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War on the Desert: The Militarization of the Sinai and its Greater Syrian Sacrificial Frontier during World War I

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On November 21, 1914, Ahmed Cemal Pasha departed Istanbul's Haydarpaşa railway station for Damascus. A few weeks prior to his departure—after the Ottoman Empire entered World War I on the side of Germany and Austria-Hungary on October 29—Enver Pasha, the minister of war, invited Cemal Pasha to his mansion. At this meeting, Enver Pasha requested that Cemal Pasha, who was then minister of the navy, take up the post of governor-general of the Greater Syrian provinces and assume command of the Fourth Army. Cemal Pasha enthusiastically accepted Enver Pasha's offer to, in his words, “prepare for and carry out an attack on the (Suez) Canal, and also to maintain security and internal order in (Greater) Syria.”¹ He secured his existing ministerial post in addition to gaining full authority as the commander of the Fourth Army and governor of the Greater Syrian provinces. Before his train departed from Haydarpaşa, Cemal Pasha addressed the crowd who had gathered there to see him, describing his mission as the “divine but extraordinarily difficult” duty of “saving Egypt from British invaders.”²

Upon his arrival in Damascus, Cemal Pasha devoted himself to “execute[ing] the Egyptian expedition along with the defense of Syria.”³ He wrote to Istanbul that he would personally command the campaign and do whatever necessary to address the issue of provisions for the army's march across the Sinai Desert; the same march that had thwarted the first expedition.⁴ However, the Ottoman military expedition he commanded in January–February 1915 failed, leading the Fourth Army's Ottoman and German military leadership to conclude that any prospect of success would first require overcoming the Sinai Desert's inhospitable environment, climate, and topography in order to transport soldiers to the canal and supply them with water and food. Following the failed attack, the Ottoman army retreated from the Suez Canal to Beersheba. In what followed, Ottoman decision makers—Cemal Pasha first and foremost—together with German and Austrian military colleagues, waged war on the desert from February 1915 to January 1917, between the failures of the first and second Suez expeditions.

The war on the desert involved the militarization of the Sinai landscape through various modes of manipulation, including the construction of railways and motorways, the digging of

¹ Cemal Paşa, *Hatıralar* (Istanbul: Selek Yayınları, 1959), 154–55. Cemal Pasha's memoirs are his political reassessment of the empire's last decade and an attempt to remake his political image as not responsible for the empire's fall. As I reviewed his memoirs, I compared them with other sources in order to gain insight into his engagement with the Ottoman-German war efforts in the Suez Canal and provide essential details about the war.

² For Cemal Pasha's speech, see Ziya Şakir, *Yakın Tarihin Üç Büyük Adamı: Talat, Enver, Cemal Paşalar* (Istanbul: Anadolu Türk Kitap Deposu, 1943), 189.

³ The Military History and Strategy Directorate Archives, Ankara, Turkey (hereafter ATASE), First World War Collection (hereafter BDH), Klasör 159, Dosya 539, Fihrist 15, 19 Teşrinisani 1330.

⁴ ATASE, BDH, Klasör 159, Dosya 539, Fihrist 15, 19 Teşrinisani 1330.

wells and canals, and the creation of military settlements with lines of communication, arsenals, hospitals, storehouses, and water pools, all of which were geared towards facilitating the Ottoman army's passage and provisioning for the Suez expedition.⁵ This undertaking relied on four main inputs to proceed. The first was the continuous transfer of funds from the Ottoman treasuries or German cash reserves to the Fourth Army. In addition to purchasing materials, a significant proportion of bank deposits to the Fourth Army were used to pay private contractors. The second main input was what I term the "Ottoman military-environmental complex," a partnership between the army and private contractors. The Fourth Army's organizational and logistical capacity came to depend on a class of people I describe as "war contractors," who secured concessions and money in advance to supply the army with camels, grain, and timber, as well as to accomplish infrastructural construction work in the Sinai Desert.⁶ Third, the military leadership relied on and incorporated local Bedouin mobility and knowledge of the desert geography, topography, and environment into "explorations of the desert" to identify water sources and establish sufficient roads.⁷ Last but not least, accomplishing infrastructural projects in the desert necessitated the appropriation of human, animal, and environmental energy.⁸ The war on the desert, ultimately, relied on the Ottoman authorities' exploitation and extraction of human and animal labor, agricultural crops, wood, and materials from Greater Syrian provinces alongside their mobilization into the Sinai to prepare the desert environment and topography for warfare at the Suez Canal.

This article, therefore, traces the energy flows involved in this process of militarizing the Sinai Desert to uncover how Ottoman-German militarism during the war included increasing state intervention in certain environments and the social, economic, and ecological consequences of such interventions in other environments. In particular, I examine the transport of forced human labor and wood resources from Greater Syria to the Sinai Desert. Expanding railways, constructing motorways, introducing a series of military outpost lines, and piping water into the desert all relied on the "somatic energy regime"—John R. McNeill's term for energy resources comprised primarily of human and animal muscle power.⁹ The Fourth Army conscripted thousands of laborers from Greater Syria and relocated them to the desert. Most of these people suffered from heat, malnutrition, and disease; many succumbed to these conditions and died to accomplish these major infrastructural transformations in a short duration of time. Construction in the desert—especially of crossties for the new railway lines—relied on wood extracted from the forestlands of Greater Syria. Moreover, railway networks facilitated an energy supply chain between the Greater Syrian provinces and the Sinai Desert. Due to a lack of reliable coal supplies, railways carried goods, materials, and manpower to the desert using wood fuel, further depleting the forest resources of Greater Syria.

Recent scholarship on the Ottoman provinces of Greater Syria during World War I has provided us with a detailed picture of the coercive nature of Ottoman rule and how inhabitants experienced and responded to the wartime difficulties, first and foremost to the food crisis and famine in the provinces of Syria, Lebanon, and Palestine, which led to the deaths of

⁵ For the manipulation of the environment and changing landscapes for the war efforts, see Chris Pearson, *Mobilizing Nature: The Environmental History of War and Militarization in Modern France* (Manchester, UK: Manchester University Press, 2012); and Lisa M. Brady, *War Upon the Land: Military Strategy and the Transformation of Southern Landscapes during the American Civil War* (Athens, GA: The University of Georgia Press, 2012).

⁶ I explore the war contracts and development of the Ottoman military-environmental complex in another article, tentatively titled "The Ottoman Military-Environmental Complex: The Army, Contractors and WWI in the Eastern Mediterranean" (forthcoming).

⁷ Kress von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, trans. Mazhar Besim Özalpazan (Istanbul: Askeri Matbaa, 1943), 33.

⁸ For the "appropriation of energy" for the war efforts, see: Micah S. Muscolino, *The Ecology of War in China: Henan Province, the Yellow River, and Beyond, 1938–1950* (Cambridge, UK: Cambridge University Press, 2015), 5.

⁹ J. R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth Century World* (New York: W. W. Norton & Company, 2000), 11–12.

hundreds of thousands of people.¹⁰ Research on the war between the Ottoman and British forces at the Suez Canal and in the Sinai Desert has documented the military history of this theater of the war.¹¹ Existing scholarship, however, has not fully revealed the deeply entangled relationship between life (and death), economy, and ecology in Greater Syria and combat on the Suez front. This article explicates the importance of this relationship by demonstrating that the war on the Sinai Desert turned Greater Syria into what I term a “sacrificial frontier.”

My framing of Greater Syria as a “sacrificial frontier” of the Sinai Desert during World War I builds on the use of the term “sacrifice zone” in environmental studies. Coined by US government officials during the Cold War, this term designated areas polluted by the mining and processing of uranium into nuclear weapons. Steve Lerner then expanded the term to “include a broader array of fenceline communities or hot spots of chemical pollution where residents live immediately adjacent to heavily polluting industries or military bases.”¹² I now further expand the term to include military authority decisions to designate regions as exploitable to achieve military objectives in other regions. The term “sacrifice zone” is used to describe the gradual and long-term harm caused by concentrated pollution and toxicity on communities living near such sites. With the term “sacrificial frontier,” I aim to highlight the active decisions made by military leaders to designate Greater Syria as a region for the militarized extraction of resources. The potential success of the second Suez expedition, for the Ottoman-German military leadership, relied on the army’s easier and faster transportation to the Suez through the desert. This necessitated, in their perception, the domination of Sinai’s topography, climate, and environment through the construction of new infrastructure, requiring a constant supply of laborers, animals, and wood. Greater Syria was designated as the sacrificial frontier whose human, animal, natural, and material resources were to be extracted for the sake of the war on the desert, which needed to be transformed into a gateway for the conquest of Egypt.

By considering Greater Syria a “sacrificial frontier” for Ottoman-German warfare in the Sinai and Suez, we can move beyond the divisions created by historical accounts that separate civilian life at home from military combat on the frontlines.¹³ Through an analysis of both governmental and military archives, it becomes clear that the war at the Suez led to the militarization of both the Sinai Desert and the lives, economies, and ecologies of the Greater Syrian provinces. Cemal Pasha’s post and authority as the governor of the Greater Syrian provinces and commander of the Fourth Army enabled this militarized spatial relationship between the Suez, Sinai, and Greater Syria. Previous work on the environmental history of World War I in the Ottoman Empire has shown how the war and long-term

¹⁰ For what the author describes as the “the draconian rule” of Cemal Pasha in the Greater Syrian provinces, see: M. Talha Çiçek, *War and State Formation in Syria: Cemal Pasha’s Governorate during World War I, 1914–1917* (New York: Routledge, 2014). For the food crisis and famine, see: Linda Schatkowski Schilcher, “The Famine of 1915–1918 in Greater Syria,” in *Problems of the Middle East in Historical Perspective: Essays in Honour of Albert Hourani*, ed. John P. Spagnolo and Albert Hourani (Reading, UK: Ithaca Press, 1996), 234–54; Najwa al-Qattan, “When Mothers Ate Their Children: Wartime Memory and the Language of Food in Syria and Lebanon,” *International Journal of Middle East Studies* 46, no.4 (2014): 719–36; Melanie Tanielian, *The Charity of War: Famine, Humanitarian Aid, and World War I in the Middle East* (Stanford, CA: Stanford University Press, 2018); Tylor Brand, *Famine Worlds: Life at the Edge of Suffering in Lebanon’s Great War* (Stanford, CA: Stanford University Press, 2023).

¹¹ For the military history of the Suez expeditions, see: Mesut Uyar, *The Ottoman Army and the First World War*, (New York: Routledge, 2021); Edward J. Erickson, *Palestine: The Ottoman Campaigns of 1914–1918*, (South Yorkshire, UK: Pen and Sword Military, 2016); Şükrü Mahmut Nedim, *Filistin Savaşı, 1914–1918*. (Ankara: ATASE, 1995). For the infrastructural limits to the Ottoman-German war efforts, see: Eyal Berelovich and Ruth Kark, “The Missing Element in Palestine: Infrastructure and Logistics During the First World War,” *First World War Studies* 8, no. 2–3 (2017): 153–72.

¹² Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (Cambridge, MA: The MIT Press, 2010), 1–3.

¹³ For an exception in Middle Eastern historiography, see Yiğit Akın, *When the War Came Home: The Ottomans’ Great War and the Devastation of an Empire* (Stanford, CA: Stanford University Press, 2018).

environmental transformation intersected and generated various forms of ecological crisis in the empire's different regions, including, for example, malaria in the Çukurova region or famine and food crisis in Mount Lebanon.¹⁴ Demonstrating the interconnection between the war on the desert and the transformation of Greater Syria into a sacrificial frontier, this article contributes to this growing literature by offering an environmental history perspective as a venue for understanding the war as a process of the interconnected militarization of combatant and non-combatant environments, ecologies, and lives.

Imperial Fantasies at the Suez Canal

The initial Ottoman military campaign plan—prepared by Enver Pasha in consultation with German general Bronzot von Chellendraffe in June 1914, before the outbreak of World War I—had neither designated Suez as a major front nor singled out the British as a primary enemy in a potential future war. The earlier plan instead focused on a possible war with either Russia or the Balkan states, with the Marmara region and straits as the primary location where military forces would be concentrated.¹⁵ However, in the context of the Ottoman-German alliance formed following the outbreak of World War I, German military cadres advocated for the opening of a front at the Suez Canal. In the German imperial mindset, such military expeditions could prevent the British Empire from utilizing the canal in advancing the flow of commodities, capital, and people from the Indian Ocean to the Mediterranean and beyond for its war efforts. Engaging British forces at the Suez Canal could disrupt the British supply chains from India to the Western front as well as guarantee the deployment of British forces in Egypt, weakening British numbers in Europe.

Enthusiasm for a Suez expedition, however, was not a unilateral German imposition on their Ottoman allies. The leaders of the wartime governing party, the Committee of Union and Progress (CUP), invested in the plan to forward their own objectives. What began as a German plan for a Suez expedition became an Ottoman imperial ambition to reconquer Egypt (*Mısır'ın istirdadı*), as Cemal Pasha proclaimed in his speech at Haydarpaşa.¹⁶ As Talha Çiçek has shown, the CUP leaders were drawn to the German proposition of an Ottoman attack on the British at the Suez Canal because the conquest of Egypt presented an opportunity to secure Muslim support against the “infidel” and enhance the empire's standing among its citizens and the broader Muslim community.¹⁷ The CUP government was desperate for such support at the moment of the empire's entangled crisis of sovereignty, authority, and economy. Disrupting British supply lines and reconquering Egypt were not mutually exclusive; German and Ottoman imperial fantasies, therefore, converged at the canal.

War on the Desert

Preparations for a Suez offensive had already begun before the Ottomans formally entered the war in November 1914.¹⁸ On September 6, 1914, the Fourth Army, after its forces

¹⁴ Chris Gratien, *The Unsettled Plain: An Environmental History of the Late Ottoman Frontier* (Stanford, CA: Stanford University Press, 2022), ch. 4; Graham Auman Pitts, “Fallow Fields: Famine and the Making of Modern Lebanon” (PhD diss., Georgetown University, 2016).

¹⁵ *Türk Silahlı Kuvvetleri Tarihi*, 3. Cilt 6. Kısım (1908–1920) (Ankara: Genelkurmay ATASE Yayınları, 1996), 107–8; Cemal Akbay, *Birinci Dünya Harbinde Türk Harbi: Osmanlı İmparatorluğu'nun Siyasi ve Askeri Hazırlıkları ve Harbe Girişi* (Ankara: Genelkurmay ATASE Yayınları, 1991), 157–60.

¹⁶ Şakir, *Yakın Tarihin Üç Büyük Adamı*, 189. For the letter dated 3 September 1914, written by the Berlin ambassador, Mahmut Muhtar Bey, discussing the “reoccupation of Egypt,” see: *Osmanlı Belgelerinde Birinci Dünya Harbi Cilt 1* (Istanbul: T.C. Başbakanlık Devlet Arşivi Yayınları, 2013), 52–53.

¹⁷ M. Talha Çiçek, “The Holy War in Syria: Cemal Pasha and the Ottoman Plan to Conquer Egypt in the First World War,” *War and Society* 35, no. 1 (2016): 41. Also see Ü. Gülsüm Polat, *1. Dünya Savaşı'nda Kanal Harekatları: Hazırlık, Harekat, Netice* (Istanbul: Selenge Yayınları, 2021), 118.

¹⁸ *Osmanlı Belgelerinde Birinci Dünya Harbi Cilt 1*, 61–63.

relocated from Syria to the Marmara region according to the pre-war deployment plans, was placed under the command of Zeki Pasha.¹⁹ The Ottoman government recruited men, seized pack animals, and shut down foreign trade, postal services, and banks in Greater Syria.²⁰ It also invested money and mobilized irregular forces and the leaders of its secret paramilitary organization, known as Teşkilat-ı Mahsusa, to win the loyalty of Bedouin leaders in the Sinai—and access to their knowledge and camels—for the Suez expedition.²¹ In the fall of 1914, the Ottoman military leadership stressed the need for detailed and lengthy preparations for the expedition due to the environmental and climatic challenges the Sinai Desert posed to the safe passage of the army, which would have to march 300 kilometers through the desert from Beersheba to reach the canal.²² From a militarized gaze, water, or lack thereof, was the major issue and the embodiment of the challenging desert environment and climate for the army.²³ On the basis of this problem alone, Zeki Pasha was unwilling to pursue a Suez expedition.²⁴ In reports submitted to Istanbul, the Fourth Army commander tried tirelessly to communicate to Enver Pasha and the Ministry of War that the desert environment, its topography, and particularly its lack of water resources posed an almost insurmountable obstacle for an offensive planned in a short duration.²⁵ For Istanbul—and particularly for Enver Pasha—Zeki Pasha's approach represented weakness. Enver Pasha's solution was to replace him with Cemal Pasha.²⁶

The arrival of Cemal Pasha in Damascus—following the appointment of German Colonel Kress von Kressenstein as the chief of staff of the VIII Corps to plan the attacks—marks a noteworthy turning point in the evolution of plans for the Suez expedition. With Cemal Pasha's arrival, in the British perspective, “the scope of the expedition was enlarged, and it was given out that the intention was to free Egypt from the yoke of the unbeliever.”²⁷ Cemal Pasha was ideologically motivated, politically invested, and militarily willing—not to mention ambitious—to achieve “the complete occupation of Egypt,” which he referred to in his farewell speech as “the obvious property of Islam.”²⁸ This framing of the Suez campaign spoke to the Ottomans' grand imperial strategy of holy war (*jihad*), prompting Sultan Mehmed Reşad (r. 1909–18) to call upon his “Egyptian children” to join the Ottoman holy war against the British occupation after the failure of the first expedition.²⁹

Cemal Pasha's determination to conquer Egypt would be tested when he first attempted to mobilize Ottoman troops to the Suez Canal in late January 1915. On this occasion, the Ottoman army failed to cross the canal and, on February 3, 1915, retreated across the Sinai to Beersheba. The rugged and inhospitable desert mountains, impassably sandy soil, abrupt changes in the temperature between day and night, deep, steep-sided torrent beds, an

¹⁹ `Ali Fu'ad Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi* (Ankara: Genelkurmay Basımevi, 1948), 3.

²⁰ Dotan Halevy, “The Rear Side of the Front: Gaza and Its People in World War I,” *Journal of Levantine Studies* 5, no. 1 (2015): 36; Zachary J. Foster, “Why Are Modern Famines so Deadly: The First World War in Syria and Palestine,” in *Environmental Histories of the First World War*, ed. Richard Tucker et al (New York: Cambridge University Press, 2018), 204.

²¹ ATASE, BDH, Klasör 160, Dosya 146, Fihrist 35; Polat, *1. Dünya Savaşı'nda Kanal Harekatları*, 30–32.

²² *Osmanlı Belgelerinde Birinci Dünya Harbi Cilt 1*, 52–3.

²³ For how water and its scarcity was considered central to war-making at Suez, see: ATASE, BDH, Klasör 163, Dosya 282, Fihrist: 1-A.

²⁴ Enver Ziya Karal, *Osmanlı Tarihi IX. Cilt: İkinci Meşrutiyet ve Birinci Dünya Savaşı (1908–1918)* (Ankara: Türk Tarih Kurumu Basımevi, 1999); Mevlüt Karagöz, *1. Dünya Savaşı'nda Filistin-Sina Cephesi Lojistik Faaliyetleri* (İstanbul: Yeditepe Akademi, 2022), 146.

²⁵ ATASE, BDH, Klasör 531, Dosya 20, 27 Teşrinievvel 1330; *Birinci Dünya Harbi'nde Türk Harbi: Sina-Filistin Cephesi Harbin Başlangıcından İkinci Gazze Muharebesine Kadar*, vol 4. (Ankara: Genelkurmay Harp Tarihi Başkanlığı, 1970), 114.

²⁶ Uyar, *The Ottoman Army and the First World War*, 112.

²⁷ “The Campaign in Palestine from the Enemy's Side,” *Royal United Services Institution. Journal* 67 (1922): 503.

²⁸ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 5, 17 Nisan 1331; ATASE, BDH, Klasör 163, Dosya 170, Fihrist 99, 28 Temmuz 1331; Cemal Paşa, *Hatıralar*, 155.

²⁹ *Osmanlı Belgelerinde Birinci Dünya Harbi Cilt 1*, 92–3; Talha Çiçek discusses the preparations in the desert for the second expedition as an Ottoman investment in the holy war, see Çiçek, “The Holy War in Syria,” 39–53.

insufficient road network, and, most importantly, water scarcity made the terrain a major obstacle for the Ottoman army.³⁰ Despite their retreat, Cemal Pasha and the military leadership did not describe the January 1915 expedition as a failure. They instead represented it to the Ottoman public as a “reconnaissance mission” (*taaruuzi keşif*).³¹

As Cemal Pasha wrote in his memoirs, “the great problem, on which everything hangs in these difficult military operations in the Sinai Desert, was the question of water.”³² The lack of water to supply thousands of soldiers crossing the desert led Falih Rıfki to conclude, in an article published in the official Ottoman war journal, that the desert was “a more terrifying thing than the British for a walking army.”³³ The winter of 1914–15 brought plenty of rain, but it was still not enough to keep the desert’s wells and valley springs full or to keep the army hydrated during its advance.³⁴ Soldiers had been prohibited from washing their hands and faces. Water was provided to camels only once every three days, resulting in the death of most of the 30,000 camels supplied by contractors for the army’s use.³⁵ `Ali Fu’ad Erden later recalled this as “the largest camel massacre in the history of warfare.”³⁶ Following the initial failed expedition, the military leaders gleaned a critical lesson that Cemal Pasha emphasized in his reports: a sufficient and secure water supply for soldiers and animals was paramount. Cemal Pasha deemed it essential, for the successful prosecution of the war effort, to maintain a minimum of 50,000 liters of water per day, stored separately in conditions clean enough for humans and animals along each supply line that thrived in the desert.³⁷

On February 5, 1915, Cemal Pasha reported to Istanbul: “now what needs to be done for the expedition is properly understood; thus we can consider that [first expedition] as reconnaissance and [now] start to prepare to cross the Canal.”³⁸ According to the Ottoman and German military leadership’s calculations, reported by Cemal Pasha, the success of the second expedition required the mobilization of 100,000 humans, including non-combatant forces, 40,000 camels, and 20,000 other animals.³⁹ The army was required to recruit these humans and animals and secure them as military assets by providing daily food and water.⁴⁰ The plan projected that these forces would spend a long period of time at the canal, requiring the storing of monthly provisions in storehouses to be built in the middle of the desert and the transport of daily provisions from the final railway station to the waterway. Water needed to be provided daily from sources located a one or two-day distance from the canal.⁴¹ The execution of the expedition plan was, therefore, dependent on “the preparation for water and roads in the desert.”⁴²

³⁰ “The Campaign in Palestine from the Enemy Side,” 503–4; Akbay, *Birinci Dünya Harbinde Türk Harbi*, 92. For the contemporary accounts of the Sinai’s geography and arid climate, see “Sina: Ahval-i Ziraiyye ve Sanaiyye ve Ticariyye,” *Musavver Çöl* 8 (1916); Lina Eckenstein, *A History of Sinai* (London: Society for Promoting Christian Knowledge, 1921), 2–5.

³¹ `Ali Fu’ad, *Birinci Dünya Harbinde Suriye Hatıraları* (Istanbul: Halk Matbaası, 1954), 59; Karal, *Osmanlı Tarihi IX. Cilt*, 428.

³² Cemal Paşa, *Hatıralar*, 168.

³³ Falih Rıfki, “Sina Muharebelerinde,” *Harb Mecmuası* 14 (1331).

³⁴ von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 50.

³⁵ *Birinci Dünya Harbi’nde Türk Harbi*, 190–91; İsmet Üzen, *Birinci Dünya Savaşında Sina Cephesi ve Çöl Hatıraları*, (Istanbul: Selis Kitaplar, 2007), 89; Alexander Aaronsohn, *With the Turks in Palestine* (Boston: Houghton Mifflin Co., 1916), 46–47.

³⁶ Erden, *Paris’ten Tih Sahrasına* (Ankara: Ulus Basımevi, 1949), 44.

³⁷ ATASE, BDH, Klasör 3222, Dosya 7304, Fihrist 10, 14 Eylül 1331.

³⁸ *Birinci Dünya Harbi’nde Türk Harbi*, 248–50.

³⁹ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1–1, 2 Mayıs 1331; ATASE, BDH, Klasör 163, Dosya 283, Fihrist 28.

⁴⁰ The daily needs of one human being are estimated as 2.5 liters of water and 1kg of food; for one beast of burden carrying guns, 25 liters of water and 6kg of barley; for ox, 20kg of water and 5kg of barley; and for camel, 20 liters of water every 48 hours and 5kg of barley. See ATASE, BDH, Klasör 1386, Dosya 34, Fihrist 10–9; ATASE, BDH, Klasör 1386, Dosya 34, Fihrist 10–25.

⁴¹ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1–1, 2 Mayıs 1331; ATASE, BDH, Klasör 163, Dosya 283, Fihrist 28.

⁴² ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1, 8 Temmuz 1331.

On February 11, Cemal Pasha wrote to the Ministry of War in Istanbul, suggesting measures for the next Suez expedition to overcome the desert environment.⁴³ He noted that the canal-bound army should cross the desert as quickly as possible. Cemal Pasha and his military companions reflected on the environmental, climatic, and topographic challenges of the desert as a temporal obstacle. The army needed to be transferred, and its water, food provisions, and materials provided to the canal as quickly as possible.⁴⁴ The quicker movement of the army required infrastructural solutions to environmental challenges, such as addressing the army's dependence on camels as beasts of burden accompanying it on its march through the Sinai.

The crux of the plan was the construction of a railway, first to Beersheba and then to the canal, and narrow-gauge railways on favorable terrain in the desert from Beersheba to Ajja al-Hafir. To support that line with a network of motorways, Cemal Pasha also suggested the exploration and repair of existing roads towards Ismailia and the construction of new roads over the desert to the Suez Canal. In his report, Cemal Pasha emphasized the procedures necessary to overcome water scarcity: exploring and repairing existing water resources with local Bedouins, sinking new wells, building water pipes, and constructing military outposts along the network of railways and motorways to store food and water to facilitate the army's subsistence.⁴⁵ In Cemal Pasha's view, the completion of these projects would secure the army's safe passage through the desert (initially planned for January 1916), provide soldiers with food and water, and hence remove the "natural obstacle" the Sinai represented for the Ottoman army in the first expedition.⁴⁶

The war cabinet in Istanbul echoed Cemal Pasha's plans and provided him with full political and financial support to redesign the desert according to military goals.⁴⁷ A large proportion of the forces recruited for the first Suez expedition were sent to other fronts after the first retreat, including to Gallipoli, the Caucasus, and Iraq. Only two divisions, in addition to mobile gendarmerie and depot battalions, remained in the region for the defense of the Mediterranean coast from Gaza to Mersin. The Desert Command was established under the Fourth Army and executed occasional attempts to lay mines on the canal to delay British war supplies.⁴⁸ As it was clear to British observation and intelligence by the summer of 1915, "the Turks (did) not intend to attack the Canal for some time to come."⁴⁹ The campaign against the British had to be postponed until what Colonel `Ali Fu'ad, the chief of staff of the Fourth Army, described as "Egyptian Expedition preparations" (what I reframe as "the war on the desert") were completed.⁵⁰

German, Austrian, Ottoman experiments and skills in landscape engineering and hydrological management in dry lands, including those undertaken in the German colonies of Africa and the Konya plain of Anatolia, were mobilized in the service of "the desert water and road preparations" (*çöl su ve yol istihzarati*).⁵¹ Many engineers who had previously been employed in Germany's African colonies had been assigned to the desert to coordinate railway construction, water extraction, and measures to control the spread of disease.⁵² Cemal Pasha also employed Jewish engineers and experts who had been involved in the establishment of Zionist settlements in Palestine.⁵³ These multi-colonial skills and

⁴³ *Birinci Dünya Harbi'nde Türk Harbi*, 252–56.

⁴⁴ See Cemal Pasha's later report, where he extensively discusses how the army could approach the Canal the fastest. ATASE, BDH, Klasör 163, Dosya 283, Fihrist 22, 3 Temmuz 1331.

⁴⁵ *Birinci Dünya Harbi'nde Türk Harbi*, 252–56.

⁴⁶ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 22, 3 Temmuz 1331.

⁴⁷ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1-1, 2 Mayıs 1331.

⁴⁸ Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 8–11.

⁴⁹ The National Archives, Kew, UK (hereafter TNA), WO 157/693, 30 July 1915.

⁵⁰ Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 12.

⁵¹ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 66, 20 Temmuz 1331.

⁵² von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 78–79.

⁵³ *Palestine during the War: Being a Record of the Preservation of the Jewish Settlements in Palestine* (London: Zionist Organization, 1921), 19.

experiments required, however, the local environmental and geographical knowledge of the Bedouins, who were thought to know “every inch of the desert.”⁵⁴

The existence of mobile groups was a source of imperial anxiety for the modernizing Ottoman state; and the Ottoman and German military elites serving in the Fourth Army during the war had cultivated colonial-like perceptions of the Bedouins, describing them as “undisciplined,” living in a “state of nomadism” (*hal-i bedeviyette yaşayan*), and having a “primitive lifestyle” (*tarz-i ibtidai*).⁵⁵ During the war, Ottoman-German militarism incorporated and utilized Bedouin mobility to harvest knowledge of the Sinai’s environment, geography, and topography.⁵⁶ The Bedouins were consulted to locate water sources and identify appropriate routes for the railways and motorways. Von Kressenstein described the Ottoman-German army as “being left in the hands of Bedouins,” adding that “they did an excellent job as guides in all our explorations and undertakings.”⁵⁷

The Ottoman-German appeal to Bedouin knowledge opened a space for Bedouin leaders of the Terabin, Ayayme, Howetiat, Ruala, and Anazeh tribes in particular to accumulate political and material capital for themselves and their tribes.⁵⁸ Land distribution, tax exemptions, gift-giving, and the allocation of administrative posts to Bedouin leaders were the major tactics the Ottoman authorities used to “summon the support of Bedouins,” aimed at incorporating Bedouin skills, expertise, and knowledge in navigating the desert topography.⁵⁹

Revolutionizing the Transportation Infrastructure

The new network of transportation infrastructure, including railways, highways, and camel caravans, flourished in the Sinai by the spring of 1916. Before the outbreak of World War I, the Hejaz Railway extended from Damascus to Medina. There was a line running west from Deraa that proceeded south, ending in Nablus. However, there was no line connecting this rail network to southern Palestine, which would have made transportation to the Sinai

⁵⁴ *Birinci Dünya Harbi’nde Türk Harbi*, 29; Fuad Gücüyener, *Sina Çölünde Türk Ordusu* (Istanbul: Anadolu Türk Kitap Deposu, 1940), 49–50. On especially the Bedouins from Al-Arish and their guidance to the Ottoman army, see Falih Rifki, *Ateş ve Güneş* (Istanbul: Halk Kitabhanesi, 1334/1918), 114.

⁵⁵ “Sina,” *Musavver Cöl* 12 (1916): 145; von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 33. For the Ottoman state’s relationship with mobile groups, see Reşat Kasaba, *A Moveable Empire: Ottoman Nomads, Migrants, and Refugees* (Seattle, WA: University of Washington Press, 2009). For the Ottoman expansion to the southern frontiers of Palestine and the state’s interactions with the Bedouins of Sinai before World War I, see Ruth Kark and Seth J. Frantszman, “The Negev: Land, Settlement, the Bedouin and Ottoman and British Policy 1871–1948,” *British Journal of Middle Eastern Studies* 39, no. 1 (2012): 53–58; Emmanuel Marx, *Bedouin of the Negev* (Manchester, UK: Manchester University Press, 1967), 9; Mansour Nassara, *The Naqab Bedouins: A Century of Politics and Resistance* (New York: Columbia University Press, 2017), ch. 2; Alexander Kedar, Ahmad Amara, and Oren Yiftachel, *Emptied Lands: A Legal Geography of Bedouin Rights in the Negev* (Stanford, CA: Stanford University Press, 2018), 45–62; Yasemin Avci, “The Application of Tanzimat in the Desert: The Bedouins and the Creation of a New Town in Southern Palestine, 1860–1914,” *Middle Eastern Studies* 45, no. 6 (2009): 969; Mildred Berman, “The Evolution of Beersheba as an Urban Center,” *Annals of the Association of American Geographers* 55, no. 2 (1965): 308–26.

⁵⁶ In their article, Nadav Solomonovich and Ruth Kark argue that perceiving the Bedouins as “ignorant” and “wild” led the Ottoman authorities “to demonstrate leniency and bestow special treatment upon them in order to integrate them in the Ottoman state and administration.” See Nadav Solomonovich and Ruth Kark, “The Bedouins, the Ottoman Civilizing Mission, and the Establishment of the Town of Beersheba,” *Turkish Historical Review* 10 (2019): 189–212.

⁵⁷ von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 33.

⁵⁸ Eckenstein, *A History of Sinai*, 192; ‘Aref Abu-Rabi’a, *A Bedouin Century: Education and Development among the Negev Tribes in the Twentieth Century* (New York: Berghahn Books, 2001), 14–15; S. Hillelson, “Notes on the Bedouin Tribes of Beersheba District,” *Palestine Exploration Quarterly* 69 (1937): 244; S. Hillelson, “Notes on the Bedouin Tribes of Beersheba District III,” *Palestine Exploration Quarterly* 70 (1938): 118.

⁵⁹ The Directorate of State Archives Ottoman Archives, Istanbul, Turkey (hereafter BOA), MV, 197/64/1, 29 Mart 1331; *Birinci Dünya Harbi’nde Türk Harbi*, 117–119, 9–10; Miralay Behçet, *Büyük Harpte Mısır Seferi*, (Istanbul: Askeri Matbaa, 1930), 2; Atay, *Zeytindağı*, 71; Gücüyener, *Sina Çölünde Türk Ordusu*, 74; Marx, *Bedouin of the Negev*, 9–10. Antonio de la Cierva Lewita Conde de Ballobar, *Jerusalem in World War I: The Palestine Diary of a European Diplomat* (New York: I.B. Tauris, 2011), 105.

Desert easier and paved the way for the passage of troops into the arid region. The closest railway station to Beersheba was 150 kilometers away in Sileh, northwest of Nablus.⁶⁰ Before Cemal Pasha's arrival, the Ottoman and German authorities had voiced the necessity of railways to a successful Egyptian expedition.⁶¹ On 19 January 1915, the Ottoman Parliament approved the decision to build a new railway linking Sileh and Beersheba. The failure of the first expedition to the Suez Canal and Cemal Pasha's insistence in his correspondence convinced the Ottoman authorities of the need to accelerate construction and expand the planned railways further into the desert by providing financing and employing thousands of laborers from Greater Syria.⁶²

The Ottoman government contracted the construction of, what was called, the "Egypt section of the Hejaz railway" to the Directorate-General of Hejaz and Military Railways, a special department operating under the Ottoman War Ministry, and "granted a right to purchase all the railways in Syrian provinces."⁶³ Cemal Pasha engaged one of the empire's most skillful railway engineers, Heinrich August Meissner, to supervise the construction of the railways into the desert.⁶⁴ The first 80 kilometers of the line reached Ramla station on May 2, 1915, and the additional 170 kilometers were extended to Beersheba by October 28.⁶⁵ The Fourth Army organized a ceremony to celebrate the opening of the Beersheba railway station on the day the first train arrived. The inhabitants in and around Beersheba joined the ceremony, at which the higher echelons of the Ottoman-German war effort in Sinai were also present. The first wagon arrived from Istanbul bound for Cairo with a verse from Quran on it: "Victory is from God, and the conquest is very close" (Fig. 1).⁶⁶ The train's arrival was a symbolic moment, organized to reflect Ottoman imperial ambitions to reconquer Egypt. The *şeyhülislam* contributed to the celebratory atmosphere by telegraph from Istanbul, congratulating Cemal Pasha for his "high determination" to bring the train to the Suez Canal.⁶⁷ The laborers continued to dig the sand and soil to extend the railways, which reached Auja al-Hafir in May 1916.⁶⁸ By spring, the new 264 kilometers of the Sileh-Tulkarm-Ramla- Beersheba-Auja al-Hafir line enabled the daily transport of 480 tons of supplies by four trains to the desert. Later, 40 kilometers of narrow-gauge line was constructed into the desert linking Auja al-Hafir and al-Arish.⁶⁹

For an army marching to the Suez Canal, the conditions of motorways were no more promising than the conditions of the pre-war railways. Before the war, the only passable road was between Nablus—where the existing railway ended—and Khalil al-Rahman. Another road linked Khalil al-Rahman and Beersheba, but this road was only passable in dry weather. The 300 kilometers between Beersheba and the Suez Canal were, therefore, not linked by any major thoroughfares. Immediately after Cemal Pasha's arrival, the road from Jerusalem to Beersheba was repaired.⁷⁰ In total, ten labor battalions—each consisting

⁶⁰ Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihiçesi*, 5.

⁶¹ For instance, see the report written by Berlin ambassador Mahmut Muhtar on 15 October 1914, *Osmanlı Belgelerinde Birinci Dünya Harbi Cilt 1*, 52–53.

⁶² Meclis-i Mebusan Zabıt Ceridesi (MMZD), Devre 3, Cilt 1, İçtima senesi 1, 3 Kanunusani 1330, 177.

⁶³ BOA, DH, ŞFR, 54/171, 16 Temmuz 1331; BOA, DH, ŞFR, 54/172/1, 16 Temmuz 1331; Erol Ülker, "Military, Finance, and Economy in the Late Ottoman Empire: Directorate General of Hedjaz and Military Railways and Ports, 1914-1919," *Journal of Balkan and Near Eastern Studies* 22, no. 1 (2020): 17.

⁶⁴ BOA, DH, ŞFR, 59/257, 28 Kanunievvel 1331; BOA, DH, ŞFR, 59/215, 23 Kanunievvel 1331. For the construction process under the supervision of Meissner Pasha, see: ATASE, BDH, Klasör 163, Dosya 282, Fihrist 4, 22 Temmuz 1331; BOA, BEO, 4350/326204, 31 Mart 1331; BOA, MV, 197/77/1, 5 Nisan 1331; BOA, DH, ŞFR, 52/189/1, 19 Nisan 1331; BOA, DH, ŞFR, 68/196, 24 Eylül 1332.

⁶⁵ BOA, DH, ŞFR, 52/24/1, 23 Ağustos 1331; BOA, DH, ŞFR, 57/154/1, 15 Teşrinievvel 1331; ATASE, BDH, Klasör 4130, Dosya 7361, Fihrist 5, 16 Teşrinisani 1331.

⁶⁶ For a picture of the first wagon, see Middle East Center Archive, St. Antony's College at Oxford, Saunders 5/2/5.

⁶⁷ BOA, DH, ŞFR, 60/87, 9 Kanunusani 1331.

⁶⁸ BOA, DH, ŞFR, 54/172/1, 16 Temmuz 1331; Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihiçesi*, 12.

⁶⁹ Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihiçesi*, 12; *Birinci Dünya Harbi'nde Türk Harbi*, 675–76.

⁷⁰ BOA, DH, ŞFR, 667/113/1 24 Kanunusanî 1332.

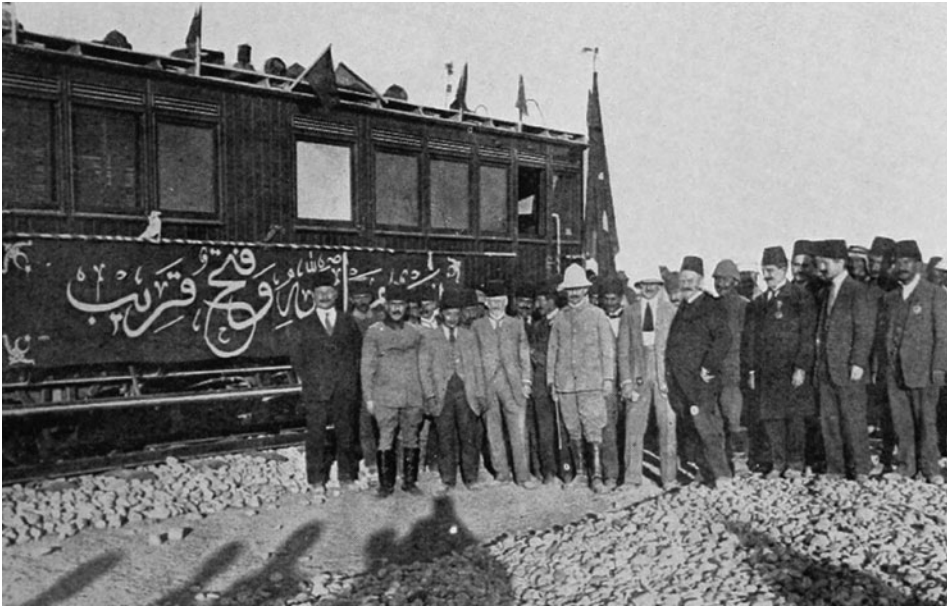


Figure 1. First Train to Beersheba (Middle East Center Archive, St. Antony's College, Oxford).

of approximately 2,000 laborers recruited from Greater Syria—worked long hours to construct 600 kilometers of new road and repair 450 kilometers of existing roads over a period of 18 months.⁷¹ By the spring of 1916, the desert motor road from Damascus to Bîr al-Hasana was open to ride (Fig. 2).⁷²

The construction of railroads and motorways aimed to liberate the army from its complete dependence on camels as means of transport in the desert, but this was not fully possible. Camels were still, in Cemal Pasha's words, "the basis of all the (war) preparations in the desert."⁷³ A new network of rails and roads presupposed the support of camel caravans to carry goods, materials, food, and water from the railway stations to the canal.⁷⁴ With the new transportation infrastructure in the desert, more troops could have been recruited for the second expedition than marched to the canal in the first landing. The need for transport camels would therefore also increase. What accompanied the construction of the railways and motor roads was, therefore, the army's constant effort to franchise camel collection to private contractors in order to guarantee the numbers necessary for the second expedition. In May 1915, Cemal Pasha reported that the army had 25,810 camels, 7,276 of which were being treated in animal hospitals and 12,000 of which were expected to be procured by contractors. He estimated that only half of the camels in the animal hospital would recover and half of the camels in the desert would fall ill by the time the expedition began, which he planned for the following winter. Therefore, it was necessary to order 20,000 more camels to secure a total of 40,000, with the numbers increasing during the course of the war.⁷⁵

⁷¹ *Birinci Dünya Harbi'nde Türk Harbi*, 675; Harry Charles Luke and Edward Keith-Roach, *The Handbook of Palestine* (London: Macmillan, 1922), 119.

⁷² Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 12.

⁷³ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1, 2 Mayıs 1331; ATASE, BDH, Klasör, Dosya 170, Fihrist 128, 13 Mayıs 1331.

⁷⁴ Karagöz, *1. Dünya Savaşı'nda Filistin-Sina Cephesi Lojistik Faaliyetleri*, 161.

⁷⁵ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1-1, 2 Mayıs 1331.



Figure 2. “Palestine Road Map,” an Ottoman map printed in 1918 showing the expansion of railways and motorways into the Sinai Desert (Atatürk Kitaplığı [Atatürk Library], İstanbul, Turkey, Hrt_12229).

The procurement of camels for the army’s use in the Suez and Sinai was an example of the constitution of the military-environmental complex, as such brought the army and private entrepreneurs into a contractual web to supply the army with the necessary animal and environmental sources. The army relied on private contractors to obtain camels, transforming war-making in Sinai and Suez into a source of profit and accumulation for camel herders and traders. The Fourth Army’s network of camel contracts included Sinai’s Bedouin camel

owners and extended to Basra and Medina.⁷⁶ As reported in July 1915, for example, Cemal Pasha made contracts in Damascus for the hire of 30,000 camels; and a well-known native of Nejd, al-Haj Muhammad al-Bassam, alone secured an estimated 20,000 British Pounds profit from these contracts.⁷⁷ The Fourth Army's procurement of additional camels through contractors was "fundamental" to preparations for the Egyptian expedition, as they bridged the new railways and motorways.⁷⁸ The new militarized web of infrastructure, consisting of rails, motorways, and camels, revolutionized the Ottoman army's transportation capacity to and in the Sinai Desert by linking Beersheba with Ismailia near the Suez Canal, as the desert was now connected to major urban centers including Jerusalem and, most importantly, Damascus, where all materials, food, and goods were gathered to be dispatched.⁷⁹

Supplying the Desert with Water

The military leadership's primary objective in the construction of a new transportation infrastructure web was facilitating the delivery of food and water to the soldiers and animals supporting the expedition. Identifying viable water sources, storing water in the arid landscape, and providing it to the troops were pivotal aspects of the war on the desert.⁸⁰ As reported by British intelligence, as railway construction progressed, Cemal Pasha started to make major preparations for the supply of water to troops in the desert.⁸¹ The Fourth Army recruited Austrian, German, and Ottoman experts and engineers, who consulted and worked with local Bedouins and mobilized laborers to locate and extract water sources.⁸² After conducting investigations and exploring water sources in the desert, it was found necessary to order motorized and hand-operated water pumps, barrels, and tubes from Istanbul and Germany "to transport water along the troops' road throughout the desert to the Suez Canal."⁸³

At the request of the Fourth Army, the Ministry of War located and sent well-diggers from provinces and districts such as Hüdavendigâr, Balıkkesir, and Edirne to Sinai to join the "water preparation in the desert."⁸⁴ The laborers recruited into the water battalions provided the necessary manual work for skilled well-diggers and engineers, digging and cleaning the wells around the newly-constructed road leading towards the Suez Canal to place water pumps.⁸⁵ They placed iron tanks and constructed cemented pools and stone storehouses to hold hundreds of thousands of liters of water.⁸⁶ They built weirs in places with plenty of water sources, such as Wadi al`Arish, and transferred the water to places where there was none on the route.⁸⁷ They installed thirty-eight kilometers of steel pipes, most of which had been commandeered from the orange groves of Jaffa, to supply water from

⁷⁶ ATASE, BDH, Klasör 531, Dosya 20, 27 Teşrinievvel 1330; ATASE, BOA, Klasör, Dosya 283, Fihrist 66, 3 Ağustos 1331.

⁷⁷ TNA, WO 157/693, 9 July 1915.

⁷⁸ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1-1, 2 Mayıs 1331.

⁷⁹ ATASE, BDH, Klasör 4130, Dosya 7361, Fihrist 5, 16 Teşrinisani 1331.

⁸⁰ ATASE, BDH, Klasör 163, Dosya, 282.

⁸¹ TNA, WO 157/693, 9 July 1915.

⁸² ATASE, BDH, Klasör 3222, Dosya 4-7304, Fihrist 4, 24 Ağustos 1331; Karagöz, *1. Dünya Savaşı'nda Filistin-Sina Cephesi Lojistik Faaliyetleri*, 158-159.

⁸³ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 23, 4 Temmuz 1331; TNA, WO 157/693, 9 July 1915. For a detailed table of "water locations" in Sinai, with their sanitary conditions and capacity, see ATASE, BDH, Dosya 4-7304, Fihrist 4-3. For the orders and provision of construction materials from Germany, see ATASE, BDH, Klasör 746, Dosya 171, Fihrist 1, 1 Kanunuevvel 1332

⁸⁴ ATASE, BDH, Klasör 1387, Dosya 201, Fihrist 1-2, 13 Eylül 1331; ATASE, BDH, Klasör 1387, Dosya 201, Fihrist 1-3, 16 Eylül 1331; ATASE, BDH, Klasör 1387, Dosya 201, Fihrist 1-5, 19 Eylül 1331; ATASE, BDH, Klasör 1387, Dosya 201, Fihrist 1-7, 20 Eylül 1331; ATASE, BDH, Klasör 746, Dosya 171, Fihrist 1, 1 Kanunuevvel 1332.

⁸⁵ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 23, 4 Temmuz 1331; TNA, WO 157/693, 9 July 1915.

⁸⁶ *Birinci Dünya Harbi'nde Türk Harbi*, 662-63.

⁸⁷ Karagöz, *1. Dünya Savaşı'nda Filistin-Sina Cephesi Lojistik Faaliyetleri*, 158-59.

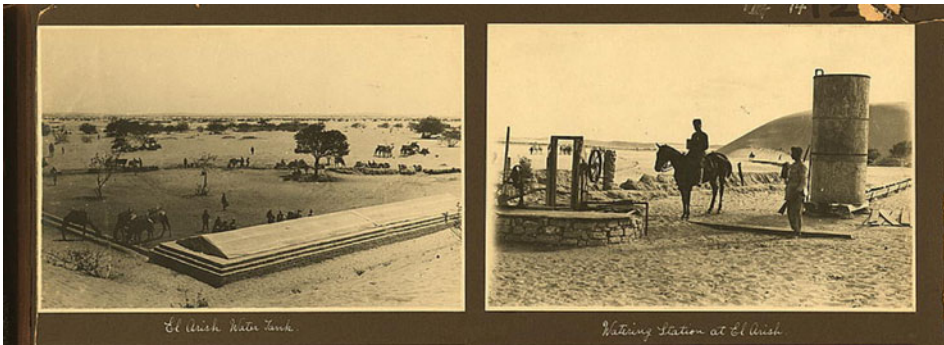


Figure 3. Water tank and watering station at al-Arish (American Colony in Jerusalem Photo Department, Library of Congress, Washington DC).

the region west of Qusayna—the location of the desert’s most abundant water resources—to the Sinai Desert.⁸⁸ They built fountains into the pipes every 500 meters, which delivered 264,000 liters of drinking water daily, and constructed watering troughs that could accommodate 100 camels at a time.⁸⁹ In addition to the work done by labor battalions under the supervision of well-diggers and engineers, the Fourth Army, often in the name of Cemal Pasha, concluded agreements with contractors, such as Ernest Lemak of Jaffa and Yasin Hasan of Ramleh, who gathered laborers and materials to dig wells and build water polls, expanding the militarized water infrastructure into the desert (Fig. 3).⁹⁰

By mid-1916, the military authorities concluded that they had solved the water problem in the desert, described by Falih Rifki as “a dream that Sinai had never seen.”⁹¹ Access to water paved the way for the military authorities to build a string of outposts in the desert in order to supply the army and facilitate communications. The army designated the road from Beersheba to Ismailia as the “Desert Military Outpost Line,” and by late 1916 had built 45 military outposts—one every 20–30 kilometers. These outposts included water storage, hospitals, goods storehouses, arsenals, eucalyptus plantations, and gardens (Fig. 4). By mid-1916, Beersheba, Auja al-Hafir, and Ma’an had become important logistics bases and road junctions.⁹² They were supported in the desert by a web of railways, motor roads, water sources, and supply lines, transforming what was assumed as a natural enemy into a militarized space that could now, in the imaginations of Ottoman and German commanders, facilitate the army’s march across the Sinai to the canal and into Egypt.

Greater Syria as a Sacrificial Frontier of “the New Sinai”

Conde de Ballobar, a young Spanish diplomat who served as the Spanish consul in Jerusalem between 1913 and 1919, wrote the following passage in his diary on June 14, 1916, fourteen months after the first Ottoman expedition to the Suez:

We undertook a trip towards Asluj by a highway built during the war, which is not bad at all and follows near the railroad line. Upon arriving at Asluj, we stopped to rest and contemplate what has been done in just a few months. ...In 1915 there was absolutely

⁸⁸ TNA, WO 157/693, 9 July 1915; Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 13.

⁸⁹ “Sina: Ahval-i Ziraiye ve Sanayiye ve Ticariye,” *Musavver Çöl* 8 (1916): 83; Erden, *Suriye Hatıraları*, 95.

⁹⁰ For water contracts, see ATASE, BDH, Klasör 3222, Dosya 313, Fihrist 1, 13 Eylül 1915; ATASE, BDH, Klasör 3222, Dosya 313, Fihrist 3, 19 Teşrinievvel 1331; ATASE, BDH, Klasör 3318, Dosya 577, Fihrist 2, 17 Teşrinisani 1333.

⁹¹ Atay, *Zeytindağı*, 107; Erden, *1. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 13.

⁹² Uyar, *The Ottoman Army and the First World War*, 215.

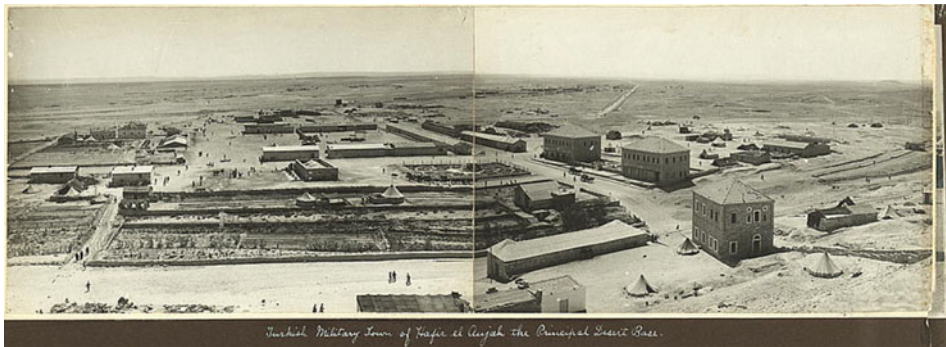


Figure 4. The Principal Desert Base at `Awja al-Hafir (American Colony in Jerusalem Photo Department, Library of Congress, Washington DC).

nothing there, and now, in little time, they have drilled five wells that give extremely abundant and clear water.⁹³

The surprise de Ballobar experienced upon visiting the transformed desert manifested in the writings of Ottoman military authorities as a sense of pride in their ability to successfully tame nature for war-making. *Musavver Çöl* (Illustrated Desert), an Ottoman newspaper published in Beersheba during the war, described the change in the desert as “a candescent talent of civilization (*kabiliyet-i temeddin*) that the Turkish soul built in the middle of the desert.”⁹⁴ This civilizational discourse was shared by the military elites in charge of the war efforts in the desert, reflecting modern imperial and colonial notions associating the desert environment with primitiveness and wilderness, and that relied on the idea that control over nature is possible through its manipulation and colonization by human will.⁹⁵ `Ali Fu`ad wrote with pride in his memoirs that, in one and a half years, Cemal Pasha had completely changed the landscapes of the Sinai Desert by building rail lines, roads, water depots, outposts, and hospitals, and by planting vegetable gardens and trees.⁹⁶ Presenting the work done in the desert as “the struggle and victory of the human intelligence and will over the barren and ungrateful desert,” `Ali Fu`ad lauded control over the landscape for the war effort.⁹⁷ Cemal Pasha’s special campaign of planting gardens and eucalyptus groves was particularly appreciated by the military authorities as a sign of civilization.⁹⁸ In his memoirs, Faliş Rıfki said that when the Ottoman army first marched to the canal, the desert was as “desolate, empty, and barren as the time that the Prophet Musa had crossed.” However, “the punch of the Turkish hand beat the stone, soil and sand, furnished everywhere with electricity, machine, water, orchard, and towns ... resurrecting the desert.”⁹⁹ “The new Sinai,” which boasted “water, town, and road,” satisfied the militarized gaze, allowing Ottoman military elites to document and publicize the transformation of the desert landscape to the broader Ottoman public as an Ottoman-Turkish

⁹³ Conde de Ballobar, *Jerusalem in World War I*, 100.

⁹⁴ “Çöl Hatıraları, Birüssebi,” *Musavver Çöl* 8 (1916): 82.

⁹⁵ To see how the Ottoman discourse fits a larger pattern of pride in “making the desert bloom” shared by Zionists in Palestine, French colonial authorities in Algeria, settlers in Australia, etc., see Diana K. Davis, *The Arid Lands: History, Power, Knowledge* (Cambridge, MA: MIT Press, 2016).

⁹⁶ Erden, *Birinci Dünya Harbinde Suriye Hatıraları*, 87.

⁹⁷ *Ibid.*, 101.

⁹⁸ “Çöl hatıraları, Birüssebi,” *Musavver Çöl* 8 (1916): 83. By September 1916, 100,000 eucalyptus trees were planted, see Conde de Ballobar, *Jerusalem in World War I*, 110, 119.

⁹⁹ Rıfki, *Zeytindağı*, 101, 107.

civilizational project.¹⁰⁰ The presence of concrete, steel, water, orchards, and groves brought the landscape closer to resembling what the military leadership saw as controllable and, hence, no longer an obstacle to the army heading to conquer Egypt.

The Ottoman transformation of the Sinai from an impassable desert into a well-supplied military zone in a short period of time was remarkable. However, the making of the “new Sinai” came at a high price. To start, the budget for war preparations was estimated at 336,721 lira monthly, on average.¹⁰¹ For Cemal Pasha, the second Egyptian expedition was “dependent on the preparation of the desert,” which relied on “the availability of financial means.”¹⁰² He successfully created these financial means by obtaining war funds and “extraordinary transfers” from the Ottoman treasury and reserving sums from the Syrian budget.¹⁰³ He also leveraged the Fourth Army’s efforts “to wrest Egypt from the British” to secure “huge sacrifices in cash” from Germany, as, in his words, “it would be the interest of Germans, too.”¹⁰⁴ The money and credit secured from the treasuries of the Syrian provinces, Ottoman Empire, and German state flowed into the desert and converted into materials—often in the form of deposits to war contractors.¹⁰⁵ The war presented ample opportunities for contractors to accumulate wealth and capital, which meant sacrifice for many.

Following a conversation with Kress von Kressenstein on the war preparations in the desert, Conde de Ballobar wrote in his diary: “one has to see the difficulties of the construction, without the material of any kind, making the trains run on wood because there is no coal and thanks to the thousands of workers gathered from everywhere and who work for free...”¹⁰⁶ De Ballobar’s observations about the importance of wood and labor in the desert infrastructure offers a glimpse of the social, human, and environmental sacrifices that the construction of “the new Sinai” as a militarized space relied upon.

Sacrificing Life

The militarization of the Sinai came about via the mass conscription of men from Greater Syria into labor battalions assigned to intensive work in the desert. The expansion of railways, construction of military outposts, piping of water, and building of roads all relied on a somatic energy regime—otherwise known as human muscle power.¹⁰⁷ Only “the hard work” of thousands of laborers, who “[were] not properly housed, clothed or fed,” made the rapid completion of these projects possible in less than two years.¹⁰⁸ It is impossible to estimate the exact total number of laborers from the available materials; however,

¹⁰⁰ Falih Rifki, “Sina Muharebelerinde,” *Harb Mecmuası* 14 (1916); For the Ottoman official newspaper’s presentations of the changes in the Sinai Desert, see Eyal Ginio, “Presenting the Desert to the Ottomans during WWI: The Perspective of the Harb Mecmuası,” *New Perspectives on Turkey* 33 (2005): 43–62.

¹⁰¹ *Türk Silahlı Kuvvetleri Tarihi Osmanlı Devri Birinci Dünya Harbi İdari Faaliyetler ve Lojistik X. Cilt* (Ankara: Genelkurmay Basımevi, 1995), 364.

¹⁰² ATASE, BDH, Klasör 163, Dosya 170, Fihrist 128, 13 Mayıs 1331.

¹⁰³ BOA, DH, ŞFR, 66/59, 11 Temmuz 1332

¹⁰⁴ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 5, 28 Temmuz 1331.

¹⁰⁵ For examples of documents showing the Fourth Army’s constant efforts to secure funds from the imperial authorities in Istanbul for “war preparations,” particularly payments to contractors, see: ATASE, BDH, Klasör 3318, Dosya 577, Fihrist 1, 21 Nisan 1331; ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1-1, 2 Mayıs 1331; ATASE, BDH, Klasör 163, Dosya 170, Fihrist 128, 13 Mayıs 1331; ATASE, BDH, Klasör 163, Dosya 283, Fihrist 66, 20 Temmuz 1331; ATASE, BDH, Klasör 163, Dosya 282, Fihrist 5 28 Temmuz 1331; ATASE, BDH, Klasör 163, Dosya 283, Fihrist 96-2, 4 Ağustos 1331; ATASE, BDH, Klasör 531, Dosya 1-2, Fihrist 20, 27 Teşrinievvel 1330; BOA, DH, ŞFR, 62/112/1, 16 Mart 1332; BOA, DH, ŞFR, 62/240/1, 22 Mart 1332; BOA, DH, ŞFR, 66/59, 11 Temmuz 1332.

¹⁰⁶ Conde de Ballobar, *Jerusalem in the First World War*, 79.

¹⁰⁷ McNeill, *Something New Under the Sun*, 11–12.

¹⁰⁸ Ben-Hillel Hacohen, *Milhemet Ha’amim*, vol. 1 (Jerusalem: Yad Yitzhak Ben-Zvi, 1980), 86, cited in Glenda Abramson, *Soldiers’ Tales: Two Palestinian Jewish Soldiers in the Ottoman Army during the First World War* (New York: Vallentine Mitchell, 2013), 25.

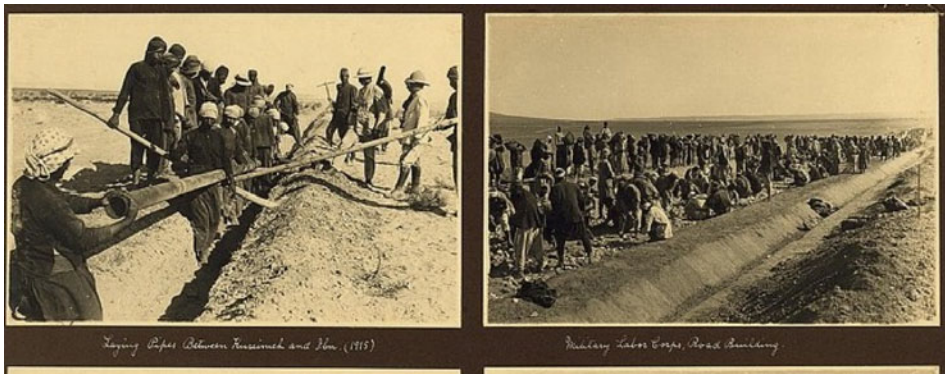


Figure 5. Laborers working in the desert (American Colony in Jerusalem Photo Department, Library of Congress, Washington DC).

Cemal Pasha himself stated in his memoirs that “to be able to start on the construction, it was essential to have forty to fifty thousand laborers at work in the desert” (Fig. 5).¹⁰⁹

Reports and contemporary correspondence provide snapshots that, for instance, in May 1915 4,000 laborers worked to construct the railway to Tulkarm, and that a labor battalion consisting of 1,752 men was dispatched to work on road construction around Bir al-Hasana in March 1916.¹¹⁰ Reports and correspondence also reveal how forced laborers, along with beasts of burden, were treated as disposable bodies that could be worked to death, transforming the desert into a site of militarist necropolitics.¹¹¹ Agreeing with Cemal Pasha, the Ottoman government regarded and included the Sinai as part of the Ottoman imperial category of “warm countries” (*bilad-i harra*), along with provinces such as Yemen and Hejaz, emphasizing that it required peculiar techniques of control and, hence, the awarding of extra pay and benefits for high-ranking officers serving there.¹¹² Including the Sinai in the category of “warm countries” indicates that Ottoman military authorities perceived the region as taxing on the survival of those unaccustomed to the desert climate and environment.

Ottoman and German officials openly recognized the human toll of the war effort in the Sinai. “The roads in the Sinai Deserts were made by the bones of Syrian people,” wrote ‘Ali Fu’ad in his memoirs.¹¹³ In his memoirs, von Kressenstein described the construction work in the desert as “a disastrous bet,” which was “torture [for] and cost the lives of those laborers.” He concluded that the advantage the roads provided “was not proportional to the human sacrifice.”¹¹⁴ Cemal Pasha himself reported to Istanbul of the harsh conditions experienced by laborers in the desert, especially during the hot summer months, and how these conditions were contributing to the deaths of thousands. He described “the desert shift” (*çöl mesaisi*) as “extraordinary,” and concluded that “since the exhaustion in the desert will be

¹⁰⁹ Cemal Paşa, *Hatıralar*, 177.

¹¹⁰ TNA, WO 157/693 May–June 1915; ATASE, BDH, Klasör 3203, Dosya 104, Fihrist 1.1, 11 Mart 1332; ATASE, BDH, Klasör, 303, Dosya 104, Fihrist 1.1, 8 Nisan 1332; ATASE, BDH, Klasör 3203, Dosya 104, Fihrist 1-2, 15 Mayıs 1332.

¹¹¹ In a May 1915 report, Cemal Pasha aimed to secure money for further camel contracts, as he that estimated that half of the camels the Fourth Army had secured would die before the start of the second expedition, planned for winter 1915–16. This reflects how, in the gaze of military leadership, the animals were disposable. See ATASE, BDH, Klasör 163, Dosya 282, Fihrist 1-1, 2 Mayıs 1915. For the sacrifice of pack animals, see ATASE, BDH, Klasör 3320, Dosya 13425, Fihrist 3, 10 Teşrinisani 1332. It is worth comparing the Sinai Desert with the Jazira region during the war, when the two deserts became sites of imperial necropolitics: the Jazira for the ethnic cleansing of deported Armenians and the Sinai for war-making. On the Jazira region, see Samuel Dolbee, “The Desert at the End of Empire: An Environmental History of the Armenian Genocide,” *Past & Present* 247, no. 1 (2020): 197–233.

¹¹² BOA, BEO, 4421/331517, 20 Haziran 1332; BOA, MV, 239/10/2 1 Mart 1331.

¹¹³ Erden, *Suriye Hatıraları*, 91.

¹¹⁴ von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 91.

enormous and weighty,” it would result in “heavy human losses.”¹¹⁵ Cemal Pasha’s antidote to the deadly working conditions was to give the order “to redouble the existing number of labor battalions.”¹¹⁶

During the war, CUP leaders came to perceive the empire’s non-Muslim population as potential supporters of the Allied Powers. In accordance with this perception, non-Muslims were, in most cases, not trusted to carry arms in the same manner as Muslim subjects.¹¹⁷ Not being trusted, and therefore being disarmed and recruited exclusively for labor battalions, Christian and Jewish populations experienced and remembered the war years as a collective punishment and humiliation.¹¹⁸ That said, the desert labor force included “armed Muslim men” who were recruited to the army into the desert shift in massive numbers and, as recorded in military records, comprised the majority in the battalions relative to those listed as Greeks, Armenians, and Jews.¹¹⁹

Common to all laborers was the experience of hard work from sunrise to sunset; exposure to the unfamiliar desert climate, including extreme heat during the day and cold at night; a lack of adequate nutrition; and, as an outcome of this militarized human ecology, infectious diseases such as typhus, typhoid, dysentery, cholera and, thus, at times, death.¹²⁰ When the desert was sufficiently supplied with food, the Fourth Army secured a weekly soldier’s ration, which included approximately 4,200 grams of rusks, 275 grams of roasted meat, 140 grams of bulgur, 140 grams of onions, 280 grams of olives, 280 grams of dried vegetables, 600 grams of dates, 400 grams of dried apricots, and 120 grams of apricot pulp.¹²¹ This weekly diet did not provide adequate nutrition for a soldier left in the desert; in any case, such mostly failed to even make it into the soldiers’ stomachs due to disruptions in the contract network the Fourth Army was dependent upon for foodstuff supplies. Such disruptions often resulted in cutting soldiers’ rations. For example, in late 1916 rations were cut by one-third, causing “great mortality” as well as “continuous desertion.”¹²² The nutritional conditions of the laborers were no better than the soldiers stationed in the desert, often worse. For example, in the summer of 1915 laborers in al-Arish who worked in the line were provided with “one hard black biscuit a day.”¹²³ After a long, intensive, and hard workday, they often baked their own bread in their camps of untidy and crowded tents full of sick laborers.¹²⁴

Malnutrition combined with intense work in the desert climate caused the spread of infectious disease, with 500 laborers infected on average per day.¹²⁵ The prevalence of infectious disease among laborers turned into an epidemic, as “sanitary organization” in the desert and Syrian provinces was, as Cemal Pasha put it, “not sufficient” to treat the ill.¹²⁶ The Fourth Army was dependent on the sanitary capacities of the German and American Red Crosses and Ottoman Red Crescent, which expanded into the region after the beginning

¹¹⁵ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 96-2, 3 Ağustos 1331.

¹¹⁶ *Birinci Dünya Harbi’nde Türk Harbi*, 294.

¹¹⁷ For labor battalions (*amele taburları*) in the empire during the war, see: BOA, DH, SYS, 123/14, 28 Kanunuevvel 1332; E. J. Zürcher, “Ottoman Labor Battalions in World War I,” in *The Armenian Genocide and the Shoah*, ed. H.I. Kieser and D.I. Schaller (Zurich: Cronos, 2002), 187–96.

¹¹⁸ Bertha Spafford Vester, *Our Jerusalem: An American Family in the Holy City, 1881-1949* (Garden City, NJ: Doubleday, 1950), 234; also see Michelle Campos, *Ottoman Brothers: Muslims, Christians, and Jews in Early Twentieth-Century Palestine* (Stanford, CA: Stanford University Press, 2011), 244.

¹¹⁹ See, for example, ATASE, BDH, Klasör, Dosya 104, Fihrist 1.1, 11 Mart 1332; Erden, *1. Cihan Harbinde 4; Ordu Mücmel Tarihçesi*, 13.

¹²⁰ TNA, WO 157/693, 9 July 1915, 24 July 1915; *Birinci Dünya Harbi’nde Türk Harbi*, 679.

¹²¹ ATASE, BDH, Klasör 1386, Dosya 34, Fihrist 10-25.

¹²² ATASE, BDH, Klasör 3320, Dosya 13425, Fihrist 1-23; TNA, WO 157/693, 24 July 1915.

¹²³ TNA, WO 157/693, 9 July 1915, 24 July 1915; *Türk Silahlı Kuvvetleri Tarihi İdari Faaliyetler ve Lojistik*, 363.

¹²⁴ ATASE, BDH, Klasör 8647, Fihrist 14, 8 Mayıs 1331.

¹²⁵ *Türk Silahlı Kuvvetler Tarihi*, 302.

¹²⁶ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 5, 28 Temmuz 1331.

of mobilization.¹²⁷ Hospitals were built along the supply lines, however the expansion of sanitary infrastructure in Syria and the Sinai was still not enough to meet the need.¹²⁸

The death rate spiked among laborers during the winter of 1915–16, when provisions were scarce due to a locust invasion and subsequent harvest failure in the Syrian provinces.¹²⁹ In his critical response to Enver Pasha's opinion to postpone the second Egypt expedition in the summer of 1915, Cemal Pasha anticipated the harvest failures, subsequent food crisis, and spread of disease among the desert labor battalions.¹³⁰ This anticipation proved itself true. Yehuda Burla, who was recruited for service in a labor battalion, described his labor camp as "cursed and dreadful," writing: "in the winter, the Beersheba stream swept away more than two hundred people, within minutes, and they keep sending more people to die here, from the heat, parasites, and diseases."¹³¹ Recalling his visit to the desert in March 1916, von Kressenstein wrote that the hospitals were full of patients from labor battalions, most of whom were "old, wretched, and undernourished."¹³²

Common to all laborers, concerned with families they had left behind, was the prevalence of desertion.¹³³ According to Zeki Pasha, the desert became a desertion zone for those in Syrian provinces who escaped conscription or forced requisitioning (*tekalif-i harbiye*) after the declaration of mobilization (*seferberlik*).¹³⁴ The war on the desert, however, transformed the Sinai from a home to deserters into an environment to desert from. Attempts at desertion, according to state and military archives, were numerous.¹³⁵

Sacrificing the Woodlands

The militarization of the desert revealed itself most clearly in the exploitation of timber and wood, sacrificing the forests, olive groves, and mulberries of Greater Syria. The construction of military outposts, new buildings, railroads, and narrow-gauge lines, as well as fueling locomotives to secure the supply chain, all necessitated a massive amount of wood. As with human and animal bodies, the woodlands were seen as disposable sites to be sacrificed for the war on the desert. While steel was used at the very beginning of the construction of the 264-kilometer rail line to and through the Sinai, wood predominantly traversed the railways beginning in June 1915.¹³⁶ Heinrich August Meissner had designated the forests between Beirut and Wadi Sahariya in southwest Gaza as a primary zone for logging. He bought 2,000 camels from Bedouin traders and requisitioned donkeys, mules, and horses

¹²⁷ Ibid.; Vicken Kalbian, "Photographic Memories: The Field Hospital of Hafir-el-Auja and US-Ottoman Relations," *Jerusalem Quarterly* 63/64 (2015): 54–71. For the activities of the Ottoman Red Crescent in Jerusalem, Sinai, and Suez, see The Archives of Turkish Red Crescent, Ankara, Turkey (TKA, hereafter), Kutu No. 746, Belge No. 1; TKA, Kutu No. 2023, Belge No. 1; TKA, Kutu No. 1644, Belge No. 1; TKA, Kutu No. 2024, Belge No. 1; TKA, Kutu No. 574, Belge No. 3. For the American Red Cross in Palestine and Sinai, see Library of Congress, Washington DC (hereafter LOC) American Colony in Jerusalem Series, Part I, Topical Files; LOC. Manuscript Division, John D. Whiting Papers, 1890–1970.

¹²⁸ ATASE, BDH, Klasör 163, Dosya 282, Fihrist 5; 28 Temmuz 1331; *Türk Silahlı Kuvvetler Tarihi*, 302. Karagöz, 1. Dünya Savaşı'nda Filistin-Sina Cephesi Lojistik Faaliyetleri, 430.

¹²⁹ *Birinci Dünya Harbi'nde Türk Harbi*, 679; Conde de Ballobar, *Jerusalem in the First World War*, 79.

¹³⁰ ATASE, BDH, Klasör, Dosya 283, Fihrist 96-2, 3 Ağustos 1331.

¹³¹ Abramson, *Soldiers' Tales*, 199–200.

¹³² von Kressenstein, *Türklerle Beraber Süveyş Kanalına*, 96.

¹³³ For desertion, see Abigail Jacobson, "Negotiating Ottomanism in Times of War: Jerusalem During World War I Through the Eyes of Local Muslim Resident," *International Journal of Middle East Studies* 40, no. 1 (2008): 71.

¹³⁴ ATASE, BDH, Klasör 531, Dosya 1–2, Fihrist 20, 27 Teşrinievvel 1330.

¹³⁵ ATASE, BDH, Klasör 3246, Dosya, 14, Fihrist 1–16, 21 Temmuz 1331; ATASE, BDH, Klasör 3320, Dosya 13425, Fihrist 7, 11 Teşrinisani 1332; BOA, İ. DUİT., 107/64, 21 Teşrinievvel 1332; BOA, İ. DUİT., 107/14/2, 30 Eylül 1332; BOA, İ. DUİT., 107/21/2, 30 Eylül 1332; BOA, İ. DUİT., 107/25/2, 30 Eylül 1332; BOA, İ. DUİT., 107/26/2, 30 Eylül 1332; BOA, İ. DUİT., 107/79/2, 30 Teşrinievvel 1332; BOA, İ. DUİT., 107/92, 20 Teşrinisani 1332; BOA, İ. DUİT., 107/104/1, 30 Teşrinisani 1332.

¹³⁶ TNA, WO 157/693, May–June 1915; "Railways in the Palestine Campaign," *Palestine Exploration Quarterly* 52 (1920–21): 38.

to transport the wood to nearby railway stations.¹³⁷ As an Ottoman report from August 1915 reveals, construction of these wooden crossties relied primarily on the felling of eucalyptus trees in Palestine, particularly those located in Zionist settlements.¹³⁸ In addition to eucalyptus trees, the military authorities also exploited oak and pine forests in Palestine to supply timber for infrastructure projects in the Sinai (Fig. 6).¹³⁹ Bertha Vester, a member of the American Colony established in Jerusalem in 1881, who witnessed the landscape changes during the war firsthand, noted the disappearance of oak trees on the uplands.¹⁴⁰

The construction of the railways, along with other desert infrastructure, played a crucial role in depleting the forest resources of Palestine. However, it was the practice of fueling railways with wood that expanded rapid deforestation throughout Greater Syria.¹⁴¹ Shortly after the Ottomans entered the war, the empire faced a crisis in the supply of coal. Throughout the 19th century, due to its lack of coal, the Ottoman Empire had stood at a disadvantage to many other parts of the world.¹⁴² The war exacerbated this disadvantage, resulting in more acute material and ecological pressure on the woodlands. Before the war, the supply of coal to fuel railways, fleets, and industries in the empire's major urban centers relied mostly on imports from England and coalfields in the Zonguldak district of the Black Sea region. During the war, the Ottomans were deprived of both sources by the Anglo-French blockade in the eastern Mediterranean and a social and ecological crisis in the Zonguldak coalfields, leading to a halt in production.¹⁴³ Deprived of its major sources of coal, the Ottoman government attempted to turn primarily to wood.¹⁴⁴ Coal imported regularly from Germany was used from time to time to fuel trains on the Hejaz Railway departing from Istanbul up to Pozantı station, before the Amanos Mountains blocked the railway's connection to Syrian provinces.¹⁴⁵ The mass felling of trees in Greater Syria thus fueled railway operations after the Amanos mountains.¹⁴⁶

The Hejaz Railway, with its newly built extension, served as the supply line for the Sinai Desert from Greater Syria. The Ottoman and German military leadership was preoccupied with securing the operation of the Hejaz Railway in order to "protect military shipments to the Sinai from being interrupted." Therefore, the Fourth Army supplied locomotives with wood from the forests, which was viewed as a "necessity" due to the lack of coal sources.¹⁴⁷ By May 1915 the scarcity of coal had reached a critical point, causing significant anxiety. On April 23 military authorities in Damascus informed Istanbul that they were left with only 3,000 tons of coal. At the beginning of May, the Fourth Army's coal reserves ran out entirely.¹⁴⁸

The Ottoman government empowered the Directorate-General of the Hejaz Railway with the right to operate coal mines in Mount Lebanon, Tripoli, and those within a twenty-kilometer radius of the railway route.¹⁴⁹ While the Directorate was able to extract 450

¹³⁷ TNA, WO 157/693, May–June 1915; *Birinci Dünya Harbi'nde Türk Harbi*, 673.

¹³⁸ BOA, DH, ŞFR, 54.A/274/1, 22 Temmuz 1331.

¹³⁹ Michael E. Bonine, "The Introduction of Railroads in the Eastern Mediterranean: Economic and Social Impacts," in *The Syrian Land: Process of Integration and Fragmentation*, ed. Thomas Philipp and Birgit Schaebler, (Stuttgart: Steiner, 1998), 72.

¹⁴⁰ Vester, *Our Jerusalem*, 254.

¹⁴¹ TNA, WO 157/24, 24 February 1916.

¹⁴² J. R. McNeill, "The Eccentricity of the Middle East and North Africa's Environmental History," in *Water on Sand: Environmental Histories of the Middle East and North Africa*, ed. Alan Mikhail (Oxford UK: Oxford University Press, 2013), 29.

¹⁴³ BOA, DH.İ.UM, 89/1/65. For the collapse of production in the Zonguldak coalfield during the war, see Donald Quataert, *Miners and the State in the Ottoman Empire: The Zonguldak Coalfield, 1822–1920* (New York: Berghahn Books, 2006), 216–23.

¹⁴⁴ ATASE, BDH, Klasör 903, Dosya 102.

¹⁴⁵ Hüseyin Hüsnü Emir (Eriklet), *Yıldırım* (Ankara: Genelkurmay Askeri Tarih ve Strateji Etüt Başkanlığı Yayınları, 2002), 288.

¹⁴⁶ ATASE, BDH, Klasör 910, Dosya 1251, Fihrist 1–3, 19 Teşrinisani 1332.

¹⁴⁷ BOA, BEO, 4403/330/85/1, 21 Şubat 1331; TNA, WO 157/693, May–June 1915.

¹⁴⁸ TNA, WO 157/693, May–June 1915.

¹⁴⁹ BOA, İ.MMS, 196/29/2, 13 Mayıs 1331; BOA. A). MTZ. CL. 7/295, 16 Mayıs 1331; BOA, MV. 240/23/2, 13 Mayıs 1331.



Figure 6. Timber being transported to the desert and wooden railway sleepers (American Colony in Jerusalem Photo Department, Library of Congress, Washington DC).

tons of coal daily from these mines, it was not of the appropriate quality and fell short of meeting the railway's fuel needs.¹⁵⁰ On May 20, 1915, the directorate wrote to the government in Istanbul, asking for more coal. Istanbul denied the request, citing scarcities.¹⁵¹ The coal crisis led the military authorities to, as Cemal Pasha informed Istanbul in his correspondence, "accept wood as the only safe fuel."¹⁵² As the army devoted 1915 and 1916 to preparing the Sinai's topography for the second expedition, the railways operated to supply materials, goods, and people "exclusively fueled by wood."¹⁵³ A report written by the Director of Hejaz Railway mentions that an average of 420 tons of materials were being carried to the Sinai.¹⁵⁴ Only in October 1916, for example, 16,446 tons of wood burned for Hejaz Railway and its extensions.¹⁵⁵

In the summer of 1915, the Fourth Army began organizing the felling of 100,000 tons of wood for the railways.¹⁵⁶ However, the daily 800-ton requirement was beyond the Fourth Army's infrastructural capacity. As a result, the directorate took on more responsibility and provided wood supplies through its own web of contractors, timber merchants, and Bedouin camel owners.¹⁵⁷ Furthermore, the Fourth Army established the Office of Fuel (Mahrukut Ofisi) to organize the supply of wood and assigned Tahsin Bey, who also served as the governor of Syria between September 1916 and September 1918, to head the new office.¹⁵⁸ Under his supervision, the Fourth Army conscripted laborers into "wood battalions (*odun müfrezeleri*)" to fell timber and collected mules, horses, and camels via requisition or contracting to transport the wood to railway stations.¹⁵⁹

Cemal Pasha and Tahsin Bey supervised a commission to auction forest tracts to private wood contractors. Such wood contracts included specifications for the forest area, amount of

¹⁵⁰ *Birinci Dünya Harbi'nde Türk Harbi*, 673. For example, the daily output of three coal mines in Mount Lebanon was 69 tons in total; see TNA, WO 157/693, May–June 1915.

¹⁵¹ For the documents, see Erden, *Suriye Hatıraları*, 248.

¹⁵² ATASE, BDH, Klasör 163, Dosya 283, Fihrist 22, 3 Temmuz 1331.

¹⁵³ BOA, İ.DUİT., 112/4, 14 Eylül 1332.

¹⁵⁴ Emir (Eriklet), *Yıldırım*, 68.

¹⁵⁵ ATASE, BDH, Klasör 910, Dosya 1251, Fihrist, 1-35,17 Kanunusani 1332

¹⁵⁶ ATASE, BDH, Klasör, Dosya 283, Fihrist 22, 3 Temmuz 1331.

¹⁵⁷ BOA, İ. DUİT., 112/4, 14 Eylül 1332.

¹⁵⁸ Erden, *Suriye Hatıraları*, 249. See also Mustafa Şahin and Cemile Şahin, "Suriye'nin Son Osmanlı Valisi Tahsin (Uzer) Bey'in Suriye Valiliği ve Mustafa Kemal ile Buradaki Çalışmaları," *Sosyal Bilimler Dergisi* 1, no. 2 (2011): 1–28.

¹⁵⁹ ATASE, BDH, Klasör 163, Dosya 283, Fihrist 86, 26 Temmuz 1331; BOA, BEO, 4419/331412/1, 8 Haziran 1332; BOA, BEO, 4424/331789/2, 17 Temmuz 1332; BOA, MV, 202/135/1, 23 Temmuz 1332.

wood to be harvested, and destination for transportation. The wood contractors were responsible for organizing the supply, which not only earned them payment for each load delivered to the stations but also granted them access to militarized forced labor, called laborers with certificate (*vesikalı amele*).¹⁶⁰ The Fourth Army provided contractors with laborers conscripted to the “wood battalions” after being issued a “certificate” (*vesika*). For instance, in June 1916 the Fourth Army recruited new battalions comprising 1,000 laborers with certificates in addition to the 3,000 laborers already working under contract relationships.¹⁶¹ In late 1916 there were 5,953 laborers with certificates, according to Tahsin Bey’s report.¹⁶² As per the 1917 statistics, wood contractors employed 35,000 certificate-holding laborers in total.¹⁶³

Capital, like labor, was also subject to militarization. Contractors who were unable to supply the wood specified in their contract agreed to be prosecuted for “disrupting military transportation during the war by slowing down work.”¹⁶⁴ As reported by Tahsin Bey, wood contractors who were proven to slow down the work had their contracts terminated and were either tried by the War Tribunal or enlisted and sent to the front.¹⁶⁵ Militarization mediated the subordination of labor into capital, and obliged contractors to supply wood for railway fuels. There were 62 contractors supplying the Army with 862 tons of wood daily at the end of 1916, for example, according to the report by Tahsin Bey.¹⁶⁶ While the forests were transformed into sites of war capitalism, the contract relationship relying on the militarization of labor and capital had expanded the Fourth Army’s access to the forests from Gaza to Aleppo and secured the railways with fuel.

Although the wood-powered railways were slower than the coal-powered ones before the war, they still facilitated military transportation, and the timely supply of wood became the main concern regarding military shipments to the desert.¹⁶⁷ The roads from forest sites in the highlands to railway stations often were not sufficient for carloads, particularly in winter. The transportation of wood often relied on camels, mules, and donkeys, except in the Sofer area in Mount Lebanon, where a 29-kilometer road enabled cars to carry wood. In order to expedite the wood supply, the Office of Fuel carried out “continuous maintenance” on the road.¹⁶⁸ Furthermore, the Directorate of the Railways embarked on the construction of sub-lines from major forest sites to railway stations. These included a 14-kilometer line from Rayak station to the Hermel Forest; a 25-kilometer line from Tulkarm station to the Kefrikara Forest, to the southeast of Jaffa; a line from Amman station to the Aluk Forest; a 38-kilometer line from Ma`an station to the Hişe Forest; and a 40-kilometer line linking `Unayza and Shawbak in modern-day Jordan.¹⁶⁹

The mountain environments and lack of means of transport limited the Office of Fuel’s campaign to supply wood via contractors. The Fourth Army compensated for the environmental and infrastructural limits to its wood supplies via the “forced requisition of wood (*mükellefiyet-i hatab*),” which was first implemented in the Jerusalem and Nablus districts at the end of 1914. With the coal crisis, it expanded into other districts including Damascus, Hawran, Hama, and Mount Lebanon.¹⁷⁰ The forced acquisition included the

¹⁶⁰ For examples of wood contracts, see the folder ATASE, BDH, Klasör 4227, Dosya 2.

¹⁶¹ For the recruitment of laborers with certificates, see BOA, BEO, 4419/331412/1, 8 Haziran 1332; BOA, BEO, 4424/331789/2, 17 Temmuz 1332; BOA, MV, 202/135/1, 23 Temmuz 1332.

¹⁶² ATASE, BDH, Klasör 910, Dosya 1251, Fihrist 1-35, 17 Kanunusani 1332.

¹⁶³ *Türk Silahlı Kuvvetleri Tarihi İdari Faaliyetler ve Lojistik*, 363.

¹⁶⁴ ATASE, BDH, Klasör 4227, Dosya 2, Fihrist 1-5, 2 Kanunusani 1332.

¹⁶⁵ ATASE, BDH, Klasör 910, Dosya 1251, Fihrist 1-35, 17 Kanunusani 1332.

¹⁶⁶ *Ibid.*

¹⁶⁷ TNA, WO 157/693, May–June 1915.

¹⁶⁸ BOA, DH, UMVM, 155/82, 22 Mart 1334.

¹⁶⁹ BOA, DH, ŞFR, 65/1/1, 1 Haziran 1332; BOA, İ. DUİT, 112/4, 14 Eylül 1332; BOA, DH, ŞFR, 594/72/1, 4 Eylül 1334.

¹⁷⁰ ATASE, BDH, Klasör 910, Dosya 1251, Fihrist 1-35, 17 Kanunusani 1332.

appropriation of the fruit trees of Syria, the mulberry trees of Lebanon—a major resource for its silk economy—and the olive trees of Palestine.¹⁷¹

“Soldiers were seen stealing wood from our land in Karm al-A’raj. Not satisfied with dead wood they started tearing branches from our olive trees,” wrote Ihsan Turjman, a Palestinian conscript in Jerusalem, in his diary after hearing that soldiers had cut down olive trees belonging to his family.¹⁷² As reported by British intelligence, olive trees in Palestine were cut for traverses and fuel.¹⁷³ According to historian Dotan Halevy, “a program of deforestation did not skip Gaza,” destroying its vineyards and orchards.¹⁷⁴ It is difficult to estimate the rate of fruit, olive, and mulberry vegetation clearance in the region due to the often conflicting numbers recorded in available materials. According to French mandate statistics, one-third of the mulberry trees of Mount Lebanon were destroyed for fuel during the war.¹⁷⁵ According to `Ali Fu`ad the initial order to cut 40 percent of Syria’s fruit trees, Lebanon’s mulberry trees, and Palestine’s olive trees was increased to 50 percent by the fall of 1916.¹⁷⁶ A report by Tahsin Bey detailing the organization of the wood supply demonstrates the extent of the Ottoman campaign of sacrificing the region’s woodlands, including fruit and olive trees. Accordingly, the Office of Fuel, in the 264 days since its establishment, supplied the Army with 158,665 tons of wood.¹⁷⁷ In his November 1916 response to Cemal Pasha’s demand for additional efforts, Tahsin Bey wrote: “I, myself, exert all my energy for fuel. I sacrificed even half of the fruit trees for that cause. I charged the people with wood supply. All the officers and police forces occupy themselves with the work of wood and provision.”¹⁷⁸

Deforestation in the region did not begin with World War I. However, the wartime scale of deforestation was incomparable to earlier times. The militarization of the Sinai and how this effort necessitated the appropriation, redirection, and exploitation of wood resources played a crucial part in the exhaustion of the woodlands in Greater Syria. The military authorities undertook the war on the desert in the midst of a coal crisis in the Ottoman Empire, and Greater Syria’s forests, mulberries, fruit orchards, and olive groves became environments of sacrifice for Ottoman and German militarism in the Sinai.

Conclusion

By the summer of 1916 Ottoman and German military leaders concluded that changes in the desert would now allow thousands of soldiers to successfully cross and reach the Suez Canal, leading to the decision to undertake another expedition. However, the second expedition in July 1916 also ended in failure.¹⁷⁹ The militarization of the Sinai allowed Ottoman forces to navigate the desert successfully during the second expedition, but this did not guarantee military success against the better-supplied and organized British forces occupying the canal zone. The fight with the British at Romani took the lives of 4,000 Ottoman soldiers; the survivors retreated to al-Arish, the last point reached by the desert railway, on 13

¹⁷¹ *Birinci Dünya Harbinde*, 673; Falih Rifki, *Zeytindağı*, 71.

¹⁷² Salim Tamari, *Year of the Locust, A Soldier’s Diary and the Erasure of Palestine’s Ottoman Past* (Berkeley, CA: University of California Press, 2011), 92.

¹⁷³ TNA, WO 157/693, May–June 1915. Also see Jeffrey D. Reger, “‘Lambs Never Before Dim Are Being Extinguished from Lack of Olive Oil’: Deforestation and Famine in Palestine at War and in Peace Under the Late Ottoman Empire and Early British Empire, 1910–1920,” in *Landscapes of the First World War*, ed. Selena Daly et al (New York: Palgrave, 2018), 37–56.

¹⁷⁴ Halevy, “The Rear Side of the Front,” 49.

¹⁷⁵ Pitts, “Fallow Fields,” 70.

¹⁷⁶ Erden, *Birinci Dünya Harbinde Suriye Hatıraları*, 249.

¹⁷⁷ ATASE, BDH, Klasör 910, 1251, 1-35, 17 Kanunusani 1332.

¹⁷⁸ For the letter from Tahsin Bey to Cemal Pasha on 5 November 1916, see Erden, *Birinci Dünya Harbinde Suriye Hatıraları*, 250.

¹⁷⁹ Uyar, *The Ottoman Army and the First World War*, 231.

August 1916.¹⁸⁰ The retreat of Ottoman forces shifted the trajectory of the war and marked the beginning of the British march towards Palestine. The British army started building new railways in the vicinity of Gaza, supported by warships; these offensives led the Ottoman forces to evacuate the desert starting in January 1917.¹⁸¹ British forces utilized the new infrastructure developed in the Sinai and gradually brought the desert under their political and military sovereignty.¹⁸² Ultimately, sacrificing human lives and the woodlands of Greater Syria to mark “the victory of the human will over the desert” did not enable an Ottoman military victory against British forces at the Suez Canal.

The British entered Jerusalem on 9 December 1917, marking the Ottoman Empire’s failure to conquer Egypt. Despite the failure of the Suez campaigns, Cemal Pasha’s three-year wartime governorship of Greater Syria left a lasting impression on the memory of the region’s inhabitants and landscapes. In all former Greater Syrian provinces, the Ottoman experience or “the days of the Turks” (*ayyam al-Atrak*) came to be associated in popular memory with tyranny, misery, despotism, hunger, and environmental destruction.¹⁸³ Most particularly, the wartime famine that cost hundreds of thousands of lives in the region was instrumental to shaping memories of the wartime experience. However, the making of post-war memory cannot be fully understood without examining the range of ways in which Ottoman and German military commanders turned Greater Syria into a sacrificial frontier for the war effort in the Sinai. As this article has demonstrated, waging war against the British required the Ottoman-German military authorities to overcome the environmental, climatic, and topographical challenges the Sinai desert posed for troops. Militarizing the desert through construction and water extraction projects to allow the army to cross the canal as quickly as possible necessitated the intensive appropriation and exploitation of energy resources from Greater Syria in the form of labor and wood. Therefore, the Ottoman-German war effort, relying heavily on the military-environmental complex, transformed the Greater Syrian provinces into the sacrificial frontier of the Sinai, sacrificing the region’s human and natural resources. The redirection of labor and raw materials spatially brought the canal, Sinai, and Greater Syria into the same web of Ottoman-German militarism, blurring the distinctions between military and civilian life and environments.

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¹⁸⁰ Erden, *İ. Cihan Harbinde 4. Ordu Mücmel Tarihçesi*, 15–16.

¹⁸¹ *Türk Silahlı Kuvvetleri Tarihi İdari Faaliyetler ve Lojistik*, 316; Emir (Eriklet), Yıldırım, 37.

¹⁸² “Railways in the Palestine Campaign,” *Palestine Exploration Quarterly* 52 (1920–21): 38.

¹⁸³ Tamari, *Year of the Locust*, 5.

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