), especially table 126.
- 3 United Nations Educational, Scientific, and Cultural Organization (UNESCO), World Heritage Center Decision 40 COM 7A.13, "Old City of Jerusalem and Its Walls (site proposed by Jordan) (C 148 rev)," 2016, online at whc.unesco.org/en/decisions/6818/ (accessed 11 December 2019).
- 4 For the only scholarly article, see Rehav Rubin, "Stephan Illes and His 3D Model-Map of Jerusalem (1873)," *Cartographic Journal* 44, no. 1 (February 2007): 71–79.
- 5 Jubeḥ, *Harat al-Yahud*.
- 6 Muḥammad ibn Aḥmad (Ibn Jubayr), *The Travels of Ibn Jubayr; Being the Chronicle of a Mediaeval Spanish Moor Concerning His Journey to the Egypt of Saladin, the Holy Cities of Arabia, Baghdad the City of the Caliphs, the Latin Kingdom of Jerusalem, and the Norman Kingdom of Sicily*, trans. Roland Broadhurst (London: J. Cape, 1952), 322.
- 7 The original deed of charter of this endowment disappeared. After a special inquiry, it was twice reestablished in 1267 CE and 1595 CE. The last document (located in the archives of the Court of Islamic Law in Jerusalem) was published by Abdul Latif Tibawi, *The Islamic Pious Foundations in Jerusalem: Origins, History, and Usurpation by Israel* (London: Islamic Cultural Center, 1978), 13–15, Arabic text in Appendix. A somewhat abridged version (titles and honorifics removed) was published by F. E. Peters, *Jerusalem: The Holy City in the Eyes of Chroniclers, Visitors, Pilgrims, and Prophets from the Days of Abraham to the Beginnings of Modern Times* (Princeton, NJ: Princeton University Press: 1985), 357–58.
- 8 Şerife Eroğlu Memiş, "Between Ottomanization and Local Networks: Appointment Registers as Archival Sources for Waqf Studies. The Case of Jerusalem's Maghariba Neighborhood," in *Ordinary Jerusalem, 1840–1940*, ed. Angelos Dalachanis and Vincent Lemire (Leiden: Brill, 2018), 75.
- 9 'Abd al-Rāziq, *Harat al-Yahud*.
- 10 See Benjamin Z. Kedar, Shlomit Weksler-Bdolah, and Tawfiq Da'adli, "The Madrasa Afdaliyya/Maqam al-Shaykh 'Id: An Example of Ayyubid Architecture in Jerusalem," *Revue Biblique* 119, no. 2 (2012): 271–87. Kedar's condemnation of its destruction as an "archaeological crime" appeared in Nir Hasson, "Rare Photograph Reveals Ancient Jerusalem Mosque Destroyed in 1967," *Haaretz*, 15 June 2012, online at (haaretz.com) tinyurl.com/t5x463f (accessed 18 June 2019).
- 11 Sabri Jarrar, "Saḳ al-Ma'rifa: An Ayyubid Hanbalite Shrine in al-Haram al-Sharif," *Muqarnas* 15 (1998): 77–78.
- 12 Abdellilah Benarafa, *Mount Qaf: A Biographical Novel on the Andalusian Mystic Muḥyiddin Ibn al-'Arabi*, trans. Abdulwahid Lu'lu'a (Singapore: Strategic Book Publishing, 2015), 237.
- 13 Barbara Drake Boehm and Melanie Holcomb, "Pluralism in the Holy City," in Barbara Drake Boehm and Melanie Holcomb, eds.,

- Jerusalem, 1000–1400: Every People Under Heaven* (New York: Metropolitan Museum of Art, 2016), 66.
- 14 Jubeh, *Harat al-Yahud*.
 - 15 Mujir al-Din al-Hanbali, *al-Uns al-jalil fi tarikh al-Quds wa al-Khalil* [The Significant Ambiance in the History of Jerusalem and Hebron] (Amman, 1973), 45–46, 243. Michael Burgoyne, *Mamluk Jerusalem: An Architectural Study* (Northampton, MA: Interlink, 1989), 69 n5. The two-story Ottoman structure is in vulnerable condition and its residents are threatened due to its location on Ha-Kotel Street. There is a small mosque on the roof floor that includes Maqam Boumédiène al-Hawari. The building is the property of the Islamic Moroccan Institutes and flies the Moroccan flag. The Abu Madyan waqfiyya is translated from Arabic into French and published by Louis Massignon, “Documents sur certains waqfs des Lieux saints de l’Islam: principalement sur le waqf Tamimi à Hébron et sur le waqf tlemcénien Abû Madyan à Jérusalem,” *Revue des études islamiques* 19 (1951): 73–120.
 - 16 According to Salim Tamari: “The Abu Madyan family owned the single highest aggregate of properties in the area – 73 property units, equivalent to 70 percent of all family endowments, followed by the Khalidi family (14 percent) and the Abu Sa‘ud family (6 percent).” Salim Tamari, “Waqf Endowments in the Old City of Jerusalem: Changing Status and Archival Sources,” in *Ordinary Jerusalem*, ed. Dalachanis and Lemire, 506. ‘Abd al-Raziq provides a table that lists the Mughrabi properties destroyed: 5 Islamic awaqf, 104 family awqaf, 16 private properties, 2 absentee properties for a total of 127. ‘Abd al-Raziq, *Harat al-Yahud*, 126.
 - 17 Irène Salenson and Vincent Lemire cite the role played by the French colonial government in the financial sustenance of the Moroccans, Tunisians, Algerians of the quarter after 1948, when the village of ‘Ayn Karim fell behind the Green Line. Irène Salenson and Vincent Lemire, “La destruction du quartier des Maghrébins: entre histoire, urbanisme et archéologie (1967–2007),” *Les Cahiers de l’Orient* 130, no. 2 (Spring 2018): 129–46. See also Vincent Lemire, “1962. Le crépuscule de l’Algérie française à Jérusalem,” in *Histoire mondiale de la France*, ed. Patrick Boucheron (Paris: Seuil, 2017).
 - 18 Jubeh, *Harat al-Yahud*.
 - 19 Simon Pierre, “Harat-El-Maghariba: Le Marocains de Jerusalem,” *Zamane* 86 (May 2013): 88.
 - 20 François-René Chateaubriand, *Travels in Greece, Palestine, Egypt, and Barbary during the Years 1806 and 1807*, trans. Frederic Shorberl (New York: Van Winkle and Wiley, 1814), 332, online at (archive.org) tinyurl.com/t7p2tbn (accessed 20 February 2020).
 - 21 Hanbali, *al-Uns al-Jalil*, 11, 253; and Jubeh, *Harat al-Yahud*.
 - 22 Mary Ellen Lundsten, “Wall Politics: Zionist and Palestinian Strategies in Jerusalem,” *Journal of Palestine Studies* 8, no. 1 (October 1978): 3–27.
 - 23 See appendix to Tom Abowd, “The Moroccan Quarter: A History of the Present,” *Jerusalem Quarterly* File 7 (Winter 2000): 15.
 - 24 A copy of the sketch was first detailed by Daniel Seidemann in 2007, as signaled by Simone Ricca, “Heritage, Nationalism, and the Shifting Symbolism of the Wailing Wall,” *Archives de sciences sociales des religions* 151 (2010): 174 n11. I am grateful to Shmuel Bahat for the translation from Hebrew: “It would be good to leave the enclosure walls, if possible, especially the wall adjacent to the Kotel. It is only a temporary plan until the final plan is devised.” The signatories were Arie Sharon, Michael Avi-Yonah, Yonathan Mintzker, Dan Tanay. The highest official was Yaakov Yannay, head of the National Parks Authority.
 - 25 Interviewee filmed at his Old City home, 14 July 2019; online at “Oral Histories of the Mughrabi Quarter in Jerusalem,” vimeo.com/395176943 (accessed 9 March 2020).
 - 26 Kollek wrote a brief letter to Broshi on paper without official letterhead (31 July 1967, Jerusalem City Archive, Box 2059, Folder 10, n. 45): “Thank you for volunteering to expand the Kotel and for the efficiency and speed with which you did the work as a volunteer with no payment. The reward for all of us will be to restore the glory of Jerusalem.”
 - 27 They were later decorated by the Knesset (1987) and commemorated in a fiftieth anniversary exhibition at Yad Ben Zvi. Nir Hasson, “How a Small Group of Israelis Made the Western Wall Jewish Again,” *Haaretz*, 3 June 2017, online at (haaretz.com) tinyurl.com/relq4ek (accessed 11 December 2019).
 - 28 Teddy Kollek and Amos Kollek, *For Jerusalem*:

- A Life* (New York: Random House, 1978), 197.
- 29 “200,000 in Shavuot Pilgrimage to the Western Wall, *Jewish Herald*, 14 June 1967, 3.
 - 30 Author interview, 17 February 2019.
 - 31 Meron Benvenisti, *City of Stone: the Hidden History of Jerusalem* (Berkeley: University of California Press, 1996), 84. Benvenisti appeared in a short Israeli documentary, *Mughrabi Quarter* (2013), that set him *face to face* with Muhammad ‘Abd al-Jalil ‘Abid al-Mawludi, who identified his original place of residence as al-Buraq (online at vimeo.com/77331340). Benvenisti declared: “I took part in the uprooting. I was in charge.”
 - 32 “Memorandum Concerning the Measures Taken by Israel with Respect to the City of Jerusalem, Submitted to UN Ambassador Thalmann by Ruhi al-Khatib, Mayor of Arab Jerusalem, 26 August 1967 [Excerpts],” in *Documents on Jerusalem* (Jerusalem: Palestinian Academic Society for the Study of International Affairs, 2007), vol. 2, 15. Ruhi al-Khatib participated in a debate at the UN in New York on 8 May 1968 in which he stated, “The bewildered inhabitants were scattered in the adjacent lanes and streets and some at a later stage found refuge in the neighboring villages. The total number of persons affected by this campaign was 650.” See verbatim record of UN Security Council meeting, 3 May 1968, online at (un.org) tinyurl.com/rw8slvb (accessed 11 December 2019)).
 - 33 *Le Monde*, 21 November 1974, translated by Henry Cattan in *Jerusalem* (London: Saqi Books, 200), 76.
 - 34 The question of indemnification has been discussed in various UN documents and articles on the Mughrabi Quarter. It was part of the Israeli hasbara (public relations) and, in any case, did not offer real compensation to poor people whose lives were turned upside down. Noura al-Tijani lists, “The most well-known Palestinian families with Moroccan roots include al-Moghrabi, al-‘Alami, al-Tayyib, al-Maslouhi, al-Tijani, al-Fakiki, al-Mahdi, al-Filali, Bu Hamalah, al-Tazi, al-Khairi, al-Muwaqat, al-Qutob, and al-Muzaffar”; in “The Moroccan Community in Palestine,” *This Week In Palestine* online at (palestine-family.net) tinyurl.com/rbk59mw (accessed 9 March 2020). The author’s father described the trauma of demolition and displacement for his own and other families, as reported by Rafique Gangat, “Jerusalem’s Moroccan Quarter,” *Gulf News*, 23 November 2016, online at (gulfnews.com) tinyurl.com/r26c5fr (accessed 21 February 2020).
 - 35 Kollek describes his decisive role with great panache in his autobiography in Kollek and Kollek, *For Jerusalem*, 197.
 - 36 Author interview, 22 January 2019.
 - 37 Author interview, 12 February 2019.
 - 38 Jubeih, *Harat al-Yahud* (Appendix 6) lists 138 names of heads of household and their property components. The digital mapping project aims to contact as many as possible.
 - 39 Tibawi, *Islamic Pious Foundations*, 40 n48.
 - 40 Jerusalem City Archive, Box 2059, Folder 10, n124. The handwritten and typed letter is dated 9 April 1968.
 - 41 The ostensible reasons were the enlargement of the excavation area and the improvement of access for Israeli military forces to monitor the Haram al-Sharif in case of troubles, as Ricca has observed (Ricca, “Heritage,” 175–76).
 - 42 Burgoyne, *Mamluk Jerusalem*, 258–260. See also “Zawiyat Madrasat al-Qadi Fakhr al-Din Abu ‘Abdallah: al-Fakhriyya,” online at (web.i2ud.org) tinyurl.com/u6qh5ax (accessed 11 December 2019). The Fakhriyya complex included fourteen buildings, including a mosque and chambers for Sufi prayer, as well as lodgings. Three spared rooms and the mosque are today occupied by the Archaeology Department of the Awqaf Administration and the office of the director of the Islamic Museum. For the highly contentious excavations that followed demolition of the Abu al-Sa‘ud complex, see Ricca, “Heritage,” 179–180; and Irène Salenson and Vincent Lemire, “La destruction du quartier des Maghrébins: entre histoire, urbanisme et archéologie (1967–2007),” *Les Cahiers de l’Orient* 130, no. 2 (Spring 2018): 129–146. Salenson and Lemire highlight two recent excavation campaigns that uncovered household objects used by the Mughrabi community as well as a mihrab dating from the British Mandate period. See also Craig Larkin and Michael Dumper, “UNESCO and Jerusalem: Constraints, Challenges, and Opportunities,” *Jerusalem Quarterly* 39 (Autumn 2019): 16–28.
 - 43 Azzam Abu Saud, “Yasser Arafat, the Early Years: A Personal Recollection of Arafat’s Childhood and Formative Years,” *Palestine-Israel Journal* 11, no. 3–4 (2004–5), online at (pij.org) tinyurl.com/vlao9r4 (accessed 11 December 2019).
 - 44 See *Mughrabi Quarter* (2013), online at

- video.com/77331340 (accessed 11 December 2019).
- 45 Naama Riba, "Deconstructing the Most Volatile Sites of the Israeli-Palestinian Conflict – at Venice Architecture Biennale," *Haaretz*, 29 May 2018, online at (haaretz.com) tinyurl.com/wecrcys (accessed 11 December 2019).
 - 46 Maryvelma Smith O'Neil, "Liberate the Illés Relief," *al-Jazeera*, 20 August 2012, online at (aljazeera.com) tinyurl.com/ryegka6 (accessed 11 December 2019).
 - 47 Johann Büssow, "Ottoman Reform and Urban Government in the District of Jerusalem, 1867–1917," in *Urban Governance under the Ottomans: Between Cosmopolitanism and Conflict*, ed. Nora Lafi and Ulricke Freitag (London: Routledge, 2014).
 - 48 Hermann Zschokke, "Palästina auf der Weltausstellung in Wien 1873," *Das Heilige Land* 18 (1874): 4–8.
 - 49 "Swiss Reliefs," *Terrain Models*, undated, online at www.terrainmodels.com/swiss.html (accessed 11 December 2019).
 - 50 David Littman, *Le Relief of Jérusalem* (Geneva: l'imprimerie Avenir S.A., 1986), 4.
 - 51 Etienne Illés and Stephan Illés, *Courte Description du Relief de Jérusalem* (Bâle: Chr. Krust, 1878), 3.
 - 52 Illés and Illés, *Courte Description*, 16.
 - 53 Illés and Illés, *Courte Description*, 16.
 - 54 Nazmi al-Jubeih, "Conrad Schick: Pioneering Architect, Archaeologist, and Historian of Nineteenth-Century Jerusalem," *Jerusalem Quarterly* 67 (Fall 2016): 7.
 - 55 Haim Goren Rehav Rubin, "Conrad Schick's Models of Jerusalem and its Monuments," *Palestine Exploration Quarterly*, 128, 2 (1996): 103–24. According to the authors, both Schick and Illés were encouraged to submit small zinc models to the Ottomans by the Austrian Consul in Jerusalem.
 - 56 The relief measures 43.2 x 36 x 6.2 centimeters. For another plaster relief of Jerusalem by Altmüller, see "Plaster Relief of Jerusalem – Germany, 1859" (Auction 60, Lot 61), Kedem Auction House, online at (kedem-auctions.com) tinyurl.com/vevdhqq (accessed 11 December 2019).
 - 57 John James Moscrop, *Measuring Jerusalem: The Palestine Exploration Fund and British Interests in the Holy Land* (London: Leicester University Press, 2000).
 - 58 Charles William Wilson, *The Recovery of Jerusalem: A Narrative of Exploration and Discovery in the City and the Holy Land* (London: D. Appleton, 1871), 47.
 - 59 See David Gurevich, "The Secrets between the Old Pages," Palestine Exploration Fund Blog, 5 February 2015, online at (academia.edu) tinyurl.com/s5apska (accessed 14 April 2020).
 - 60 See Shimon Gibson, "British Archaeological Work in Jerusalem between 1865–1967: An Assessment," in *Unearthing Jerusalem: 150 Years of Archaeological Research in the Holy City*, ed. Katharina Galor and Gideon Avni (Winona Lake, IN: Eisenbrauns, 2011), 23–57; Jubeh, "Conrad Schick."
 - 61 See Haim Goren, "Sacred, But Not Surveyed: Nineteenth-Century Surveys of Palestine," *Imago Mundi* 54 (2002): 87–110. In his introduction to the 1980 facsimile of the Wilson Ordnance Survey, Dan Bahat underscored the invaluable nomenclature of the survey, thanks to Rev. Dr. Sandreczki, Protestant Minister of Jerusalem, and a thirty-year resident, who was fluent in Arabic. He included correct place names in Arabic in the margin, many of which have been subsequently distorted or forgotten. "In addition to listing the names of building and sites, Sandreczki often explains the course of the name, the use of the building, and offered other information." Dan Bahat, "The Ordnance Survey and Its Contribution to the Study of Jerusalem," introduction to Charles W. Wilson, *Ordnance Survey of Jerusalem*, facsimile edition (Jerusalem: Ariel Publishing House, 1980).
 - 62 Rubin, "Stephan Illés." The digital mapping project will fully investigate Illés contributions to the history of cartography and especially his collaboration with other European model-makers in late nineteenth-century Jerusalem, several of whom were Swiss. The purposes behind the creation of the Illés Relief will be examined and the patronage and scientific exactitude of the artifact evaluated. The exhibition of the model in the Ottoman Pavilion of the Vienna World's Fair (1873) is also relevant for the study of late Ottoman Jerusalem.
 - 63 Document no. 17 in the archive conserved at the Bibliothèque de Genève contains a letter dated 18 October 1884 from the Administrative Council (Jean-Pierre Guillermet and the Mayor Roger Dafflon) to Michele Pierre Micheli, President of the Maison de la Réformation SA, M. Michele, "Compte tenue de la valeur scientifique, historique et religieuse du Relief de Jérusalem, acquis à l'époque grâce à une

source publique, le Conseil administratif souhaite très vivement que cette œuvre puisse être rendue dans quelques années à la collectivité genevoise selon des modalités qu'il conviendra de déférer le moment venu." A letter to David Littman from Micheli published in *Le Matin Dimanche* (21 October 1984) conveys Micheli's concern that the installment of the model in the Old City could provoke the Arabs. "J'ai fait tout mon possible pour lui faire comprendre qu'il s'agissait uniquement d'une affaire culturelle, qui ne concernait que la ville de Jérusalem et non de l'État d'Israël. Lorsqu'il a compris que la

'Citadelle de David' se trouvait dans la vieille ville, sa réaction a été immédiat ; 'Où est vont dire les Arabes ?' D'ailleurs. Il m'a demandé pourquoi l'objet n'avait pas pu être donné au prêtre au Conseil œcuménique des églises de Genève. 'Pourquoi Jérusalem ?' Dans ses circonstances, je pouvais soit mettre fin à notre conversation."

- 64 Virtual Reality most often uses a head-mounted display (HMD) to create a convincing interactive experience in a fully artificial environment. Augmented Reality adds artificial/digital objects to a real environment.

Geographical Reconnaissance by Aeroplane Photography, with Special Reference to the Work Done on the Palestine Front

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*Read at the Afternoon Meeting of the
Society, 12 January 1920*

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H. Hamshaw Thomas was introduced by the society president with the following: "The lecturer this evening, Captain [Hugh] Hamshaw Thomas, was, before the war, more closely connected with the earth than with the air: a lecturer in Botany, and Fellow of Downing College, Cambridge. When the war broke out he joined the Air Force and has done some interesting reconnaissance work in Palestine. He will this evening give us the results of his experiences as to air photography."



The development of aerial photography during the War resulted in a system by which the results of a rapid reconnaissance of a large tract of country could be expressed in a graphical form. Such results become of geographical interest when it is possible to convert them into maps or charts, and consequently we have to consider both the methods of obtaining suitable photographic information over a wide area and the work of compiling from it reconnaissance maps of the area.

The subject under consideration is allied to the question of mapmaking from aeroplane photographs, but it is on a different footing, for our underlying idea is the execution of a general reconnaissance survey of a region leading to the construction of the best possible map on a scale of about 1 inch to the mile, or perhaps 1:40,000. Our methods must be rapid and easy, and will consequently differ from those employed with the object of mapping every feature of the surface of the ground in its exactly correct position. If we wish to deal with local features such as towns or ruins on a

more detailed scale, we shall have to be content with relative accuracy of position in the locality, but in our small-scale maps we shall aim at a degree of accuracy which is not much less than that usually attained in such productions.

It will be convenient to divide the materials to be brought forward into two classes, under the following headings. (A) The experience gained on the Palestine Front, where the author was employed during the latter half of the war. (B) The examination of the methods employed in this region and the consideration of their applicability to other areas.

The methods of mapping from aeroplane photographs on the Western Front have been already described by Colonel MacLeod (*Geographical Journal*, 53: 382, June 1919), and it will be seen that those which are here described are considerably different. The methods developed in the East were quite independently worked out and are based on the taking of special photographs in a particular way, rather than on the utilization of any photographic material which the Air Force could obtain. It may be useful, therefore, to notice at the outset some of the causes which contributed to this divergence of method. In the first place, the conditions of aerial activity in France were very unfavourable for mapping photography. Straight flying and the production of long series of photographs were virtually impossible. On the other hand, the Palestine system postulated the unhampered activity of the airman and the close co-operation of the personnel of the Air Force and Survey Company. Again in the East the area to be photographed by a single Air Force unit was much greater than in the West, and economy in time, aircraft, and material had to be closely studied; and this encouraged the employment of methods which were perhaps somewhat less refined. In the East, also, the accuracy of position which was possible in the final maps was never so great as that achieved or required on the Western Front, but the shape of the ground was of the utmost importance. It is not therefore surprising that the two systems as finally established showed many points of difference. It is unwise to conclude that one system is better than the other, while the assumption that the system employed on the Western Front is naturally the better for future use, is unwarranted.

Aerial Survey in Sinai and Palestine

A. Development of a Method

The possibility of using aeroplane photographs in the production of maps was investigated in Egypt during 1915 under the direction of Mr. E. M. Dowson, at that time Director of the Survey of Egypt, and the results obtained were utilized in connection with the operations in Gallipoli. The underlying principles of the work, together with the difficulties to be met and the precautions to be taken, were made clear in these investigations, which may be regarded as the foundation of the system used in the East.

During 1916 some small amount of work was carried out in the Suez Canal zone, but during the advance of the army into Sinai the method fell into abeyance. In Sinai the existing maps were not sufficiently detailed to allow of the location of the photographs taken, and it was seldom that photo-groups could be scaled from the map. Moreover, the

advance of our troops was rapid and the need for detailed maps was not greatly felt. During this period, however, some work was done in the production of photo-mosaics of selected areas, and valuable lessons were learned from these. It was found that photographs which were intended to be truly vertical were often considerably distorted owing to the optical axis of the camera being tilted at the moment of exposure. On the other hand, it appeared that if the camera was rigidly mounted on the machine and carefully levelled, and if the pilot was flying on a straight course, the distortion was much less. Better results were obtained by covering an area by a series of strips of consecutive photographs than could be got by the practice of taking separate views of a number of adjacent points in no regular order (often known as pin-pointing). This led to the initiation of the strip system.

By the end of 1916 a considerable advance had been made. A good town map of Gaza was produced from a series of parallel strips of photographs, and a MS [military survey] sketch-map of Rafa, produced from intersecting strips, was very useful in the battle at that place. The lack of points on the map which could be identified on the photographs led to the taking of several long series of 50 to 70 overlapping exposures which were invaluable for placing subsequent prints or series.

When the Turks made a stand on the Gaza-Beersheba line and commenced to dig systems of trenches, mapping by aerial photography became of great importance. The pre-war maps were quite inadequate for trench warfare, and a new series of maps on scales of 1:40,000 and 1:20,000 had to be constructed, sometimes entirely from photographic material. The whole area occupied by the enemy's troops and a considerable extent of country to his rear, especially along the roads and railways, was photographed. The photographs were taken in intersecting series, some along the front, some extending from our lines into the enemy's territory, and these were built up into maps upon a meagre framework of points fixed in our lines, or located by intersections from our territory. A few points were furnished by the older maps, but these had to be used with caution. The results were on the whole successful and were very favourably received, valuable lessons were learned, and confidence was gained by all concerned in the map production. Some 400 square miles of country were mapped from photographs, and since during much of the period the German aviators had markedly superior machines, our progress owed much to the skill and daring of our R. F. C. pilots. By October 1917 a system of photography and map compilation had been arrived at, which held in essentials to the end of the war.

This historical summary has been given in order that it may be understood how the work in Palestine commenced. The need for maps on a scale of about 1:40,000 was keenly felt; little help was forthcoming from previous surveys; and everything depended on the way in which photography was carried out and the photographs used. Consequently the question had to be studied from every point of view. The relations of points shown on vertical or tilted photographs to their positions in plan were worked out. The ability of pilots to fly level and to take approximately vertical views was studied. The relations of prints in a series and the possibilities of recording tilt were worked at. I should like to mention the names of Messrs. T. L. Bennett and W. H. Douglas of the Survey of Egypt, and of Lieut. N. Shiels (Australian R.E.) and Captain

F. S. Richards in connection with these investigations. It should be understood that during 1918, when we were concentrating on the work of producing undistorted pictures of the ground, we fully realized the occurrence and effects of tilt, but aimed at its elimination rather than at its correction.

The Work in Central Palestine

At the beginning of 1918 we were much better off for personnel and equipment. We had Bristol Fighters which could easily attain heights of 10,000 to 20,000 feet, cameras were more up to date, and lenses more suitable. More photographs could be taken and dealt with, and it was possible to arrange for one flight of No. 1 Squadron A. F. C. to specialize on mapping photography. The Central Palestine hill country was more difficult ground to deal with, but it possesses many villages whose positions were accurately shown on the 1 inch to the mile map from the survey of Kitchener and Conder, giving a framework of fixed points on which the photographic material could be fitted.

In the district to the east of Jordan, however, the old difficulties were encountered; the old maps were very incomplete and often inaccurate; the number of fixed points was very small; and, in addition, the country was very mountainous. As the result of photography a tolerably good reconnaissance map was produced, showing the wadis, hills, roads and tracks with a moderate degree of accuracy of position. The results showed, when some tests were made, that considerable progress had been made in the elaboration of a system which would give useful results under very unfavourable conditions. The progress made is indicated by the fact that whereas the area mapped on the Gaza-Beersheba front was 400 square miles, subsequent work up to the time of the armistice brought the area up to about 2000 square miles, of which about 1500 square miles was photographed by a C Flight, No. 1 Sq. A. F. C. The country was completely photographed to a depth of about 25 miles behind the Turkish lines, and, in addition, the roads and railways leading northwards out of this area were dealt with.

Methods Employed

The photographic work of the Palestine Brigade R. A. F. was divided into two distinct portions: (a) Topographical work on a small scale under the best possible conditions for general mapping; (b) Intelligence work on trench systems, enemy battery areas, etc., which could, if desired, be incorporated in the maps produced as the results of the former work. The machines carrying out this work were usually at low or moderate altitudes, often under heavy anti-aircraft fire, and were given a good deal of latitude as regards overlapping and straight flying. The topographical photography was kept well ahead, and the country was usually photographed before trench systems and A.A. defences had been established; we shall henceforward deal exclusively with this division of the work.

The great majority of the plates were exposed in a camera of the L-type fixed in a machine with its optical axis vertical and the plate horizontal. Before dealing with

an area, a consultation was held between the officers of the Survey Company and the Royal Air Force at which the general scheme of work was determined. The area was then roughly marked out in a series of strips showing the ground which should be covered by each machine. The arrangement of these strips usually depended on the contours of the country, but the positions of fixed points, easily observable landmarks, and previous work were also taken into account. Most of the strips would be parallel, but some of them would be arranged to intersect the others for the purpose of tying down any series which failed to overlap laterally, and for assisting in determinations of the scale (see figure 1). Diagrams or maps were then prepared for the use of the pilots, showing them the course to be followed, and often amplified by the addition of previous oblique views (panoramic views taken with the optical axis of the camera tilted at an angle of 70° to 80° to the vertical, or with an equivalent prism attachment) or other photographs. In making the final arrangements it was often necessary to take into account the direction of the wind at the required altitude. The camera was mounted in a specially constructed semi-rigid pivoted fitting, which could be adjusted in a fore-and-aft direction so as to bring the plate into a horizontal position which was indicated by a spirit level. This arrangement proved a satisfactory solution for the difficulty of ascertaining the flying position of the fuselage in order to level the camera, because the variation of the incidence of the tail plane in machines like the Bristol Fighter introduces a considerable variation in air speed during flight and consequently in the fore-and-aft level of the fuselage. The pilot was now free to adjust his flying speed as desired, and had only to keep his wings level and his height constant. Considerable trouble was experienced in obtaining comparatively undistorted photographs before the introduction of this fitting, and though it was roughly made it gave valuable results.

In the air the pilot had to concentrate on finding his course and on keeping his machine level, while the observer manipulated the camera. The fitting was first levelled, and then exposures were made at the required intervals either by reference to a sight or by time, or usually by a combination of both methods. After eighteen exposures the plate boxes had to be expeditiously changed so as not to break the sequence of the overlap, and the work was continued until a series had been secured covering the required area of from 5 to 10 miles—or in some cases as much as 35 miles. The pilot would then turn and a second strip would be photographed, and so on until the task was completed and from seventy-two to one hundred and eight plates had been exposed. Often two and sometimes as many as five machines would work together under an escort, so that a very large area was covered in a single morning (see figure 2). Most of the work was done from heights of 10,000 to 15,000 feet, but in hilly country with longer-focus lenses greater heights were often employed. It was not found very practicable to use prints which had a much smaller scale than 1:20,000, and with 6-inch lens this limited the height to 10,000 feet.

On returning to the aerodrome the plates were quickly developed and unglazed contact prints were made, together with a set of enlargements. These were handed over to the Field Survey Company. It may be useful to point out here that if prints are glazed their utility for map-making is entirely destroyed. The resulting image is always

larger than the original negative image owing to the expansion of the paper, and this expansion is greater in one direction than in another. The enlargements are often very useful for reference during compilation and after the contacts have been stuck down and inked up.

We now pass on to the work of the Survey officer who is to compile the Map. After a preliminary examination and identification of the areas which have actually been covered, he sorts out the prints into sets or strips each comprising from ten to twenty prints. Each set would usually contain at least two fixed points, preferably near either end, from which the scale of the whole could be determined. Each print in the set should overlap its neighbours by from 30 to 40 per cent, and the same points on adjacent photographs should overlap accurately. If the overlaps were bad and indicated distortion, the series was usually rejected and a new set had to be taken on another day.

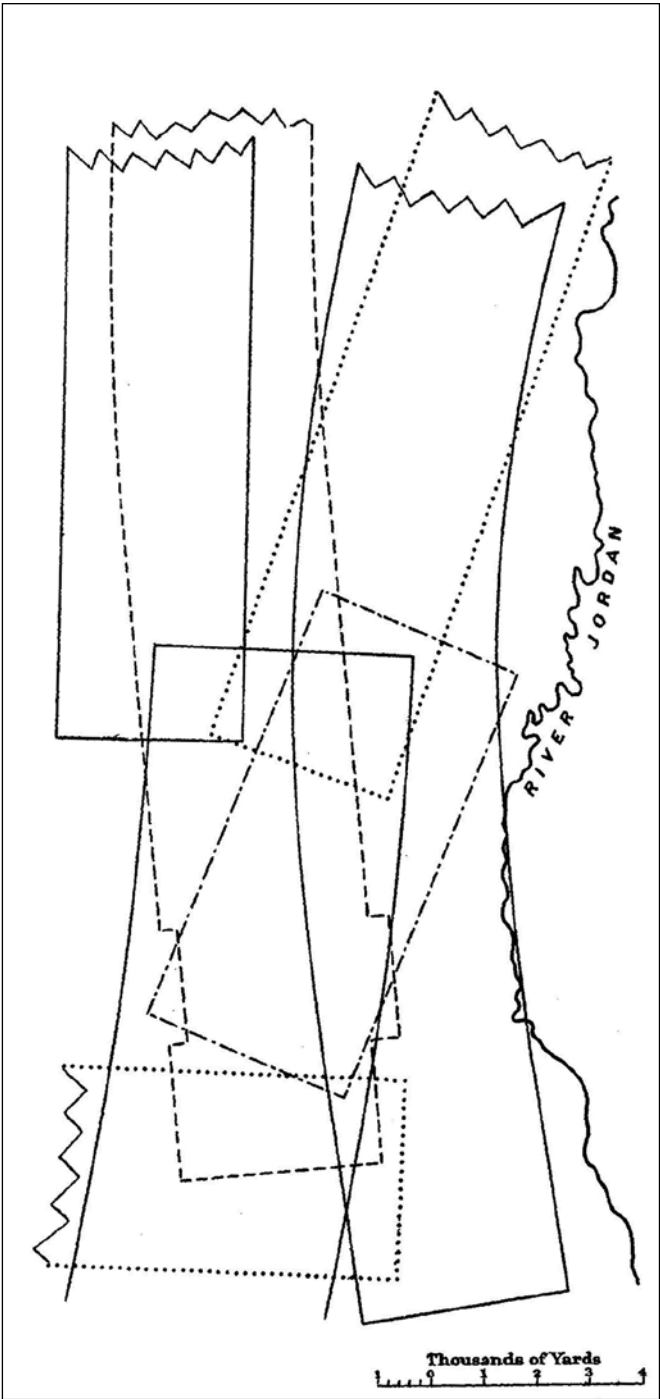


Figure 1. Results of attempt to cover ground with parallel strips of photographs.

The photographs were then pinned down on a large piece of cardboard in their correct relative positions, so that points on one print fitted with those on the next. Any trimming required was done, and eventually the series was gummed on to the card, care being taken that in adjusting the position of the print, points were used which appeared to be on the same altitude and not too near the edges of the picture. The group of prints thus obtained was used as a unit in the map compilation.

All possible points which could be identified on the old map and seemed reliable, or which had been fixed by intersection, were then noted, and by using combinations of these the scale of the group was determined. Several values would usually be obtained for the scale, and if they agreed fairly well a weighted mean value was taken. If the ground depicted changed considerably in altitude throughout the series, special treatment was needed.

The group was then inked up, everything which was to appear on the final map being overlined with transparent coloured ink of an appropriate colour, after which the inked detail was pantographed down to the map scale on a piece of tracing linen. Eidographs by Elliot were chiefly used in this work, and were found to be more convenient than the system of reduction by photography which was used in Mesopotamia. A series of points, such as bushes, rocks, or road junctions, which could be clearly picked out on other series, was also marked, and was later used in fitting together all the material available. In this way all the photographic material was eventually reduced to series of strips drawn on tracing linen to approximately the same scale, and showing everything which was to be included in the final map.

In compiling the map from this material a large sheet of tracing linen was prepared and ruled up with the usual 1000-yard squares. All points which could be fixed by reference to previous surveys or from work done within our lines, were then inserted, and the edges of adjacent completed sheets were also traced on. This served as the framework upon which the rest of the detail was built up.

The next step was to plot a number of secondary points on the sheet by reference to the primary points and the photographic detail, so as to have fixed points every 3000 yards. A pantographed strip was placed in position by reference to the primary points, and the location of some small prominent object seen in the photographs was ascertained. This object would be shown in several strips or groups, and from each of them an independent value for its position would be obtained. A weighted mean position would be taken, and repeating the process for other objects, the sheet was covered with points whose mean positions had been ascertained. The strips of detail were then placed below the sheet, adjusted with reference to the primary and secondary fixed points, and the detail traced in from them. In this way every group was slightly adjusted and errors in scale or azimuth, which may have arisen in the photographs, were distributed, so that no single photograph or group had to be distorted violently, as sometimes happens owing to an accumulation of errors when constructing mosaics. When two values of secondary fitting points were rather far apart, as happens in pictures of steep hilly country taken along the contours, a special method of adding the detail square by square in its approximately correct position was adopted.

Form lines were added to all the later maps, and these were based on the stereoscopic examination of adjacent prints. When the adjacent photographs in a series overlap by 50 per cent., the whole of the area covered can be viewed stereoscopically. If A and B are two consecutive prints, the ground seen on the right-hand side of A is shown on the lefthand side of B, and the stereoscopic base is the distance between the centres of A and B. When the prints are placed side by side and viewed through a stereoscope so that the left eye looks at A and the right eye at B, the relief of the common area is clearly seen after a little adjustment.

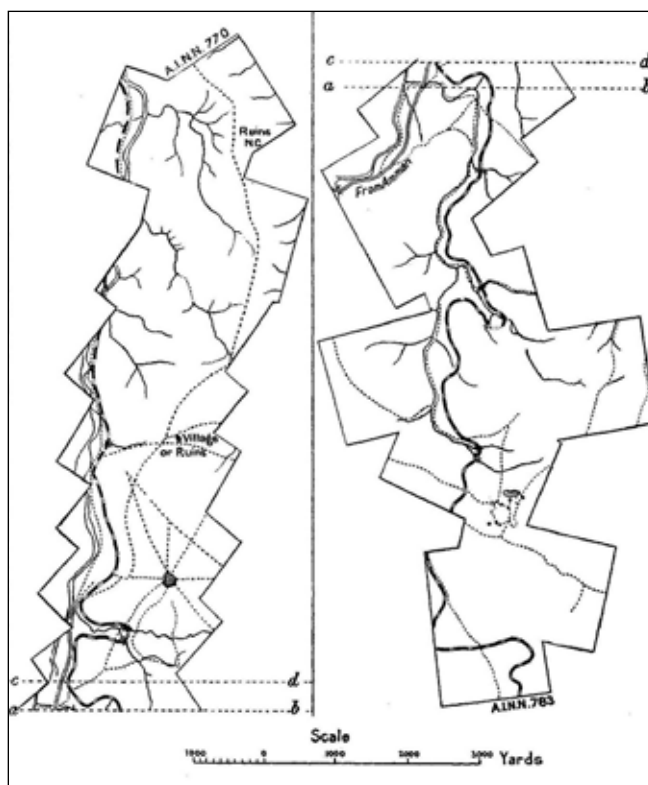


Figure 2. Example of reconnaissance map worked up from a strip of overlapping photographs.

The amount of relief seen depends on the height of the camera from the ground and on the length of the stereoscopic base. By inspection in this way the shapes of the hills and valleys can be determined, and indicated by form lines inked in on the prints. These lines can be reduced by the pantograph and shown in the final map. This method gives some idea of the relative heights, and further valuable information can be obtained from oblique views also taken in stereoscopic pairs. These enable the worker to determine which points in a ridge are the highest and lowest. More exact determinations of relief or the estimations of actual contours were not attempted, though methods for doing this were studied.

In concluding this brief sketch of the methods employed in Palestine some remarks may be added as to the degree of accuracy obtained. Capt. F. S. Richards, of the 7th Field Survey Company and the Survey of Egypt, has gone into this question and states: (1) Where the ground was flat and triangulated points close together great accuracy was obtained. Every point was within 40 metres of its correct position and the detail of wadis, roads, fields, etc., was more accurate than ground plane-table survey work done under military conditions. No slopes however can be shown. (2) Where triangulated points are fairly close (an average of four in a square of 6000

yards sides) and the ground hilly, as in Central Palestine, the maximum error of position of any point is about 200 metres. The shapes of the hills and wadis would again be better than in an ordinary military plane-table survey.^(*) (3) Some sheets were constructed on a very much smaller number of fixed points; in one case only six occurred in a sheet covering 20,000 yards by 28,000 yards, and here again the country was mountainous. In these a maximum error of about 400 metres is to be feared in parts; the general shape of the detail is again good, though its position may be inaccurate.

B. The method which has been described seems to be applicable to the work of geographical reconnaissance in other areas. It possesses the advantages of requiring a comparatively small amount of basal survey work on the ground; it is rapid, enabling large areas to be covered to a considerable distance from the landing grounds; and it does not entail an unduly great labour in the work of compilation. With a moderate number of fixed points and in suitable country, it gives results which are as accurate as are usually obtained in maps on a scale of about 1 inch to the mile, and makes it possible to show the exact shape of the detail without trouble.

We may, however, examine further some of the general ideas underlying this system and notice the types of country in which it is suitable, dealing briefly with the lines along which improvements may be made in the future.

Limits of the Utility of Vertical Photographs

When a photograph of perfectly level ground is taken on an accurately levelled plate with a modern camera whose optical axis is vertical, the resulting plate depicts the ground accurately in plan. Distortion due to the aberration of the lens is quite negligible with a good modern anastigmat such as is usually employed in an aeroplane camera. The error due to the movement of the aeroplane during the travel of the focal-plane blind is negligible at moderate heights and in the case of photographs of a scale of about 1:20,000 but the replacement of the focal plane shutter by a between-lens shutter might be thought of.

In practice, however, the ground may not be flat or the plate horizontal; but in our system the plate is regarded as being so nearly horizontal that the difference from the true representation is small, and does not produce appreciable errors in maps on a scale of 1:40,000. We also assume that it is possible for a pilot to take a series of vertical photographs while keeping his height virtually constant. The grounds for these assumptions must be examined more closely owing to the divergent views which are held on the subject.

It is stated by workers on other fronts that experience shows that aeroplane photographs are always more or less distorted owing to the plate not being horizontal

^(*) That is in a country to which access is difficult, and in which a considerable rate of progress is required by the circumstances.

at the moment of exposure, and if this be the case it is due to one or more of the following causes: (1) The way in which the machine is rigged or flown; (2) The atmospheric conditions; (3) The mounting of the camera in the machine. Suitable photographs cannot be obtained unless attention is paid to all these points.

Pilots usually need training and practice in flying level. On the French front straight flying and consequently level flying was very unwise and unsafe, on account of the enemy anti-aircraft defences, but in the East after training and practice good work was done without special instruments. Experiments made in England during the last two years in connection with aerial navigation similarly indicate that considerable accuracy of position can be maintained. This is increased by the use of special instruments for detecting turning movements and change of altitude.

Atmospheric conditions are often responsible for irregularities in the position of the optical axis of the camera. At low elevations, differences in the density of the air or other causes, give rise to the phenomena known as "bumps," and cause either the sudden fall of the whole machine or the tipping up of one plane. These effects, however, greatly decrease with an increase in height, and at altitudes of about 10,000 feet they disappear, and a perfectly steady wind is experienced, except in certain rare cases. This is an important reason for carrying out survey photography from a considerable height and for using long-focus lenses when larger-scale photographs are required.

The mounting of the camera in the aeroplane is one of the chief causes of distortion due to tilt, but it is also necessary to ensure that the lens is accurately mounted in the camera itself. It is obviously impossible to obtain correct photographs unless the plate is horizontal when the machine is in its level flying position. During the war little attention was given to this aspect of camera mounting, the greater care being paid to devices for the elimination of vibration effects, and consequently the optical axis of the camera was often three or four degrees from the vertical even when the machine was flying straight. Except in Palestine, it was seldom recognized that the level of the fuselage varies with the air speed of the machine, but when the incidence of the tail plane can be adjusted, the air speed may alter considerably, and this may result in the plate being tilted from five to ten degrees out of the horizontal. We found that this was a great source of error when using Bristol Fighters, and, as mentioned above, a special swinging fitting was designed to meet the case. With this mounting the camera could be brought into a horizontal position whatever the slope of the fuselage, and the results gave considerable satisfaction even though the adjustment was made by reference to a spirit level.

It had been argued that a spirit level would not give accurate results in the air owing to changes in the acceleration of the machine, and therefore such an arrangement was only used as a last resource. All recent work, however, indicates that the argument against the use of gravity levels in steadily flown machines, is fallacious. A considerable body of evidence has been collected recently on the accuracy of gravity levels in aeroplanes. Many trials have been made in England and America with both pendulum and bubble levels in connection with sextant observations. As the result of a very

long series of observations made with bubble instruments the average deviation from the horizontal of single readings proved to be no more than $\pm 21'$. These experiments seem to show that it should be possible to mount a camera and to fly a machine in such a way that the optical axis of the camera is never more than half a degree from the vertical at the instant of exposure.

The question of recording the tilt of the camera was considered some time ago, but the difficulty of producing a small and sensitive tilt detector proved insuperable at the time. Messrs. Bennett and Douglas of the Egyptian Survey conceived the system of photographing the horizon at the moment of exposure with two small auxiliary lenses; in practice, however, the horizon was found to be too indistinct to be of practical utility. The German tilt recorders of Zeiss were very neat, but were probably not capable of sufficient accuracy.

The question of maintaining the camera in a vertical position by means of a gyroscopic stabilizer was suggested some time ago, and a considerable amount of experimental work was latterly done on this subject. It cannot, however, be said that the results yet achieved have been entirely satisfactory.

The Magnitude of Errors due to Tilt

I have not yet had the opportunity of comparing closely a good set of photographs with a carefully surveyed map of the ground which they represent, and some comparisons that have been already made by others are open to criticism. We may, however, gain some idea of the magnitude and relative importance of distortions due to tilt by the examination of a series of well-overlapped prints.

[. . .]

It must be noted that none of these results are strictly reliable because the prints used were all enlargements, and may possess an unknown error if the enlarging lantern was refocussed each time a print was made. It is unfortunate that suitable contact prints are not now available for study, but the experience of the survey officers in the field showed that the quantities investigated were negligible in practice, and little attention was given to the question until the freedom of such photographs from distortion was questioned.

The above measurements brought out another important fact, viz. that a much better result is obtained by discarding any points near the corners of the prints. Now when we have ample overlaps we can trim off the edges of the prints before sticking down, and so use only the parts which are fairly near the centre. This is not a wasteful process because the superabundant parts give useful material for our stereoscopic study of the contouring. It has been shown by M. Clerc (*British Journal of Photography*, vol. 66, p. 298; 1919) that in the case of a tilt of half a degree, the useful surface of a 13 X 18 cm. plate is 12 X 17 cms., and on this surface the error of definition is not greater than '02 cm. [0.02cm], which is equivalent to 2 metres on the ground in a photograph taken with a lens of 26 cms. focal length from a height of 26,000 metres.

In following our method there is no need to trouble about distortions which do not produce errors of scale greater than '5 per cent. [0.5 percent], because when fitting together prints by means of points not more than 4 inches apart, a failure to overlap by one-fiftieth of an inch can be neglected, as it is scarcely possible to fit prints to closer than one-hundredth of an inch. If the original prints have a scale of 1:20,000 and are used for a 1:40,000 map, the possible error is less than the thickness of a line.

The question of errors due to tilt has been dealt with at length, because it is of fundamental importance in our system. If practically undistorted prints can be obtained it greatly simplifies the work of mapping from aerial photographs, and makes the use of the strip system possible for reconnaissance work.

The results obtained in Palestine certainly seem to indicate that such photographs can be obtained even with roughly made camera fittings and without the use of turn indicators, but further experiments are desirable to settle the exact limits of what can be done under favourable circumstances.

The Ground Suitable for Aerial Reconnaissance Surveys

If the ground depicted in a photograph is not flat, but rises steeply on one side, its representation on a horizontal plate is not a true plan but becomes incorrect near the edges of the plate, and the greater the angle of view the greater will be the error. Consequently our system of mapping by aerial photography is more suitable for a flat than for a hilly country. If the height of the hills is small compared with the height of the aeroplane, a fairly useful result can be obtained by flying as high as possible and using a long-focus narrow-angle lens.

In Palestine the principal method of dealing with hilly country was to take series along the general line of the contours so that the scale throughout the series should be even, though it was constantly greater on one side of each photograph than on the other. This inequality in the scales of the two sides results in a group of prints taken on a straight course becoming curved when stuck down, and in a shift of the azimuths throughout. It is often however possible to subsequently straighten out a curved group and correct the azimuths. This may be effected by (1) reference to points fixed trigonometrically, (2) comparison with adjoining photographs taken over flat ground, (3) reference to oblique photographs taken by another camera pointing in the direction of the line of flight. A well-known and useful property of oblique views is that straight lines on the ground also appear as straight lines in the photograph, so that by comparison of oblique and vertical views it is possible to plot series of points shown in the latter which lie in a straight line on the ground. A combination of these methods in Palestine enabled much steep hilly country to be dealt with and maps to be produced which gave a good representation of the ground, though not very accurate as regards the geographical position of detail.

It does not seem likely that the present method of photography on horizontal plates will be suitable without profound modifications for the treatment of high mountain areas such as those on the frontiers of India. Here however a system of oblique

photography may be employed, which would be worked on similar lines to some of the methods of photogrammetry used for ground surveys.

The areas in which our methods will be most useful are those where the country is flat, but much enclosed or possessing numerous trees and hedges. In such country ground survey is slow owing to the large number of stations which have to be occupied, but air-survey is rapid and accurate. Similarly in fairly flat but very broken country in semi-arid regions – bad-land topography of the American terminology – the detail is often too complicated for survey on the ground and travelling is slow, while the air photograph shows all the detail, and as much as is required can be placed on the map.

A subject which must be also considered is the provision of landing grounds for the aeroplane. It will not be possible to use the aerial method of survey in many regions covered with tropical rain forest because of the lack of aerodromes or landing grounds, though in some regions, such as the Amazon basin, it would be possible to use sea-planes or flying boats. It must be remembered, however, that a modern machine has a radius of action of at least 100 miles, and with extra tanks and a peace-time load this radius may be further increased. In many of the less densely populated areas of the world it is not difficult to find open spaces which will serve as temporary landing grounds for a few days, and this is all that is likely to be required.

It is of some importance to consider to what extent aeroplane photography could be used over a country like Afghanistan which is difficult of access, comparatively little surveyed already, and mountainous. Here the present methods will enable us to do little more than produce a picture of parts of the country, or a rough sketch-plan showing a great deal of topographical detail, but having little accuracy as regards position except in the neighbourhood of a few points which have been already fixed. But such a topographical picture would have very considerable value and would greatly assist in the work of future exploration and survey. The execution of such a task as this would involve close attention to another factor which we have hitherto passed unnoticed, that is the estimation of the height of the aeroplane above the ground.

Determination of the Height of the Camera

If the plate is horizontal and the height of the aeroplane from the ground is known, it is theoretically possible to carry out a considerable amount of rough mapping without references to fixed points on the ground from which the scale of the photographs can be determined. The accurate measurement of the height of the machine from the ground is, however, a matter of difficulty at the present time. It has not been found possible to rely upon aneroid readings, though if the instruments were carefully calibrated and temperature corrections applied, we should probably obtain a satisfactory value for the altitude of the machine above sea-level; but even then the height of the ground is usually unknown. There are, however, methods which might be used to determine the height of the aeroplane from the ground and which are worthy of future investigation; some of these may be briefly mentioned.

The optical range-finding method may be used, by fitting small cameras near the ends of the wings and making simultaneous exposures by an electrical release. As the wings are not perfectly rigid an optical arrangement would have to be added to show the mutual relations of the cameras at the instant of exposure, but the difficulties of constructing a suitable apparatus do not seem to be insuperable. A separation of about 30 feet between the cameras would probably give good results up to a height of 12,000 feet from the ground.

Another method involves the use of two aeroplanes, each carrying a camera. One of them would fly about 500 feet above the other, and both would photograph the ground below. The upper machine would always include in its views a picture of the lower machine, and by the measurement of this image the difference in height of the two cameras could be ascertained; knowing the difference in height, we have only to compare the relative lengths between two objects shown on the ground in the upper and lower photographs to determine the heights of both cameras above the ground.

A third method which has been suggested is the automatic exposure of the plates carried by one machine at fixed time intervals, and the calculation of the ground speed of the aeroplane. This again gives a rough method for calculating the length of what may be termed the stereoscopic base from which the measurement of distances on successive prints gives the range to the ground.

These methods all depend on the plates being horizontal; but if the required conditions are fulfilled, we can plot the positions on the ground of detail shown on the photographs from the height and optical constants alone. In addition to this, we become independent of the shape of the ground, and can work out heights of hills from stereo-pairs of prints and plot their positions more or less correctly. But we shall no more be able to attain accuracy over a large area than can be done by a plane table topographical survey uncontrolled by a trigonometrical survey.

The Development of Stereoscopic Methods

Reference has been made above to the application of stereoscopic methods for determining contours, and some notes may now be added as to probable development of this line of work. Two methods have been hitherto suggested for the use of pairs of prints showing the same area of ground from different points along the line of flight of the machine, but neither has yet been developed up to the point of ready practical application.

The system of stereo photo-surveying described by the late Colonel F. Vivian Thompson in the *Geographical Journal* for 1908 is applicable with some modifications to air photography. It may be seen by reference to this paper (p. 541) that if certain conditions are fulfilled, similar results may be obtained from horizontal plates in the air to those obtained from vertical plates on the ground.

The conditions to be attained are that our two photographs must be accurately parallel to each other and horizontal, and that the distance between their centres, i.e. the stereoscopic base, must be known. If the scale of the prints or the height of the

aeroplane above any part of the ground is known, the length of the stereoscopic base can be calculated. The details of the Thompson stereo-comparator would have to be altered to allow for variations in the length of the stereoscopic base, but the principle of the instrument could be employed. Without going into the question in great detail, it may be mentioned that preliminary observations seem to indicate that we have here a method of great utility, and by its means very accurate form-lining can be accomplished even if fairly reliable determinations of height and contouring are not possible to the same degree of accuracy as can be achieved on the ground.

A second method has been studied by Squadron-Leader Burchall, O. B. E., of the R. A. F. School of Photography. The underlying principle is the comparison of the apparent height of an object seen in a stereo-pair of prints with the apparent height of a pair of lines engraved on glass, placed in contact with the prints and capable of movement by a fine micrometer screw, the prints and lines being viewed simultaneously through a stereoscope. This method is a modification of a French method devised by Commandant Coradin, and requires a knowledge of the height of the aeroplane and the length of the stereoscopic base.

The impression gained from the work in Palestine, where only the most unrefined form of stereoscopic examination was used, points to the immense value of the utilization of stereoscopy in aerial photoreconnaissance work. We again depend, however, on the production of views which show no appreciable distortion owing to tilt, though very small tilts do not seem to noticeably alter the form of the country.

The Relation of Photographic Work to Ground Survey

In the preceding sections we have dealt with some considerations which might facilitate the production of sketch-maps in a country which was poor in triangulated points, but the indispensability of a good trigonometrical survey even for the production of reconnaissance maps must be again emphasized. Some recent writers seem to be unaware of the fact that while aeroplane photography can be used as a method of topographical survey, it cannot be used as a method of trigonometrical survey. It scarcely seems possible that aerial work will ever be independent of ground work, and the closer the net of fixed points on the ground the more accurate will be the map produced by aerial photography.

The important question is therefore, what must be the size of triangles in the ground framework to allow the photographic method to be usefully employed? The answer will depend upon the nature of the country and the accuracy of position required. In flat country excellent results will be obtained if fixed points occur at intervals of about every mile, and in small-scaled maps the separation of points by 3 or 4 miles should not introduce inaccuracies greater than those which may be caused by the expansion or contraction of paper or tracing paper during the preparation of the sheets. Again, if we merely require a reconnaissance map to show the principal features, such as roads, rivers, villages and woods in their correct relative position, even though their geographical position is incorrect by half a mile or so, the distances between our

fixed points may be extended to from 5 to 8 miles. So much, however, depends on the country that generalizations are difficult. In Palestine we had to work in both flat and hilly country, but in both regions the photographic methods did provide a means of making useful reconnaissance maps in a short time with a comparatively open network of triangulated points.

When reconnaissance surveys on the ground have to cover wide areas, time does not usually allow the surveyor to draw in small local details accurately, but generalization or omission have to be resorted to. In the case of photography, however, it is possible to trace the detail in its correct shape and to add without trouble many small local features, such as small tributary streams, groups of trees, patches of rock, etc., which will make the map very valuable for subsequent use on the ground. A single aeroplane can photograph 30 square miles of country in a day within a radius of about 100 miles of its landing ground, and an air force unit of six machines (one flight) can cover at least 100 square miles a day and probably much more. Development and printing occupy only a short time, and the main labour is relegated to the compiling office.

In Palestine one officer without help could complete a 1:40,000 sheet covering 20,000 yards by 28,000 yards in six weeks, using perhaps 500 to 700 photographs. This method probably compares very favourably with other methods of map production as regards rapidity. When there is an existing trigonometrical survey, such as in India, we shall only need a ground party to traverse the area and collect information as to place-names, wells, etc., possibly fixing a few additional points also. This high rate of progress will probably render the aerial method an economical one, even taking into account the cost of upkeep of aeroplanes, and if Government aeroplanes maintained for other purposes are used for the work, it means cheapness as well as rapidity. If, however, aeroplanes or sea-planes and their equipment have to be transported long distances to the scenes of operation, it is possible that the method will not be economical unless the area is very large and difficult to survey on the ground. As, however, the air-routes become opened up over the world, the aeroplane or sea-plane survey will become much more practicable.

In this paper attention has been confined to the methods which have been already used with considerable success, and to the discussion of matters arising from them. Consequently nothing has been said about oblique photography and the methods of photogrammetry which may be applied to it. In the early days of the Palestine Campaign I devoted some attention to the question of using obliques for mapping, but found that it was likely to be slow and laborious. The taking and use of oblique photographs was subsequently simplified by the introduction of a prism attachment for the ordinary vertical camera; but we confined our use of obliques to the securing of a preliminary general reconnaissance of the ground before commencing vertical work, or additional information as to azimuths and relative heights. The oblique method of work has however some exponents, notably J. W. Bagley in America (*U.S. Geol. Surv. Bull.* 657, 1917). It probably has a future when applied to mountainous regions.

In dealing with reconnaissance work it must be remembered that sea planes may

be of great use to survey ships in coastal work, because in many places the reefs and shallows below the surface of the sea are clearly seen in photographs. In 1917 aeroplane photography was successfully used for charting the harbour of Rahbeg on the Arabian coast.

It would be too great a digression to describe the work of making town maps of the congested cities of the East, or the contemplated river surveys which are so much needed in the case of some Oriental rivers with unstable courses. At present the main field of activity in the East is in the production of reconnaissance maps of the type made in Palestine, which can be quickly and easily constructed, and which will be useful for both civil and military purposes. Those who have travelled in out-of-the-way regions and those who have at any time been engaged in military work, will realize the great utility of maps which are sufficiently complete in local features to enable one to identify one's position by reference to the map detail. Most of the pre-war reconnaissance maps which I have used in the East, and which would be probably regarded as good of their type, involved the need of constantly stopping to take bearings on some distant known points in order to ascertain one's position, and this is a tiresome proceeding.

Some experiences in the field almost persuade one to put forward the thesis that in a reconnaissance map wealth of local detail and accuracy of relative position, by which the traveller knows exactly where he is and what features he is likely to meet, are to be preferred to a map which is poor in local detail even though the latitudes and longitudes are absolutely correct for those points which are shown. There is much to be said for this point of view, though it is perhaps scientifically unsound.

It is the full and detailed picture of the ground which can be so quickly and easily secured by aeroplane photography; and if methods are forthcoming of utilizing this picture to make a good small-scale map by an easy, rapid, and reliable method, then air photography will have an important future. If, however, the methods are slow and cumbrous they will only be useful in special emergencies.

The work already carried out in Palestine does seem to show that air photography possesses great advantages for reconnaissance work. The actual photography and mapping of 2000 square miles of country must be regarded as a real solid achievement rather than as an experiment. The methods may be criticized on theoretical grounds, but the results are the best answer to such criticism. Work on the same general lines has been successfully carried out in Egypt and Mesopotamia, which also shows that a practicable system has been attained from which much may be expected. Aerial photography must not, however, be applied to purposes for which it is unsuited; it can have no bearing on the geodetic side of survey work, and it is more suited for maps on a medium scale than for very large-scale maps or very small-scale maps.

The methods described have been elaborated by the close co-operation of surveyors with members of the Air Force, and it seems probable that further progress will only be made by the collaboration of the producers and users of air photographs. It is this belief which has prompted the author to contribute this paper.

Caught between the Lines

Cartographic Narratives of the Palestinian village of Dayr Ayyub from the First World War to the Present

Iyad Issa

This article explores the history of visual representation of the destroyed Palestinian village of Dayr Ayyub by analyzing its spatial domain through the reading of selected maps and aerial photographs for Palestine since World War I. It investigates the interdependent relationship between cartography and the rural landscape transformation caused mainly by colonial actions (military or administration). Maps are investigated as an active agent of transformation rather than passive spatial representation of reality and related changes. “Map” here is an integral part of a political process that embeds power relations not only in the form of monopolizing the power of production and use of maps, but also in the form of knowledge production, described by John Harley as “the way in which the exercise of power structures the content of maps.”¹ This article also attempts to utilize iconology interpretation of images by decoding the messages sent and received through Dayr Ayyub’s representation on maps and aerial photography, as both an image of the village space and as an archival document. Tracing the cycles of radical reduction and expansion of Dayr Ayyub’s representation on maps allows an analysis of the role and message communicated by the elements of each photo and map starting from the Oriental imagination of pre-WWI maps, the surveillance of war maps and photography, the control and discipline of British Mandate maps, the manipulative cartography of negotiation for drawing and crystalizing the 1949 Armistice line, and finally, the geographical colonial hegemony of topographical Israeli maps.

The selection of Dayr Ayyub as an area of investigation was based on its geographic location and related historic events. Dayr Ayyub has frequently been a turning point in many realms. It is located where the last stretches of the Palestinian coastal plains meet the central highlands within a central location, along the Jaffa-Jerusalem road at Bab al-Wad; at a change point in land topography and in agricultural cover between the plains and the mountains; a frontier in the local struggle against several colonial projects that led to the destruction of the village on several occasions; a border line where colonial land settlement stopped favoring plains over mountains; an advance frontier border between 1949–67; part of the border itself by falling inside the no man's lands established in 1949; and later pushed gradually into the “green buffer zones” of natural parks and forests as a last colonial attempt to nullify the Palestinian rural presence and landscape in such critical geography. The process of violent transformation imposed on this geographical spot represents an important story of erasure and transformation of the rural Palestine in the last one hundred years, and which needs closer investigation.

The Village: A Brief History

The village of Dayr Ayyub was located approximately twenty-four kilometers to the west of Jerusalem, and almost 325 meters above sea level. In 1948 the population of Dayr Ayyub was 371.² The village was located on a low hill at the western edge of the Jerusalem mountains. This distinctive location offered a great variety of land topography, vegetation cover, and agricultural activities in a relatively small-scale village. The southern part along the main Jaffa-Jerusalem road (with adjacent narrow valleys to the west and the east) were fertile plains suitable for planting crops such as wheat. The elevated plain to the north of the core was comprised of orchards (*hawakir*). The surrounding mountains to the east and south east (Safhat Wad ‘Ali, al-Habta, and Bab al-Wad area, and another mountain to the northwest) were rocky with less vegetation cover and probably used for seasonal grazing before being partially transformed into forest from 1927 by the British afforestation policy.

The village was located on a strategic hill less than five hundred meters north of the main Jaffa-Jerusalem road, and less than one kilometer from Bab al-Wad, where the road starts to penetrate the mountains ascending towards Jerusalem. This strategic location between the Latrun hill and Bab al-Wad put the village within the frontier of a number of wars and campaigns to capture Jerusalem throughout history. Every foreign army approaching Jerusalem from the west had to pass through this strategic gate or region and therefore had to control this strategic transportation node. Successive military campaigns left devastating effects on the village of Dayr Ayyub, destroying village houses and killing inhabitants, not to mention ruining the landscape and agricultural production. In 1834, when Palestinians began a revolution against Ibrahim Pasha, the Egyptian ruler, the village and the Latrun castle were demolished and the surviving inhabitants pushed to temporarily leave their homes. They resettled

in 1853 after a long dispute between the Dayr Ayyub inhabitants, and Ibrahim Pasha's alliance with the Abu Ghosh tribe.³

In 1917, the village was temporarily vacated during the British forces' advance towards Jerusalem.⁴ In 1938, British forces demolished a significant number of village homes as a collective punishment measure during the 1936 revolt.⁵ During the 1948 war, the village suffered a series of direct military offensive attacks from Israeli forces which gradually pushed inhabitants to leave their homes. In 1949, the village core fell within no man's land. After the 1967 war and Israel's occupation of the West Bank, the Israeli army destroyed the remaining villages located in the Latrun area, and in 1973 Canada Park was established mainly on land belonging to 'Imwas and Yalu villages and partially to Dayr Ayyub, including the village core and significant expanses of landscape surrounding the village.

The Early Visual Representations and Descriptions of Dayr Ayyub

For many centuries Palestine and its geography had captured the interest of many travelers, archaeologists and scholars who had produced enormous amount of texts, drawings, maps, and other visual representations. Those materials produced were an attempt to capture not only the geography but also the history of the land with a focus on the biblical historical geography. Few descriptions of Dayr Ayyub could be found in the accounts by travelers in the nineteenth century or earlier. Several western travelers had mentioned the Bab al-Wad area (especially the caravanserai) or briefly described the landscape when passing Bab al-Wad. The descriptions had focused on the moment of dramatic change from the fertile plain region to the rocky mountains, or vice versa. One of the early brief descriptions found was written by William Lynch, the head of the famous United States expedition to the river Jordan and the Dead Sea (1849).⁶ While travelling from Jerusalem to Jaffa, Lynch described Wadi 'Ali, the olive grove near Saris village, and vegetation in the ravine, and also commented on "the high state of cultivation" after he left Jerusalem and travelled west, specifically mentioning the grazing and cultivation activities in the area of Dayr Ayyub.

In *Survey of Western Palestine*, Dayr Ayyub was described briefly as "a very small hamlet"⁷ on the Jaffa-Jerusalem road. On the Palestine Exploration Fund map, Dayr Ayyub appeared as a small blob with no details. Archaeological sites, water resources, and roads appeared on the map but there were no details about the landscape features or agricultural activities. This representation in nineteenth century maps of rural Palestinian settlements was typical among most of the maps produced at that time,⁸ such as the Van de Velde map (1858) and the Zimmermann map (1850). Neither the scale nor the mandate of such cartographic missions exceed the minimal visual representation of the modern Palestinian rural villages, which could be summarized as a dot on the Holy Land geography, unless biblical history or interest surfaced.



Fig. 1. Palestine Exploration Fund, *Survey of Western Palestine*, map 1880 (sheet XVII), showing “Deir Eyub” and surroundings (cropped, edited), Palestine open map, online at palopenmaps.org/view (accessed 1 December 2019).

WWI Maps and Aerial Photography

From the time of Napoleon’s campaign in Palestine in 1799, more technical and detailed maps for Palestine began to be produced driven by various motivations such as military campaigns (Jacotin map, prepared in 1799 and published in 1826), or scientific missions such as archaeology (Palestine Exploration Fund maps, the United States expedition of 1848, or the Newcombe map for southern Palestine in 1914). One could argue that the last three maps were produced for military or intelligence purposes under the cover of archaeology, but the direct intelligence and military goals in the Newcombe map were the sharpest. In addition, a rapid analysis of the pre-WWI maps of Palestine illustrates that imperial power and motivation were embedded in those maps regardless of the level of technical advancement, modern representation, realistic or imaginary depiction of the geographical features, or the purpose of making them. Both historical fantasies of reconstructing biblical geography maps, and realistic documentation of settlements and archaeological ruins maps, served the colonial agenda to a certain extent as observed by John Harley: “Maps were used in colonial promotion, and lands claimed on paper before they were effectively occupied.”⁹

A radical shift in cartography occurred during the First World War. The 1915–18 Sinai and Palestine campaign required detailed geographic features (the terrain, landscape

features, strategic hills, and water resources) to serve military activities such as locating enemy lines, trenches or even troop positions. These needs compelled both armies (British on one side, Ottomans and Germans on the other) to produce a new type of dynamic mapping that captured the rapidly changing status of the war theater in such foreign terrain.

Dayr Ayyub Village on the WWI Map

The nature of the military field operations reached highly populated areas in Palestine, and dictated the use of a new scale of maps with relevant visual representation. The British produced detailed maps of 1:40,000 and 1:20,000 while also updating the already existing *Survey of Western Palestine* map scale of 1:63,360 and Newcombe's map scale of 1:125,000. The Ottomans were already busy with the survey initiative they had begun in 1909 and managed to partially finish several maps of a scale of 1:200,000 (for example, Jerusalem area and Nablus area) covering some areas in Palestine by 1917 before they retreated and were pushed out of Palestine by the British at the end of 1918.¹⁰ The Germans produced a number of regional maps of a scale of 1:250,000, but the most detailed ones were produced in 1917–18 of a scale of 1:50,000 and 1:25,000, mainly for the central part of Palestine.¹¹ Both sides undertook intensive aerial photography activities for reconnaissance and map preparation in the region.

One could argue about the importance of WWI maps and the valuable historic information they demonstrated about Palestinian geography, landscape, and settlements. Nevertheless, one can also critically analyze the maps and examine their value and limitations. First of all, it must be acknowledged that these maps were produced mainly for one purpose: military operations. Consequently, they employed a straightforward, selective, minimal representation of reality for the conduct of military tasks on both the planning and operation levels.

As a preliminary attempt to analyze the cartography of such maps, I chose to examine the British 1:40,000 map of the Latrun area, which includes Dayr Ayyub village. Produced in 1918 (after the capturing of Jerusalem) and reprinted in 1919, the map of Latrun illustrates a distinctive representation of the Palestinian geography in a very particular hierarchy. The human settlements were represented as nodes of solid black blobs connected to a web of roads and transportation routes. Dayr Ayyub, among other villages, was represented only with an undetailed solid black blob (polygon) due to the small-sized core and marginal location.

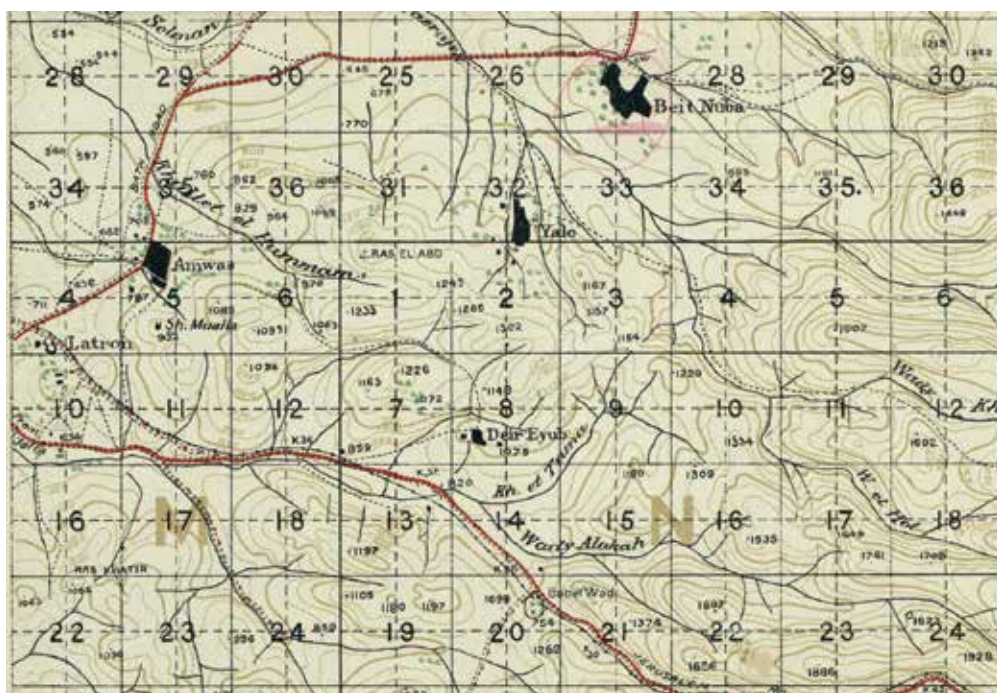
The most dominant layer on these maps was the transportation network indicating different types and grades for the movement of artillery. The main Jaffa-Jerusalem road appeared as a dominant element on the map; details of the distance marking each kilometer were added along the route. This web was placed carefully on a well-carved terrain represented by detailed contour lines, mountain summits (with altitudes), detailed webs of valleys (wadis), water resources, and ruins. No details about agricultural land or vegetation cover were available, except for selected tree groups for obvious military reasons.

The most distinctive feature of these maps is the military grid imposed over all the other elements of cartography, which sliced and contained the nature and landscape of Palestine

in a multilayered dividing grid. Moreover, the exaggerated grid numbering and lettering shows again the dominance of the military grid over geography through the size and position of those numbers and letters, in comparison to the naming and lettering of geographical features. Within such a grid system each natural feature and geographical location was positioned and indexed within a system of reference.

The military grid resembled a classic case of power exercised over geography through cartography. Here army troops dominate the geography by being able to navigate the terrain through relating their position to any target or landscape feature by simple orientation and distance calculation. One can also add a third dimension to this map navigation by calculating the difference in altitude by using the contour lines and mountain summit altitudes.

In short, this map served as an illustration for the war theater where villages resembled a spot either to capture or to pass by along the main army advancement plan. One could argue that the added value of those maps on the village level, if compared to the 1880 (printed) Palestine Exploration Fund survey of western Palestine maps, is minimal. Nevertheless, the British WWI map had more detailed contour lines and updated geographic features such as new roads and village built up areas. But what is the distinctive feature of those maps is the power embedded in the visual message it communicates, on the symbolic level, regarding the hierarchy of representation of the geographic and cartographic symbols, in addition to those elements that were marginalized, such as rural landscape and landcover.

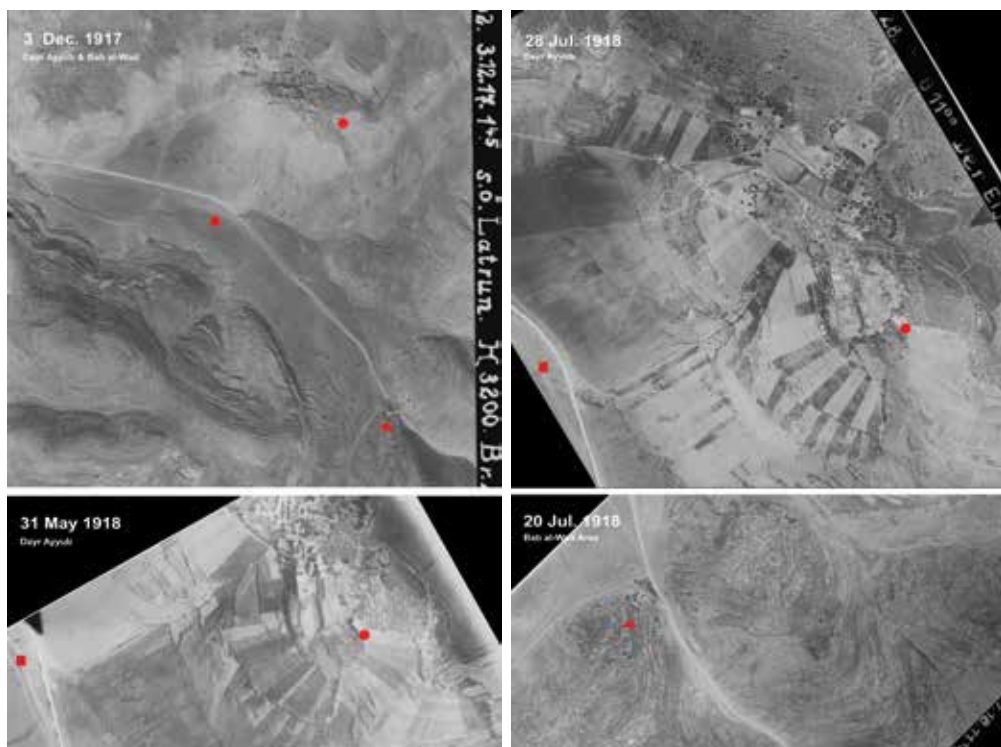


The WWI Aerial Photography

Similar to WWI maps, aerial photography produced during the war focused primarily on the same elements – the main artillery routes and military targets – while Palestinian landscape and villages remained in the background. A rapid analysis of any WWI reconnaissance aerial photo shows either the main transport route or army camp or convoy at the center of the frame. Villages or landscape features would appear as a reference point in the frame or background.¹² Nevertheless, the reconnaissance nature gave them another interesting feature. One can find several photos for the same areas during different times of the week, month or even the year. Comparing the aerial photos from different time periods can offer a deeper analysis than looking at one standard aerial photo taken for mapping purposes.

Despite the scarcity in numbers and unsystematic cover of the Palestinian geography in the WWI aerial photography, Dayr Ayyub received considerable coverage. Directly after the capture of Jerusalem by the British, the Bavarian Squadron 304 began reconnaissance missions behind the enemy lines. One of the areas observed was the strategic route between Jerusalem and Jaffa with intense focus on the Latrun area, including Dayr Ayyub and Bab al-Wad. Crosschecking with the written record about the advancement of British forces shows that the British XX Army Corps headquarters was established in Latrun by 28 November 1917.¹³ Troops and army divisions had to pass the area while advancing towards Jerusalem. Several photos were taken by the Bavarian Squadron between November 1917 and August 1918 mainly to gather information about the British troops in the Latrun area.

In contrast to the previous mentioned maps, the Bavarian aerial photography transformed Dayr Ayyub from a point, a hollow circle or solid black box on the previous maps, to an area open for investigation and interpretation. The first encounter between the researcher and this visual aerial representation of the Dayr Ayyub village has its own magic. A typical structure of a Palestinian village at the turn of the twentieth century appeared; the small built up area takes the shape of a crescent surrounded by the agricultural fields. The photos show the plains to the south of the core next to the Jaffa-Jerusalem road, and the adjacent fields to the north and northwest. The most prominent feature of the typographic representation is the rocky hills to the far east in the Bab Wadi ‘Ali (Bab al-Wad) area with plantation pockets around the caravanserai. Main roads and minor dirt roads heading to the village fields and to the adjacent villages are also visible.



Figures. 3–6. Aerial photographs taken by Bavarian Squadron 304, showing Dayr Ayyub and surroundings over several seasons during 1917–18, December 1917, May and July 1918 (adapted, cropped), Bavarian State Archives, online at (gda.bayern.de) tinyurl.com/wdsqpek (accessed 7 March 2020).

Adding the time dimension to the analysis gives new insights. By tracing the aerial photography of the village between November 1917 to August 1918,¹⁴ one realizes that those flat, arid-like areas along the main road south of the village in December have transformed into plots of narrow agricultural strips (*mawaris*) during the spring and summer season with several vegetation covers. It is surprising how much arid land, seen as light grey patches on the photo, were later transformed into agricultural fields. The grey areas changed into a mosaic of dark and light grey patches indicate the likely existence of heavy agriculture activities even during the war period, an obvious conclusion for anyone with minimal field experience about the Dayr Ayyub landscape. Nevertheless, one must bear in mind the limitation of expanding the exclusive use of such representation to draw conclusions about the state of land cover or vegetation.

World War I aerial photography may seem a neutral mechanical direct visual record for terrain and landscape, avoiding the selective nature of map representation. However, it is neither neutral nor subjective since it is open for interpretation, or even manipulation, as any other medium or archival material. I

will analyze one dimension of interpretation based on the locality type (urban or rural) subjected to the aerial photography exercise. In the urban and built up areas, the level of subjective interpretation could be minimized due to the intensity and close up nature of the photography. In addition, the plastic nature of the urban fabric elements such as buildings, city walls, routes, and landmarks make them easy to distinguish from above. Thus, aerial photography could be a useful tool to analyze urban characteristics or the development of cities such as Jerusalem, Jaffa or Gaza, especially when compared with other aerial photographs from an earlier or later era. The level of objective interpretation is questionable when researchers apply this to rural areas and open landscapes. Here a snapshot of rural landscape would give an idea about the plastic elements of the village structure such as built up area, transportation routes, and orchards to some extent. The interpretation becomes more subjective based on the reader's agenda and cultural reference when observing an open, changing landscape and agricultural fields comprising most of the spatial domain of the rural landscape.

Applying this to Dayr Ayyub, Bab al-Wad, and the adjacent vicinity, researchers and scholars used photographs, including aerial photography, isolated from other archival documents or oral history, as material for arriving at rapid assessments about the degree to which the land was arable.

Some rudimentary readings were made for the rocky mountainous areas regardless of the limitation of such a medium, such as Benjamin Kedar's description of the "barren mountains" near Abu Ghosh and Saris that were transformed later to woodlands.¹⁵ Here, flat grey areas apparently without trees meant to the authors barren areas, neither seasonal grazing areas nor agricultural terraces.

Freezing the condition of the land to the moment when the photo was taken is quite misleading. One needs to impose additional layers from different sources such as the historic socioeconomic layer, episodes of dramatic ecological changes, or natural disaster events such as the several episodes of drought at the turn of the twentieth century, the locust plague in 1915, and the devastating damage to vegetation cover and livestock during World War I. The use of one type of vegetation such as trees as the exclusive sign for fertility is quite surprising in reading such historic aerial photography, since the existence of other types of vegetation such as vegetables and crops is difficult to interpret by one visual snapshot of aerial photograph or panorama.

This selective use of distinctive green cover illustrates a subjective interpretation based on a broader cultural reference or even colonial reference and definition for what can be arable or fertile landscape based on an imaginary Oriental image of how Holy Land fertility should look. Such an interpretation for the historical Palestinian landscape is a continuation or simulation of the old-fashioned Oriental selective description of the Palestinian landscape and the level of degradation before the colonial power arrived and began the recovery process by afforestation and other policies. This argument was utilized often as a moral justification for colonial activities and presence. The British high commissioner

Herbert Samuel's first report vividly showed such an attitude when he described the degraded status of the Palestinian landscape and "the need for development and ecological restoration."¹⁶ On one hand, such selective interpretation highlights the constructed colonial landscape and narrative. On the other hand, it silenced the Palestinian rural landscape narrative and features such as crops, vegetables or grazing fields due to the limitation of the aerial photography presentation.

British Cartography and Aerial Photography

World War I aerial photography expanded the village visual representation beyond a dot on the map to an area on the surface of a photograph for army personnel or researchers. At the same time, rural inhabitants remained invisible in those representations, nor did they have any contact or knowledge about such maps or photographs. They were not in need for such secret military tools in order to discover their village, navigate the familiar terrain or travel to other localities. The first radical encounter for the rural inhabitants with the cartographic exercise, as a systematic exercise of colonial power, was during the British Mandate when the British authorities began surveying Palestine to produce cadastral maps among other types needed for civil administration.

As a modern colonial regime with its own goals, in addition to the burden of the Balfour Declaration to support the establishment of a "national home for the Jewish people" in Palestine, it came as no surprise that the British utilized modern science including cartography as a tool for control and discipline. To achieve such goals, British conducted a massive multidimensional exercise of colonial knowledge where, for Palestine, land was at the core. This stretched from structural change (institutional, laws, and policies) to implementing infrastructure projects, to finally designing and implementing land settlement and survey projects. One can argue this was not only a routine colonial exercise implemented in similar colonies to control the indigenous population, but also a special one aimed also at managing the future transformation of the country. Land settlement was the first aim of the survey exercise. Thus, the program of the Survey of Palestine Department was directed toward land survey since it began in 1920, only a few months after the San Remo conference and the transformation of the military government into a "civil administration" of the British Mandate.¹⁷

Here we focus on one basic map type, the village map scale 1:10,000, in relation to the village transformations during the Mandate, in order to read how this selective representation produced its impact on village structure, village economy, and afforestation initiatives.¹⁸

The map selected for analysis is "the village map" using the 1:10,000 fiscal/cadastral map of Dayr Ayyub.¹⁹ This type of map had been produced for almost all localities in Palestine between 1928–34.²⁰ Those maps had served two conflicting²¹ objectives: first, to serve as a base map for the rural taxation system

through defining fiscal blocks; and second, to serve loosely as the base map for the next cadastral exercise of land settlement for each cadastral block and parcel in the village. In the case of Dayr Ayyub, a rapid analysis of this map gives us crucial information about the status of land type *masha'* (communal ownership, subject to periodic distribution among villagers) or *mafruz* (permanent individual ownership, also surveyed), built up area size and shape, status of adjacent orchards (*hawakir*), the status of cultivated land (type of cultivation, degree of cultivation, and percentages), as well as the status of uncultivated lands, rocky areas, and forests.

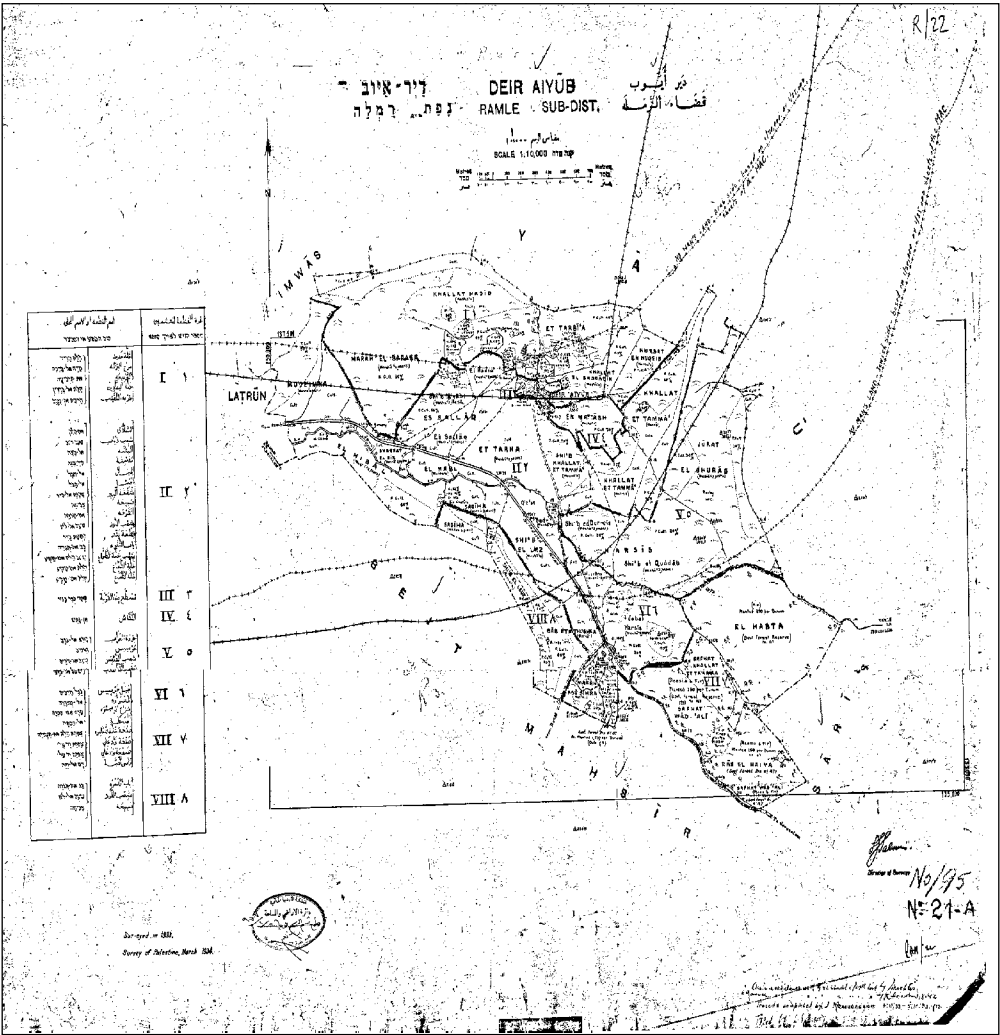


Figure 7. Survey of Palestine, village map 1:10,000 for Dayr Ayyub, Institute for Palestine Studies Archive.

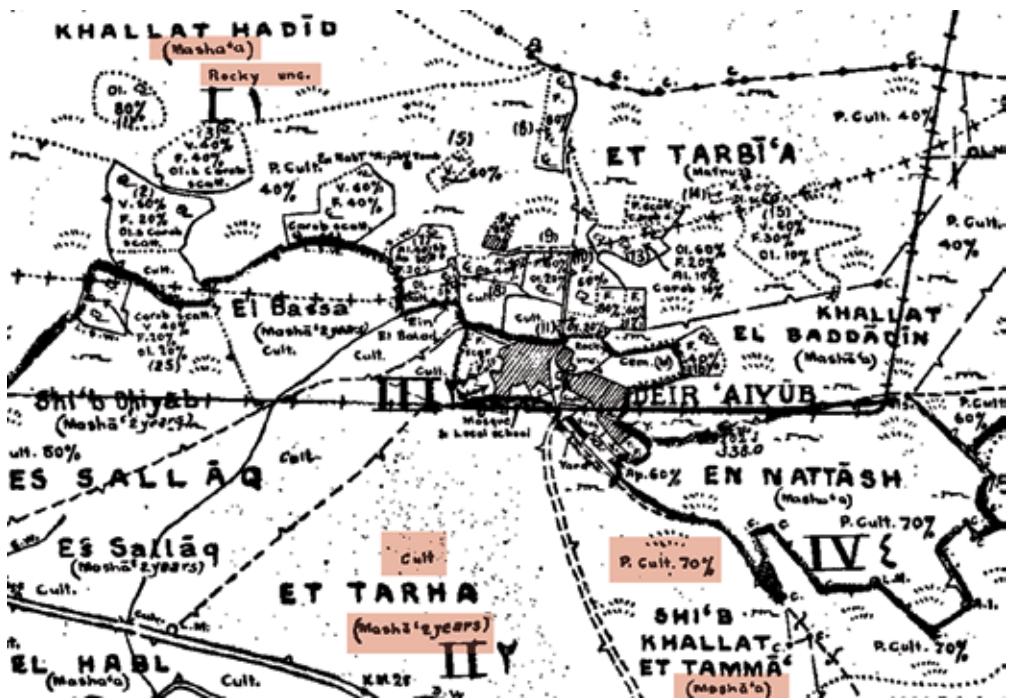


Figure 8. *Survey of Palestine*, village map 1:10,000 for “Deir ‘Aiyub,” land use details (edited), Institute for Palestine Studies Archive.

This map constitutes one of the early visual representations of the village not only as a spatial unit with spatial hierarchy, but also as an economic unit through which the agricultural land and activities were surveyed by recording related features. This mapping exercise needed to cut the village into blocks and additional subdivisions that exhibited similar physical or fiscal features. This cartographic exercise was both a spatial and structural control mechanism of the village by a specific system of representation. A spatial subjugation and control were enforced on the village space through the visual hierarchical representation of the village: village border delineation, fiscal blocks, categorization of natural and man-made features, standardization of names (areas, localities and natural features), the use of trilingual toponymy, and the like. This was all enclosed within a number of corner lines that resemble the minimal presence of the national coordination grid to situate this floating geography of the village within the national space. In addition, trigonometrical points exist within the village to help the mission.

A structural economic subjugation of the village agricultural activities to the colonial regime was applied by surveying agricultural activities in each block or sub blocks. In each block, the surveyor calculated the percentage of cultivated lands to uncultivated ones, the type of agriculture products and shares, and the type of land holdings (*masha‘* or *mafruz*). Colonial authorities not only provided information on

the vegetation cover, the condition of land surfaces, and property borders, but also assessed the tax for each plot – thus, building a “scientific” modern spatial image about this “pre-modern” economic unit supported the knowledge production about the colonized subject population.

All of this information was enclosed in the delineation of the village border, which proved to be useful on the national level for building the 1:250,000 index of villages and settlement maps, where the whole fluid geography of Palestine was divided into a definite number of enclosed shapes of localities as socioeconomic units.²² This index map was used numerous times to present national information (such as mapping waste land, forests, land ownership types, and progress of land settlement) spatially and know immediately the implication on the locality level. This village border closed shape had parallel attributes to the military grid of WWI maps regarding discipline, control, and surveillance. The military grid’s squares were transformed to irregular defined closed shapes that fit better for complex colonial administrative control over inhabitants, economic activities, and property.

The cadastral part of this exercise can be summarized, as Linda Quiquix explained, as the enforcement of “a property mapping regime to replace local practices that negotiated borders and land use, shifting power from peasants to colonial institutions.”²³ However, land settlement until 1948 did not cover Dayr Ayyub land. The land settlement process stopped at the adjacent village of Latrun, reflecting the British priority of surveying the coastal plain where Jewish interests in land purchase prevailed in contrast to the mountainous area.²⁴ Thus, no final detailed cadastral maps were produced for the land of Dayr Ayyub.

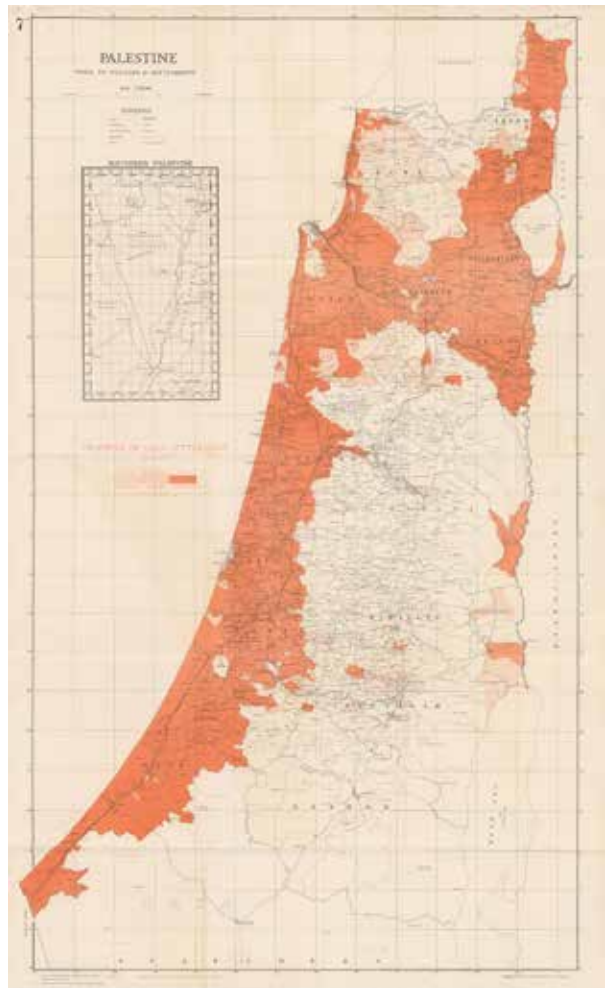


Figure 9. *Survey of Palestine*, index of villages and settlement, map 1:250,000, progress of land settlement in 1947, National Library of Israel.

Was this declared area a rocky mountainous wasteland? The available maps and official documents could not answer this question directly. This needs further investigation beyond the mandate of this paper. Nevertheless, one could go beyond the rapid impression judgment of an outsider and conclude that the area was “barren mountains,” similar to what Benjamin Kedar stated about an adjacent vicinity.

A preliminary analysis of the Dayr Ayyub village structure and economic life, such as the local names for the natural and geographic features, and the oral history about the village’s pastoral economy, would reveal the traces of another layer of the landscape that disappeared in, or before, the map-making process: the grazing lands (permanent and seasonal). This could be supported also by preliminary archival research about grazing, cultivating, and land ownership disputes with the government on parts of forest land. Several cases of dispute and land claim occurred in Dayr Ayyub, Saris, and Bayt Mahsir regarding agricultural activities inside the forest boundary. At this stage one could not draw decisive conclusions about the whole forest area, whether it had been cultivated or used extensively for grazing before, but one could at least argue that the colonial normalization which was presented later on the village map, of around 1,500 dunums – as one area with one land cover and one land use – appears alien to the complex and micro-managed traditional system of land use in Palestinian village life.

This representation of the forest sends contradictory messages: a new alienated space, the government forest, that had little to do with the village hierarchy, economy, control or structure imposed by colonial policy to realize an imaginary colonial vision of the Palestinian landscape. However, it still appeared within the village administrative boundaries, and carried the local geographical names assigned by villagers for many generations. Moreover, this map shows that the afforestation policy attempted to bring a new large owner to the village: the state. In the case of Dayr Ayyub the land settlement survey had not been conducted; thus, land ownership did not yet take that last shape on cadastral maps and deeds. On the archival level, this visual presence of the forest on the first detailed map of the village, without the existence of preceding versions, would help to silence claims of prior use of land and would enforce the colonial narrative of the history of the Palestinian landscape, especially on the grey areas. This argument may highlight the need for future spatial research about the hostility of the colonial regimes to the common usage of *masha’* land, especially grazing, communal ownership, and state land acquisition through afforestation.

The declared (by written order) closed forest was translated directly onto the real physical terrain before being added to the official cadastral maps, waiting for land settlement and cartography to catch up later. This unusual reverse process shows the urgency and priority given to such colonial national projects such as afforestation and related state domain controversies. At the same time, it does not address the urgent needs of the local rural Palestinian community such as services (electricity, roads, and schools) and agricultural development (enhanced product marketing, better access to credit).

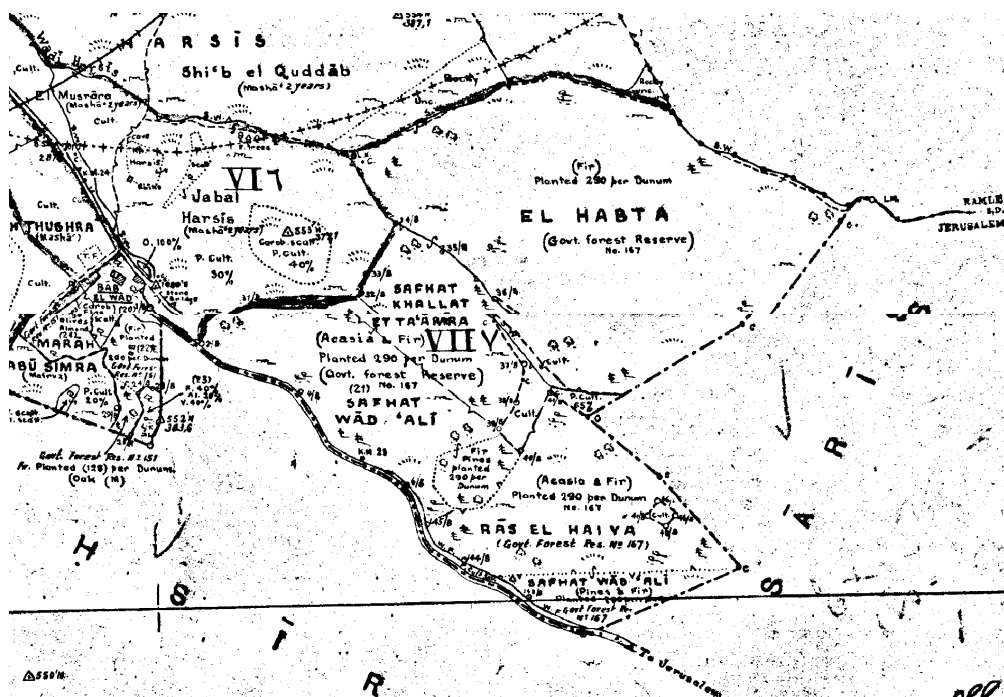


Figure 11. Detail of *Survey of Palestine* village map 1:10,000 for Dayr Ayyub showing the forest reserve, Institute for Palestine Studies Archive.

Caught between the Armistice Lines (1948–49)

During 1947–49, Dayr Ayyub was caught at one of the most critical fronts of the 1948 war, in the midst of the Zionist offensive to establish geographical continuity between the coastal plains and Jerusalem, through a continuous rural Palestinian landscape, with scattered Jewish colonies. The whole area was militarily contested, especially the narrow Bab al-Wad ravine that proved its strategic importance in controlling the road, where Palestinian and Arab fighters succeeded in cutting Jewish supply lines between Jerusalem and the coast. The village and its inhabitants suffered numerous attacks from British and Jewish forces, including the bombardment of houses. Similar to WWI, the inhabitants were forced to leave the village core many times, traveling back and forth, until they were eventually pushed out.²⁸

On 3 April 1949, the Israel-Jordan Armistice Agreement was signed which included delineation of the Armistice line. No man's land was established to include the Jaffa-Jerusalem road and the surrounding valley, but strangely enough it included the Dayr Ayyub village core as well. Villagers of Dayr Ayyub found themselves in very peculiar situation. According to the agreement maps, their village built up area fell inside no man's land, in other words they were caught in a new map between the two lines.²⁹

Again, in the war aftermath and in truce negotiations the village's spatial structure had been drastically reduced to a spot on the map similar to that established during WWI. Instead of the grid that had been imposed over all the layers in WWI, here it seems the demarcation of the snake-like Armistice line that went through several complex phases of negotiation and cartography reproduction was the main factor deciding the demise of this rural landscape.

We have little information about the process of negotiations leading to the establishment of no man's land in this particular area, or the reason why it took this shape, why it was erased in other areas but maintained here, or how each side determined its claim to holding territory and calculated the continuous line on the map along its holding, bearing in mind the impossibility of troops existing at each point, meter or feature along the imaginary lines drawn on the maps. In addition, due to the nature of battle, there will always be grey areas, or buffer zones, between the fighting parties, so how those areas were negotiated and reduced to lines on the map to become the cease-fire line needs further investigation. Usually such delineation was done first on a map as a cartographic exercise during negotiations based on preliminary information from the field about military holdings. This task, however, is usually subject to power relations on the ground, political and technical manipulation, and knowledge about the real terrain that maps present or hide.

We know from several sources about the use of maps during the negotiations, agreements, and demarcation on the ground, several map types and scales were used – 1:250,000,³⁰ 1:100,000,³¹ 1:25,000 and 1:20,000.³² The signed agreement used an attached map of 1:250,000. The map scale and the nature of the imposed hand-drawn thick green and red lines (rough-shaped and an over-exaggerated thick drawing style), and the path, illustrates that truce negotiations had to be rapidly prepared to bring the fighting to an end. This artificially rapid open-ended result of the cease-fire implied that another cartographic negotiation-manipulation event began when translating the Armistice line from one scale to another, in addition to the on-site demarcation and interpretation. The Israel State Archives published a low resolution partial topographic map scale of 1:100,000 apparently used in the secret negotiations in early 1949.³³ The interesting fact is that while those multiple negotiation lines were straight lines drawn between strategic points, they may in fact be military posts, mountain summits or random dots to calculate area. Those alien dots along the thick lines equal the size of the villages on such maps. This negotiation process using such maps (scale 1:100,000), reduced Palestinian villages again to solid dots on the map equal to the size of those imaginary dots, and where village life, fields or spatial domain could not be represented on such a map, consequently, they were ignored. In those cases, the scale of the map and the nature of representation played the role

of marginalizing the Palestinian rural area and interests. This issue became clear (and problematic) when the troops tried to demarcate the lines on the ground in several cases.³⁴

The aftermath of this cartographic exercise regarding Dayr Ayyub was catastrophic, shattering the whole village structure. According to the *Atlas of Palestine*: 28.2 percent of the village land including the forest fell on the Israeli side; 63.4 percent, including the village built up area, fell into the no man's land; and the remaining 8.4 percent fell in the Arab side which was in practice an advance frontier.³⁵ In reality, what had been imposed by the Israelis through the fight was endorsed by the no man's land scheme. Dayr Ayyub villagers could no longer live in the village as it was before the war. By this arrangement, Israel ensured that no Palestinian-inhabited village overlooks this strategic valley, the Bab al-Wad junction, and the main Jaffa Jerusalem road.³⁶

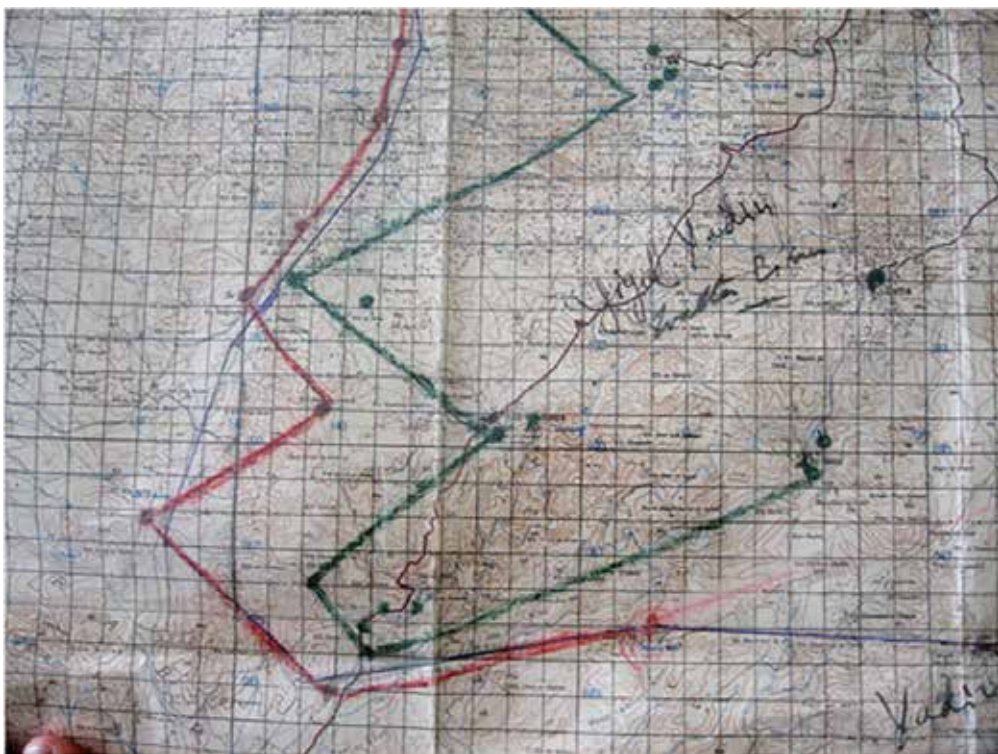


Figure 12. *Survey of Palestine* topographic map 1:100,000 with a different delineation of the Armistice line added during the 1949 negotiations, Israel State Archives, online at (archives.gov.il) tinyurl.com/wk457ga (accessed 9 March 2020).

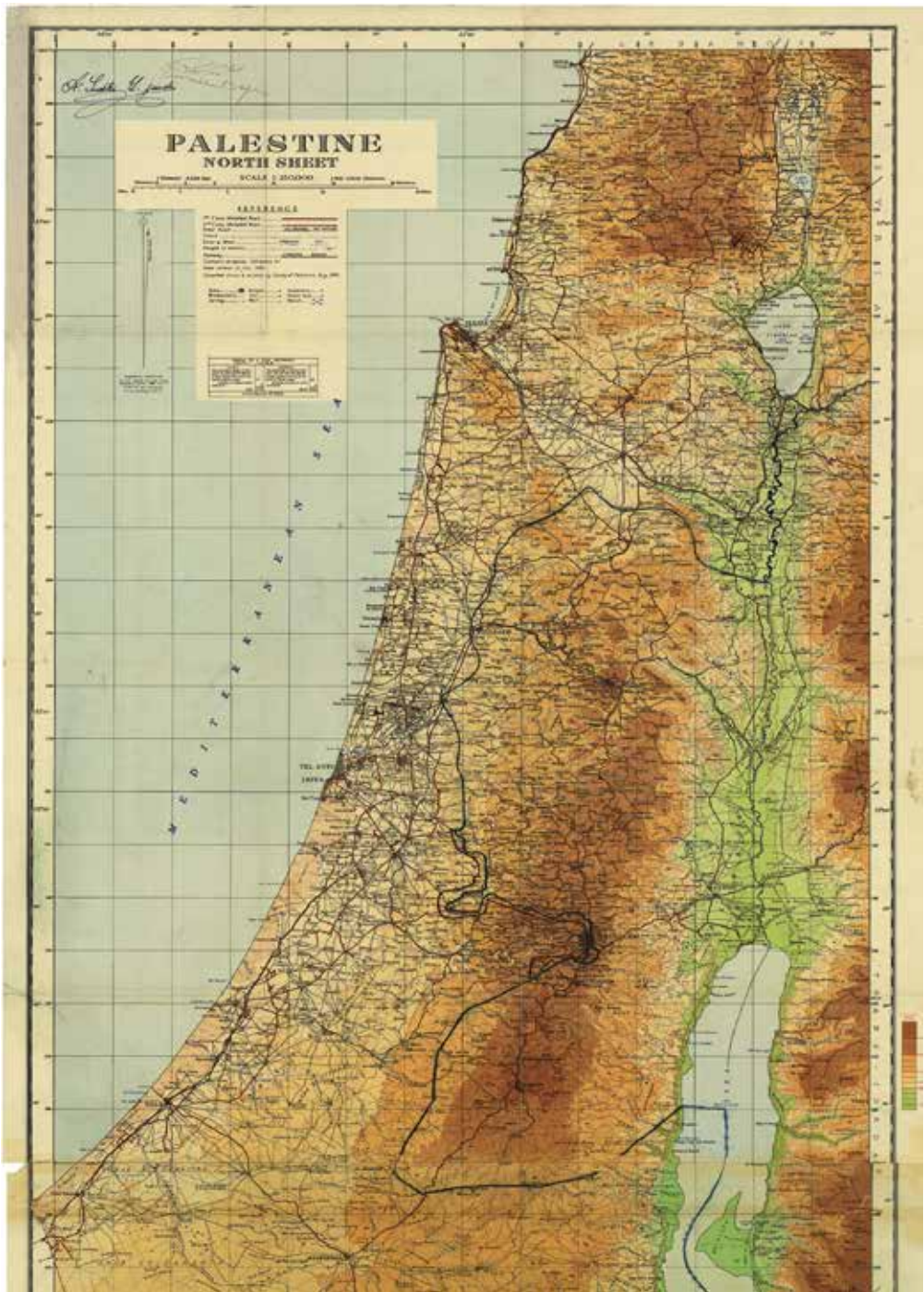


Figure 13. *Survey of Palestine* 1:250,000 map showing the Armistice line; “Maps Delineating Armistice Demarcation Lines,” online at (unispal.un.org) tinyurl.com/y59g766g (accessed 9 March 2020).



Figure 14. *Survey of Palestine* 1:250,000 map showing the Armistice line in Latrun area (cropped, edited); “Maps Delineating Armistice Demarcation Lines,” online at (unispal.un.org) tinyurl.com/mkz5ohw (accessed 9 March 2020).

The Diminishing Armistice Line: The Israeli Topographic Map

The 1967 war caused additional devastating consequences on the Latrun area. Directly after the occupation of the area, the Israeli army expelled the inhabitants of the three remaining villages of Latrun area – ‘Imwas, Yalu and Bayt Nuba – then began demolishing the villages,³⁷ to finish the task of depopulation and erasure that had been left incomplete in 1948.

Despite the current exclusion of the West Bank from several official national Israeli maps and national plans, the West Bank appeared in a detailed topographic map series of a scale of 1:50,000. No official justification for this was provided. One could assume the justification might be that this map constituted land, topography, and natural features, and not political borders or divisions. It is quite impossible and even pointless to slice off the West Bank and to prepare a topography map for historic Palestine without it. All of the topographic features of the plain begin in the mountains: wadis, contour lines, even man-made features such as roads. Nevertheless, numerous political statements exist in the cartography of such a map that collide with the neutral technical nature of a topographic map, such as place names, delineate of Palestinian Authority areas A and B (while not delineating area C). Meanwhile the 1949 Armistice line disappeared as well.

In the Latrun area, the direct visual translation of political reality since the 1967 Israeli occupation can be analyzed effortlessly; the no man's land and the 1949 Armistice line have disappeared. The names of the five Palestinian villages and built up areas had already disappeared as direct representation due to the erasure and demolition on the ground, especially in June 1967 by Israeli army. The route of the Jaffa-Jerusalem road was shifted north inside the no man's land.³⁸ Recent map versions show hidden lines indicating the underground route of the recently established high speed train between Tel Aviv and Jerusalem. The "cartographic blob" of Latrun area that resulted from the 1949 Armistice line had already been swallowed. The erasure of the Palestinian landscape in the Latrun area required another layer to be imposed over the ruins of the village houses, and more importantly over the village landscape, to nullify and replace the Palestinian cultural landscape identity. The Israelis stretched the "green cover" they had begun since 1948 (including forests, parks, and related recreational activities)³⁹ over the landscape of the adjacent destroyed Palestinian villages to the east.

A deeper analysis of the 1:50,000 maps beyond a passive reaction of what was changed on the ground shows the active political power inherent in the message communicated visually through the map information. The new version of the 1:50,000 map shows the name of the park established in 1973 as the Ayalon-Canada park⁴⁰ on lands from 'Imwas and Yalu villages, and parts of Dayr Ayyub (north of the main road), with the Jewish National Fund logo imposed on it. This logo means that the Palestinian rural landscape has been incorporated into the well-known Israeli colonial transformation process through afforestation by governmental and nongovernmental bodies such the Jewish National Fund.⁴¹

On the map, one can see the park features, natural cover, hiking trails, archaeological sites, water springs, even village holy sites such as shrines with the local Palestinian names such as 'Ayn al-Balad village spring, next to the place where the village core used to stand. But the village itself, Dayr Ayyub, the core of this cultural landscape, has been erased. This cartographic manipulation was an attempt to reshuffle the Palestinian village landscape into the colonial domain with the main goal of enforcing the relationship between colonizer and land through a map for Israeli users, such as hikers, to navigate the terrain and explore related natural and historic features. An analogy could be drawn between the exaggerated and selective highlight of the archaeology layer on this map and the nineteenth-century Oriental archaeological maps. However, the Israeli map had a different practical use for the reconstructed historic layer through archaeology as part of culture and recreational practice, an exercise of power to help build the national identity and consciousness.

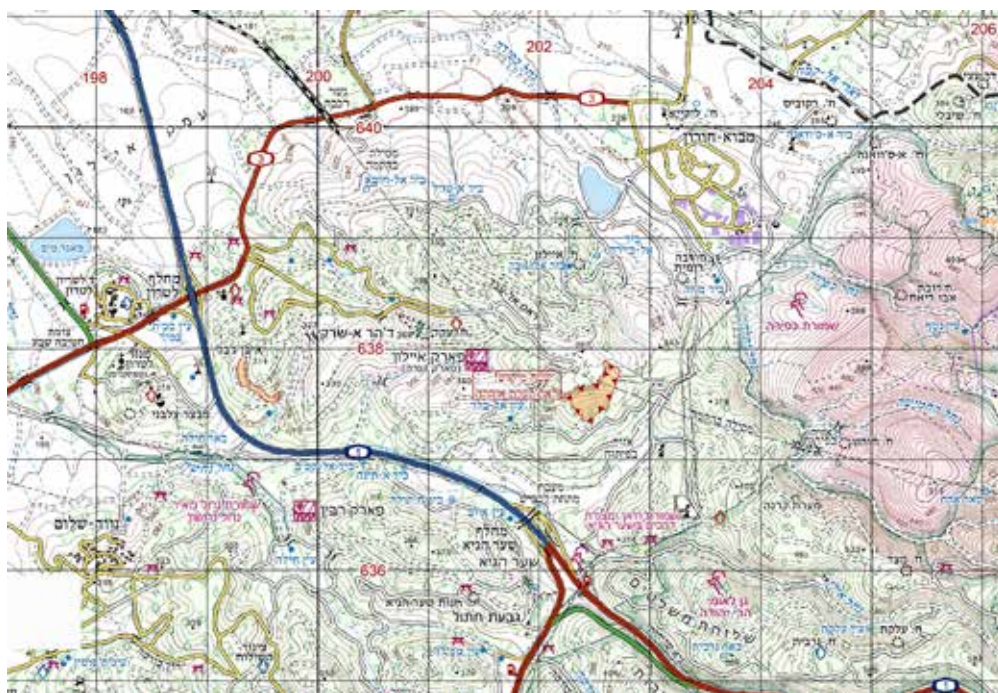


Figure 15. *Survey of Israel*, 1:50,000 topography map, Latrun area and surroundings (edited), Survey of Israel.

What is striking in general about the 1949 Armistice line, known as the “Green Line,” is how much it has become politically charged and is mentioned in any political discussions about ending the Israeli occupation or any future conflict resolution. However, since 1967 it has gradually disappeared from Israeli local maps and on the ground in the Latrun area inside the green “maze” (without real border lines, barbed wire, security fences, watch towers, or any visible markings). It has been transformed into a less visible, more complicated matrix of spatial control and separation. One can find the brutal manifestation of this matrix just four kilometers to the north of this new forest and recreational area, in the shape of the Israeli separation wall south of the Palestinian village of Bayt Likya. This wall resembles the current radical separation exercise begun in 2002 by establishing another “temporary security barrier” – a clear manifestation of the current state of conflict and colonial hegemony. One wonders how such a continuous cartographic manipulation leaves any room for the imagination regarding the next stage of this continuous colonial mission.

Conclusion

This preliminary analysis of the selected maps and aerial photographs shows the dialectic relationship between cartography and the radical transformation that occurred in rural Palestinian geography, especially in the case of Dayr Ayyub and

its adjacent vicinity. The Dayr Ayyub story is utilized as a case study regarding the visual representation of Palestinian rural geography over the last 100 years in general, in addition to being a colonial exercise of power, through maps, policies, and facts on the grounds in Palestine. Despite the specificity of its strategic location and related consequences during the Nakba, Dayr Ayyub is not an exceptional case. On the contrary it is a typical case of both: the visual representation of Palestinian rural areas, especially those that were lost and destroyed in 1948–67, and the demise of the hundreds of lost villages and erased cultural landscape during the last 100 years in Palestine.⁴²

The preliminary analysis of maps showed that they were not technical neutral representations of geography or property in Palestine. In contrast, they were a “socially constructed form of knowledge”⁴³ about landscape and embedded political power, exercised directly, by production and use, control and discipline, and indirectly through the implicit and explicit messages communicated through its symbols. I have utilized here a framework to analyze the selected maps, and to some extent aerial photography, since both are a product and a process of constructing meaning. This examination began by analyzing chronologically Dayr Ayyub’s minimal visual representation in WWI maps (and pre-WII as well) as a small dot within Holy Land geography, moving to the British Mandate’s expansive representation of rural Palestine for colonial administrative purposes of control and discipline, mainly land settlement and fiscal taxation. We then moved to the 1948 aftermath and illustrated the adverse effects on the village’s destiny of the military negotiating tactics, and the repetitive reduction of the village landscape on the war maps, that eventually resulted in the devastating effects of Dayr Ayyub falling into no man’s land. A cease-fire line crystallized in the international maps about the conflict as a border, at the same time diminishing on the ground in favor of colonial expansion tactics. Furthermore, it illustrated very briefly the politics of presentation and the exclusive Israeli cartographic narrative that nullifies the Palestinian landscape through a process of reshuffling, erasing, and relabeling its components.

This overarching analysis framework facilitates additional critical reading and tracing the power structures within the map and the photo as an archival document. The cartographic strategies determined what to present on the map surface, which order or hierarchy to present, what to silence or exclude, and how to interpret the map or photo as an archival document. This analysis was an attempt to trace the colonial power within the map structure through tracing the transformation if it dominated elements such as the military grid in WWI maps, village boundaries in British Mandate maps, and the 1949 Armistice line. In addition, it traced the selective representation and order of natural and archaeological features in pre-WWI maps and Israeli topographic maps after 1967. The inclusion of forests in the British Mandate’s village map and Israeli topographic maps showed the gradual implementation of the colonial policy of afforestation as a different ideology and magnitude over the ruins of the Palestinian landscape. The unique analysis of aerial

photography of WWI showed the power and limitation of interpretation of archival documents in relation to the subject, and how it could be used and manipulated to highlight, exclude, or silence features of the rural Palestinian landscape. Despite the limited geographical scope of this study, its critical narrative represents a much wider phenomenon. Similar cases still need to be uncovered and studied through future research and discussion.

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Endnotes

- 1 John Harley, *The New Nature of Maps: Essays in the History of Cartography* (Baltimore, MD: Johns Hopkins University Press, 2002), 55.
- 2 Salman Abu Sitta, *Atlas of Palestine 1917–1966* (London: Palestine Land Society, 2011), 112.
- 3 Abbas Nimir, *Dayr Ayyub: mahu qaryat al-tahadi* [Dayr Ayyub: A Village Challenge Erasure] (Ramallah: Al-Shark, 1993), 6–9.
- 4 “Dayr Ayyub,” Wikipedia [Arabic], online at (ar.wikipedia.org) tinyurl.com/ulcxp24 (accessed 9 March 2020).
- 5 Nimir, *Dayr Ayyub*, 115.
- 6 William Lynch, *Narrative of the United States’ Expedition to the River Jordan and the Dead Sea*, (Philadelphia: Lea and Blanchard, 1850), 435.
- 7 Claude R. Conder and H. H. Kitchener, *The Survey of Western Palestine: Memoirs of the Topography, Orography, Hydrography, and Archaeology*, vol. 3 (London: Committee of the Palestine Exploration Fund, 1883), 15 and 55; available online at (archive.org) tinyurl.com/tu5czwx (accessed 9 March 2020).
- 8 Urban areas had more detailed survey and representation, as did infrastructure projects such as the Hedjaz railways (1900), Jaffa–Jerusalem Railway (1892), United States Mission to the Dead Sea among other missions that produced different representations of the landscape and human settlements.
- 9 John Harley, *The New Nature of Maps*, 57.
- 10 Edip Özkale & Mustafa Şenler, *Haritaci Mehmet Şevki Paşa Ve Türk Haritacılık Tarihi (1919 yılına kadar), II Bölüm* [An Abridgement of “A Summary of Ten Years of Efforts Regarding Turkish Cartography” by Mehmet Şevki Paşa] (Ankara, 1980), 66–70.
- 11 Dov Gavish, *A Survey of Palestine under the British Mandate. 1920–1948* (NY: Routledge, 2005), 12–15.
- 12 The case of urban areas was quite different since more details of the urban areas could be obtained from aerial photographs.
- 13 In November–December 1917, after the British forces won battles at Bir Sab’a, Gaza, and the Junction Station, Latrun–Bab al-Wad became a strategic position to be captured in preparation for the next battle of capturing Jerusalem. The British army advanced as planned after a small battle in Latrun. Then it began to ascend toward Jerusalem along several routes. According to the oral history of Dayr Ayyub villagers, they left the village during the fighting at Latrun for adjacent villages such as Bayt Thul, then returned shortly afterward. See “Dayr Ayyub” [in Arabic], Wikipedia, online at (ar.wikipedia.org) tinyurl.com/v6m4okj (accessed 9 March 2020).
- 14 Other photographs, rather than the one presented here, was used in the analysis including November 1917 and August 1918.
- 15 Benjamin Kedar, *The Changing Land between the Jordan and the Sea, Aerial Photographs from 1917 to the Present* (Yad Ben Zvi press & MOD publishing, 1999), 12.
- 16 Alon Tal, *All the Trees of the Forest: Israel’s Woodlands from the Bible to the Present* (New Haven: Yale University Press, 2013), 31.
- 17 Gavish, *A Survey of Palestine*, PII (preface) and 36.
- 18 Another paper on this specific topic is in preparation.
- 19 The map used here seems to be a reproduction of the original 1933–34 map since it includes the delineation for the Armistice line and no man’s land.

- 20 Gavish, *A Survey of Palestine*, P144–46.
- 21 Gavish, *A Survey of Palestine*, P144–46.
- 22 This excluded the Naqab desert to some extent.
- 23 Linda Quiquix, “When the Carob Tree Was the Border: On Autonomy and Palestinian Practices of Figuring it Out,” in *Capitalism Nature Socialism*, 24, no. 3 (2013): 170–189; online at (tandfonline.com) tinyurl.com/v8zqons (accessed 9 March 2020).
- 24 Abu Sitta, *Atlas of Palestine*, 26–28. One of the technical justifications mentioned repeatedly was that the coastal plains were faster to survey due to the topography and plot size. This indicates the pressure put on the Survey of Palestine Department by many parties, especially the Zionist movement, to advance the survey as fast as possible. For details, see Gavish, *A Survey of Palestine*.
- 25 Forestation in this area includes additional villages, such as Bayt ‘Itab, Jarash, ‘Allar, and Sufia.
- 26 Safhat Wad ‘Ali Forest Reserve No. 167 in the official gazette No. 196, 1 October 1927, was declared a closed forest area; an adjacent plot called Jabal/Marah Abu Simra of the forest in Bayt Mahsir, was declared in a different gazette as Forest Reserve No. 151 which seems to include a small area in Dayr Ayyub as well; both appeared on Dayr Ayyub village map 1:10,000.
- 27 This term was used by the British acting conservator of forests A. Y. Goor in a 1947 report listing forest reserves by categories (31 December 1946) to describe this strategy in general not but for this specific forest.
- 28 According to the interview with Mohammad al-Qaysi (from Dayr Ayyub) by Palestine Remembered website, after several attacks on the village and with fighting intensified and the Arab Liberation Army fighting from Dahr Yalu area, the villagers sent the women and children to Yalu, especially at night, and the men stayed in the village during the battles; online at (palestineremembered.com) tinyurl.com/s3hcbcb (accessed 1 December 2019). According to Abbas Nimir, village inhabitants returned to the village after the end of the Latrun battles and the second truce agreed in July 1948, Nimir, *Dayr Ayyub*, 142.
- 29 According to Abbas Nimir, after the 1949 agreement, the Jordanian army ordered villagers to continue to leave at night and to stay in the village during the day for a while [as was the case during the fights, see n.28].
- 30 UN archive, Hashemite Jordan Kingdom-Israel: General Armistice Agreement, online at (unispal.un.org) tinyurl.com/v4ub7bw (accessed 9 March 2020).
- 31 “The ‘Green Line’: A topographical map,” online at (museum.imj.org.il) tinyurl.com/tmdh4lk (accessed 9 March 2020).
- 32 Abu Sitta, *Atlas of Palestine*, 101. See also ‘Abdullah al-Tal, *Karithat Filastin: Mudhakkarat ‘Abd Allah al-Tal* [The Catastrophe of Palestine: Memoirs of ‘Abdullah al-Tal] (Cairo: Dar A-Qalam, 1959).
- 33 “The ‘Green Line’: A topographical map.”
- 34 Abu Sitta, *Atlas of Palestine*, 101.
- 35 Abu Sitta, *Atlas of Palestine*, 102.
- 36 The Jaffa-Jerusalem road in the Dayr Ayyub area fell inside no man’s land and so was blocked and unused between 1948 and 1967.
- 37 “Long Agonizing Account: Canada Park Tour That You Will Not Read in Keren Kayamet Banners,” [in Arabic], Zochrot, online at zochrot.org/ar/article/54157 (accessed 27 March 2020).
- 38 The reason was that it will not be claimed back by Palestinians or Jordan in any future negotiations.
- 39 This was in addition to building moshavs, kibbutz or, in limited cases, repurposing the Palestinian village houses to make use of village space.
- 40 “Imwas,” Zochrot, online at zochrot.org/en/village/52872 (accessed 27 March 2020). The name at the establishment was Canada Park.
- 41 By crosschecking the area with aerial photographs, one can interpret that Israel kept most of the fertile agricultural land along the Jaffa-Jerusalem road for the same use, but for Israeli users.
- 42 Despite the peculiar case of Dayr Ayyub in relation to the Armistice line, all of the Palestinian villages along the green line path suffered similar loss and ruptures of their landscape in one way or another, such as Bayt Safafa, Battir, and Bayt Iksa.
- 43 John Harley, *The New Nature of Maps*, 52.

Granular Realism Dominant and Counter-Dominant Practices of Spatial Photography in the Naqab

Ariel Caine

Editor's Note:

This contribution is a revised extract from the author's thesis: "Granular Realism / Ontology and Counter-Dominant Practices of Spatial Photography," Goldsmiths University of London, 2019.

The author was the project coordinator and researcher on the Forensic Architecture project Ground Truth.

The Use of Drones and GIS to Monitor "Illegal" Construction

A slow but steady process of land transformation has been taking place over the last seventy years, gradually erasing traces of Palestinian Bedouin inhabitancy in al-ʿAraqib and the larger Naqab region. The young tree saplings encircling the grounds of al-ʿAraqib belong to the Mishmar Hanegev (the Negev Guard) forest, named after a nearby Jewish kibbutz. They are part of a series of afforestation projects established by the Jewish National Fund (JNF) and the Israeli Land Authority all along the northern edge of the Naqab desert. From Yatir forest in the east to Be'eri forest in the west, two conjoined lines of defense – one, supposedly aimed at battling desertification, the other, stretching from the Gaza Strip to the West Bank cease-fire line – are focused on disrupting expansion of a Palestinian presence that threatens to split Jewish-Israeli sovereignty over the land from north to south. What is unique about this strip of afforestation is not its ecological justification, part of a state "green-washing campaign," or its desired effect, but rather that a significant reason for its establishment has been the goal of uprooting the indigenous Palestinian Bedouins and eroding all evidence of their heritage in the area. Through this inverted use of eco-friendly afforestation, the JNF and the Israeli state are irrevocably changing conditions on the ground, circumventing both juridical processes and public discourse.

The "Battle for the Negev" which began with Operation Yoav¹ in 1948 shifted in subsequent decades from direct armed



Figure 1. Al-Turi cemetery as seen through the community satellite point cloud, 2016 (left), and as seen on Google Earth, 2017 (right).

conflict into one waged by means of land cultivation, development, construction, and demographics. Keeping the balance on the side of the (Jewish) state meant there was a growing need for fast and efficient organizations for monitoring mechanisms. Aerial and satellite surveys was the most efficient method by which to keep up with the “illegal” construction, cultivation, and attempts at return by Palestinian Israelis in the Naqab/Negev.

Government ministers and right-wing NGOs contribute to the Judaification of the Naqab alongside academics, lawyers, politicians, and planners who simply advocate for an enactment of “the rule of law.” Visuality and erasure, imaging and planning, law and planning rights coalesce to form a nexus of reciprocal relations, a feedback loop that gravitates between the ideological and bureaucratic. This system has maintained a steady course since 1948: its aim is the Judaification of the contested lands and their so-called revitalization, alongside attempts at de-politicization² of the Palestinian Bedouin resistance and the de-legitimation of Bedouin and Palestinian struggle to reclaim their rights to their land in the face of Jewish ethnocracy.

If until recently the aim of survey-imaging was to compress geographical volume into its surface features, the past decade has seen the introduction of semantic, algorithm-aided, automatic feature recognition in the processes of remote sensing, and GIS work in both two- and three-dimensional space. Deploying these Machine Learning tools for remote sensing, aerial surveying and the production of surveillance datasets has significantly increased the ability of state authorities, as well as right wing NGOs such as Regavim (clods of earth, in Hebrew), a Zionist Israeli NGO established in 2006 to monitor and quantify any trace of new so-called illegal expansion of Bedouin settlements, and act to curtail them.

According to the English version of its website, Regavim is dedicated to the “responsible, legal, accountable and environmentally friendly use of Israel’s national lands and the return of the rule of law to all areas and aspects of the land and its preservation.”³ This quote is phrased in such a way as to reflect an apparent professional and civic concern for the rule of law. However, in the Hebrew version of the webpage (as well as in other slightly deeper sections of the English site), the language changes to one of a straightforward ethno-national war of survival, which must be waged through cutting-edge remote sensing and surveillance, hand-in-hand with Jewish agriculture, afforestation, and settlement. In the Hebrew site, Regavim’s aim is to promote a “Jewish Zionist agenda . . . on aspects of land and environment . . . advocating the preservation of the State of Israel’s national natural resources for the entire Jewish people . . . taking care that no one will covet them to themselves contrary to the law and certainly not under the auspices of the law.” Those threatening and coveting Jewish national land, and striving for the elimination of the Jewish State, according to Regavim, are “hostile agents, aided by huge financial support from foreign countries in Europe and the Arab states and by the moral backing from post-Zionist organizations in Israel.”

Regavim is a unique example of the way in which right-wing settler ideologues have shifted their mode of operation. On the one hand, they are adopting the discourse of human rights and international law⁴ in order to portray Israel’s actions against the Palestinian population as defensive, even within its the internationally recognized 1948 borders. Additionally, in parallel to increasing Palestinian and Bedouin solidarity between the West Bank, 1948 area, and Gaza, the NGO seeks to further blur any distinction between the Naqab and the West Bank and Gaza, in the hope for a greater Israel.

A present-day escalation of the “battle for the Negev” is being waged through an alliance between the state planning authorities and this new Zionist settler NGOs remote-sensing surveillance. Regavim operates through the parallel use of ground surveys, legal action, and advocacy. Emulating the work of leftist NGO’s such as Peace Now, B’tselem, Yesh Din, and Bimkom which deploy remote sensing across time to monitor illegal actions by the state while pursuing legal (and advocacy) routes in an attempt to hold the state to account on behalf of civil society and the unrepresented residents of the Occupied Territories, Regavim has adopted similar techniques against the Palestinian population in order to spur the state into action. Increasingly, GIS and satellite imagery analysis form an essential part of their reports and position papers.⁵

The village of al-‘Araqib has been the focus of several Regavim reports, all of which systematically attempt to counter the main claims set forth by the families of al-‘Araqib in the courts. Its latest report, released on 31 December 2018 titled “The Truth about the Bedouin in the Negev,”⁶ focuses on the testimony of Ruth Kark, one of the state’s leading expert witnesses regarding Bedouin land rights trials. Kark attempts to counter Bedouin claims for indigeneity, the continuity of their presence predating Israel’s formation, and their historic, lived, and cultural connection to the land. Kark’s findings, backed by Regavim’s aerial image analysis, claims that the existence of

the village and cemetery of al-‘Araqib are false since evidence of the cemetery only appears in 1965, and the village itself only came into existence in the 1990s.



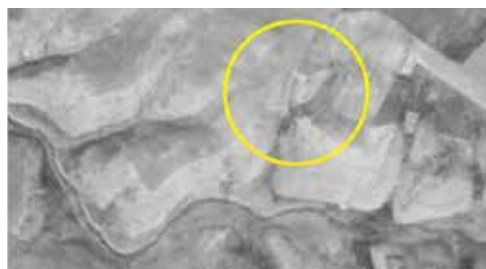
Al-‘Araqib 2010, a village and a cemetery.



Al-‘Araqib 1989, a cemetery but no village.



Al-‘Araqib 1965, indication of a new cemetery, no village.



Al-‘Araqib 1945, no cemetery and no village.

Figure 2. Aerial interpretation produced by Regavim attempting to disprove the claim of al-Turi family that al-‘Araqib existed as a village prior to 1965, online at (regavim.org) tinyurl.com/r7snlrp (accessed 14 April 2020).

A simple examination of the images laid out in the report, however, reveals that they have been distorted and, more significantly, the yellow marking pointing to the area of the cemetery is placed in the wrong location in all but the 2010 image. Furthermore, as demonstrated by Eyal Weizman and Forensic Architecture,⁷ the size of the al-Turi cemetery was still small in the 1940s and its graves were merely small mounds of earth.⁸ As such, the level of detail on Regavim’s aerial photography is not sufficient to differentiate between land and grave; only by zooming into the level of the silver halide grain on the photographs, overlaid onto a map within GIS software, can we discern that, in the 1945, 1949, and 1956 images, traces of the cemetery are in fact present.

Where the state and its supporting expert opinions only see transient and occasional tents belonging to nomadic Bedouin tribes, we can clearly identify a sedentary, continuous agricultural village, tracing from nineteenth and early twentieth century land documents and testimonies, through pre-state aerial photographs and up to the current residents of al-‘Araqib. Prior to the founding of Israel and the Palestinian Bedouin displacements in 1951, Bedouin families did indeed inhabit the land in a sedentary fashion in a clustered formation of households, according to family association, with each household owning and cultivating its lands, and with a

supporting architecture of tents, stone and mud houses, wells, underground caves for grain storage, and cemeteries.

In late 2016, Regavim set up a drone unit in order to expand its ability to monitor land use and construction throughout Israel and the West Bank. The area laying between the Naqab region and the West Bank received particular attention in the unit's activity as it is perceived as the forefront of the "architectural war" being waged by the Palestinians and Palestinian Bedouins and is regarded as a fault line within Israel's own line of defense. Consequently, the NGO is using remote sensing to monitor the so-called rampant Bedouin take-over of lands in the Naqab/Negev.

The claims of landgrab, illegal construction, and trespassing brought against al-Turi, al-'Uqbi, and Abu Freih families of al-'Araqib rest on the a priori negation of their long-term presence and ownership of these lands. What is not (entirely) contested, however, is the fact that the families were there at some point during 1951 and 1953, when they were officially evicted by the Israeli military. Throughout the Naqab, Palestinian Bedouin villagers were forced to evacuate their lands and move into an enclosed region north of Beersheba, later termed the "*siyaj*" (fence). The families were given various reasons for this forced displacement, such as security needs, military training maneuvers, infrastructural development, and so on. In most cases they were encouraged to believe that this displacement was temporary and that they would return.



Figure 3. Aziz al-Turi points out the layout of al-'Araqib village in an aerial 2009 aerial photograph, prior to its destruction in 2010. Photo by author, 2017.

Two main legal claims form the basis of the current challenges against the state: the claim of the families' historic continuity of sedentary presence, ownership, and cultivation of the land; and a challenge to the legality and present validity of the 1951–54 forced displacements and land confiscations that took place. Both of these

legal processes put into motion by the Bedouin families require evidence that “anchors” them to land through spatial analysis and historic and present-day documentation. Any form of argumentation supporting their sedentary presence prior to the foundation of the Israeli state needs to link all existing forms of testimony and documentary evidence to both the physical as well as the image-based record.



Figure 4. Nearly every one of the Bedouin sites has a corresponding archaeological registry in the IAA survey. These registries, marked in the above images by orange rectangles, seen through the Israeli survey platform, date from the Byzantine to the Ottoman eras. But in nearly all of these cases, they fail to acknowledge the recent use by local Bedouin families over the past two centuries.

Ground Truth: Towards A Participatory Spatial Counter-Practice

In “Ground Truth,”⁹ a do-it-yourself participatory production of aerial imagery and photo-based 3D mapping has become a mode of activism that reframes our understanding of aerial photography and surveying. In this project, which I undertook as a project coordinator and researcher at Forensic Architecture,¹⁰ I aimed to explore the ways that a new method of use for point cloud and Structure from Motion (SfM)¹¹ photogrammetry – when networked into the currently separate field of GIS¹² and created through a long-term participatory processes – can help redefine the possibilities for visual-spatial activism.

As discussed earlier, drones and low altitude aircraft were and still are used in this area by authorities to survey what is termed illegal construction, followed by demolitions. We therefore adopted the simplest form of aerial photography available. The unobtrusive, and more importantly, inclusive kite allowed us to conduct aerial photography with community members while our feet were firmly on the ground, walking the terrain with the kite camera above. Together

with the families of al-‘Araqib, Public-Lab¹³ and the NGO Zochrot,¹⁴ this large-scale, long-term project has created a method whereby photogrammetry is used to assemble the aerial, ground, and underground¹⁵ views captured across multiple periods of time by “community satellites”¹⁶ into spatial point-cloud constellations. A custom-built, online, 3D geographic information platform, Naqab.org, enables the interconnection of these geo-located environments with archival data and media sources and situated testimony.



Figure 5. The Bayka (stone house) and storage cave of Ibn Bari, al-‘Araqib: point-cloud composite with camera locations. Photo by author, Forensic Architecture, 2017.

The surface of contestation in this case is one on which many different layers of land-use, dispossession, and violence are inscribed. Here, too, land struggle itself is multiple and collective in nature, involving communities, NGOs, activists, journalists, and lawyers. As such, I would argue, following Eyal Weizman, that the ground needs to be read as a photographic surface of inscription – not only through remote knowledge of the state or a revised reading of the archival aerial photograph, but also and primarily through the lived knowledge and history of the families as it materializes through the communal production of the 3D, spatial-image in a process of collective witnessing and survey. Drawing on the inherent multi-viewpoint qualities of the emergent medium, we link multiple forms of knowledge – legal, lived knowledge of the families, land documents, survey data, and imaging – by means of a durational and collective process. While the earth operates as a palimpsest that registers the recurring acts of violence, the spatial-image enables us to measure, compare, track, and testify to the nature and extent of those violations.

The families’ connection to the al-‘Araqib is intricately linked to a long, embedded, lived experience of being on the land. In this sense, the rapid afforestation and displacement is not only erasing their past and present existence and heritage

but also radically undermining their very ability to orient themselves in their ancestral land or recognize its landmarks. However, using the Ground Truth project as an exemplar, I would argue that to overcome or mitigate this repeated erasure – the overwriting of the land, its surface features but also its three-dimensional spatial (volumetric) relations, such as the underground depth of a well or cave, the inclination of a hill directing waterflow and runoff water to a cistern or the position of a tent or house in relation to the hilltop and the resultant exposure to winds – we need a photographic practice that is diffused, collaborative, multiple, and architectural. The spatial photograph (the 3D point cloud) forms a volumetric palimpsest where space, image, navigation, and testimony are collapsed into one computational optical environment, allowing us, through its three-dimensional and networked materiality and collective modes of practices to challenge pre-existing thresholds of visibility and of civic participation, and to intervene in the current conditions for the production of truth under conditions of visual and political violence.

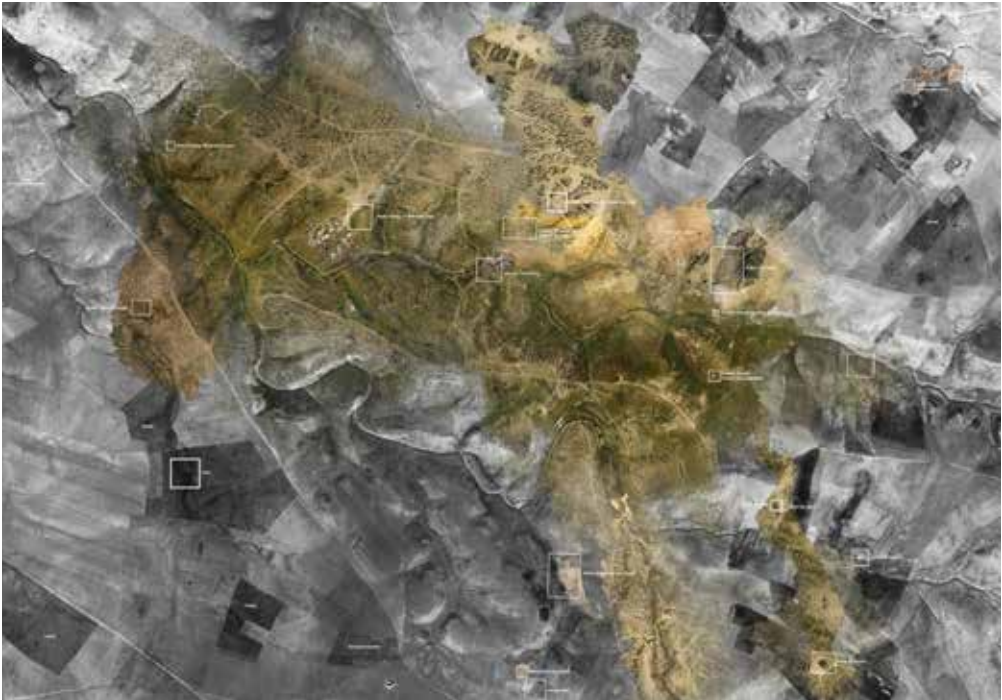


Figure 6. Al-'Araqib 1945/2017 – a composite of Royal Air Force aerial photograph and community satellite point clouds. Photo by Forensic Architecture, Ariel Caine, Aziz al-Turi, Nuri al-'Uqbi, Debby Ferber (Zochrot), and Hagit Keysar (PublicLab), 2017.

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Endnotes

- 1 "Operation Yoav," Wikipedia, 26 February 2019, online at ([wikipedia.org](https://www.wikipedia.org)) tinyurl.com/tacr5lm (accessed 5 March 2020).
- 2 Ahmad Amara, Ismael Abu-Saad, and Oren Yiftachel, eds., *Indigenous (in)Justice: Human Rights Law and Bedouin Arabs in the Naqab/Negev* (Cambridge, MA: Human Rights Program at Harvard Law School, 2012).
- 3 See official website, online at www.regavim.org/our-vision/ (accessed 5 March 2020).
- 4 Nicola Perugini and Neve Gordon, *The Human Right to Dominate* (New York: Oxford University Press, 2015).
- 5 Regavim (blog), "Maps & Position Papers Archives," online at www.regavim.org/category/position-papers-maps/ (accessed 5 March 2020). For example, in "The Truth about the Bedouin in the Negev," see the use of aerial photos of Bedouin areas, online at (regavim.org) tinyurl.com/vhx8yod (accessed 5 March 2020).
- 6 "The Truth about the Bedouin."
- 7 Eyal Weizman and Fazal Sheikh, *The Conflict Shoreline: Colonization as Climate Change in the Negev Desert* (Göttingen: Steidl, 2015).
- 8 In September 2019 we submitted an expert witness testimony to the Israeli court on behalf of the families of al-'Araqib, providing aerial interpretation of images from 1945–99 demonstrating the continuity of sedentary presence of the families in the claimed area of al-'Araqib.
- 9 "Destruction and Return in al-'Araqib," online at forensic-architecture.org/investigation/destruction-and-return-in-al-araqib (accessed 6 March 2020).
- 10 Forensic Architecture is an interdisciplinary, independent research agency based at Goldsmiths, University of London. I have been a member and project coordinator in the agency since mid-2016. See online at www.forensic-architecture.org (accessed 6 March 2020).
- 11 Structure from Motion (SfM) is a field within photogrammetry in which the process of spatial 3D reconstruction uses multiple planar images taken from varying positions in space. 3D form is gained through the motion of the camera through space by which it records different angles of a single scene.
- 12 GIS (geographic information system) is a framework for gathering, managing, and analyzing data as part of a system of cartography.
- 13 Public Lab is a community and a non-profit, democratizing science to address environmental issues that affect people. It was originally founded in the United States in the wake of the 2010 BP oil disaster. See the website, online at publiclab.org/about (accessed 9 March 2020).
- 14 Zochrot (remembering, in Hebrew) is an Israeli NGO working since 2002 "to promote acknowledgement and accountability for the ongoing injustices of the Nakba, the Palestinian catastrophe of 1948, and the reconceptualization of the Return as the imperative redress of the Nakba and a chance for a better life for all the country's inhabitants." See the Zochrot website, zochrot.org (accessed 9 March 2020).
- 15 Cameras were lowered into caves, cisterns, and wells in order to document their structure before they are filled in by the Jewish National Fund afforestation works.
- 16 A term adopted from Public Lab. See "Our History" section, online at publiclab.org/about (accessed 9 March 2020).

Directory of the Palestinian Photo Holdings of the Bavarian War Archive

Andreas Evaristus Mader
S.D.S.

Translated from German by
Carol Khoury



Figure 1. Pater Evaristus Mader (1881–1949) in 1936. He was born in Bavaria, Germany, and joined the Societas Divini Salvatoris (S.D.S.) in Berlin-Waidmannslust at the age of 14. In October 1911 he went to Jerusalem to research ancient Canaanite sacrificial sites and to prepare a multivolume topographical and archaeological description of the Holy Land. In 1917, he became a field chaplain during the First World War. His grave at Waldfriedhof cemetery in Munich, where the Salvatorians are buried, bears the inscription he requested: “For the sake of Sion I will not keep silent. For love of Jerusalem, I do not rest.” Online at (salvatorianer.de) tinyurl.com/vxvjrqo (accessed 19 January 2020).—Trans..

Editor’s Note:

The excerpts below are from the “Directory of the Palestinian Photo Holdings of the Bavarian War Archive” in Gustaf Dalman’s *Hundert deutsche Fliegerbilder aus Palästina* (One Hundred German Aerial Photographs from Palestine) (Gütersloh, Germany: C. Bertelsmann, 1925).

Introduction

Although the World War had a devastating effect on Palestine, it nonetheless greatly promoted the exploration of the country, with cartography receiving the lion’s share. While studies on geology, meteorology, archaeology, epigraphy, topography, settlement, and habitation science have already been published, we can still expect more.¹

But warfare has given to Palestine studies a treasure of outstanding value that

would otherwise not have been available so recently: an archive of aerial photographs of almost all parts of the country. The German Air Force divisions 300–305 have taken many thousands of aerial photographs on the Palestinian front. There are 2,662 photographs by the Bavarian Air Force division 304 (Squadron 304) alone, which this Directory discusses. According to statements by the officials, only a remnant of those photographs could be saved during the retreat; the bird's-eye view photographs show us the remarkable country. At my instigation, das Bayerische Kriegsarchiv in München [Bavarian War Archive in Munich] has generously decided to open up this treasure trove of photographs, and to make it accessible for Palestine studies.

Until now, we have toured the Holy Land on horseback or by carriage, travelled by ship along the Mediterranean coastline, by rail from Jaffa to Jerusalem and from Haifa through the Jezreel Valley and the Jordan Valley to Damascus, and climbed by foot uphill and down dale across the deeply torn valleys and gorges of the Palestinian mountains. But now, as air pilots, we are privileged to see the country from a bird's-eye perspective without the risk of a crash and with the advantage of a serene image captured on the plate. It is a rare, mysterious magic to look at these photographs in plain view at the study table with a magnifying glass in hand and, free of earthly challenges, to float in sublime solitude over the Holy Land.

Compared to ground photography, the disadvantages of aerial photography do not weigh heavily. For natural reasons, the aerial photograph has no foreground. The average distance from which a photo was taken is several thousand meters; in photographic terms, this equals infinity. At times, we would have liked to look at the terrain from a lower altitude in order to see the details more clearly, but because of the counteraction of the enemy's defensive guns, the pilots had to go to these heights. For that, the stratum of air between the object and the camera impaired the clarity of the photograph by inducing loss of brightness, but this was offset by the clarity of the oriental atmosphere itself. The main impact of all these flaws is that the distinction between light and dark of distant points, so-called contrast, is significantly reduced, sometimes even disappearing completely.²

The Value of Aerial Photography for the Various Branches of Palestine Studies is Nevertheless Still Very Big

1. **Geology** is now enriched in a unique way. Aerial photographs have a particular advantage over ground photographs, especially here. Due to the greater altitude from which the photographs are taken, they show a larger field of view, and thus a wider overview of the terrain; only photos taken from summits could provide a comparable view. Aerial photography clearly emphasizes the landscape forms, thus the relief-like character of the photographed Palestinian mountains. The morphology of the mountainous desert of Judah appears vividly (three dimensional). The character of a limestone mountain range, sloping down in horizontally layered terraces, often seems surprising. We glance down at the maze of magnificent cone-shaped mountains and hilltops, as well as the labyrinth of its curved valleys without vegetation, and are amazed at the erosive power

of water, which in ancient times carved out and often washed smooth the wild gorges and unreachable heights. A fantastically rich hilly landscape stares up at us from the Jordan Valley. We notice here and there two different riverbeds running next to each other, and now realize why no map can reproduce their bizarre and obviously constantly changing turns. The river turns and writhes beneath us like a mortally-wounded giant snake until it eventually finds death in the Dead Sea. On the west coast of the Dead Sea and on the East Bank, we can even decipher the geological contour lines at the canyon-like carved out rock walls and terraces, and discover volcanic formations here and there.

2. **Meteorology** derives a great deal of knowledge from many photographs, not only by letting us study cloud formations at a certain day of the year (hour and day of recording are usually indicated on the photos). We also can understand that the leeward side of the mountains facing away from wind and rain has much less precipitation and consequently less vegetation and habitation than the windward side facing the wind and rain. These principles of meteorology are most strongly affirmed by the photographs of the Judean Desert, which lies on the lee side of the West Bank. Sometimes the cloud photographs taken from an airplane appear magically beautiful; from the smallest cirrus to the thunderstorm promising cumulus clouds, to the flimsy stratus cloud, and the impenetrable ceiling, all details of meteorological phenomena can be explained by a cloud photograph.

3. **Transport Geography** receives special appreciation through aerial photography. The dust-covered roads and paths of the country often shine dazzlingly white, and illustrate how their lines are causally connected with the surrounding terrain, with the economic exploitation of the land, and with their significance for the villages along the wayside. This is where the value of the photographs stands out the most. As most photographs were taken for strategic purposes, particularly scouting out the advance of enemy reconnaissance, almost every picture shows some Palestinian road or path. Hence the delight that most of the country's main traffic arteries are almost completely covered by the aerial photographs: Jaffa-Jerusalem, Ramla-Gaza, Jerusalem-Jericho, Jerusalem-Hebron, and Jerusalem-Nablus.

4. **Settlements Studies** find multiple applications from aerial photographs. The settlements and the surrounding landscape are closely connected; the exigency of their location is usually recognized at first sight; valley crossings and crossroads, or peculiar shapes of the landscape, caused the settlement to be established in that particular place. Ground photographs will not, or only rarely, be able to illustrate such geographical facts, due to their coverage of smaller areas. Maps, at most, could have a similar result, but in this case the naturalness is missing because everything is just codes and symbols, image and drawing. On the other hand, an aerial photograph acts as three-dimensional and displays things as they are. On its own, the aerial photograph also clearly shows the characteristic features and the construction of a European settlement (a German Templar Colony in Haifa, in Sarona, or in Jerusalem), a Jewish colony (of Tel Aviv and Jaffa, and Rishon leZion), a German row village (German ribbon-built village of Wilhelma), or even a Circassian settlement (Suwala, on the East Bank). A striking contrast to all these

types of construction is the practice among Arabs of building houses close together which is most prevalent among Palestinian communities. From the aerial photograph, we can see at first glance whether the settlement was a planned one, designed by an architect with a ruler and T-square, or whether it represents a randomly occurring pack of huts, where each hut embodies a personal need and the whole settlement embodies the poverty of the inhabitants. Even the historical development of the settlement, especially of the towns and larger villages, can be studied from the aerial photographs at the various groupings and locations of the house and hut complexes. A special mention is needed here of the numerous pictures of Jerusalem, Jaffa, Hebron, and other cities. Completely new city plans can be produced based on these aerial photographs, plans that can surpass in perfection and richness of detail all previous ones. Even Goethe wanted to overlook from the church tower the city which he wanted to get to know. For the same reasons, and for objective and educational considerations, Professor Felix Lampe introduces his educational film about the Alps with a balloon flight. In many cases, aerial photography also gives a general overview of the landscape, displays the soil conditions and the partitioning of the fields with paths, groves, trenches, and separating hedges etc., and thus provides documentation for the execution of agricultural work and the construction of irrigation systems and paths.³

5. Even **archaeology** gets its money's worth with the photographs. Overviews from the bird's-eye view of Baalbek or Jerash have their own spell, and compared with the existing buildings plans, are highly informative. At Jerash, the aerial photographs show the buried rampart of the old city wall no less clearly than the edges of the Roman Naumachia. In Amman, the strategic importance of the old citadel can be seen directly from the photograph. In Hebron, the old city hill, the likely location of Davidsburg, appears vividly into the apparition. At Caesarea, the remains of the jetties can be seen under the water.

6. **Cartography**, as mentioned above, receives the lion's share in the utilization of aerial photography. By rectifying the photographs with the help of the latest photogrammetric methods and through true to-scale conversion, the aerial photograph becomes a map without further ado. As is generally known, translating of the three-dimensional form of the earth into an understandable two-dimensional map is most challenging, and can actually only be overcome by the aerial photograph. The map is an abstraction; it is the representation of the three-dimensional shape of the earth's surface through planimetric drawing; it works with conventional, often quite unnatural symbols which, taken literally, do not reveal anything about the connection between reality and interpretation. Thus the map becomes the symbol of a multiplicity of elements characterized by symbolic drawing. It is the transformation of space into surface. The manifold world becomes a surface of which even the shadowy outlines of real living forms are missing.⁴ Photo-topography from aircraft, this most modern of all geodetic mega-processes, significantly reduces these shortcomings, and enables the map to speak and tell a story in a way that the previous map-drawing could not.

I. Types of Aerial Photographs

Aerial photographs fall into horizontal, vertical, and oblique views, depending on the angle that the optical pivot of the aircraft camera, or also the photographic lens, has with the object.

1. The **horizontal view**. In this case, the axis of the apparatus is horizontal; the plate is vertical as in the case of ground survey. Since the flight altitude is generally only a few hundred meters, it is the closest it has ever come to capturing the earth, though it provides a far greater overview of the terrain, and allows observations of terrain forms, location designation and settlement, road and river courses, which the usual plan view is not able to show. Since the field pilots had to stay at an average altitude of 3,000 meters in order not to be easily exposed to the projectiles of the defensive guns, they could only take a few horizontal shots; only during take-off and landing, or in secure terrain, did they succeed in taking photographs from an altitude of 200–1000 meters, which of course provide stunning details of the terrain photographed, for example of Lebanon, Sidon, and al-Majdal [Palestine].

2. The **vertical view** shows a different image. In this case, the optical axis is perpendicular, while the plate is horizontal; the conditions are therefore the reverse of the horizontal view. In flat landscapes, such as the Palestinian coastal area, this view often produces an image that can be directly used as a map. For example, the angles at which the paths cross are the same; all distances appear in the same ratio, so that with a proper scale that takes the reductions into account, exactly the same measurements can be made as on the map. The reduction of the photograph is done in the ratio of focal distance to flight altitude, both of which are usually indicated on the copies of the photographs. If, for example, the focal distance (f) is 50 centimeters, the flying altitude (h) is 3,000 meters, and (a) equals 1 centimeter is the unit of measurement of the photograph, then the formula $f:h = a:x$; $0.5:3,000 = 0.01:x$; $30:0.5 = x:60$ meters represents the actual altitude. The size of the part of the ground's surface depicted can also be calculated; it increases with altitude, but decreases with increasing focal distance.⁵

Vertical photography often allows us to look with a magnifying glass in hand into the most hidden corners of the valley canyons or the maze of houses in the settlements, producing a map whose content and character cannot be matched by any geometric drawing. If the terrain is uneven or particularly hilly, it is difficult to compare the aerial photograph with the map. Due to the elevations and depressions, distortions would be expected: higher-lying points must appear farther, and lower-lying ones must appear closer when projected onto the map. The deviations from reality will be all the greater the farther away the points are from plumb dropped from the aircraft. That is why mountains appear compressed.⁶

Among the vertical views, special mention should be made of the series of photographs taken in quick succession in the same flight with the same camera; these

are the aerial film shots. If the altitude changes, or if more photographs were taken on another flight, everything must be brought to the same scale by re-photographing, before composition. Such “film shots” exist in large numbers in the collection; entire stretches of the country, especially the major traffic routes, for example, Jaffa-Jerusalem and Jerusalem-Hebron, are shown in shots that often continue each other and which I have also referred to as “continuation” in the Directory. It should be noted, however, that many of these recordings are not always absolutely vertical, and therefore initially require a partial correction.

To a certain extent, the vertical view replaces the map and greatly clarifies its markings through nature itself; for example in the cityscapes of Sidon, Haifa, Jaffa, Jerusalem, Hebron, etc.; the different parts of town, the nucleus, the course of streets and alleys, the construction of entire quarters, all clearly stand out. Studies on the origin and development of cities can usually be better carried out using aerial photography than by using the city map, especially since the natural conditions remain recognizable and are not replaced by dead symbols as on the map. In the photographs of Jaffa, Jerusalem, and Hebron one can easily see the oldest nucleus of the settlement, around which the more outlying houses were later grouped. The striking differences of a planned colony settlement in contrast to the Arab hut clusters, for example, Bayt Fajjar, have already been pointed out above. Important questions of the study of settlements emerge, and can be answered much better with the help of the true-to-nature, vertically-view aerial photographs, than with the city plans available to date. Based on the 66 aerial photographs of Jerusalem, for example, which are available in the archive’s collection – though a number of them are oblique photographs – a city map can be drawn which surpasses all previous plans.

3. The **oblique view** is the third, and by far the most common type, of aerial photographs due to its ease of execution. Optical axis and plate are tilted; the image obtained depends on the position of the plane and on the tilt of the camera, thus allowing all transitions between vertical and horizontal shooting. If this tilt moves further away from the vertical position, more and more terrain is mapped towards the horizon, but the downsizing increases as well. Relief differences in the terrain cause displacements of the points projected onto the plain. Therefore, the oblique photograph will always give a distorted picture. The angles do not appear in their actual position; parallel lines in nature are here always straight lines converging to the rear; a square appears as a trapezoid. Therefore, the photograph can be used for map drawing only by careful calculations. On the other hand, the oblique view has its undeniable advantages: as a pure landscape photo, it allows the flown-over area to be seen in perspective from the bird’s-eye view, making it especially beneficial to explain the geographic and topographic phenomena in these photographs. The photographs of the Palestinian Mediterranean coast and the Dead Sea, in particular, not only show, as oblique photographs do, the course of the coast itself with all inlets and protrusions, but also illustrate the shape and composition of the coast itself, and often include the topographic features of the hinterland.

II. Practical Hints

It must be emphasized that aerial photographs may disappoint the amateur at first, and are only intelligible to the expert after studied in detail with a trained eye. The comparison of the photographs with a map or a plan is a necessary prerequisite to learn what a map looks like in reality, and how both relate to each other. The best technical aid for the examination is a large, sharp magnifying glass with a magnification of about 2–4 times.⁷

The effects of light and shadow in the aerial photograph should be comprehensively used for reading; they support the graphic conception considerably. Here it is important to ensure that the light falls on the photograph the way it corresponds to the direction of the sunlight in reality; otherwise the photograph gives a completely reversed graphic effect in which, for example, bottoms of valleys appear as mountain ridges. The green of nature appears dark in the photographs. Accordingly, the coastal strips along the Jordan River are not to be interpreted as shadows but as vegetation. The season must also be taken into account. There is hardly any forest in western Palestine, so the dark patches and spots can usually be interpreted as tall trees, mostly olive trees. The gullies of the Palestinian valley floors are almost always waterless and therefore often appear in the photos like bright stripes that the European is inclined to think are paths. It should also be noted that water and marshes are marked as brightly shining surfaces in the oblique image due to the reflection, and as dark surfaces in the photos taken in the direction of sunlight.⁸ In general, the headings of the photographs correspond to the direction in which they were taken; accordingly, the photo should be viewed in such a way that the large outstanding objects are in front. One must always be aware of the cardinal point to which the basis of the photo corresponds, if necessary, with the help of the shadow cast and the time of day indicated on the photo.

The photographs have an average size of 12 x 16 cm; for the few photographs of 8 x 10 cm that are taken with a handheld camera, I have specified this format in the Directory. The focal distance of the apparatus alternates between 21, 25, and 50. The Arabic name of places on the photographs (main locality) is not always perfect, sometimes even completely wrong, or confused with other names; here and there it is completely missing, as it was not always easy to identify the locality in the photograph. The white arrow, usually drawn in the corners of the photograph, indicates north. Often, however, this arrow, which was applied to the plate only later, is inaccurate; in some cases, the inverse is true; I have noted these cases in the Directory.

Once again, it must be emphasized that there are no purely vertical photographs; they are produced only in the rarest of cases, since the recording apparatus is subject to more or less pendulum oscillations due to the aircraft's own motion, even in the case of a gimbals mounting. In many photographs, one finds two degree-scales with

triangular marks on the right-hand edge. The upper one indicates the tilt (lateral deflection), meaning the angle that the long side of the plate forms with the horizontal plane at the moment of the exposure. Either the character “I” or “l” appears between each ten degrees to indicate whether the apparatus, as seen from the machine, tilts to the bottom right or left. In the same way, the lower mark “N,” indicates the angle of tilt (vertical deflection), meaning the angle formed by the optical axis of the apparatus with the horizontal plane during the exposure. With the help of this information, the photographs can be rectified according to the rules of mathematical perspective, either mathematically or with the aid of an optical apparatus, meaning they can be transformed as if they were taken vertically from above ($N = 90^\circ$). This method, however, is only suitable in flat or slightly undulating terrain. In mountainous terrain, the photographs can only be evaluated with stereo recordings by the stereo comparator or stereo autograph.

The entire photo inventory of Squadron 304, as far as it could be saved during the retreat, consists of 2,662 photographs. Since almost half of them have strictly strategic and historical wartime value, I have selected only 1,406 to include in the Directory; of these, 1,236 are aerial photographs, and 170 are ground photographs. Letters were added to the individual numbers (ordinal numbers), to indicate that further photographs from the same site are available and can be obtained from the archive for in-depth research.^(*) The photographs are listed in the Directory in topographical order according to the four meridional strips of Palestine in four sections: coastal plain, mountains, Jordan Valley, East Bank. The first column shows the ordinal number (LN) of the photographs. Especially important or outstandingly beautiful shots are marked with one or two stars. The second column carries the flight number (FN), which, if available, is recorded at the top of the photograph. The third column [Ort, meaning place] is meant to indicate, in a few words, the main locality, and details of the photo. The fourth column contains the center of the map quad (KQ) of the photograph. A more precise designation of the quads according to the circumference of the photograph would often have required 2 to 4 four-digit numbers, and had to be omitted to simplify printing. The fifth, sixth, and seventh columns contain the hour [Zeit], altitude [H], and focal distance [Br] of the photograph, which are useful in their evaluation and assessment.

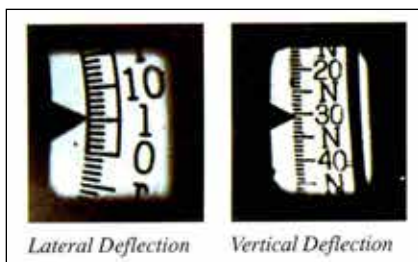


Figure 2. The two degree-scales with triangular marks that appear on the right-hand edge of some of Squadron 304's photographs. The mark on the left indicates the tilt (lateral deflection); the mark on the right indicates the angle of tilting (vertical deflection).

(*) This numbering system (ordinal numbering) is no longer the main numbering system used at the Bavarian War Archive. It is kept here only to show the diligence put into producing the Directory.—Trans.

Verzeichnis der Palästina-Flieger-Aufnahmen des Bayerischen Kriegsarchivs

LN	FN	Ort	KQ	Zeit	H	Br
Erste Abteilung: Küstenebene.						
1. Von Sidon bis Jafa.						
1*		Sidon von S. (HA)		nachmittags		
2*		Sidon: Übersicht mit Ka'at el-Bahr, Gärten im N.		"		
3*		Sidon: Stadt-Mitte		"		
4*		Tyrus: Übersicht von N.		"		
5*	423	Akko mit 4 km n. und w. U.: Bachdache, Menschije	1402	"	1600	25
6*		Akko: Übersicht von NO. Festungsmauern, Hafen	"	vormittags		
7* (a)		Akko: n. Teil d. Stadt. Große Moschee. (VA)	"	"		
8*	425	Haifa: Abhang des Karmel, deutsche Kolonie. (VA)	2506	20. 1. 18 3 ³⁰	1900	25
9*	424	s. Haifa, deutsche Kol., Karmelheim. (VA)	2505	"	"	"
10*	426	s. Haifa, s.ö. Teil der Altstadt, Bhf., Palmengärten. (VA)	2697	"	"	"
11	625	sw. Haifa	2794	10. 3. 18 3 ³⁰	3000	50
12	690	Mündungsgebiet des Nahr ez-Zerkā (Krokodilfluß)	5687	22. 3. 18 2 ³⁰	"	25
13*	850*	Kesarie (Cäsarea) mit je 1 km n. ö. s. U.	6085	10. 4. 18	4100	
14		Kesarie. (VA) (8 x 10)	6085	"		
15*		Tulkerm und nächste U. (VA)	8198	nachmittags		
16	683	Irtāb (nicht Irtab) und nw. U., Straße, Eisenbahn	8397	21. 3. 18 8 ³⁰	4700	50
17	282	Nahr Iskanderūne (nicht Nahr el-Fābī). Mündungsgeb.	7385	10. 1. 18 2 ³⁰	3700	21
18	367	Miske und s. U.	9289	17. 1. 18 2 ³⁰	3900	"
19	366	n. Kafr Sāba bis Miske	9489	"	"	"
20	189	Arsūf (el-Haram 'Ali Ibn 'Alēma)	9577	29. 12. 17 12 ³⁰	3000	25
21	198	s. Tahsūr (Em Zetūni)	9584	"	"	21
22*	362	Kol. Kefr Sāba (= Sābje) mit U.	9687	17. 1. 18 2 ³⁰	"	25
23		" " " (fast wie 22)	9687	"	"	"
24	288	Kol. Kefr Sāba (fast wie 22)	9687	10. 1. 18	3700	21
25	824	Sābje (Kol. Kefr Sāba) und n. U.	9687	9. 4. 18 12 ³⁰	4000	50
26	1598	sw. Sābje	9785	29. 5. 18 2 ³⁰	4500	"
27*	676	Dorf Kefr Sāba mit 1 km n.ö. U. (VA)	9690	21. 3. 18 8 ³⁰	4700	"
28	364	2 km nw. U. von Kefr Sāba	9589	17. 1. 18 2 ³⁰	3900	25
29	360	Dorf Kefr Sāba mit 2 km n. U.	9590	"	"	21
30	365	fast wie 28	9690	"	"	25
31	677	1 km nw. U. von Kefr Sāba	9589	21. 3. 18 8 ³⁰	4700	50
32	678	1 km n. U. von Kefr Sāba	9489	"	"	"
33	682	n. von Kefr Sāba	9189	"	"	"
34*	850	Kalkīlje mit Eisenbahn und 3 km n. U.	9392	10. 4. 18 7 ³⁰	4100	25
35	680	w. Kalkīlje, Eisenbahn, 2 km U.	9591	21. 3. 18 8 ³⁰	4700	50
36	681	sw. Kalkīlje, Eisenbahn, 2 km U.	9691	"	"	"
37	393	s. Kalkīlje, Eisenbahn, 3 km U.	9791	19. 1. 18 1 ³⁰	2800	21
38	849	s. Kalkīlje (ähnlich wie 37)	9792	10. 4. 18 7 ³⁰	4100	25
39	847	Dschildschūlje (3 km s. von Kalkīlje) mit U. u. Eisenb.	9991	10. 4. 18 7 ³⁰	"	"
40		Dschildschūlje mit n. Forts. von 39	9891	"	"	"
41* (a)	603	ed-Dscheilil und U., 4 km Küste	9678	6. 3. 18 8 ³⁰	4500	"
42	190	w. ed-Dscheilil, 2 km Küste	9677	29. 12. 17 12 ³⁰	3000	25
43	191	ed-Dscheilil und 3 km sw. U.	9678	"	"	"
44	1589	s.ö. ed-Dscheilil, ca. 3 km Gelände	9678	29. 5. 18 2 ³⁰	4500	50
45	1590	s.ö. ed-Dscheilil, s.ö. Forts. von 44	0180	"	"	"
46	1591	s. ed-Dscheilil (Pfeil verkehrt)	0178	"	"	"
47	1592	s.ö. ed-Dscheilil, 3-4 km Gelände, Feldbahn	0279	"	"	"
48	370	Abu Kischk (6 1/2 km ö von ed-Dscheilil) 2-3 km U.	9984	17. 1. 18 2 ³⁰	3900	21
49	1596	fast wie 48, s. Forts. von 27	"	29. 5. 18 2 ³⁰	4500	50

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Figure 3. The first page of the Directory (p. 125 in Dalman's *Hundert deutsche Fliegerbilder*).

The survey map (see figure 4) is provided with a grid, which is marked with four-digit or five-digit numbers on the right and left margins, and with two-digit numbers on the upper and lower margins. This designation is identical with the data of the aerial photographs and the Directory. The four-digit to five-digit numbers in the right and left margins are expressed in full hundreds, while the two-digit numbers in the upper and lower margins indicate tens and units. A zero precedes the single-digits. The

grid squares are read by reading the number of the right or left edge without the zeros and adding the corresponding addition to the upper or lower edge. For example, No. 161 (Lydda) is located in the row of grid squares marked 2,200 at the right and left margin, and 86 at the upper and lower margin; thus map quad 2,286.

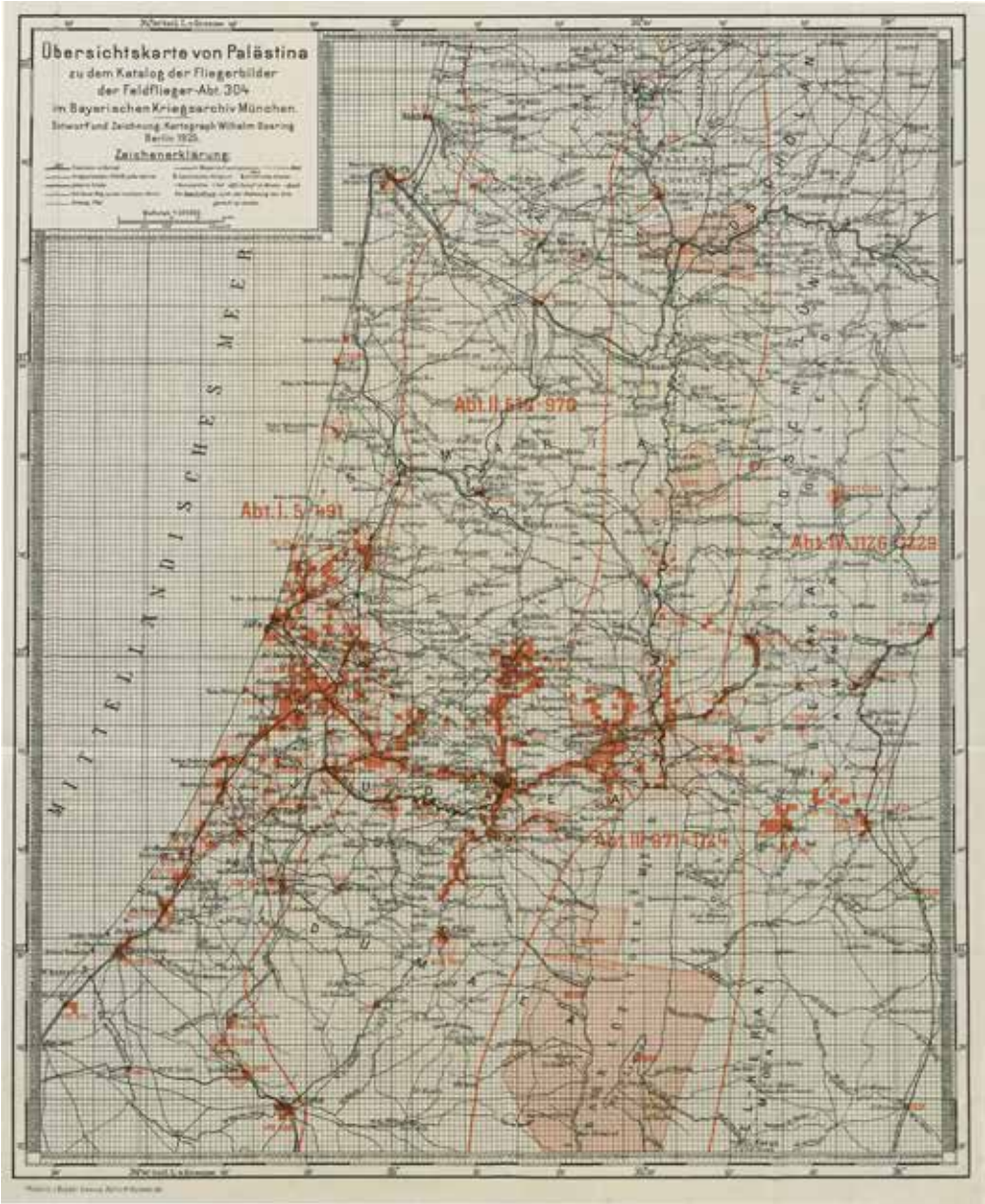


Figure 4. The Palestine Map prepared by cartographer W. Goering, published in Dalman's *Hundert deutsche Fliiegerbilder aus Palästina* as an attached folded sheet (50 x 55 cm).



Figure 5. Detail of the Palestine Map prepared by cartographer W. Goering. Notice the very fine print of the four-digit to five-digit numbers in the right and left margins. Two-digit numbers are in the upper and lower margins (not shown here).

I would very much like to thank the Kartographischen Abteilung des Reichsamtes für Landesaufnahme [Cartographic Department of the National Office for Land Survey] for their very kind support of the Directory. Special thanks also go to Privy Councilor Professor Dr. [Gustaf] Dalman and cartographer [W.] Goering of the Orientabteilung des Reichsamtes für Landesaufnahme [Oriental Department of the National Office for Land Survey] for the factual verification and improvement of the local data of the map quads, as well as for identifying some of the practically difficult photographs. For the editing of the survey map of Palestine, Goering also earned the thanks of all friends of Palestine.

Note: Most of the photographs are oblique and therefore their designation as such (SA) is mostly omitted in the Directory for the sake of brevity. Since actual vertical shots are extremely rare, the term VA is relative. On that note, all photographs with focal distance of 50 may be considered vertical shots.

Endnotes

- 1 Cf. A. Alt, Aus der Kriegsarbeit der deutschen Wissenschaft in Palästina [From the War Effort of German Science in Palestine], Zeitschrift des Deutschen Palästina Vereins [Journal of the German Palestine Association], XLIII, issue 3–4, pp. 93–108.
- 2 Cf. Dr Kurt Krause, Die Fliegeraufnahme und der erdkundliche Unterricht. Geographischer Anzeiger, 20. Jahrg [Aerial Photography and Geography Lessons. Geographical Journal, 20th Year], (1919) pp. 17–21. On the setup and function of the aircraft camera, see Dr

- Eng. Erich Ewald, *Die Verwendung der Flugzeugphotographie* [The Application of Aerial Photography]. *Internationales Archiv für Photogrammetrie* [International Photogrammetry Archive], Volume VI. (1923) p. 1—12.
- 3 Cf. Joseph Filbig, *Fliegerbild und Heimatkunde. Ein Beitrag zur Einführung ins Kartenverständnis* [Aerial Photography and Local History. A Contribution to the Introduction to Map Understanding]. VIII, p. 47, Munich-Berlin, 1920).
 - 4 Filbig, *Fliegerbild*, and *Heimatkunde Aerial Photography*.
 - 5 Cf. also for further details K. Krause, *op. cit.*, and Filbig, *op. cit.*).
 - 6 See Krause, *op. cit.* p. 19, figure 3).
 - 7 Cf. Erich Ewald, *Das Luftbild im Unterricht*. 1. Heft der Sammlung „Bild und Schule“ [Aerial Photographs in Instruction. First Booklet of the collection “Photos and School”]. Zentralinstitut für Erziehung und Unterricht [Central Institute for Education and Training]. Breslau: Hirt, 1924, p.14.
 - 8 See Ewald *op. cit.* p. 20, fig. 2 and p. 22.

Politics of Portraiture

The Studio of the Krikorians

Hashem Abushama

In 1839, Francois Arago publicized the invention of photography at Académie des sciences in Paris and highlighted the significant role it would play in copying “the millions of hieroglyphics which cover [. . .] the great monuments of Thebes, Memphis, and Karnak.”¹ His statement demonstrates that, since its inception, photography was viewed not as an art, but rather as a kind of scientific procedure, a method of transmitting visual information. In the words of Paul Chevedden, photographs were first viewed as “re-creations of nature itself, unmediated reproduction of the real world fashioned by the direct agency of the sun.”² Arago’s statement epitomizes the development of a European system of knowledge in mid-nineteenth century obsessed with categorizing, classifying, and explaining other parts of the world, particularly the Middle East. Indeed, it took only two years after the announcement for Noel Paymal Lerebours to exhibit images of Beirut, Damascus, and Egypt in his world travel survey, *Excursions daguerriennes*, making the Middle East the first region beyond Europe and the United States to be captured through camera lenses.³

There emerged afterwards a massive body of photographic work on the region mostly characterized by Orientalist undertones – representations of biblical sites, re-enacting of biblical stories, and an emphasis on seemingly timeless traditions.⁴ Literature on the topic adequately addresses such representations and their role in creating an image of the region as fixed in history, timeless, and in need of European intervention. While useful, this tendency in the literature to characterize early photography as

Ibrahim Dakkak Award for Outstanding Essay on Jerusalem is an annual award launched in 2017 to commemorate the memory and work of Ibrahim Dakkak (1929–2016), former chairman of the Advisory Board.

monolithically Orientalist is at the cost of understanding, first, the differences among and between the works of early European photographers, and second, the important work of local photographers. In the words of Michelle Woodward, “the photographic visual conventions of late-nineteenth-century representations of the Middle East were, contrary to the emphasis of much scholarship, not monolithic or hegemonic, but rather reflect a complex range of perspectives – from fictional Orientalist clichés such as erotic harem scenes to the documentary images of modernization found in the Ottoman Sultan ‘Abd al-Hamid II’s photographic albums.”⁵

In this paper, I aim to move beyond this tendency by piecing together the story of one of the earliest local studios of photography in Jerusalem – that of the Krikorians – and its negotiation of a changing local landscape at the center of emerging imperial and colonial interests. The Krikorians were some of the early pioneers of photography in the Ottoman Empire and were particularly specialized in portraiture. The article draws on interviews I conducted with Samira Kawar, one of the grandchildren of Johannes Krikorian, and her collection of Krikorian photographs as well as the archives of the Library of Congress, the University of Pennsylvania museum, and recent literature on the topic. The paper is divided into three sections: the first section briefly narrates the “Story of the Krikorians”; the second, titled “Between Eastern and Western Lenses,” examines the Krikorians’ photographs in relation to other European photographs of Palestine from the same period; and the third, titled “Beyond East and West: The Krikorian and the Local Politics of Jerusalem,” grounds the Krikorian’s work in Jerusalem within its own context of *nahda* ideals and conceives of photography both as a symptom and participant of shifting social and economic dynamics within the Palestinian and Arab society. In lieu of a conclusion, “Reading Photography” discusses the question of intentionality when reading historical records, including photographs. Overall, the article shows how the Krikorians’ work was in conversation with the works of their contemporary European photographers as well as with the shifting dynamics in their home society.

The Story of the Krikorians

The story of the competition between Garabed Krikorian, the teacher, and Khalil Raad, the student, is perhaps the most well known of the former’s legacy. Khalil Raad, who is credited as being the earliest Arab photographer in Palestine, learned photography at the hands of Krikorian. A few years later, in 1890, Raad opened a studio next to Krikorian’s on Jaffa road in Jerusalem, starting a chapter of ferocious competition between the two commercial studios (figure 1) that ended with Krikorian’s son, Johannes, marrying Raad’s niece. Beyond this, the story of the Krikorians and their photography remains neglected in much of the literature. Although by no means exhaustive, this section tries to piece it together.



Figure 1. Photo shows signs for “J. Krikorian” and “C. Raad” photo studios, next to each other on the left. Source: Matson Photo Service, Library of Congress.

Garabed Krikorian was an Armenian who came to Jerusalem from Anatolia, possibly Izmir. He was first based at the Church of St. James compound in the Old City of Jerusalem, where the Armenian Patriarch, Issay Garabedian, was offering photography lessons to youngsters who would later go on to practice professionally and lead the local photography scene. Garabedian played a pivotal role in the expansion of photography throughout the Ottoman Empire in the nineteenth century.⁶ He came to Jerusalem around 1844 and started photography in 1857. He traveled frequently to sharpen his skills and learn of new developments in photography, and spent twenty-eight years of his life conveying this knowledge to younger generations. His goal was to use photography to educate Armenians about the holy sites as well as the architectural and archaeological heritage in Armenia. Both the Baedeker travel guide to Palestine and Syria (1876) and the French traveler, Jules Hoche (1884) highlight the presence of a photographic culture “unique to Jerusalem within the Armenian community.”⁷ It is important to note here that most of photography’s earliest production in Egypt, Palestine, and Lebanon came largely from religious and ethnic minorities such as Armenians and Syriac Catholics. Issam Nassar points out that this may be partially due to Islamic (and Jewish) prohibition on capturing photos of people and beings created by God.⁸

Garabed Krikorian was one of Garabedian's most notable students. At the church, he met Karimah Tannous, a novice with a Lutheran order from Lebanon (figure 2). They fell in love and decided to get married – and were consequently ex-communicated from the church.⁹ It is perhaps thereafter that Krikorian opened his studio on Jerusalem's Jaffa Road in the 1870s. His work was mostly portraiture and involved photographing local personalities, tourists, and pilgrims. He became most famous after the visit of Kaiser Wilhelm II to the Holy Land in 1898, for whom Krikorian, along with Daoud Sabounji of Jaffa, acted as official photographers (figure 3).¹⁰ While most of his photographs were signed "G. Krikorian," some others were signed "G. Krikorian & D. Sabounji," indicating further collaboration between the two local photographers.

Meanwhile, the competition continued between Khalil Raad and Garabed Krikorian until around 1913, when Krikorian's son, Johannes, returned from Germany where he had studied photography.



Figure 2. Mrs. Krikorian, Karimah. Source: Aida and Samira Kawar personal collection.



Figure 3. State visit to Jerusalem of Wilhelm II of Germany in 1898. Turkish military brass band in procession to German camp. Source: American Colony (Jerusalem), Library of Congress.

Johannes Krikorian was a man of many talents with a vivid admiration for the arts. He played the piano and loved opera, hence the name of his daughter, Aida, named after Verdi's *Aida*. He took over his father's studio and married Raad's niece, Najla. From a very young age, Najla Najim Raad came to Jerusalem with her mother, Sarah, after losing contact with her father, who had migrated to the United States. They stayed with her uncle, Khalil Raad, in his house in Jerusalem. At an older age, Najla changed her last name from Najim to Raad, as her uncle was the father figure in her life; she had never met her own father who migrated to the United States when her mother was pregnant with her. Not surprisingly then, her marriage marked the end of the ferocious competition between the two families and the beginning of a new chapter in their history.¹¹

According to personal interviews I conducted, Najla played a pivotal role in the studio that ranged from preparing the costumes for tourists, to coloring photographs (figures 4 and 5). In the



Figure 4. Aida, Johannes Krikorian's and Najla Raad's daughter. Source: Aida and Samira Kavar collection.



Figure 5. Aida and her cousins on a family picnic. Source: Aida and Samira Kavar collection.

first photo, which is of Najla's daughter, Aida, in her teenage years, we see Najla's talent in painting. Najla's attention to details is exquisite. The nails, the jewelry, the clothes, the hand purse, the background of the photo, and the skin are carefully colored to convey a realistic and colorful representation. The second photo, which is of Aida as a young girl and her cousins during a family picnic, is from much earlier and shows Najla's earlier attempts at coloring. While some of the outfits are colored, others are left uncolored, giving – perhaps unintentionally – an artistic aura to the photograph. Between these two photographs, we see Najla's coloring in its different stages and can only speculate as to the enormity of the hard work and time she put into perfecting her talents.

A few scholars have offered important contributions on the role of women in the development and expansion of photography. In his article "Early Local Photography in Palestine: The Legacy of Karimeh Abbud," for example, Nassar highlights Abbud's pioneering role in the 1920s not only as the first woman professional photographer, but also as one of the first to challenge "European style traditions in portrait art and photography."¹² Nonetheless, the topic is yet to be fully examined and much work needs to be done to fill in the lacunae that relate to gender. Najla's (and many other women's) often neglected role raises important questions about the gendered silences in historical documents and records. It also points to new directions for scholars to take in piecing together historical narratives that move beyond confining women to the sphere of domesticity, as figures living in the shadows of men.¹³ Many of the early portraits of families in Jerusalem give this perfect representation of a patriarchal family, with the father as the head figure and the mother as fulfilling her motherly and spousal duties, surrounded by her children. The quotidian realities underneath such a perfect representation were surely messier, and likely often disrupted and subverted such representations. The silences a portrait photo contains are as suggestive as the visual representations it conveys.

These systematic silences are also reflected in the looting of historical Palestinian cultural production. Like most Palestinians, Johannes and Najla Krikorian lost most of their possessions in 1948, including the costumes, photography collections, and equipment. The studio itself was destroyed. Luckily, some of the photographs survived. Aida, who is Samira Kavar's mother, owned an extensive collection of family portraits; the Library of Congress has a few photographs of Garabed Krikorian's; and Joseph Malikian has another small collection of Krikorian photographs. Shortly after the Nakba, Johannes Krikorian died of cancer, around 1951.

Between Eastern and Western Lenses

Photography is simultaneously a byproduct and a tool of the nineteenth century's passion for explaining the world in scientific and empirical terms. In the words of Woodward, "the photograph's ability to record more life-like detail than any other process led to its use as a tool for accumulating visual surveys of urban



Figure 6. Photograph titled *Road of Bethanie* taken by the Bonfils. Source: the Artstor Digital Library.

space, historical monuments, colonial possessions, and people as ethnic or occupational types.”¹⁴ In many early European photographs, the Middle East was often portrayed as vacant of people, full of biblical sites. When the native did figure in the photograph, they were almost exclusively shown either as traditional types in traditional outfits or as engaging in timeless activities (including acting out biblical stories).

A clear example of this is the work of the prolific French family, the Bonfils, whose main studio was located in Beirut. The Bonfils family traveled extensively and created one of the largest bodies of photographic work of the Middle East. As their photographs show, they “preferred to photograph people as recognizable ‘types’, posed as if engaged in traditional and timeless activities, such as brewing coffee, selling produce, praying or playing musical instruments.”¹⁵ Often, they added a biblical verse under the photo to describe it, indicating that the region is still *of the past*. Figure 6 shows a photograph of a man on a mule riding on the road from Jerusalem to Bethany (present day al-‘Ayzariya) with al-Aqsa mosque in the background. The photograph is titled “Road of Bethanie” and bears a caption from the New Testament: “And when they drew nigh unto Jerusalem, and were come to Bethphage, unto the Mount of Olives, and then sent Jesus two disciples,” Matth. XXI. 1.”



Figure 7. Aida and her cousins playing. Source: Aida and Samira Kawar collection.

Commenting on this, Woodward states, and rightfully so, that the Bonfils family's work was explicitly "created for the purpose of capturing what they saw as a timeless unchanging Orient on the verge of disruption by modernity."¹⁶ To them, the present of the region was only its past and only under modernity and its paradigms of "Progress" could the present of the region count. Adrien Bonfils leaves us with no doubts about the family's intentions when he states: "Before that happens, before Progress has completed its destructive work, before this present – which is still the past – has disappeared forever, we have tried, so to speak, to fix and immobilize it in a series of photographic views."¹⁷ Succinctly put, the Bonfils were not interested in capturing the region as it was at the time. Rather, they were interested in using photography to recreate their preconceived images of the region. The natives appear only when they fit their narrative: as actors of a biblical scene, traditional crafters, traditional types, and the like.

The Krikorian collection does not fully transcend Orientalist modes of representation. As many other local owners of commercial studios in the Ottoman Empire, including Pascal Sebah in Istanbul and Daoud Saboungi in Jaffa, the Krikorians had to contend with Western tourists' appetite for Orientalist tropes. In many photos, both by Garabed and Johannes, Western tourists are dressed in traditional, embroidered costumes carrying traditional tools such as a sword or a water jar. In one photo, a Western tourist is shown sitting on a chair, while being surrounded by four "natives," suggesting a sense of superiority towards the local population.¹⁸ Nonetheless, these photos are utterly different from the Bonfils' in that the latter's collection has a Western ethnographic gaze focused on

classifying, describing, and capturing a “native society” on the verge of modernity. The Krikorians, on the other hand, merely utilized Orientalist representations for commercial purposes.

This is not the only difference between the Bonfils and the Krikorians, aside from their different positionalities and relationships to the region. The Krikorians’ collection includes photographs that profoundly disrupt the Bonfils’ narrative of a timeless local population in Palestine. These are photographs of urban families in Jerusalem, including their own, undergoing transformations and changes, and trying – both intentionally and unintentionally – to articulate the new, modern, and urban Arab subject. The Aida and Samira Kawar collection gives us glimpses into the private sphere of the Krikorians’ life. It shows the mundane: families gathering and cross-dressing and children playing and posing. There are portraits of Karimah and Garabed Krikorian, and photographs of: Aida and her cousins playing, Aida playing on the veranda of their home in Jerusalem; Najla Raad dressed in a Bedouin outfit; Aida with her mother and grandmother; and Aida in her teenage years. These are photographs aimed at visually recording the dynamic history of a family in Jerusalem. To their owners, they portray the private sphere, a personal history, and figures and faces tied to a genealogy of memories. In my interview with Samira, it was also obvious that, to her, these photographs present a vivid and powerful proof of their life, their former house, and the studio on Jaffa Road in Jerusalem – with the costumes, photos, slides, and coloring tools lost in 1948 when both their studio and house fell within no man’s land following the invasion of Jerusalem by the Zionist militias. In 1926, the family had already moved from their house on Jaffa Street, which was adjacent to the studio, to their house in al-Baq’a,¹⁹ which they continued to live in until the first decade of the 2000s. In this sense, these photographs, as Azoulay and Sheehi suggest,²⁰ can be read as a legal document that testifies to the Krikorians’ claims to their studio and looted or destroyed photographs. These photographs of the mundane and the everyday, therefore, function simultaneously as rebuttals of Orientalist representations of Palestine before 1948 and of the Zionist settler-colonial claims about the vacancy of the land and the backwardness of its people.

Beyond East and West: The Krikorians and the Local Politics of Jerusalem

A comparison between Western and local photographs of Palestine is not sufficient to understand the social history of the photograph, as it neglects the local social and political dynamics within which the photograph was produced and circulated. When put within their wider context of social, economic, and political changes, photographs can give clues about how people saw themselves and the construction of a new, Arab, modern subject between the 1850s and 1910s. Based on the writings of Salim Tamari, and of Stephen Sheehi, this section offers a brief local context of the Krikorians’ photographs. It benefits profoundly from Sheehi’s polemic book, *The Arab Imago: A Social History of Portrait Photography, 1860–1910*, and its description of local

photographers of the region as important social engineers of their historical moment. It is beyond the ambitions of this paper to offer a comprehensive history of class formation in Palestine during the latter stages of the Ottoman period. The goal is instead to account for the local context of the Krikorians and point the reader towards important discussions about the connection between photography, class, and structures of political and social governance.

In his book, Sheehi argues that “Arab photography, like all cultural productions, must be understood within the context of *al-nahdah* [Arab renaissance], itself contingent on *Osmanlilik* modernity. It must be understood as a product of its own history.”²¹ Sheehi understands the portraiture, which the Krikorians were specialized in, as a symptom of *nahda* ideology and its reification of modernity’s ideals of individualism, social success, secular civil society, positivism, and so on.²² In his analysis, the portrait is not understood as static but as elastic and performative. The portrait zooms in on the individual, includes signifiers of local associations and successes (the clothes, the posture, and the items), and its arrangements of things and people can be suggestive of politics of gender and class.

The portrait in Jerusalem emerged within a regional context of changing social and political relations and the increasing inequality in land ownership between the urban elites and the villagers. The urban elite were able to articulate and express their modern identity by consolidating their access to material means, particularly land. The commodification of land under the Land Code of 1858 was most instrumental in this regard.²³ Although we should be careful not to overemphasize the causal role of legal instruments in facilitating the day-to-day relations amongst people, for as Doumani suggests, “relations of patronage between landlords and peasants persisted despite imperial decree,”²⁴ such instruments played a pivotal role in reconceptualizing land ownership within the rural sphere and in consolidating the power of the urban elite. The effect of the Land Code at the societal level was its intensification of class divides within Palestine and the rise of *effendiya* – the merchant and intellectual classes – who arose by “accumulating new levels of wealth, consolidating ownership of unprecedented amounts of land, and leveraging this wealth to negotiate with the new system of provincial Ottoman administration.”²⁵

Yet, when looking at Palestinian society in this period, it is no easy task to delineate a clear genealogy of class formation. As Tamari notes, “despite these hierarchal cleavages and disparities in wealth, Palestinian society was still divided by lineage units and other forms of kinship and quasi-kinship identification in which class formations were hardly visible.”²⁶ Concisely put, Palestinian subjectivity was mediated through a plethora of identifications including the city-village divide, “regional loyalties, religious affiliations, and clan affiliations.”²⁷

Like other local photographers, the Krikorians were photographing as these changes were well in place. They thrived, as Sheehi argues, “because they were involved in reproducing the economic and social transformations in their localities.”²⁸ Local photographers also maintained a proximity to structures of religious, social and political governance that gave them notable access. Garabed Krikorian, for example,

was involved in photographing the trip of Kaiser Wilhelm II to Jerusalem; Khalil Raad, Krikorian's student, was an official photographer for the Ottoman army;²⁹ and Pascal Sebah was heavily involved in producing Ottoman Sultan Abd al-Hamid II's photographic albums aimed at showcasing Ottoman modernity.³⁰

The Krikorians also photographed local personalities who were instrumental in effecting these changes. A case in point is the photograph of Effendi Faydi al-Alami with his son and daughter at the Krikorian studio. In his official outfit, he poses for the camera, holding a rolled pile of papers signifying his role as a registrar of land ownership and taxation. Sheehi rightfully argues that, in this official capacity, al-Alami was directly involved in the commodification of land ownership and in shifting the social and economic relations in Palestine.³¹

By virtue of belonging to this urban circle of elites, the Krikorians were involved in solidifying a shifting political economy. Their portraits in and of themselves became material representations of individual success, as suggested in the portraits of al-Alami and Tawfiq Kanaan, among others. They were reproductive of social and political status but also productive in that they were intricately tied to a specific segment of Jerusalemites. It is perhaps not a coincidence that we neither have access to portraits of subjects from the nearby villages, nor do we have historical documents that convey to us how villagers adapted to these socioeconomic changes, epitomized by the portrait. The portrait in its silence, yet again, points us to more questions than answers.

Reading Photography

Contrary to the belief of many early Orientalist photographers, photographs are not mere recreations of nature itself. They are embedded in power relations, not only between the photographer and the photographed, but also between the photograph and its social, economic, and political context. The photograph speaks different tongues, depending on the web of texts, historical facts, observations, and ideas one brings in conversation with it. "The meaning and social currency of photographic portraiture," in specific, "is not forged in the moment of sitting, during the photograph's circulation, or even exchange."³² Rather, it is the afterlife of the photograph that highlights it as an arena of elaboration for a specific historical moment.

In their commercial studio, the Krikorians produced a body of work that spoke to their moment. They had to contend with the high demand for Orientalist representations by Western tourists, giving them the option to cross-dress. Although unanswerable, the question of intentionality is still important, for we do not know whether or not the Krikorians were aware of the implications of such representations. Even though it is tempting for the historian to assume their clear intention in coopting Orientalist representations for commercial gains, it is more likely they simply wanted their products to be sellable.

The Krikorians also left behind a personal collection as well as portraits of local personalities. These function as rebuttals of colonial and settler-colonial

representations. They also offer us a glimpse into the changing social and economic landscape of Jerusalem. The portraits come together to offer us a glimpse into a complex social life, pointing us to more questions than answers.

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Endnotes

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- 2 Paul E. Chevedden, "Making Light of Everything: Early Photography of the Middle East and Current Photomania" *Middle East Studies Association Bulletin* 18, 2 (1984): 151.
- 3 Stephen Sheehi, *The Arab Imago: A Social History of Portrait Photography, 1860–1910* (Princeton University Press, 2016), introduction.
- 4 For more, see Ayshe Erdogu, "The Victorian Market for Ottoman Types," *History of Photography* 23, 3 (1999): 269–73. See also Sarah Graham-Brown, *Images of Women: The Portrayal of Women in Photography of the Middle East, 1860–1950* (Quartet Books, 1988).
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- 7 Baedeker Travel Guide and Hoche as cited in Badr al-Hajj, "Khalil Raad," 37.
- 8 Issam Nassar, *Laqat al-Mughayirah* [Different Snapshots: The History of Early Local Photography in Palestine] (Abdel Mohsin al-Qattan Foundation, 2005). See also by Nassar, *Photographing Jerusalem: The Image of the City in Nineteenth Century Photography* (Boulder: East European Monographs, 1997); and "Early Local Photography in Palestine: The Legacy of Karimeh Abbud," *Jerusalem Quarterly*, 46 (2011), online at www.palestine-studies.org/en/node/78422 (accessed 17 March 2020).
- 9 Personal communication with Samira Kawar.
- 10 For more on the Kaiser's visit to Jerusalem, see Klaus Polkehn, "Zionism and Kaiser Wilhelm," *Journal of Palestine Studies*, 4, 2 (1975): 76–90.
- 11 Personal interview with Samira Kawar.
- 12 Issam Nassar, "Early Local Photography in Palestine: The Legacy of Karimeh Abbud," *Jerusalem Quarterly*, 46 (2011).
- 13 Some authors have offered insights into the representation of Arab women in images, highlighting the different modes of objectification at play. See, for example, Graham-Brown, *Images of Women*. These are important contributions, but they fall short when it comes to accounting for the subjective role of women in photography.
- 14 Woodward, "Between Orientalist Clichés and Images of Modernization," 364.
- 15 Woodward, "Between Orientalist Clichés and Images of Modernization," 366.
- 16 Woodward, "Between Orientalist Clichés and Images of Modernization," 368.
- 17 Woodward, "Between Orientalist Clichés and Images of Modernization," 368.
- 18 See Joseph Malikian, "Middle East and Armenian Photographic Studios from 1850–1960," online at malikianphotography.com (accessed 17 March 2020).
- 19 For more on al-Baq'a and its history, see Issam Nassar, "A Liminal Existence in Jerusalem: al-Baq'a 1949," *Jerusalem Quarterly*, 36 (2009).

- 20 See Sheehi, *The Arab Imago*, ch. 7, and Ariella Azoulay, *The Civil Contract of Photography* (Cambridge, MA: MIT Press, 2012).
- 21 Sheehi, *The Arab Imago*, xxv.
- 22 Sheehi, *The Arab Imago*, 150.
- 23 See Salim Tamari, *Mountain against the Sea: Essays on Palestinian Society and Culture* (Berkeley: University of California Press, 2008), 5. It is important to note here that, as Tamari suggests, the Jerusalem elite were different from elites in other cities in Palestine in their adaptation of the Land Code in that, for the most part, they were not absentee landlords. However, there were still personalities from the urban elite of the city who greatly benefited from the commodification of land. One example is al-Alami and his purchase of a piece of land in a village nearby Jerusalem to build a summer home, which Sheehi discusses at a great length in chapter 7 of his book.
- 24 Beshara Doumani, *Rediscovering Palestine: Merchants and Peasants in Jabal Nablus, 1700–1900* (Berkeley: University of California Press, 1995) as cited in Tamari, *Mountain Against the Sea*, 5.
- 25 Sheehi, *The Arab Imago*, xxvi.
- 26 Tamari, *Mountain against the Sea*, 5.
- 27 Tamari, *Mountain against the Sea*, 5.
- 28 Sheehi, *The Arab Imago*, xxvi.
- 29 Nassar, *Laqatat Mughayirah*, 55.
- 30 Woodward, “Between Orientalist Clichés and Images of Modernization.”
- 31 By connecting this photograph to historical records about al-Alami, Sheehi offers a nuanced analysis of the manifest and latent underpinnings of the portrait. For more, see ch. 7 in Sheehi, *The Arab Imago*.
- 32 Sheehi, *The Arab Imago*, 148.

LETTER FROM LYDDA

Farewell to Najiyya al-Ash'al (Um Hafiz)

Khaled Farraj

Translated from Arabic by
Muhammad Ali Khalidi

The silent witness to the massacre of Lydda has passed away, she who saw the exodus from that town on 14 July 1948. She who walked among the corpses, the destroyed houses, and the great mosque, and who refused until the day she died to utter even a few humble words about the massacre. I don't know whether it was out of fear, diffidence, or forgetfulness, but the only thing I am certain of is that she did not give testimony to those events – even to her children and grandchildren.

Widowed in the prime of her life, her husband had died before she was thirty, she has passed away. She who worked tirelessly for over fifteen years to secure a dignified life for her five children. The wandering traveler among Palestinian cities and towns has passed away. Her trips to these towns and cities were not in pursuit of tourism or relaxation but in search of her children in Israeli military prisons and detention centers, particularly to visit her second son 'Abd al-Rizik, who has spent twenty years of his life in prison. She spent her time looking forward to visits behind barbed wire, brief calls on a telephone line surveilled by the prison authorities, or a quick embrace in a courtroom when the occupying soldiers would permit – in a rare show of sympathy. When embracing was forbidden, she would settle for a look and smile through the window of the military courtroom.

She passed away. Fatigued by the illness that ravaged her memory and paralyzed her, especially in her final year, not realizing that 'Abd al-Raziq, now 57 years old, had been imprisoned yet again. She was uncharacteristically silent, not shedding any tears on news of

his imprisonment nor damning the hour that the occupation had come to our land. She had never cursed the Arab leaders for their inaction on Palestine. At the time of ‘Abd al-Raziq’s recent arrest, she had passed the point of no return and no cure. She passed away not having listened to a news bulletin in more than a year. She had never before ceased to look for a news item that might put her mind to rest about one of her sons or their friends or other Palestinians. She passed away not having learned the news that ‘Abd al-Raziq had been subject to brutal torture during his latest incarceration.

She passed away certain that he would walk in her funeral and lament her passing, and she went in ignorance of the fact that her favorite grandchild, Wadi‘, ‘Abd al-Raziq’s son, was in prison, too. She closed her eyes for the last time, confident that Wadi‘ would carry her coffin alongside her other grandchildren. Ironically, the day she died, her grandson Wadi‘ was coincidentally transferred to the same prison where his father was being held (in the Naqab desert), which may provide some comfort and consolation for both of them, as well as for those of us who are outside the prison walls.

In 1989, my third brother ‘Abd al-Nasir, was studying in the United Kingdom, and after much persuasion, he managed to convince his mother of the need to visit him in London. This was part of an effort to alleviate her constant anxiety over my imprisoned brother, ‘Abd al-Raziq. She was also distressed about Khaled, who was under surveillance by the occupiers, and Hafiz, who was awaiting imprisonment, and Mariam, the activist who was also pursued by the occupation authorities. Eventually she went to visit him and spent a whole month in the UK. On the day after her return to Palestine, she went to ‘Asqalan prison to visit ‘Abd al-Raziq, ashamed at having been on a trip abroad while her son was in prison. The following week, she went to Dahariyya prison to visit Khaled who had also just been arrested. The joke was that Um Hafiz was travelling between Heathrow and Lydda airports, ‘Asqalan and Dahariyya prisons, and Jalazun refugee camp, so that she could spend her retirement with her children.

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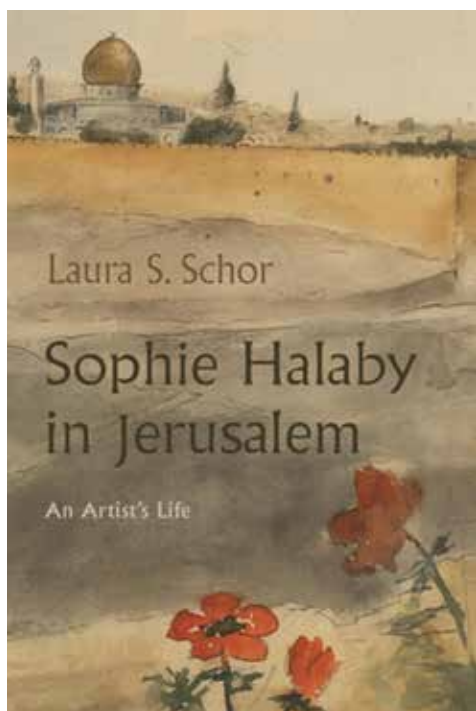
BOOK REVIEW

Speaking in a Different Key

The Life and Art of Sophie Halaby

Laura S. Schor, *Sophie Halaby in Jerusalem: An Artist's Life*. 296 pages, 11 black and white, 21 color illustrations, 2 maps. Syracuse, NY: Syracuse University Press, 2019. \$34.95 paper, \$80.00 hardcover.

Review by Nisa Ari



"We didn't pay enough attention to Sophie Halaby. We didn't know her work was important."

Mary Joury, interviewed by Laura S. Schor, January 2018

These words, spoken by a younger peer of the late artist Sophie Halaby, capture both the urgency and doubt underlying any attempt to grapple with the life and works of this enigmatic Palestinian artist. Born in 1906 (formally as Sonia Halaby), either in Kiev or Jerusalem, to a Russian mother and Palestinian father, the artist came of age during the era of the British Mandate and lived through the wars, occupations, threats of demise, and promises of change that shaped the lives of all Palestinians, until her death in 1997. Remarkable to both neophytes and experts of Palestinian history and art history, Halaby's drawn and painted visions of the world around her seemed to resist any hint of the political tumult, deadly violence, or urban transformations which spanned her lifetime. The subjects of Halaby's life work were purple irises, pink cyclamens, and red poppies bursting out of glass vases; gently sloping hillsides, knotted tree-trunks, and pencil-thin outlines of Jerusalem's architectural landmarks punctuating views of deep horizons; muted displays of Palestine's cornucopia of fruits and vegetables resting on featureless wooden tables; and infrequent portraits of figures, both nude and dressed, facing toward the viewer and away, revealing little of their internal selves. Quietly removed from the immense socio-political drama

that punctuates the history of Palestine and Palestinians during the twentieth century, Halaby's work is notable for its stoicism. So why was this work, as Mary Joury indicated, "important"? Why was her story neglected for so long and why are scholars particularly interested in her now?

That the name Sophie Halaby is known to an audience interested in Palestinian history is not because her artworks are prominently displayed and celebrated in public museum collections around the world, or even in Palestine. (Today, Halaby's artworks exist primarily in the private art collections of Yvette and Mazen Quity and George al-'Ama, after being miraculously recovered from the garbage after the artist's death – a Sherlockian detective story full of twists and turns, best saved for the reader of Laura S. Schor's new book.) Rather, she achieved recognition through the pioneering efforts of the late artist and art historian Kamal Boullata, who was the first to attempt to write a synthetic history of Palestinian art, spanning the ruptures and tumults of Palestinian history in the long twentieth-century. In Boullata's field-defining, English-language book *Palestinian Art 1850–2005* (Saqi Press, 2004), he includes an analysis of Halaby's work both in the context of her association with the Russian Orthodox Church in Jerusalem and grouped according to her modified status as a Palestinian *woman* artist. Boullata recalled seeing Halaby's paintings as a young man throughout the 1950s and 60s, when they were exhibited weekly in the street-level window of her sister's embroidery workshop on Zahra Street in East Jerusalem. Her vivid paintings of wildflowers and still lifes echoed the neighboring *tatriz* designs, mostly abstracted visions of Palestine's floral bounty, within the window display. Struck by Halaby's artistic reticence toward the changing geopolitical landscape around her, Boullata interpreted Halaby's painting practice as intensely personal and devoid of political resonance, "responsive only to the sounds of her inner bell." Despite his reverence for Halaby's exquisite painting technique and her boldness as the first woman (and first Palestinian artist of her generation) to further her art studies abroad in Europe, Boullata's conclusion ultimately reduced Halaby's artistic output to personal sentimentalism – an all too familiar refrain in the evaluation of women artists.



Figure 1. Flower painting, courtesy of Lily W. Porter and Nelly W. Porter.

Sounding out the many complex resonances that made up Halaby's "inner bell" is the focus of historian and critical biographer Laura S. Schor's latest effort to restore the voices, experiences, and legacies of women overlooked in histories narrated through conventional archival evidence. Written (and saved) letters, legal papers, organizational records, and newspapers primarily privilege and preserve the voices of men. As the author of numerous studies on exceptional women of the nineteenth and twentieth centuries, from the French feminist-socialist Flora Tristan to Annie Landau, the British headmistress who steered Jerusalem's Evelina de Rothschild School for Girls through political strife with aplomb, Schor is particularly adept at spinning the complex web of a woman's life out of mere threads of documentation and impressionistic, and often conflicting, oral recollections. In this, and in her knowledge of the social landscape of Jerusalem in the early twentieth century, she is uniquely poised to transport Halaby and her world into our present view.

In writing *Sophie Halaby in Jerusalem: An Artist's Life*, Schor also had to contend with the traces of Sophie's life gleaned from her oil paintings, watercolors, and drawings in pencil, charcoal, and ink. These artworks, while numerous, were rarely signed, dated, or titled, and the artist, although well-known to younger Jerusalemites as one of the "two old Russian ladies" (177) who lived on Nur al-Din Street with her politically active and outspoken sister Asia (Anastasia), seldom participated in the exhibitions or events which formed the building blocks of the Palestinian art world. Aside from exhibiting several drawings in the *Salon des Tuileries* during her student days in Paris in the early 1930s, Halaby only contributed works to a small handful of exhibitions in Jerusalem throughout the rest of her life – primarily at the Young Women's Christian Association (YWCA) in the 1950s and 60s – and hesitantly agreed to the display of three of her paintings and drawings at an exhibition at the Hakawati Theater in 1986, organized by Palestinian women artists two generations her junior. In other words, while Halaby's artworks are relatively abundant, information surrounding their production, dissemination, and reception is sparse. Through nearly fifty oral interviews, careful mining of related memoirs, and research in personal collections and public archives from Israel/Palestine to France, England, and the United States, Schor constructs – for the first time – a detailed account of how this "pioneer" of Palestinian art came to be and the unusual life she lived.

Following the chronology of the artist's life, Schor sketches Halaby's biography as she simultaneously narrates the sociopolitical history of Jerusalem, and in particular what came to be known as "East Jerusalem," from its status as an Ottoman territory, through its control under the British Mandate from 1920 to 1948, annexation by Jordan shortly thereafter, and occupation by Israel in 1967. Told in a series of five chapters which roughly follow this historical segmentation, with an additional episode reserved at the end to evaluate the artist's posthumous legacy, the book's structure emphasizes the intertwined strands of the personal and the political, regardless of the fact that, as Schor submits, "[Halaby's] art focused on the enduring beauty of the landscape and flowers of Jerusalem, not

on the traumatic experiences of her life.” (1) Each chapter reckons with Halaby’s inscrutable passivity and continuity as an artist, while as a person Halaby rarely stood still, especially in the first half of the century: she fled with her family from Jerusalem to Kiev during the First World War (and back again once the Bolshevik Revolution started), traveled to Paris to study art on a four-year scholarship from the French government at the outbreak of the 1929 riots in Jerusalem (and again to Paris and Italy for a short visit in 1949), and shuttled between her first family home in Musrara to the Old City, and then to East Jerusalem as the violence and terror perpetrated by Zionist militias forced her movements.

The tension between these many changes in the artist’s life and the constancy of her artistic practice proves productive for Schor, who orients her understanding of Halaby’s personality and paintings around this psychological dissociation. The Halaby family’s exile in Kiev, a necessity due to Sophie’s mother’s status as a Russian national, was, incidentally, the teenage Halaby’s first trip abroad and her first exposure to a much larger and more modern city than Jerusalem. Gleaning the effects this time had on Halaby through family interviews, Schor asserts:

It was during this tumultuous period that the young Sophie developed the plurality of vision that would inform her art. [...] Sophie told some people that she was born in Kiev and others that she was born in Jerusalem. This playful inconsistency was an element of her originality; secrecy and confounding others about her origins was a feature of her personality. (14)

This quality of being purposefully mysterious, Schor suggests, derived from the early reckoning with identity that came through Halaby’s wartime exile, as a well as from the opportunity to connect with her Russian roots. Schor postulates that Halaby formed a “contrapuntal” identity, in the manner in which Edward Said described the positive plurality of vision one derives from exile and a multi-cultural upbringing. Halaby and her sister, Asia, conversed in Russian all their lives, often using it as a private language, a channel through which to distance themselves from the commotion around them. Yet, as Schor emphasizes, this fondness for Russian culture only entered Halaby’s paintings through depictions of nineteenth-century Russian religious monuments sketched into the backgrounds of her canvases devoted to the Mount of Olives. Halaby lived her life “painting the hills and flowers of her city [Jerusalem] repeatedly.” (14)

Schor maps the many data points of Halaby’s life onto her artistic work in order to strengthen her argument that if Halaby’s life experiences and political views could be seen anywhere in her artistic work, they were only witnessed in the deliberate, dogged erasure of those events. As Jerusalem began expanding under the British Mandate, “[Halaby] painted Jerusalem as she saw and loved it,” Schor contends, “erasing all of the new buildings that brought European influence into its borders.” (69) During the events of the Nakba, when a bomb landed near the

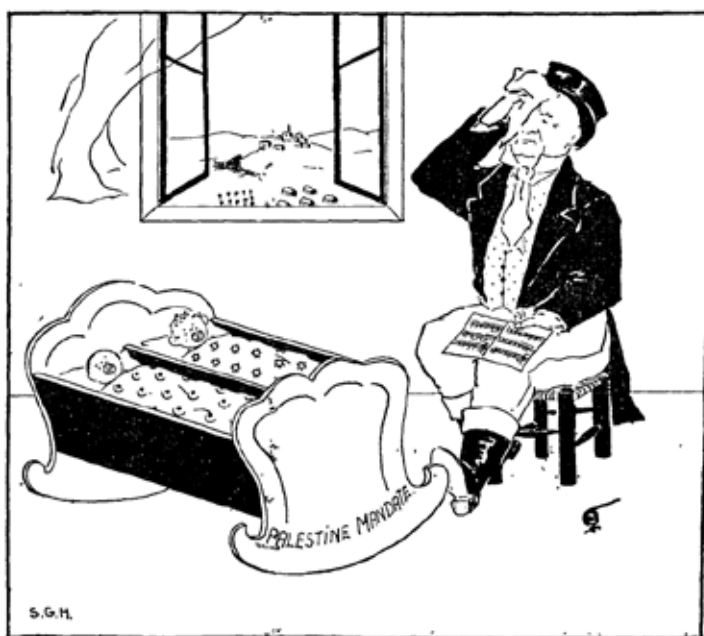
Halaby family home in Musrara, Halaby rolled up her paintings and sought their safe storage in the Old City. With no prospect of returning home to Musrara after the neighborhood was occupied as part of “West Jerusalem” in the summer of 1948, the Halaby sisters were forced to live elsewhere. Their brother, Nicola, a civil engineer who lived in Beirut (and later, Kuwait), designed a newly built home for his sisters on Nur al-Din Street. In her top-floor studio, Halaby continued “to look out over the hills of her beloved city and paint.” (113) Despite being wrested from her physical home and legally made a citizen of Jordan under the Jordanian Nationality Law of 1954, Schor argues, “her homeland was all around her. Her art remained independent of the ideology and its attendant aesthetic that were created in the diaspora [where the homeland was an idea].” (113) When, in the final decades of her life, the Halaby sisters experienced considerable anguish and a litany of legal woes due to seized family property following the *naksa*, then too, Schor asserts, “[Halaby’s] landscapes were images of Jerusalem as she remembered it in her childhood, before the noise of construction filled the air and dust polluted the atmosphere.” (187) Unlike her sister, who joined women’s protest groups and was frequently found leading a march against the Israeli occupation, Halaby, as friends recall, stayed home in her studio, painting. “This,” Schor concludes, “was her form of protest.” (169) A handwritten letter from Halaby to her close friend Ada Kalbian in September of 1968 – one of only two documents written by Halaby that Schor was able to locate through her dense network of oral interviewees – seems to support Schor’s view that Halaby conceived of painting as a release from politics. The artist, then in her early sixties, stated in the letter that the political situation in Palestine had become so monotonous that it was a relief to “plunge again into the serene world of art.” (171)

Schor’s other astonishing discovery while working on this biography, however, greatly challenges her reading of Halaby’s life and oeuvre as a persistent and “silent” protest (169), as well as Boullata’s analysis of Halaby’s artworks as the manifestations only of her “inner bell.” Halaby produced a series of eight political cartoons for the economic and political missive *Palestine and TransJordan Weekly*, an English-language, Palestinian-supported publication, which debuted in the summer of 1936. Her first cartoon appeared that August, as the first phase of the Arab Higher Committee’s boycott and revolt against the Mandate government brought commercial and economic activity in Palestine to a grinding halt. Her cartoons continued to appear until March 1937, covering the period of the Peel Commission’s sojourn in Palestine and its recommendation to partition Palestine into Jewish and Arab states and an international enclave. In the climax of the book, Schor deftly narrates how each of Halaby’s cartoons responded in real time to the troubling events of those eight months and documented political opinions within the Palestinian community. Halaby’s final cartoon, a damning picture of frustration with the Peel Commission’s prescription, illustrates a British official rocking twin babies in a double-wide cradle, the words “Palestine Mandate” etched into its wooden footboard. In Schor’s words:

This poignant cartoon is different in tone from the previous ones. It suggests that the British were unable to sing a song that would be intelligible and comforting to two babies with incompatible languages and needs. The British official wipes his brow in frustration at his failure to pacify the babies. The failure of the Peel Commission to find a solution to the growing dissatisfaction of the Arab population of Palestine was sobering to the artist. (87)

Here, at last, is Sophie Halaby – the politically-engaged artist. This Sophie Halaby appears to align much more closely with the portrait drawn of the artist by her younger relative, the artist and scholar Samia Halaby, in an essay published in the *Jerusalem Quarterly* 61 (2015),¹ in which she recounts several family anecdotes characterizing Halaby as blunt, outspoken, and “deeply nationalist.” Yet, little evidence for this position within the artist’s work was known to exist prior to the discovery of these cartoons.

Samia Halaby had read Sophie Halaby’s excision and rejection of urban, social, and political developments in her quiet landscape paintings as the primary evidence for the artist’s bitterness and opposition toward the Israeli occupation. As Schor is quick to point out, however, despite Halaby’s obvious worry over Palestine’s future during the 1936 revolt, as highlighted in her cartoons, “she hereafter ceased using her artistic talent to comment on the British, the Jews, or the Arabs.” (87)



THE DIFFICULTY SEEMS TO BE THAT OF SINGING
TWO DIFFERENT LULLABIES AT THE SAME TIME.

Figure 2. “The difficulty seems to be that of singing two different lullabies at the same time,” The Dorot Jewish Division, New York Public Library.

But did Halaby’s politics, as represented through her art, really start and end with these eight cartoons? If so, how are we to rectify this apparent schism in Halaby’s oeuvre? And how are we to understand the gap between Schor’s characterization of

Halaby as a multi-cultural, cosmopolitan, and somewhat politically subdued person against Samia Halaby's vision of her as acutely Palestinian and nationalist? Is it possible that there are more, yet undiscovered, political artworks or that the artist's politics are buried inside her landscapes and still lifes in ways that scholars have yet to see? On this point, a deeper dive into the works of Halaby's fellow artists, especially those who were actively producing art prior to the Nakba alongside her, may have proven valuable. Schor refers to, but interacts little with, Halaby's near-contemporaries, such as Nicola Saig, Zulfa al-Sa'di, Mubarak Sa'ed, Jabra Ibrahim Jabra, and the Jewish artist Anna Ticho, wife of the famous ophthalmologist Dr. Albert Ticho, who was Halaby's neighbor in Musrara. While several of these artists produced more overtly political works during their careers, such as al-Sa'di's portraits of pan-Arab luminaries for the 1933 First National Arab Fair in Jerusalem, they too continued to paint the hills, flowers, and fruits of Palestine. For instance, the prolific poet, novelist, translator, and painter Jabra depicted the blood-red petals of Palestine's profuse poppies in *Field of Anemones* (or *The Girl and the Poppies*), painted sometime between 1945 and 1947, just before his own exile to Baghdad and a career rooted at the intersection of art and politics. In this painting, Jabra's poppies dot the grass beneath a seated woman whose serene face and slack pose reveal – as in Halaby's artworks – nearly nothing of the human violence and land ravages of the mid-1940s during which this work was made.

Moreover, flowers, particularly wildflowers from the “Holy Land,” were transforming in the first half of the twentieth century from religious tourist souvenirs to poignant and proto-nationalist artifacts establishing one's connection to the land. Boris Schatz, founder of the Zionist-funded Bezalel School for Arts and Crafts, agitated for the establishment of both a botanical department and a nature museum at the school's founding in 1906. The school's pedagogy emphasized the importance of researching Palestine's native botanical specimens for the development of a “Hebrew style” of art and the bolstering of a Jewish nation. Similarly, as historian Enaya Othman illuminates in her recent book on the American Quaker Friends Girls School in Ramallah (*Negotiating Palestinian Womanhood* [Lanham, MD: Lexington Books, 2016]), an understanding of botany was considered essential for uniting the girls' training for “home life” to their “national life,” as the Arab national movement gained momentum in Palestine throughout the years of the Mandate. Seen through this lens, and in concert with other “quiet” artworks by her contemporaries, it is possible to speculate that Halaby's artworks were not made in silent protest so much as they were speaking in a different key, one that became all the harder to hear once the generation of Palestinian artists who rose to prominence in the 1950s–70s, such as Ismail Shammout, Nabil Anani, and Sliman Mansour, transformed Palestine's botanical and agricultural motifs into explicit, powerful emblems of the homeland and political symbols of Palestinian resistance.

As Schor acknowledges in her book's final chapter and afterword, despite her own herculean efforts to puzzle together the pieces of Halaby's life, as well as the important contributions of other historians, curators, and artists like Boullata, Samia

Halaby, Tina Sherwell, Reem Fadda, and Esmail Neshif to our understanding of this elusive artist, “the full impact of Sophie Halaby’s legacy as an artist remains to be addressed.” (197) She posits several avenues for further research, including the continued study of all of Halaby’s known artworks to decipher their chronology, or the unearthing of the artist’s detailed record book, *History of Drawings*, the spine of which was incorporated into one of her paintings like a tantalizing clue. Schor moreover encourages her readers “to continue the process of expanding the boundaries of Palestinian history to document and to interpret the lives and work of Palestinian women.” (198) The mere fact that Halaby’s artworks exist, when so much of Palestinian cultural and artistic heritage has been lost, looted, or destroyed, and many promising artistic careers prematurely stunted in the wake of the Nakba – like that of her younger contemporary, Zulfa al-Sa’di, who fled to Damascus – is extraordinary in itself. The work of determining why, in what ways, and to whom Halaby’s artworks were and continue to be “important,” however, persists.

What Schor generously provides to the next generation of scholars on Palestinian art, Palestinian women’s history, and social histories of Jerusalem is a holistic vision of Halaby’s world. The sights, smells, tastes, and, above all, the voices that filled Halaby’s senses are brought to new life through this book. Using published memoirs and unpublished archival letters and documents, Schor amasses a circle of friends, schoolmates, teachers, diplomats, missionaries, archaeologists, dentists, and doctors (among others) who either knew Halaby and/or experienced the world in similar ways – in effect, downloading some of their sights and impressions into the artist’s psyche. While, at times, this technique risks assuming what Halaby felt or believed, it simultaneously produces the positive effect of raising the voices of other, especially female, Palestinians, such as Ghada Karmi, Hala Sakakini, Betty Dagher Majaj, Hanan Ashrawi, and Samia Nasir Khoury, whose lives flash throughout the pages. Schor offers an intimate vision of the rich social network built by the teachers and elite alumnae of the Jerusalem Girls College (JGC), the prominent Anglican missionary school in Jerusalem that Halaby attended from ages twelve to eighteen. Historicized by Inger Marie Okkenhaug in *The Quality of Heroic Living, of High Endeavor and Adventure* (Brill, 2002), the JGC was the magnet through which Halaby and some of Palestine’s most enterprising women were bound together. In Schor’s book, the young teachers of the school, like Halaby’s drawing teacher Susan P. Emery, similarly emerge as important contributors to the landscape of Palestinian art and society.

Leaving no stone unturned, Schor also expands upon the previously published historical narratives surrounding the life of Halaby and her family – knowledge of the family’s exile in Kiev during the First World War, for example, stands out as a point of great significance for understanding the artist’s identity formation – and, at times, even corrects those earlier sources: for instance, Halaby’s father, George, the eldest son of an established Christian Jerusalemite family, was not a physician, but graduated from the Moscow Ecclesiastical Seminary in 1888 and

was appointed dragoman of the Imperial Orthodox Palestine Society in 1901 (a position inherited from his uncle Ya‘qub); no firm birth records exist for Sophie, either in Jerusalem or Kiev, nor are there records of Halaby ever having taught at the German-run Schmidt’s Girls College, although her cousin Sonia Wahbe certainly did.

With this work, the first full-length, published biography of any Palestinian artist born prior to the Nakba, Schor has exposed the difficulties and rewards of this type of intellectual endeavor. Her book sets the stage for future research on Palestinian modern art and artists and moves the needle forward for future scholars of Halaby’s work in particular. Throughout the book, Schor refers to Halaby as “Sophie,” a designation surely meant to distinguish the protagonist from the many familial relations and others who bear her last name, but one that also provides the reader with a certain sense of intimacy: after reading Schor’s book, we too will all be on a first-name-basis with this rare figure in Palestinian history.

Nisa Ari is a lecturer in art history at the University of Houston and the book reviews editor for the Association of Modern and Contemporary Art of the Arab World, Iran, and Turkey (AMCA). She obtained her PhD in the History, Theory, and Criticism of Art and Architecture at the Massachusetts Institute of Technology, and her research has been published in Arab Studies Journal, Third Text, and Thresholds.

Endnotes

- 1 Samia Halaby, “Sophie Halaby, Palestinian Artist of the Twentieth Century,” *Jerusalem Quarterly* 61 (2015): 84–100.

FACTS & FIGURES

Oppression of Issawiya Neighborhood

Correspondence between CAF & HUJI

Committee on Academic
Freedom (CAF)

Editor's Note:

“Letters from the Middle East Studies Association’s Committee on Academic Freedom to Hebrew University regarding demilitarizing the campus and police harassment of Issawiyah neighborhood,” reprinted with permission from MESA.



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Committee on
Academic Freedom

22 January 2020

Professor Asher Cohen
President, Hebrew University of Jerusalem
hupres@savion.huji.ac.il

Professor Menahem Ben-Sasson
Chancellor, Hebrew University of Jerusalem
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Professor Barak Medina
Rector, Hebrew University of Jerusalem
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Dear President Cohen, Chancellor Ben-Sasson, and Rector Medina,

We write to you on behalf of the committee on Academic Freedom of the Middle East Studies Association of North America to condemn Hebrew University's complicity in the Jerusalem District Police's violence against and harassment of the Issawiya neighborhood, adjoining the Mount Scopus campus.

MESA was founded in 1966 to promote scholarship and teaching on the Middle East and North Africa. The preeminent organization in the field, MESA publishes the *International Journal of Middle East Studies* and has nearly 2,800 members worldwide. MESA is committed to ensuring academic freedom of expression, both within the region and in connection with the study of the region in North America and elsewhere.

The Issawiya neighborhood has long suffered from the impact of Israeli policies: inadequate sanitation services, insufficient classrooms, in part due to a lack of zoning plans and shortage of building permits. Since May 2019, as was widely reported in *Haaretz*, the situation has deteriorated significantly: the Jerusalem District Police have conducted daily raids and set up checkpoints in the Issawiya neighborhood. Over 600 residents have been arrested since May, but only twenty indictments have been filed. Police actions have included arresting minors, raiding high schools, and arresting school strike leaders. As reported by Academia for Equality, an organization of 550 teachers, students and others involved in academic life in Israel, and including sixty members of the Hebrew University community, the University has been complicit in this violence in two concrete ways.

The first concerns the closure of the southern entrance to the neighborhood, which adjoins the Mount Scopus campus and Hadassah Hospital. This entrance has been closed intermittently since 2001, and continuously since 2007. The Jerusalem District Police have justified this closure as a security measure to protect Hebrew University and Hadassah Hospital. However, this closure is an act of collective punishment that confines the movement and freedom of Issawiya's twenty thousand inhabitants, who are left with only one entrance to their neighborhood. According to the neighborhood's committee, the police claimed that the closure was implemented at the request of the Hebrew University, and that the closure would be rescinded if the university announced that it was no longer needed on security grounds.

The second way the University has been complicit is by allowing the Jerusalem District Police to use the Mount Scopus campus to engage in harassment. Academia for Equality informed us that on 4 December 2019, two uniformed Jerusalem District Police officers



Re: Hebrew University complicity of police harassment of Issawiya neighborhood
22 January 2020
Page 2

were photographed standing on the roof of the Rabin Building on campus. Next to them were binoculars and a video camera mounted on tripods and pointed towards the center of Issawiya. In response to a letter from Academia for Equality, Rector Medina responded that this operation "was made necessary by information the police possessed about an intention to carry out concrete criminal action against faculty and students at the University," that it "was coordinated with the University's Security Department," and that "the police activity foiled the attempt to harm faculty and students." When Academia for Equality responded with more queries on these alleged threats and criminal acts, they did not receive a response.

These reports, if correct, are evidence of a troubling violation of the principle of academic independence and neutrality, damaging the trust between the University, its neighboring communities, and its students and staff, among whom are Palestinians, including residents of Issawiya. These events follow the introduction of the University's new "Havatzalot" program, in cooperation with the IDF's Intelligence Corps, which gives military intelligence cadets a bachelor's degree alongside their military training. This program, which grants broad privileges to student-soldiers (including priority in dorms and certain classes, and the designation of areas on campus restricted to their use) has significantly increased the presence of uniformed soldiers in classrooms and in all public spaces in the university. [Palestinian student groups](#) have already expressed their opposition to this increasing military presence on campus and their concern that further implementation of this project would marginalize them within the university.

These actions together contribute to a dire trend of militarization of the campus, which is surrounded by the neighborhoods of occupied East Jerusalem, and to the propagation of a hostile environment vis-à-vis the Palestinian members of the community. We join our colleagues in Academia for Equality in condemning Hebrew University's complicity in the oppression, harassment, and constriction of movement of the people of Issawiya. We call on you to inform the police that the southern entrance to Issawiya does not pose a security threat to the University, and to work towards the re-opening of the southern gate, re-instating a second exit to the neighborhood of 20,000 inhabitants. We also call on you to prevent the Jerusalem District Police from entering the Hebrew University campus to conduct operations against and harassment of the residents of Issawiya.

We look forward to your response.

Sincerely,

Dina Rizk Khoury
MESA President
Professor, George Washington University

Laurie Brand
Chair, Committee on Academic Freedom
Professor, University of Southern California

cc: Academia for Equality, info@academy4equality.com

updated 23 January 2020

From: [President of The Hebrew University](#)
To: [Committee on Academic Freedom](#); [Chancellor of The Hebrew University](#); Barak.Medina@mail.huji.ac.il
Cc: matan.kaminer@gmail.com; [President of The Hebrew University](#)
Subject: RE: Oppression of Issawiya neighborhood
Date: Thursday, January 23, 2020 12:54:20 AM

Dear Ms. Dina Rizk Khoury and Mr. Laurie Brand,
The police have sole responsibility for protection of human life and property in Israel. The Hebrew University is not involved in any decisions about police activity in Issawiya or any other area.

Best regards,



Liron Saban | Coordinator

Office of The President

The Hebrew University of Jerusalem
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מאת: Committee on Academic Freedom <caf@mesana.org>
נשלח: Wednesday, January 22, 2020 19:13
אל: President of The Hebrew University <hupres@savion.huji.ac.il>; Chancellor of The Hebrew University <huchancellor@savion.huji.ac.il>; Barak.Medina@mail.huji.ac.il
עותק: matan.kaminer@gmail.com
נושא: Oppression of Issawiya neighborhood

Please see our [letter](#) condemning the complicity in Jerusalem police harassment of al-Issawiya neighborhood.



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4 February 2020

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Professor Barak Medina
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Dear President Cohen, Chancellor Ben-Sasson, and Rector Medina,

Thank you for your [23 January 2020](#) response to our letter dated [22 January 2020](#).

In your letter you stated that Hebrew University “*is not involved in any decisions about police activity in Issawiya or any other area.*” Like our colleagues who are members of Academia for Equality, we are disturbed that such a position disregards the university administration’s duty to maintain the autonomy of the university campus as a free space.

In addition, your letter failed to address the question of the closure of the southern entrance to Issawiyah, which renders the university a de facto partner in the collective punishment of the neighborhood’s residents.

Along with the members of Academia for Equality, we repeat our call for the administration of the University to declare its solidarity with Issawiyah and to act immediately to demilitarize the campus.

We look forward to your response.

Sincerely,

Dina Rizk Khoury
MESA President
Professor, George Washington University

Laurie Brand
Chair, Committee on Academic Freedom
Professor, University of Southern California

cc: Academia for Equality

From Gaza to al-Majdal

Ten Art Interventions

A collection of ten aerial images from the Bavarian State Archive, marked by the name (Küstenebene-File 10- Gaza-Beerseba “bir es-seba”), were taken between September 1917 and September 1918 during reconnaissance flights by the Bavarian Air Squadron as part of the operations of the German-Turkish Alliance. They systematically document the stretch of land between Gaza and al-Majdal, including the later destroyed villages of ‘Iraq al-Manshiyya, Bayt Jirja, al-Jiyya, Barbara, and al-Majdal.

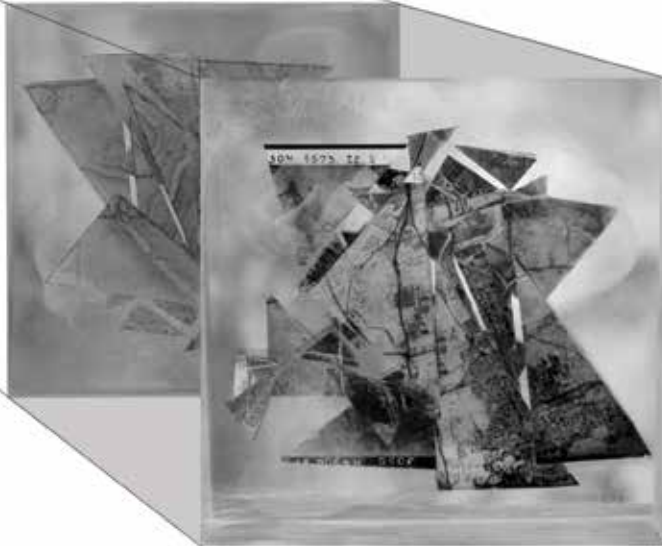
The aerial reconnaissance photographs that were taken during scout operations served the Germans for tactical and surveillance ends, likewise the successive colonial regimes in Palestine. They have become a tool for the study of the urban landscape and infrastructure of Palestine at the end of the Ottoman period.

For this special issue of the *Jerusalem Quarterly*, ten artists were invited to work with these images and make an intervention through imagining the process of photographing and capturing these images from the sky. The artists were asked to respond to the following questions while thinking about their artistic intervention: Did the pilot receive orders to capture this image via radio communication? What was the dispatch? What was the pilot thinking at the moment of capturing the image, coming from a European culture and photographing the “holy” landscape of Palestine? What did the pilot see beyond the frame of the photograph? How can we interpret these images beyond their military objectives? Can the artist impersonate the pilot while relating to a more contemporary experience? How does the same image look today via satellite?

مددت رأسي بلهفة لأتأمل تفاصيل مدينة غزة عبر زجاج الطائرة الأمامي، وخرائط
المساح الفرنسي "بيير جاكوتين" التي رسمها لفلسطين لا تقارق مخيلتي. انظر عبر
الزجاج كأنني ما زلت أقف أمام لوحات خرائطه الستة التي ما زالت معلقة على
جدران غرفتي، أتأملها، أصدق بها ... محدثاً نفسي "سوف أعيد رسم هذه الخرائط
من جديد".

ينتابني إحساس غريب الآن وأنا أغادر أجواء المدينة كأنني أخرج من فضاء
مغلق... سأنظر للأسفل للمرة الأخيرة.

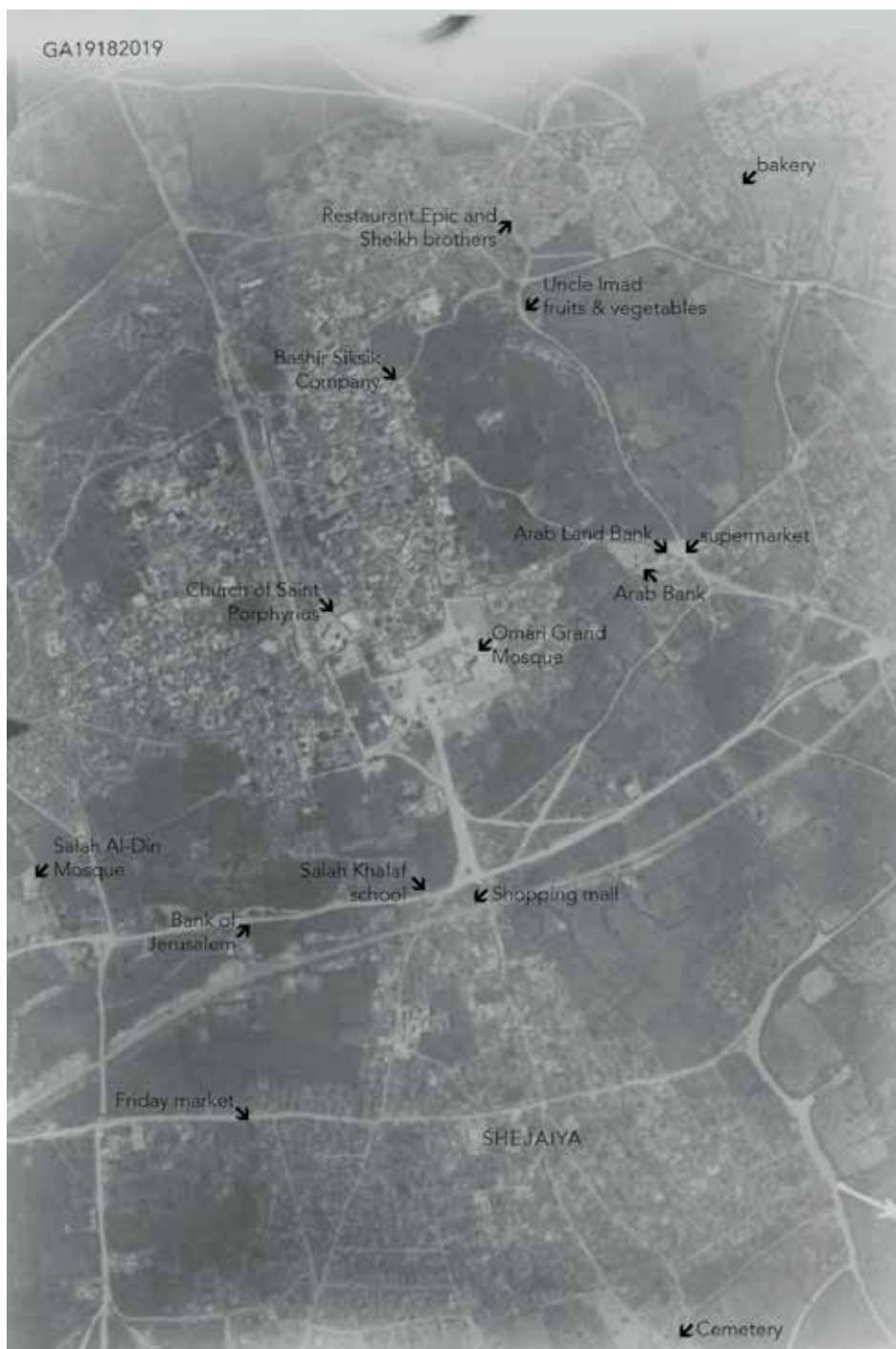
من مذكرات طيار
1918 - 5 - 28



Shada Safadi on Gaza City

1799-1918. Plexiglass, collage. 25 x 25 cm, 2019. "I have a strange feeling now as I leave the city, as if I am leaving a closed space ... I will look down for the last time."

From a pilot's diary (text by artist)



Jack Persekian on Gaza City
Gaza Aerial View, 1918–2019. 2019.

Manshiya. H. 4500. Br. 50.

Fl. 304. 15



F - 16A COCKPIT ARRANGEMENT

INSTRUMENT PANEL

1. HUD combiner glass
2. Television camera
3. Air refuel status indicator
4. HUD control panel
5. Standby attitude indicator
6. Fuel flow indicator
7. Fuel FC fail warning light (red)
8. Hydraulic pressure warning light (yellow)
9. Canopy warning light (red)
10. UHF altimeter frequency indicator
11. Vertical velocity indicator
12. Engine oil pressure indicator
13. Tachometer
14. Nozzle position indicator
15. ETT indicator
16. Fuel quantity indicator
17. Altimeter
18. Marker beacon light indicator
19. Altitude deviation indicator
20. Horizontal situation indicator
21. Radar receiver optical display
22. Radar parallax adjustment knob
23. Angle of attack indicator
24. Instrument panel select switch
25. Air speed indicator

30. Master arm switch
31. Alternate release button
32. APU power switch
33. ECU maintenance button
34. Engine fire warning light (red)
35. Handoff/primary autopilot warning light (red)
36. Visual warning indicator control and

LEFT CONSOLE

1. Radar control panel
2. UHF altimeter
3. Air refuel status indicator
4. Fuel flow indicator
5. Fuel FC fail warning light (red)
6. Hydraulic pressure warning light (yellow)
7. Canopy warning light (red)
8. UHF altimeter frequency indicator
9. Vertical velocity indicator
10. Engine oil pressure indicator
11. Tachometer
12. Nozzle position indicator
13. ETT indicator
14. Fuel quantity indicator
15. Altimeter
16. Marker beacon light indicator
17. Altitude deviation indicator
18. Horizontal situation indicator
19. Radar receiver optical display
20. Radar parallax adjustment knob
21. Angle of attack indicator
22. Instrument panel select switch
23. Air speed indicator

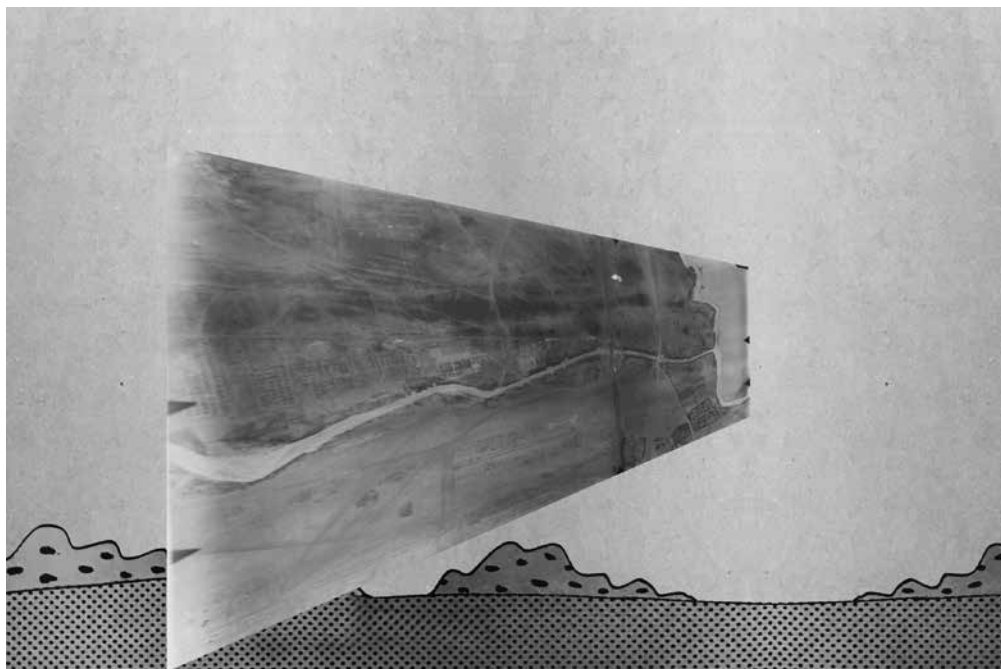
RIGHT CONSOLE (TYPICAL)

1. Radar control panel
2. UHF altimeter
3. Air refuel status indicator
4. Fuel flow indicator
5. Fuel FC fail warning light (red)
6. Hydraulic pressure warning light (yellow)
7. Canopy warning light (red)
8. UHF altimeter frequency indicator
9. Vertical velocity indicator
10. Engine oil pressure indicator
11. Tachometer
12. Nozzle position indicator
13. ETT indicator
14. Fuel quantity indicator
15. Altimeter
16. Marker beacon light indicator
17. Altitude deviation indicator
18. Horizontal situation indicator
19. Radar receiver optical display
20. Radar parallax adjustment knob
21. Angle of attack indicator
22. Instrument panel select switch
23. Air speed indicator

RIGHT AUXILIARY CONSOLE

1. Radar control panel
2. UHF altimeter
3. Air refuel status indicator
4. Fuel flow indicator
5. Fuel FC fail warning light (red)
6. Hydraulic pressure warning light (yellow)
7. Canopy warning light (red)
8. UHF altimeter frequency indicator
9. Vertical velocity indicator
10. Engine oil pressure indicator
11. Tachometer
12. Nozzle position indicator
13. ETT indicator
14. Fuel quantity indicator
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17. Altitude deviation indicator
18. Horizontal situation indicator
19. Radar receiver optical display
20. Radar parallax adjustment knob
21. Angle of attack indicator
22. Instrument panel select switch
23. Air speed indicator

Amer Shomali on 'Iraq al-Manshiyya
Proskynetarion "topography of the holy land," 2019.



Ala Younis on Dayr Esned

Al-Labbad opens his eyes with astonishment. Here is a drawing of the land on which he imagines a landing, cut through by an aerial image of Dayr Esned repositioned as the windscreen of its shooting pilot.



Khaled Hourani on al-Jiyya

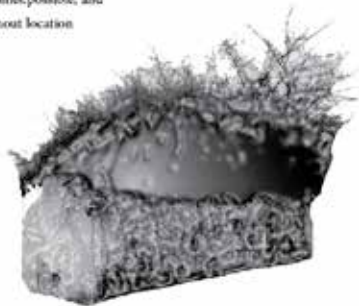
Eyewitness, Video al-Jayyeh, Haj Mohamad al-Sahar.



» Which we know as much as we do of the medieval topography of the Frankish kingdom. Even in the later period of the Moslem rule, the accounts of the country are mere sketches compared with the full details obtainable from contemporary documents. «



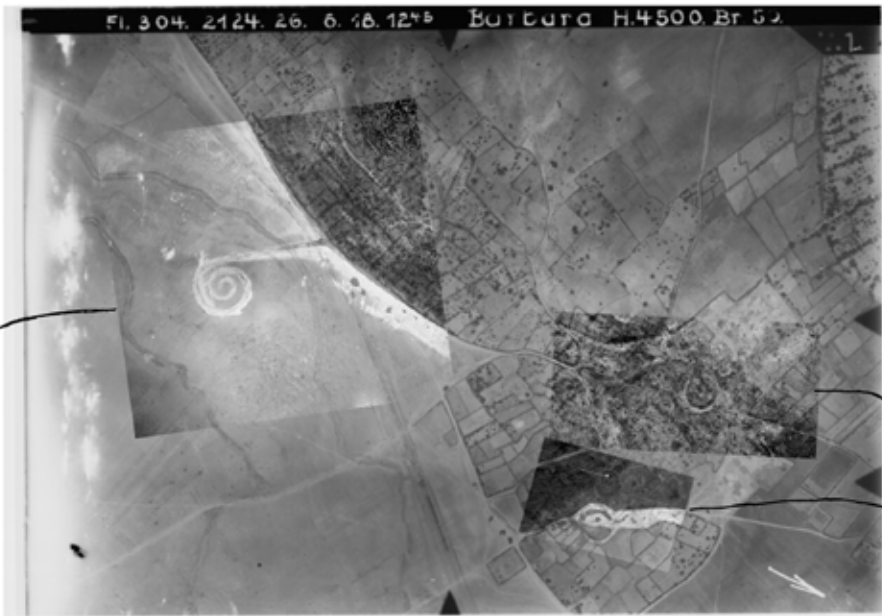
» He has also successfully identified a very large proportion of the sites, but as he apparently was not in possession of the Survey map, and as the Survey Memoirs were unpublished at the time, a considerable amount of additional identification becomes possible, and only a very small proportion of these sites are left without location on the map. «



Mahdi Baraghiti on Bayt Jirja

Graphic collage, 2019.

Text: *Journal Palestine Exploration Quarterly* vol. 21, 4 (1889).



Aerial image of the village of Barbara, 28 May 1918. Bavarian State Archives

On July 20, 1973, American artist Robert Smithson died during an aviation accident along with the pilot and a photographer when their light plane crash as they were inspecting one of his earthworks under construction (Amarillo Ramp) in the vicinity of Amarillo, Texas.

Relatively few of Smithson's major works remain intact, his best-known pieces, and probably the most famous pieces of all earthworks, are the Spiral Jetty, 1970 (1500 ft) protruding into Great Salt Lake in northern Utah, U.S. and Broken Circle/Spiral Hill, 1971 in Emmen, The Netherlands.

Essa Grayeb on Barbara

Artist/Photographer/Pilot, 2019. Scanning of manipulated images with text and hand drawings (photo essay in progress).



She told me,

Lines are many, and future is promising. I see investments and development. People will gather for commercial purposes - Peaceful, positive, progressive, and of good faith. This land is there for benefit. I think that I don't see war.

(Manira / 11,500 CFA franc)



She told me,

Thousands of years left hidden scars in its skin, spreading light into the entire world. How blessed are you to have this image! This land have diamonds and gold within, human eyes can't see. One is born soon there, an angel who will reveal its history. Change will occur. Protected are those who will keep this image.

(Ada / 9,000 CFA franc)



She told me,

This land holds powers to heal people from their sickness. Its water is sweet. Your distance is vast. This image will change your entire life. If you go there in person, you will never have any blockage in your way. And if you use this picture in your art, you will be famous. This land is your cure.

(Amita / 13,500 CFA franc)

**TRANSCRIBED ENCOUNTERS WITH THREE PSYCHIC PICTURE
READERS IN DAKAR, SENEGAL. DECEMBER/2019.**

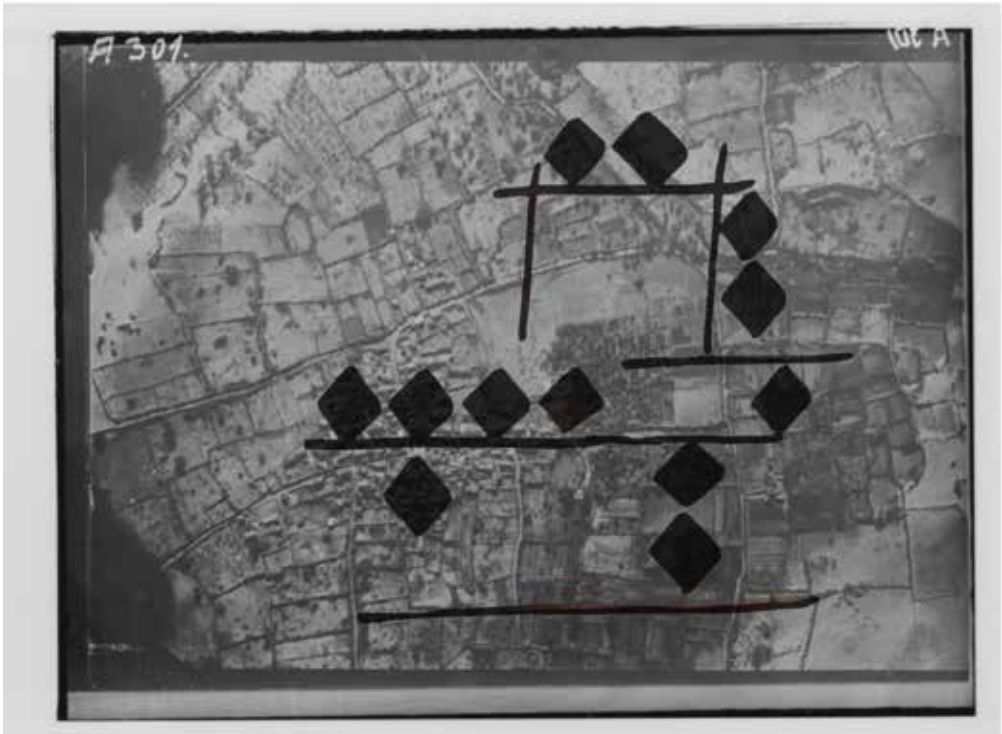
Noor Abed on al-Majdal

Transcribed Encounters with Three Psychic Picture Readers in Dakar, Senegal, 2019.



Oraib Toukan on al-Jiyya

The Pleasure of a Certain Distance, 2019. Drawing on laser, paper, ink, oil pastel, metal leaf.



Dots invsible to the eye
dictate the limits of the sky

Undress the letter
Un-render the script

Shuruq Harb on al-Majdal

Undress the Letter Un-render the Script, 2019.

Participating Artists' Biographies

Shada Safadi is a visual artist from the Golan who lives and works in the Golan and in Ramallah. Shada is a founding member of Fateh al-Muddaris Center for Arts and Culture in the Golan.

Jack Persekian is founding director of al-Ma'mal Foundation and gallery Anadiel in Jerusalem.

Amer Shomali is a multidisciplinary artist teaching in the Faculty of Art, Music, and Design at Birzeit University, Palestine.

Ala Younis is an artist, curator, and publisher. Her work investigates archives, film remains, and artistic practices. She presented her work at the Venice, Istanbul and Gwangju Biennials, and international and Arab art institutions. She curated Kuwait's pavilion at the Venice Biennale (2013) and the "Museum of Manufactured Response to Absence."

Khaled Hourani is a Palestinian artist, curator, and art critic, as well as founder and former director of the International Academy of Art Palestine. Hourani plays a major role in the contemporary art scene in Palestine.

Mahdi Baraghithi is a visual artist who works across a range of media including performance, installation, and collage.

Oraib Toukan is an artist and scholar. She is currently a EUME (Europe in the Middle East) fellow at the Forum Transregional Studien in Berlin.

Essa Grayeb is a visual artist, working across different media such as photography, video, installation, and text.

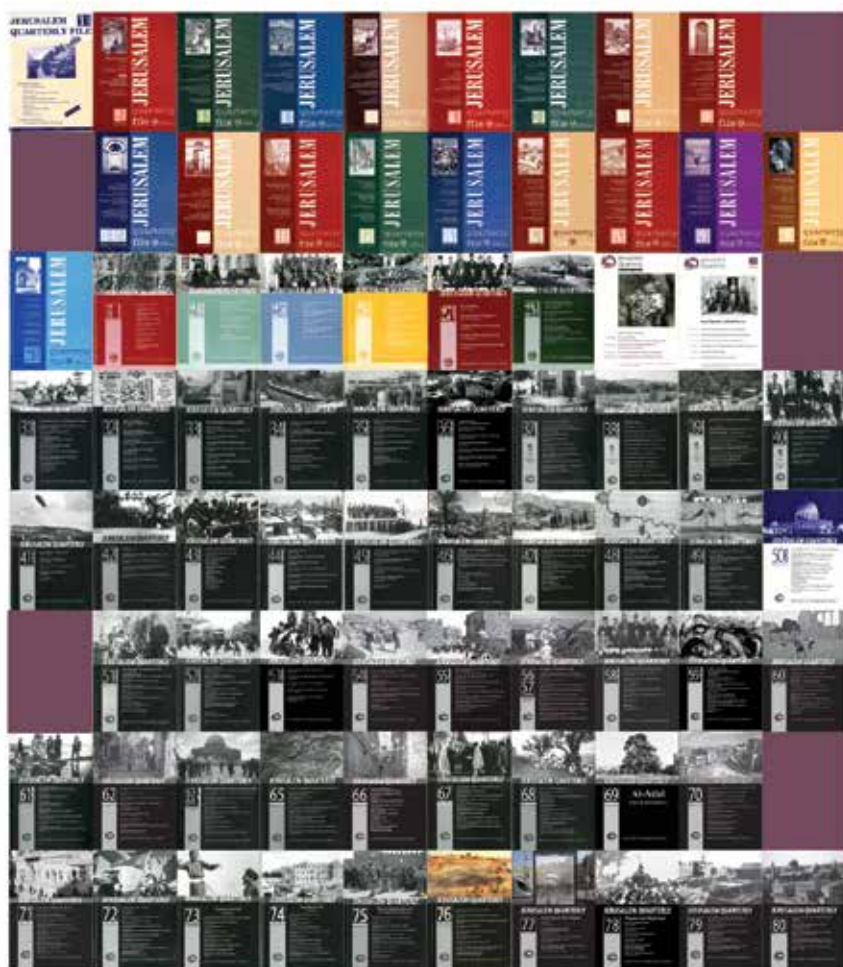
Noor Abed is an artist and researcher based in Ramallah.

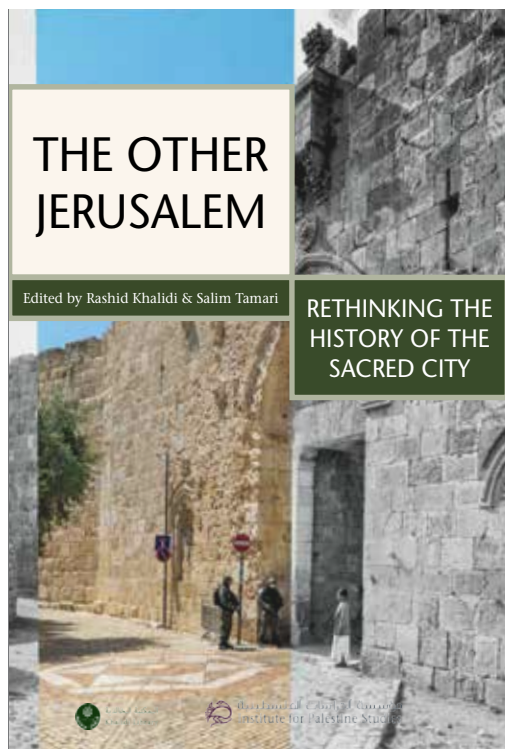
Shuruq Harb is an artist filmmaker, writer, editor, and curator.



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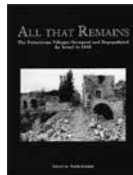
REMEMBRANCE

Eugenio Chahuán Chahuán,
1951–2019

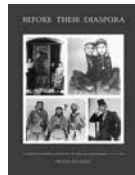
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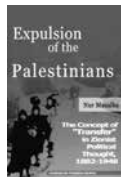
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Titled *Zeppelin*, the Palestinian Authority issued two commemorative stamps in 2001, the seventieth anniversary of the Zeppelin's journey to the Holy Land.

Cover photo: The German airship Graf Zeppelin hovers with its passengers over the Old City on 26 April 1931, on its second and last trip to Palestine. Looking toward the east, the Church of the Holy Sepulcher, the Dome of the Rock, and the Mount of Olives beyond are visible. Photo courtesy of the G. Eric and Edith Matson Photograph Collection, Library of Congress, Prints and Photographs Division, Washington, D.C. Online at tinyurl.com/yafevadw (accessed 10 March 2020).

Back cover: Mohamad Joulani, without title (*a donkey with coffee-house wooden chairs*), 70 x 70 cm charcoal and oil on canvas, 2019.

