

## Territoriality and the Technics of Drylands Science in Palestine and North America

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At the turn of the 20th century, agricultural experts in several countries assembled a new agro-scientific field: dryland farming. Their agricultural research practices concomitantly fashioned a new agro-ecological zone—the drylands—as the site of agronomic intervention. As part of this effort, American scientists worked in concert with colleagues in the emerging Zionist movement to investigate agricultural practices and crops in Palestine and neighboring regions, where nonirrigated or rainfed agriculture had long been practiced. In my larger manuscript project, I consider how the reorganization of rainfed farming as dryfarming is central to the history of both the Middle East and North America, where it was closely related to modern forms of power, sovereignty, and territoriality. I suggest that American interest in dryfarming science emerged out of a practical need to propel and sustain colonization of the Great Plains, but later became a joint effort of researchers from several emerging settler enterprises, including Australia, Canada, and the Zionist movement. In contrast to a naturally occurring bioregion, I argue that the drylands spatiality was engineered through, rather than outside, the territorialization of modern power.

Yet in this brief essay I seek to take the discussion a step further by suggesting that, rather than a self-evident bioregion or a mere instrument of modern power, the classification of drylands is best understood as a terrain of technopolitical action. In order to illustrate this point, I consider the work of Najib Nassar, an early Palestinian intellectual from Haifa who believed that modern dryland farming methods, particularly soil amendment and tree planting, would bolster the Palestinian national cause.<sup>1</sup> Nassar was convinced that making Palestinian peasants more productive, and thus prosperous, would render them less likely to sell their land, or render the land more difficult to be sold. His activism around land struggles and his technical texts illustrate how *nahḍa* intellectuals engaged contemporary scientific research as part of their national agendas. Against the backdrop of land struggles around the dispossession of Palestinian Arab farmers, Nassar's 1927 Arabic translation of an American agronomic treatise by John Widtsoe, entitled *Dry-Farming*, offers an intriguing vantage point from which to consider this entanglement of political sovereignty and new forms of agricultural science.

Dryfarming emerged as part of a renewed turn of the 20th century Euro-American settlement project to transform the western Great Plains of the United States, previously thought to be uncultivable, with crop agriculture. Mary Hargreaves' classic 1957 account of dryfarming ties it ineluctably to the colonization of the US West.<sup>2</sup> For its proponents, dryfarming seemed to be something upon which the “advancement of American civilization” itself was riding.<sup>3</sup> The agronomist John Widtsoe shared the zeal for dryland farming with other settlers arriving in the semiarid rangelands of the Great Basin region. Writing in 1910, Widtsoe stated that “with striving eyes the desert is seen covered with blossoming fields ... The desert will be conquered.”<sup>4</sup>

As recent scholarship in native and indigenous studies has theorized, the naturalized desert bioregion that Widtsoe described was also the human landscape of its indigenous inhabitants, some of whom practiced rainfed cultivation and, along with the plants and animals, had to be subjugated and domesticated for the area to be considered productive by the United States.<sup>5</sup>

For Widtsoe, practices of soil and plant taxonomy and measurement of rainfall, among other metrics, engineered the drylands as a self-evident ecological zone. This new geographic assemblage, the drylands, provided the basis to refashion the landscape for “productive” settler agriculture. Dry agriculture therefore organized and institutionalized practices of measurement and experimentation, in addition to other practices such as plant breeding, under both private and state sponsorship especially after 1887, when a network of US government experiment stations was established. The new assemblage of dryfarming advocated methods to improve rainfed agriculture in four areas: the retention of soil moisture, tillage, plant breeding for drought tolerance, and finally, erosion control techniques.

In Palestine, what is called *baʿlī* in the vernacular is a mode of rain-fed farming practiced for generations without irrigation and is still practiced on the vast majority of Palestinian agricultural land. Nassar positioned modern dryfarming as a branch of the *baʿlī* formation, a fascinating move that I explore in my larger project. *Baʿlī*, or *baʿal*, is a practice by which fields, crops, or fruits are highly adapted to rely only on rainwater for growth. It is likely a reference to the Canaanite title for the master god Baʿal, who was associated with Hadad, the Canaanite god of rain and agriculture. What became known as dry-farming in the modern sense began with the exchange of plant material and technical knowledge between agricultural scientists around the world at the turn of the 20th century. Initially, scientific research in Palestine focused on the dryfarming of field crops such as wheat and barley, reorganizing the existing *baʿlī* formation through experimentation. However, in the British Mandate period, Zionist scientific research shifted attention to a new settlement model based on dairy farming, which required irrigated forage production and chemical and water intensive methods.<sup>6</sup> Amidst the Zionist shift from nonirrigated to irrigated production, Nassar’s continued emphasis on extensive dryfarming acquired a new political valence.<sup>7</sup> In short, the Ottoman Land Code of 1858, and especially its interpretation by British Mandate authorities, actively encouraged farmers to cultivate more land. Rainfed agricultural production, being extensive, requires a considerable land base. In contrast, intensive irrigated production requires far less land to produce a similar yield. Posited in opposition to irrigated cultivation, dryland agriculture emerged for Nassar as the contested site of cultivation and research practice. In other words, for him capital investments, property relations, land use, and agronomics were bound together.

Though not a trained scientist, Nassar conducted extensive field research in 1922 and 1925, with tours of rural areas of Palestine and Jordan. This research supported his involvement in land struggles over several decades.<sup>8</sup> His dispatches investigated issues ranging from land sales, to manure fertilizers, to tree planting, to the funding of schools. This underpinned his political analysis in *al-Karmil*, which earned him status as a founder of Palestinian nationalism.<sup>9</sup> However, his previously unexplored turn to the minute scientific and technical aspects of cultivation reveals how he saw dryland regions and agricultural science as spheres of Palestinian place-making and political action.

Nassar weaved together Palestinian dispossession through land sales with the practice of cultivation. He counseled farmers near Nazareth that “there is no way out of the danger except the unceasing work of building the soil, its skillful cultivation, and the planting of trees, that they should establish a treasury of 500 olive seedlings for each son of the village.”<sup>10</sup> Perhaps Nassar believed that the “treasury” of trees and the extensive use of organic manure soil amendments would bolster agriculture and make their displacement more difficult? Nassar repeatedly cited fruit and nut tree planting in relation to land sales, exclaiming in a section entitled “Land Sales” that farmers had planted more than 250,000 olive seedlings in Tulkarem in 1920–21 and that farmers in Nazareth should follow their example.<sup>11</sup> He outlined his general theory in an addendum to his 1927 translation of *Dry-farming*; in short, he promoted agriculture because it “is the fount of wealth, and wealth firmly embeds the feet of peoples in their lands and underpins their interest.”<sup>12</sup> On these and many other occasions, Nassar bound the cultivation of land with the struggle to stem the growing dispossession of Palestinian farmers.

Nassar certainly celebrated the “amazing” success of American dry agriculture and called for the enlightenment of Palestinian farmers; yet he also excluded nearly all of Widtsoe’s celebratory references to Euro-American colonization and settlers in North America. There is not the space here for an exploration of these omissions and ironies. However, I suggest that while advocates of modern agricultural farming shared a certain belief in technical expertise, for Nassar the technics of cultivation and the material spatiality of political power were specifically interrelated. If tree planting and dryland cultivation helped to engineer a settler-colonial political order with control over land at its heart, then he may have thought that struggles against dispossession must also invest in and draw on the natural forces of plant life inherent to cultivation. These methods were made available to Palestinians through new agronomic methods.<sup>13</sup> Nassar’s translated text was inaccessible to most farmers at the time but he clearly sought to document how power was being built within an assemblage of technical knowledge and agro-ecological life.

Nassar positioned his work within a wider Arab realm. In describing the extensive US investment in dryland science research he exclaimed, “will the governments of Arab countries emulate Russia and America and sponsor laboratories for dry-agriculture and model farms?!”<sup>14</sup> Studies on Egypt and North Africa have focused on irrigated plantation agriculture to convincingly illustrate the imagination and rearticulation of agricultural geographies. Moreover, Davis has illustrated the underpinnings of scientific studies of desertification and grazing within colonial expertise. This historiography conveys the relationship between technical knowledge and the territorialization of the modern state in the Middle East.<sup>15</sup> Yet Nassar’s intimate engagement with the technics of agricultural science contributes to our understanding of the new forms of spatiality emerging in the modern Middle East from the perspective of an Arab amateur scientist. Rather than assume a pre-given biogeography or an unproblematized political order, we might understand Nassar’s drylands as a terrain in which agro-ecological forces, cultivation practices, and scientific research shaped the spatiality of political life in the region. A more-than-human understanding of the technics of drylands science better equips us to explore the spatial history of territoriality and colonization. From the perspective of Palestine, what might be called the “global drylands assemblage” emerges as an uneven field of political and technical activity constituted in the Middle East, and also through its relations within North America and beyond.

## NOTES

<sup>1</sup>Nassar worked against the dispossession of villages after land sales, including as early as 1909 in the village of al-Shajara. Rashid Khalidi, *Palestinian Identity: The Construction of Modern National Consciousness* (New York: Columbia University Press, 2010), 115.

<sup>2</sup>Mary W. M Hargreaves, *Dry Farming in the Northern Great Plains, 1900–1925* (Cambridge, Mass.: Harvard University Press, 1957), 83–84.

<sup>3</sup>Frieda Knobloch, *The Culture of Wilderness Agriculture as Colonization in the American West* (Chapel Hill, N.C.: University of North Carolina Press, 1996), 61.

<sup>4</sup>John A. Widtsoe, *Dry-Farming: A System of Agriculture for Countries under a Low Rainfall* (New York: Macmillan Company, 1919), xi.

<sup>5</sup>As Blackhawk has shown, only thirty years before Widtsoe's arrival in what became the state of Utah, the Great Basin was the scene of a violent encounter between federal authorities, indigenous peoples, New Mexicans, and Mormon settlers, which resulted in Native dispossession. Ned Blackhawk, *Violence over the Land: Indians and Empires in the Early American West* (Cambridge, Mass.: Harvard University Press, 2008). See also David A. Chang, *The Color of the Land: Race, Nation, and the Politics of Landownership in Oklahoma, 1832–1929* (Chapel Hill, N.C.: University of North Carolina Press, 2010).

<sup>6</sup>Derek Penslar, "Technical Expertise and the Construction of the Rural Yishuv, 1882–1948," *Jewish History* 14 (2000): 209.

<sup>7</sup>Samer Alatout, "'States' of Scarcity: Water, Space, and Identity Politics in Israel, 1948–59," *Environment and Planning D: Society and Space* 26 (2008): 959–82.

<sup>8</sup>Nassar's educational formation is not entirely known. His family had become Protestants, facilitating his access to educational institutions such as the Syrian Protestant College (American University of Beirut), where his brother is known to have graduated in pharmacy. Raja Shehadeh, *A Rift in Time: Travels with My Ottoman Uncle* (London: Profile Books, 2010), 173–74.

<sup>9</sup>Khalidi, *Palestinian Identity*, 115.

<sup>10</sup>Najib Nassar, *Rasa'il Sahib al-Karmel*, ed. Walid Khleif (Nazareth, Israel: Matba'a wa-Ofset al-Hakim, 1992), 143.

<sup>11</sup>Ibid., 80.

<sup>12</sup>Najib Nassar, *al-Zira'a al-Jaffa* (Haifa, Palestine: al-Karmel Press, 1927), 256.

<sup>13</sup>Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley, Calif.: University of California Press, 2002).

<sup>14</sup>Nassar, *al-Zira'a al-Jaffa*, 240.

<sup>15</sup>Diana Davis, *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa* (Athens, Ohio: Ohio University Press, 2007); Jennifer L. Derr, "Drafting a Map of Colonial Egypt: The 1902 Aswan Dam, Historical Imagination, and the Production of Agricultural Geography," in *Environmental Imaginaries of the Middle East and North Africa*, ed. Diana K. Davis and Edmund Burke III, 1st ed. (Athens, Ohio: Ohio University Press, 2011); Samer Alatout, "Hydro-Imaginations and the Construction of the Political Geography of the Jordan River," in *Environmental Imaginaries of the Middle East and North Africa*.