

Desert Geopolitics

Arizona, Arabia, and an Arid-Lands Response to the Territorial Trap

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Abstract

In 2014 the largest dairy company in the Middle East, Almarai, purchased a farm near Vicksburg, Arizona, to grow alfalfa as feed for cattle in Saudi Arabia. Almarai is headquartered at Al Kharj farms, just outside of Riyadh, where it has a herd of more than 93,000 milk cows. Given that dairy and alfalfa farms both require an immense amount of water to maintain, what explains these developments in the deserts of Arizona and Arabia? The answers are historical and contemporary, demanding an approach to “desert geopolitics” that explains how environmental and political narratives bind experts across space and time. As a study in political geography and environmental history, this article uncovers a geopolitics of connection that has long linked the US Southwest and the Middle East, as well as the interlocking imperial visions advanced in their deserts. To understand these arid entanglements, I show how Almarai’s purchase of the Vicksburg farm is part of a genealogy of exchanges between Saudi Arabia and Arizona that dates to the early 1940s. The history of Al Kharj and the decades-long agricultural connections between Arizona and Saudi Arabia sheds light on how specific actors imagine the “desert” as a naturalized site of scarcity, but also of opportunity to build politically and economically useful bridges between the two regions.

Keywords desert, geopolitics, agriculture, empire, Saudi Arabia, Arizona, US Southwest



Figure 1. View of Almarai’s farm outside of Vicksburg, Arizona. Fields of alfalfa surround the hay collection site at center. December 2019. Source: Harrison Koch.

In 2014 the largest dairy company in the Middle East, Almarai, paid \$47.5 million for more than 9,800 acres of farmland in La Paz County, Arizona.¹ The operation near the town of Vicksburg includes some dairy farming, but it is primarily dedicated to growing alfalfa as feed for cattle in Saudi Arabia (see fig. 1). A major agribusiness conglomerate, Almarai is headquartered at Al Kharj farms, just outside of Riyadh, where it has a herd of more than 93,000 milk cows. But why does Saudi Arabia have such a large dairy industry? And given that dairy and alfalfa farms both require an immense amount of water to maintain, what explains these developments in the deserts of Arizona and Saudi Arabia? To understand these arid entanglements, I suggest the need

for a *desert geopolitics* framework to investigate the environmental and political narratives that bind actors from different deserts of the world—across space and time. Analyzing the geopolitics of deserts offers a new lens on the extraterritorial lines of connection that have long united the US Southwest and the Middle East, as well as the imperial projects that political, economic, and scientific leaders have built together. Viewed through the lens of deserts, we find a surprising depth and breadth to US-Gulf relations that typically escapes popular attention—such as the seemingly surprising case of Saudi hay farming in the Arizona desert.

In fact, Almarai's purchase of the Vicksburg farm is not surprising at all. It is part of a well-established genealogy of exchanges between Saudi Arabia and Arizona dating to the 1940s. This included two Saudi royal family tours of desert farming operations in Arizona, in 1943 and 1947. And in the reverse direction, a group of Arizona farmers led by David A. Rogers was sent by the US government to help set up Saudi Arabia's first experimental desert farm at Al Kharj from 1944 to 1945. US officials harnessed these farmers' knowledge of dryland agriculture in hopes of developing a favorable relationship with King Ibn Saud (Abdulaziz ibn Abdul Rahman) and the fledgling state of Saudi Arabia, established in 1932. Ibn Saud was keen to promote local farming to bolster his domestic authority and the Americans were keen to help. Rogers, then an employee of the US Department of Agriculture (USDA), was neither the first nor the last Arizonan to venture into the Arabian Peninsula in support of US and Gulf governments' ambitions to promote farming in their respective deserts. US-Saudi relations continue to work through circuits related to desert agriculture—a fact that receives little attention, but which begs a geopolitical perspective to understand.

The field of geopolitics encompasses a great deal, but for critical geographers today, it most fundamentally reflects how people visualize and make sense of the world by associating political and moral values with various places (geopolitical imaginaries), and how they act on those maps (geopolitical practices). To study geopolitics is to examine “the geographical assumptions, designations and understandings that enter into the making of world politics.”² A geopolitics of deserts would thus direct our attention to how deserts have been imagined and acted on in highly patterned ways. For instance, they are often imagined as places of desolation, emptiness, wasteland, and social and environmental extremes—and then acted on accordingly through being selected for weapons testing zones, desert greening campaigns, or scientific laboratories.³ Critical geopolitics emphasizes the fact that all seeing is political, so we must also investigate *who* is narrating the desert in a particular way and with what effect.⁴ Sometimes these patterns reflect popular, “commonsense” narratives and are reproduced unreflexively. Other times they are reproduced strategically by actors with a vested interest in promoting their situated worldview. In both cases, the effect is to transform a morally, culturally, and politically infused vision of places, people, and landscapes into something that seems “natural.”

One such rhetorical move—producing the “desert” as a commonsense environmental imaginary—has long underpinned US-Saudi relations. The desert thus becomes a naturalized site of intervention to justify extraterritorial lines of connection and “brotherly” relations between the two countries. This article shows how jointly forged imaginaries of the desert have been enlisted in both foreign relations and domestic state-making in the US West and the Arabian Peninsula. Extending far beyond the familiar tropes of weapons, war, and oil in analyses of US relations in the Middle East, I raise questions about the pasts and presents of desert geopolitics that open up broader issues about environmental history, desert agriculture, and colonialism in both places. Perhaps the best known case today of desert agricultural imperialism is the Israeli settlement in

Palestine, ranging from the earliest Zionist farming projects to more recent tree-planting campaigns and the state-led takeover of scarce water resources needed to sustain Palestinian and Bedouin farmers.⁵ Important as this case is, it is just one part of a larger story of arid lands empire.⁶ By developing a desert geopolitics approach to explain the history of ties between Saudi Arabia and Arizona, this article aims to open up a broader perspective on desert-to-desert connections and develop unique insights into how area and region are implicated in obscuring a long and far-reaching history of imperial collaboration in the Middle East and United States, as well as other arid lands more globally.

The Geopolitics of Deserts: An Arid Lands Response to the Territorial Trap

In their 1999 article, “A Maritime Response to the Crisis in Area Studies,” Martin Lewis and Kären Wigen describe the steady decline of area studies programs and funding schemes in the United States from the 1970s to the 1990s. As the Vietnam War and then the Cold War ended, geostrategic justifications for area studies suddenly felt less salient to policy makers and university administrators. Academics themselves had also begun critiquing area studies approaches for various political and intellectual shortcomings.⁷ One criticism, then and now, is that area studies research and forms of knowing can often be “territorially trapped”⁸—that is, they are bound by rigid spatial frames of the global map, which neglect the dynamic ways that people, ideas, commodities, and power relations cross borders and unite places far removed from one another.

Recognizing the validity of this critique, but also recognizing the continued salience of territorially defined political geographies and regional knowledge, geographers and other social scientists have since grappled with the utility of area studies frames and how best to overcome the intellectual challenges posed by the territorial trap.⁹ Lewis and Wigen’s article introduces a “maritime” response to these challenges, stemming from a project supported by the Social Science Research Council called Oceans Connect. The best-known outgrowth of this project has been the field of Indian Ocean studies, but the original idea was more global in scope—reimagining the world’s oceans as “lively zones of contact (and conflict)” to focus scholarly conversations about global connection in novel ways, but without losing the importance of place-based geographies.¹⁰ The present article takes inspiration from the Oceans Connect approach to the challenges of area studies today, as well as the need to rethink the territorially trapped visions of geopolitics beyond the state system.

Instead of focusing on oceans, though, I propose an arid lands response to the territorial trap by asking, how might a geopolitics of deserts redirect our attention and offer new insights about global connectedness today and historically? What might we glean from investigating the myriad ways that deserts of the world are connected with one another? How might we (re)think power, area and region, territory, and extraterritoriality by placing arid lands as the locus of scholarly attention? What kind of actors might come into focus as power brokers and mediators of relations that work through desert networks? Like the maritime response articulated by Lewis and Wigen, an arid lands response to the territorial trap would approach deserts “not merely as the peripheries of one or another territorial civilization but as diverse, cosmopolitan communities in their own right.”¹¹ As I argue here, this transregional view on deserts is also necessarily trans-historical: deserts of the world have long histories of connection, which get invented and reinvented in diverse but also patterned ways across time. This is especially visible in the case of

the Arabian Peninsula and the US West, which I focus on here, but which is far from exceptional in the broader scheme of “desert geopolitics.”

Like oceans, deserts represent an environmental imaginary that is shaped by certain physical traits. But humans always filter these traits through social, cultural, and political lenses—sometimes their unique features are deemed important (e.g., emphasizing the differences between deserts in Arizona and Arabia), and other times they are ignored (e.g., emphasizing a more global desert experience). Aridity is arguably the most significant trait of deserts, so, predictably, water resources are a central concern for actors seeking to manage, inhabit, and interpret these lands. Yet many deserts have access to plentiful water supplies, either surface water or groundwater, which Indigenous communities, scientists, and engineers have harnessed through impressive pumping and irrigation projects across the world and across history. Just as one would never think to detach “water” from the story of oceans in the maritime response to the territorial trap, an arid-lands response would not treat “water” as a separate category of analysis. The relationship between the landscape and water is precisely what makes a desert a desert. A desert geopolitics framework is thus distinct from the vast literature on water studies insofar as it refuses to take the “*place out of the landscape*”¹² by detaching water as a separate category of analysis.

Water is, of course, highly political and management decisions are subject to serious debates and anxieties at many scales, but often with a sense of higher stakes in desert settings.¹³ In the United States, anxious narratives about water and agriculture are especially prevalent in the Southwest—not just because the region has historically been home to large commercial farming ventures, but also because the water-scarce desert landscape is visually evocative, and critics readily use its imagery to illustrate the “unnaturalness” of water-intensive use for agriculture. This is particularly evident in the case study at hand: tropes of extreme aridity and desiccation pervade the media coverage of foreign investments in farming across the US West, with headlines warning of “exporting” the region’s precious water supplies through hay and suggesting that foreign buyers are pursuing a broader strategy of land and water “grabbing.”¹⁴ Of course, since US colonization of the region, farmers have appropriated water from the Colorado River and underground aquifer (or fossil) water for commercial agriculture—a pattern that continues today. Within the “water grabbing” narrative, though, the desert’s water scarcity becomes politicized in a different way. Here the divide between domestic and foreign actors is emphasized, while slotting consumption into a moral hierarchy of domestic use (good), foreign use (bad). Theoretically, this anxious storyline would be the same in places with ample water resources, but in the United States, this is rarely the case. Rather, the desert serves an important role of amplifying the nationalist message of how “we” use “our” water.

In Arizona, this is vividly illustrated in the media coverage of Almarai’s acquisition of the farm near Vicksburg. It was already operating as an alfalfa farm, drawing its water from underground aquifers—just like Almarai’s alfalfa fields were doing in Saudi Arabia before its farmers sucked the aquifers dry and the kingdom was forced to ban local grain production entirely in 2018. Concern about the Saudis coming to ostensibly do the same thing in Arizona (and another farm in nearby Blythe, California) was relatively muted until a series of articles published by the investigative reporter, Nate Halverson, on the Almarai land acquisitions, which raised the story into the national news circuit for a short time and intensified public debate about the issue within Arizona.¹⁵ In addition to some activist reporting like this, which heavily stigmatized the Saudi involvement, a handful of vocal critics have used the developments to raise

the alarm about “US” water getting exported abroad.¹⁶ University of Arizona law professor, Robert Glennon, for example, has been a major critic of agricultural policies in Arizona. In various op-eds and interviews, he has routinely raised alarm about what he describes as the wholesale export of the state’s water to Asia, telling NPR, for example, “Those containers filled with alfalfa headed for China—they might as well be filled with massive amounts of fresh water.”¹⁷

Problematic as these commodity circuits may be for Arizona’s ecology, a historically grounded arid lands response to the territorial trap would push beyond the sensational narratives about “land grabbing” and “water grabbing,” which dominate critiques of transnational agriculture enterprises.¹⁸ A geopolitics of deserts, by contrast, would resist easy tropes about arid lands and instead ask how specific actors imagine these places as distinct landscapes, and how these differences are then acted on to shape policies and material interventions in and across them. Storylines of anxiety, such as land grabbing, water theft, or ecological collapse are themselves important elements of geopolitics (i.e., how people narrate the world and act on it), but they should be *analyzed* rather than taken as part of a scholar’s analytical toolkit.

A transregional and trans-historical view on deserts allows us to interrogate these narrative elements of geopolitics, while also asking how specific actors use them to materially intervene in the world. Particularly useful here are the insights of transnational and environmental historians, as well as STS (science and technology studies) scholars, who have been leaders in tracing the circulation of ideas and things across borders of space and time, while also contributing to “a more inclusive understanding of intellectual and cultural exchanges, challenging the ways in which we tend to assign positions of centre and periphery on our mental maps.”¹⁹ By linking places as diverse as Chile, California, and Montana or France and North Africa, socialist Eastern Europe and the Middle East, scholars in these fields creatively upend the easy metropole-periphery binaries used to describe the geopolitics of colonial exploitation. “Rethinking exchanges between colonizers and colonized,” Körner argues, has “challenged preconceived ideas about the flow of ideas and related cultural practices, emphasizing instead the hybrid nature of colonial relationships.”²⁰

Holding such hybridity and multidirectional flows of power and things in focus is no easy feat. To do so, that is, to read colonial histories alongside contemporary developments, I am inspired by Rob Nixon’s injunction to analyze what he refers to as the “postcolonial pastoral.” In approaching environmental histories, he notes that the dominant paradigms of romantic Jeffersonian agrarianism and English pastoralism have always “depended on the screening out of colonial spaces and histories.”²¹ Not content to stop at this moment of critique, he asks, “But what happens when memories of colonial space intrude on pastoralism, disturbing its pretensions to national self-definition and self-containment? The result is a kind of writing that I call postcolonial pastoral, writing that refracts an idealized nature through memories of environmental and cultural degradation in the colonies. Postcolonial pastoral can be loosely viewed as a kind of environmental double consciousness.”²² Such a “double consciousness” is always needed in analyses of colonial presents and is fundamental to geography’s long tradition of landscape studies.²³ This tradition has always sought to keep the many political layerings of the postcolonial pastoral in focus, but it can be extremely challenging in practice because of the multiple spatial and temporal scales that are implicated in any one research question or site of analysis. In this article, I thus pull on multiple threads within political geography, environmental history, and STS to articulate the double consciousness of empire in the Arabian Peninsula and

the US Southwest—and to illustrate how a geopolitics of deserts might explain their many entanglements. As the next section details, this begins with a look to the past.

Arid Entanglements: Arizona, Arabia, and Al Kharj

The Arabian Peninsula is not a place that outside observers commonly associate with commercial agriculture. Developed in tandem with local leaders, farming was an important project of European and US agents of empire, however. Whereas British colonial agriculture projects in the Middle East pulled on the expertise of administrators and technocrats with experience in other corners of their empires, the Americans largely drew on *domestic* expertise to realize their modernizing missions abroad. Prior to World War II, US experts sent to work in the Arabian Peninsula in service of the US government and private companies seeking a foothold in the region drew from their imperial experience in the US West. Since food was a point of concern among local leaders, Americans were quick to promise the introduction of modern agriculture. Doing so in the Arabian desert required special skills, though, so US citizens were recruited to these projects explicitly because of their arid lands expertise. These skills were developed in the Southwest, where US colonization was closely tied to bringing the arid region under cultivation and in otherwise wresting control of land, water, and natural resources from Indigenous communities resident there.²⁴ The expertise that US scientists, farmers, resource managers, and other experts had developed over decades of intensive colonial expansion and settlement in the desert Southwest was essential to how they and their political allies narrated their special fit with the needs and interests of state builders in the Arabian Peninsula. Fore among these skills was how to build elaborate irrigation and pumping networks, and a keen understanding of the political and symbolic power of water in the desert.

Some of the first of the US experts sent to the Arabian Peninsula were from Arizona—not Texas, as many scholars and observers might suspect. The prominence of Texas oilmen in laying the groundwork for US empire in the Middle East is well known. Yet before the Texas connection was established, Arizona experts were leaders in forging connections in the region. They did so primarily on the basis of the story they spun about deserts. As Marcus Burtner has argued, a wide range of scientists, explorers, and cultural entrepreneurs actively “crafted Sonoran Desert nature into a body of knowledge,”²⁵ “transcribing” Arizona’s desert as a kind of laboratory where they acquired special arid-lands knowledge. These individuals drew on the tropes of modernist science to cast themselves as experts that could be dropped into any desert setting to apply their know-how. This use of expertise was first visible with the US-sponsored Agricultural Mission of 1942 in Saudi Arabia, for which government officials made a point to send a team with special experience in arid lands. Led by Karl S. Twitchell, the mission was a grand tour of Saudi Arabia to map the state of its water and land resources, and then to produce a survey report and set of recommendations for future agricultural development.

Twitchell, a US engineer and geologist, had spent several early years in Arizona before his first trip to the Arabian Peninsula, where he eventually befriended King Ibn Saud.²⁶ Establishing himself as a royal advisor years before the Agricultural Mission, he no doubt knew how effective the “desert” was in telling a compelling story of commonality and an empathy for the challenges faced by his Saudi counterparts. Indeed, Twitchell reports having been sent on King Ibn Saud’s request to undertake a trip in 1940 “over the southwestern states where conditions are somewhat similar to those of Najd” to consider the possibilities for water and agricultural development in that central region of Saudi Arabia.²⁷ His report of this fifteen-

thousand-mile journey across the American desert lands was to become the basis for his discussions with the king and his advisors about the expeditions that ultimately became the Agricultural Mission. Seeing an opportunity to advance both Saudi and US interests, he began to tout the American “gospel of irrigation”²⁸ in Saudi Arabia and lobbied for US funding for further agriculture development.

The primary follow-on project that Twitchell championed after the 1942 mission was King Ibn Saud’s personal farming venture at Al Kharj—a project he successfully convinced the US to support by sending the team of Arizona farmers led by David A. Rogers mentioned above. Al Kharj was located fifty miles south of Riyadh and had been targeted for agricultural production because of the region’s unique limestone sinkholes, where aquifer water could easily be tapped. King Ibn Saud had first tried to develop farming there with Egyptian and Iraqi support in 1937, but he later had the oil company Aramco take it over. By the time the 1942 Agricultural Mission passed through the area, 2,500 acres were under cultivation and an additional 1,000 acres were being prepared for irrigation.²⁹ Once US backing was secured, management was passed to the Rogers team in 1944, but it reverted to Aramco once more after US support was withdrawn. A full accounting of the Al Kharj Farm is beyond the scope of this article, though historical and contemporary accounts vividly illustrate how it was among the king’s most favored pet projects.³⁰

None of the histories of Al Kharj directly interrogate the “desert” as a landscape or as a geographic imaginary, but it figures prominently in all aspects of the project. In the contemporary news reports, the archival record, and in later analyses of the project, the fact that Rogers and his farming colleagues were from Arizona is consistently remarked on. Originally hailing from Skull Valley, Arizona, little is known about these men. When Rogers was sent to lead the US delegation at Al Kharj from 1944–45, he was employed by the USDA’s Soil Conservation Service and, as Hart asserts, “The mission of highly educated graduate farmers . . . were old personal friends, and all three were soil scientists, agronomists, and horticulturalists.”³¹ Others were added to the team, but the “Rogers mission” was nearly always described as being one of Arizonans, as seen in Hart’s further elaboration:

The mission worked hard in extremely primitive conditions, doing great credit to the US image in Saudi Arabia. It successfully produced excellent wheat and a variety of vegetables without artificial fertilizers. (A 1945 locust infestation wiped out the crops completely, but the team began again and succeeded again.) From the king on down, enthusiasm for the mission spread. Oasis farmers came to inspect the irrigation and to learn how to avoid overirrigation. The quality of the crops impressed them. They also admired the toughness and resilience of the Americans and their hands-on, but scientific, farming methods. . . . The king, who loved the desert and camped in it often with hundreds of his entourage, was a keen farmer and took an admiring interest in the energy, endurance, and wisdom of these Americans of desert upbringing. He not only reassured them that their labors were appreciated, he treated them like his sons. It was a great adventure for the team, and because news in Arabia traveled with astonishing rapidity by human grapevine, word of the success of the American al-Kharj demonstration farm spread far and wide.³²

In addition to defining them as “Americans of desert upbringing,” this narrative stresses the fact that the Al Kharj project was held up as an exemplar across the region. Indeed, the farm’s supporters consistently emphasized its promise as a model for the fledgling Saudi state and for

its farmers unfamiliar with the advances in “modern” agriculture. It was to offer solutions to Saudi Arabia’s desert-related agricultural challenges and thus overcome the lack of local expertise needed to bring the desert under cultivation. Al Kharj was, proponents argued, to be an experiment in desert farming that could broadcast knowledge and skills needed to revolutionize Saudi agriculture and introduce commercial farming to a region in desperate need of food for its population (and the millions of visitors who came yearly for the Hajj).

Ultimately, US government support for the project was short-lived—lasting only eighteen months in total. When it came time for officials to renew it in 1945, State Department representatives in Saudi Arabia were highly supportive. In an Airgram to the secretary of state, for example, the US minister in Saudi Arabia, William Alfred Eddy, brimmed with support for the Rogers mission, noting that the king was “emphatic in his praise” of the personnel and that it “attracted favorable attention of everyone.”³³ For an extension of any agricultural project to continue past the eighteen-month contract terms, though, Eddy noted, “The agricultural program must be the one the King himself wants, not one devised at a distance and presented to him. The Mission at Al Kharj sets the pattern he wants: An enterprise of the Saudi Government, sponsored and protected by the King, with personnel ultimately responsible to him.”³⁴ Content to support Saudi royal whims at some moments, but not others, the postwar period and the massive financial and geopolitical reconfigurations underway spelled the end of this kind of largesse in the desert. Instead, the Saudis would revert to Aramco for further support and Rogers would eventually return to live in Phoenix.

What the existing scholarship on Al Kharj suggests, and what my own archival research confirms, however, is that although it was consistently described as an “experimental farm,” it was never actually approached as an experiment to be scaled up. Rather, the farming venture was specifically to produce crops for the king’s personal disposal—most of it being distributed to the vast royal family being supported in Riyadh, while grains were produced as feedstock for the hundreds of royal horses stabled in the area and for other livestock holdings in and around Riyadh.³⁵ The local and international press interest in the Al Kharj project predictably focused on the luxurious watermelons and other impressive fruits and vegetables, which were held as miraculous products of the region’s otherwise completely barren landscape (see fig. 2).³⁶ Yet the less sensational crops—wheat and alfalfa—were arguably more important for setting the stage for what this region was destined to become—the epicenter of Saudi Arabia’s dairy industry and the eventual home of Almarai.

In many ways, the vast fields of forage crops are just as spectacular as a plump tomato harvested from the sand, as figure 3 may suggest. This image, taken by the Syracuse University geography professor, George Babcock Cressey on his travels through Saudi Arabia in the 1950s, is used as an illustration for his article “Water in the Desert,” which he captions thus: “This alfalfa field near Al Kharj in central Arabia is a reminder of the way in which irrigation canals may transform an arid waste.”³⁷ Wasteland or not, the desert expertise that the Arizona farmers purported to bring to Saudi Arabia in the 1940s did entail a deep familiarity with farming alfalfa and other water-intensive grains in the desert.



Figure 2. View of Al Kharj Farm (no date). Source: T. F. Walters/Saudi AramcoWorld/SAWDIA.



Figure 3. Alfalfa field in the Al Kharj area, labeled “Water in the desert, Khafs Dugarah, Saudi Arabia,” slide photograph from SU professor’s visit in the 1950s. Source: George Cressey Papers, University Archives, Special Collections Research Center, Syracuse University Libraries (*slide digitally altered for clarity, with permission*).

Alfalfa Geopolitics

Arizona was recognized as a US territory in 1863 and its boosters were keen to see it become a state. Given demographic anxieties about the region's racial geography, early colonial leaders used various means to entice white settlers from the east and benefited from the federal government's broader effort to colonize the western reaches of the US's growing empire through laws like the 1862 Homestead Act and 1877 Desert Lands Act.³⁸ Working together to recruit these settlers were a wide range of local and national institutions like the Chambers of Commerce for Tucson, Phoenix, and Maricopa County; Southern Pacific Railroad; city and county immigration commissioners, as well as independent "immigration solicitors." They collectively produced extensive boosterist materials to promote the territory and its offerings for agricultural potential for settlers in the 1800s and early 1900s.³⁹ They promised great wealth from various crops, but alfalfa was routinely emphasized in these texts. It was described as the "king"—the leading crop of the entire Southwest, which enriched new settlers and also made ranching and dairying possible in the region.⁴⁰



Figure 4. Promotional images of alfalfa production in Arizona: at left from an 1892 brochure on the “Salt River Valley” (Schultz & Franklin, immigration solicitors); at right from an 1896 brochure on “Alfalfa in the Salt River Valley (Rio Verde Canal Co.).

In addition to the standard set of visuals in figure 4—typically a variation on a prospering field of alfalfa, cows in an alfalfa field, or the harvesting of alfalfa—the written descriptions also emphasize its importance to farming communities in the West. Several excerpts, with the years of publication indicated, are exemplary:

1896: *Alfalfa* is the common name applied to a great forage plant or grass which has within a few years wrought a complete practical revolution in farming on the Pacific slope. In the arid and almost grassless regions which abound west of the one hundredth meridian, cattle raising was an uncertain and often unprofitable industry until the coming of those twin sisters of progress, irrigation and alfalfa. So perfect was the adaptation of this grass to irrigated land and so entirely satisfying in its results, that its introduction and marvelous spread is a marvel even in this century of marvels.⁴¹

1907: If one wants to see alfalfa at home—alfalfa in its glory, falling before the mower six and seven times a year, and green with luscious pasture the first of December and cows feeding on it with great content, let him traverse the Gila Valley, the Yuma, the Salt River or the valleys of the Santa Cruz and San Pedro, as I did. He will see the farmer's side of Arizona, and will see the promise and possibility of a land that only wants good farmers and lots of them.⁴²

1909: Alfalfa has been and is the making of the West. No other plant can take its place in arid agriculture. It makes the richest hay and is the best all-round forage; is best adapted to climate and soils; it solves the problem of soil fertility and maintenance. Alfalfa is not only essential on every irrigated farm, but it is a drouth resistant hay crop for the dry farmer.⁴³

These texts and many others like them illustrate how alfalfa had become firmly established in the agricultural economy of the US Southwest, and doubly so as the region's irrigation networks expanded over the first half of the twentieth century. Thus when experts from Arizona traveled to the Arabian Peninsula, they were taking with them a clear awareness of such gospel-like narratives about the promise of alfalfa and, thanks to its nutritional attributes, its special ability to foster a livestock industry.⁴⁴ Indeed, the Saudis would have encountered this celebratory rhetoric themselves on the two royal family tours of Arizona in the 1940s. In 1943, the royal party consisted of two sons of King Ibn Saud, Prince Faisal and Prince Khalid (each of whom would later become king of Saudi Arabia). The visit received limited media coverage, but where it was reported on, they were said to be on an "inspection tour of New Mexico and Arizona sheep raising areas" and studying "southwestern irrigation methods," as well as visiting the Grand Canyon.⁴⁵

The 1947 visit received much more attention, as it was Crown Prince Saud al Saud who visited. He and his entourage were said to be on a "tour of agricultural regions of the United States," which included several additional stops before their eventual arrival in Phoenix, Arizona.⁴⁶ They were greeted by a full roster of Arizona political notables, as well as the old Al Kharj farm manager, Rogers, who was to serve as their guide to "the agricultural wonders of the Salt River valley."⁴⁷ Or as another journalist put it, the party was to "inspect the marvels of desert fertility under irrigated cultivation."⁴⁸ The author continued that the prince was to be shown "date gardens, fruit farms, alfalfa fields and Hereford cattle," given that he was "interested in agriculture, particularly that of the Salt River valley, where conditions generally parallel those of his own country."⁴⁹ The party also visited numerous farms and dairies, including the Hereford Ranch, where the crown prince was even treated to a bit of entertainment: "Prince Saud expressed a wish to see a cowboy rope a calf, and one of the Bumstead wranglers went into action."⁵⁰

At the end of all the agricultural touring and irrigation inspecting for “ideas adaptable to his own country,” plus a visit to the Hoover Dam, Prince Saud was presented with a special box of seeds. Seeds from more than a dozen flowers and plants growing in the Phoenix area were “gathered at the prince’s request from the grounds of Jokake Inn, where he has been a guest,” and he assured his American hosts that they would be planted “in the royal gardens.”⁵¹ The positive shading of these boosterist news reports aside, the visit was an unequivocal success in fostering goodwill between the Saudi leader and Arizona’s agricultural-political establishment. It also fueled his staunch support for the Al Kharj project for years to come. As Sanger noted in 1954, “Since his visit to the United States, the present King [Saud] has gone often to Al Kharj and drives around the farms comparing what is being done there with what David Rogers showed him in Arizona.”⁵² Even after the US government ended its direct support for the farm and other water-related projects in Saudi Arabia, Saud found ways to keep the project alive—primarily through enlisting Aramco to take over the Al Kharj management—and eventually expanding it. In 1952, he asked the farm manager, then Sam Logan of Texas, to set up a “Grade A Dairy,” which he dutifully did by importing equipment and a range of cattle breeds from the United States.⁵³

The dairy project was a hit and Aramco was quickly put to work helping establish two more dairies in the area by 1953. In addition to the king’s dairy at Al Kharj Farms, another was to be owned by his son Prince Abdullah bin Saud and a third by his longtime advisor and minister of finance, Sheikh Abdullah al-Sulayman.⁵⁴ Not only had al-Sulayman accompanied King Saud on the 1947 visit to Arizona, he was also a driving force behind the Al Kharj project from its inception. Having an “abiding interest in agriculture,” he was the main person to enlist US support for the farm by inviting Karl Twitchell to visit and find ways to expand it—including the Agricultural Mission and the Rogers expedition that were to follow.⁵⁵ Al-Sulayman also found clever ways to exploit its offerings for himself, including appropriating thousands of tons of alfalfa for his dairy, as well as availing himself of the breeding and veterinary services of the Al Kharj staff (something that displeased Aramco auditors a great deal in their wholly condemning 1954 report of the farm’s operation and finances).⁵⁶

Whatever his aims, al-Sulayman was a vocal proponent of the Saudi kings’ (both Ibn Saud and Saud) effort to channel US government and Aramco funds to the Al Kharj project. This, he discovered, was best advanced through a narrative focused on increasing local food production, which would lessen the need for imports and generally improve what would later be termed Saudi “food security.”⁵⁷ In this sense, al-Sulayman was iconic of the kind of connected elite who would come to dominate Saudi agriculture for decades into the future—someone skilled at spinning the stories of scarcity in the desert and the threat of a hungry population, but doing little more than enriching himself and shoring up his political position in the process. Of course, al-Sulayman could not accomplish all this himself—political connection alone a Saudi dairy in the desert does not make. At least, not in the 1950s. As Toby C. Jones has shown in *Desert Kingdom*, the Saudi state was built from Twitchell’s time forward, around enlisting “an international network of technicians and technocrats,” who became “instrumental to helping the Saudi government achieve its environmental and political ambitions.”⁵⁸

These men, Jones argues, and which the archival records vividly affirm, were “fully integrated into the political order.”⁵⁹ Crucially, this was not an order of democracy and egalitarian developmentalism. Rather, it was a mission of imperial state-making—shoring up the Saudi royal family’s authority over space, people, and markets, and ultimately transforming it

“from an empire into a modern authoritarian state.”⁶⁰ The story of Arizonans at Al Kharj and Saudis in Arizona in the 1940s, as well as the knock-on effects of kick-starting an ambitious dairy project controlled by the royal family and other connected elites, represent poignant reminders of the “double consciousness” needed to understand the relationship between empire and the land. The technocrats and desert farming experts brought from the US Southwest to make the Saudi desert bloom were no democrats either. They too were imperialists interested in settling the US West through the gospel of desert agriculture and irrigation. “Colonization,” Frieda Knobloch reminds us, “is an agricultural act.”⁶¹

Extraterritorial Circuits of Dairy in the Desert

Decades later, Al Kharj remains the center of Saudi Arabia’s dairy industry. Almarai, the company that purchased the Vicksburg farm in 2014, is now the largest dairy company in the Middle East and has expanded into additional products, including juice, baked goods, and infant formula, as well as managing a massive logistics network for the distribution of food, grain, and more.⁶² Almarai was founded in 1977 by Prince Sultan bin Mohammed bin Saud Al-Kabeer (who remains with the company as the chairman of its board) with the support of two Irish brothers, Alastair and Paddy McGuckian. The company’s farms were initially scattered around Saudi Arabia, but were later consolidated around several “super-farms” in Al Kharj.⁶³ Access to vast alfalfa and other grain fields, combined with its strategic location above Saudi Arabia’s major aquifers, have made the region a favored destination for the water-intensive activities of grain production, livestock management, and dairy production for many years. The resources and history of Al Kharj did not automatically endow the area with the power to establish a massive dairy industry decades later, however. Decades of governmental policies and subsidies, combined with anxious discourses about “food security,” beginning from those early interventions in the 1940s and 1950s, were needed to foster this development. Nor is Al Kharj’s current agricultural economy in any way fixed or determined. As this section details, recent policy changes around water and agriculture in Saudi Arabia have had significant effects for the region—and are precisely what led Saudi investors back to Arizona in 2014.

Food is always political, but given the arid conditions prevailing in much of the Arabian Peninsula, it has been especially susceptible to securitizing discourses. The interlocking notions of “food security” and “food sovereignty” have had many different expressions across space and time, though they generally reflect a nationalist framing that securitizes a country’s food supplies.⁶⁴ Food security is a shape-shifting discourse that actors can mobilize to advance their public and private interests in many spheres. It is also an inherently spatial discourse, as it implies certain territorial configurations for how a particular place produces and sources its food. Given how globalized agro-commodity circuits are today (and arguably, always have been), nationalist approaches to food policy are invariably confounded by the inability for any country to be truly independent or self-reliant. As Adam Hanieh has masterfully shown, Gulf countries’ *nationalist* food-security policies must be read as fundamentally *international* in scope and part of the entire “agro-commodity circuit, including the provision of agricultural inputs, storage, processing, trade, and logistics.”⁶⁵ The extraterritorial logic of harnessing *foreign* resources to promote *domestic* food aims was something that the first Saudi kings and their advisors learned early, deftly mobilizing the securitizing language in their efforts to access food aid from their new allies in the United States, before, during, and after World War II.⁶⁶

US involvement in Saudi Arabia's Al Kharj project is, of course, part of a more global story about how agro-commodity circuits came to be securitized in the postwar era, when agricultural "modernization" in the name of food security started to become an important tool for building governmental and corporate allegiances. By the 1950s and 1960s, it ossified into a broader movement now known as the "Green Revolution," whereby US-dominated "foundations and scientists joined foreign governments and experts to produce new crop varieties that would respond vigorously to a technological package involving chemical fertilizers, pesticides, mechanization, and irrigation."⁶⁷ Unfolding at a time of intensive decolonization, when formal empires were being dismantled around the world, the Green Revolution allowed US actors to develop new networks of informal empire, baked into agro-commodity dependencies. These schemes were framed through the allegedly benevolent language of "Third World development," but due to the high cost of chemical fertilizers, farm and irrigation technology, and genetically modified plant seeds, they systematically worked to support large farmers and companies while crushing small producers.

The Green Revolution has since been widely critiqued, but the intensive corporatization of agriculture that it set in motion continues today. It also continues to work through the populist language of food sovereignty, through which agricultural monopolists have found ways to mobilize to support elite interests. This process began in earnest in the Arabian Peninsula in the 1970s, when state and corporate actors learned to mobilize food security narratives to support the development of large-scale agribusiness.⁶⁸ Glimmers of this trend are apparent in the Al Kharj project and other contemporary farming ventures, but it accelerated greatly after the 1972–75 world food crisis and the 1973 OPEC oil embargo. The former involved a doubling or tripling prices for internationally traded grain and famine across much of Asia and Africa, as market and political forces united to run down grain reserves and drive up prices.⁶⁹ Largely rooted in US president Richard Nixon's broader economic agenda, US food policies were further securitized following the OPEC oil embargo, when Nixon threatened to use a "food weapon" against OPEC members by imposing a grain embargo in response.⁷⁰ The threats predictably caused great consternation in the Arabian Peninsula, unenforceable as they were (due to the vast array of global sellers who could subvert such a US embargo), but regional leaders nonetheless felt pressured to develop policies that looked like they were undertaking a serious response to protect their countries' food security.

In Saudi Arabia, embargo threats precipitated a massive subsidy program directed toward grain production, as well as vast funds to import cattle and other livestock.⁷¹ Ultimately leading Saudi Arabia to become one of the world's largest wheat exporters, Jones emphasizes that this "success" could not be attributed to market forces: "Growing wheat in such amounts was made possible with considerable subsidies for wheat farmers and through the building of massive systems to pump, store, and irrigate with water from the country's ancient—and nonrenewable—underground aquifers."⁷² He and others have argued that the Saudi agricultural subsidies from the 1970s forward were largely a "political project, designed to shore up support, and stave off dissent, among merchants and other elites."⁷³ Indeed, as Howard Bowen-Jones and Roderick Dutton remarked in 1983, "It is not surprising that there is a bonanza air present in many parts of Saudi Arabia."⁷⁴

Generous agricultural supports may have served the political interests of Saudi leaders for a time, but the environmental reality that they were built on was inherently unsustainable. The consequences were nothing short of disastrous, as the country's aquifers quickly became

depleted,⁷⁵ a reality that was noted long before leaders officially recognized they had reached a crisis point in 2008.⁷⁶ The rhetorical and political shift that year was partly rooted in the growing recognition of the kingdom's environmental limitations, but it was also related to the 2006–8 global food crisis, which like that in the 1970s saw the rapid and dramatic inflation of global food prices. This put economic pressure on government budgets in Saudi Arabia and led to significant political anxieties about potential popular upheaval.⁷⁷ Together, these circumstances triggered a significant transformation of agricultural subsidy programs and food policies, which were primarily targeted at supporting foreign land acquisition and otherwise sourcing grain abroad.⁷⁸

In addition to acquiring foreign farmland, Almarai and other major agricultural players in the Arabian Peninsula (e.g., the Saudi Agricultural and Livestock Investment Company, the Emirati dairy company Al Dhahra, and the Qatari sovereign wealth fund's Hassad Foods) have shifted their business models since 2008 to transform themselves into agro-commodity conglomerates involved in the logistics of food distribution, storage, and so on.⁷⁹ To effect this transformation, Saudi and other Gulf actors strategically mobilized narratives about the precarity of their desert environment alongside the food security discourse, which “validated state-led support of the largest capital groups involved in agribusiness activities, helping gird their internationalization through regional and international agro-circuits, and simultaneously reinforcing their control over domestic agricultural production and distribution.”⁸⁰ As this article has shown, the overall dynamics of supporting a class of agricultural elites is not new. The particular configuration of extraterritorial forces at play are different, however, as companies like Almarai move to source their alfalfa outside of Saudi Arabia and new political economic relations begin to emerge.

Almarai's farm in Arizona is one such novelty, but as we have seen, the places and their agricultural communities have been entangled for decades. There are many push-and-pull factors that led the Saudis back to Arizona in 2014. Subsidy reforms and new policies to phase out local grain production beginning in 2008 were part of this. Further, in the rush to cash in on the new subsidies for foreign farmland acquisition, which were announced in 2008, many of the Saudi investments initially went to countries in Africa and South and Southeast Asia, where land politics were contentious from the start, where legal regulations for foreign ownership were problematic, and where farmers were quick to protest. Aware of the sensitivity of the issue of land acquisitions, the Saudi officials tried to assuage local concerns, with one advisor bluntly stating, “We're not talking about a land grab, we are talking about investment in food supply. . . . The idea is to participate in providing food for the world, not just Saudi Arabia.”⁸¹ Yet this was a losing battle and few of the deals in Asia and Africa made it beyond the announcement stage. Instead, investors ultimately “turned towards wealthier countries with extensive farming areas and more secure property rights.”⁸²

Investments in already-developed agricultural markets thus came to be seen as much safer and were even more attractive after the Saudi government announced tighter restrictions on domestic grain production—completely banning green forage by the end of 2018.⁸³ Arizona's rural hinterlands fit squarely in the profile of attractive places to source alfalfa given these circumstances and given the state's long history of political support for farming. Moreover, where the Almarai farm is located in Arizona's La Paz County, groundwater pumping is unregulated. Thanks to decades-old laws, counties across the state are either designated Active Management Areas, or are not. Where they exist, management plans differ by county, but in La

Paz landholders can pump the freshwater aquifers as much as they wish, provided they have a well to do so. To pump more water, the company only had to drill new wells. And when the Saudis took over the farm, La Paz County was quick to issue permits for fifteen new wells.⁸⁴ The dizzying patchwork of water laws across the US West cannot be detailed here, but it has meant that even critics of new farmland deals in Arizona have felt powerless to mount any meaningful opposition.

The sense of political paralysis prevailing in the region is convenient for the Saudi investors. So too is the state's bountiful sunshine, which means more alfalfa can be produced per acre than anywhere else. This is, of course, what the boosters of territorial colonization in Arizona had been saying since the 1800s: "Alfalfa is king!" While the earliest advocates of alfalfa production in the US Southwest were quick to cite the tonnage produced per acre and proclaim the miracle of irrigation, the finitude of water was carefully omitted. This would indeed be an inconvenient headline (or even footnote) for the celebratory rhetoric used to invite white settlers to Arizona, but the state's colonization was ultimately founded on the myth of abundance or, what Gökçe Günel describes as a myth of "resource infinity."⁸⁵ It was also founded on the myths of the "virgin land" frontier, which belied the violence of dispossession that emptied the West of Indigenous communities and, where they remained, simply appropriated land, water, and all range of natural resources for the settler colonialists.⁸⁶

Desert Geopolitics and the Double Consciousness of Empire

Perhaps one day the wells of the Saudis and their neighbors will go dry, but for now the Almarai farm is a quiet place. The resident cows calmly rest in the shade, and an occasional truck heavy with hay rumbles by. Locals occasionally heckle their leaders at community meetings, but most go on about their business without attending to the Saudi funding that supports their area—or the role their predecessors played in helping lay the groundwork for the mega dairies of Al Kharj that they now feed. This is precisely what a geopolitics of deserts and Rob Nixon's postcolonial pastoral can call into question. Instead of "screening out" colonial spaces and histories, we must look to the ordered serenity of the Arizona farm pictured above in figure 1 as a colonial story of arid entanglements. To get beyond the territorially trapped conventions of thinking about land, water, and food in the circuits of empire, we need the "environmental double consciousness" that Nixon calls for.⁸⁷

It is a difficult task, I have suggested, because hybridity, extraterritoriality, and multidirectional flows across time and space confuse our modernist inclination for order. Yet it is a vital exercise if we are to understand the transregional and trans-historical workings of power, as well as the landscapes and environmental imaginaries with which they are interwoven. The spirit of this geopolitical approach to deserts and the double consciousness of empire is powerfully captured in the image in figure 5, which I uncovered while digging through the archives of one of my own departmental predecessors at Syracuse University. Merely labeled "Camel/Coke Double Exposure," the slide is from professor George Babcock Cressey's trip to Saudi Arabia in the 1950s. The transposition of these images opens up countless questions about the geopolitical forces that made it possible for a US geography professor to wander into this corner of the Arabian Peninsula in search of knowledge about "water in the desert," the nature-society relations he sought to describe, and those he himself helped to shape.



Figure 5. “Camel/Coke Double Exposure,” photograph from SU professor Cressey from his trip to Saudi Arabia in the 1950s. Source: George Cressey Papers, University Archives, Special Collections Research Center, Syracuse University Libraries (*slide digitally altered for clarity, with permission*).

The double exposure is no error; it truly is a camel of the Saudi desert affixed to the commercial forces of the US: Coke, roads, sand, and all. To get to this point, though, Saudi and US leaders, technocrats, and farmers needed to align their interests through their stories of commonality. Material realities like water, money, sunshine, machinery, and men were needed to tell these stories. I am of a different generation and gender than Cressey, and certainly a different kind of geographer, but I too have wandered through the Arabian Peninsula in search of understanding. Yet as an Arizonan, I cannot deny that an overarching thread in all these stories, including my own, has been the imperial impulse to *know* the desert—and thus to define it. The double consciousness of empire here does not reject the “desert” as such, but rather unravels its construction and interrogates the work it does to facilitate the constant reworking of power relations across world regions. The geopolitics of deserts I have proposed is but one lens through which this double consciousness might be viewed—an infinite variety of other environmental histories and presents are possible.

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Notes

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¹ “Saudi Land Purchases in California and Arizona Fuel Debate over Water Rights,” *Los Angeles Times*, March 29, 2016, www.latimes.com/business/la-fi-saudi-arabia-alfalfa-20160329-story.html.

² Agnew, *Geopolitics*, 3.

³ Space does not allow a detailed survey of these narratives, but see Davis, *Arid Lands*; Welland, *Desert*.

⁴ Agnew, *Geopolitics*, 15.

⁵ See, esp., Braverman, *Planted Flags*; George, “Making the Desert Bloom”; Gutkowski, “Governing through Timescape”; Kedar, Amara, and Yiftachel, *Emptied Lands*; Tartir, “Farming for Freedom”; Tesdell, “Territoriality and the Technics”; Tesdell, “Wild Wheat”; Trotter, Leblond, and Garb, “Political Role.”

⁶ Isenberg, Morrissey, and Warren, “Imperial Deserts.”

⁷ Lewis and Wigen, “Maritime Response,” 164.

⁸ Agnew, “Territorial Trap.”

⁹ In geography, see, esp., Koch, “Is a ‘Critical’”; Sidaway, “Advancing”; Sidaway, “Geography, Globalization”; Sidaway et al., “Area Studies.”

¹⁰ Lewis and Wigen, “Maritime Response,” 165.

¹¹ Lewis and Wigen, “Maritime Response,” 165.

¹² Kirsch, “Watching the Bombs Go Off,” 229.

¹³ The literature on this is too great to review here, but see Keulertz et al., “Water-Energy-Food Nexus.”

¹⁴ Jervey, “Exporting the Colorado River”; Cooke, “Saudi Agricultural Investment”; CBS News, “What Saudi Farm Companies.”

¹⁵ See Halverson, “What California Can Learn”; National Public Radio, “Saudi Hay Farm.”

¹⁶ This narrative notably silences the fact that the “US” as such appropriated the water rights of Indigenous communities in the region not long ago. See Blackhawk, *Violence over the Land*; Curley, “‘Our Winters’ Rights”; Curley, “Unsettling Indian Water.”

¹⁷ Quoted in National Public Radio, “In Time of Drought”; see also Glennon, *Unquenchable*, “Parched in the West.”

¹⁸ A full review of this literature is outside the scope of this article, but see Allan, *Virtual Water, Handbook of Land*; Babar and Mirgani, *Food Security*; Cochrane and Amery, “Gulf Cooperation”; Kaag and Zoomers, *Global Land Grab*; Sassen, “Land Grabs Today.”

¹⁹ Körner, “Space and Asymmetric Difference,” 3.

²⁰ Körner, “Space and Asymmetric Difference,” 3. See also Finn, *Tracing the Veins*; Goedde, “Power, Culture”; Jasanoff and Kim, *Dreamscapes of Modernity*; Körner, “Transnational History”; Melillo, *Strangers on Familiar Soil*; Pritchard, “From Hydroimperialism”; Tesdell, “Wild Wheat.”

²¹ Nixon, “Environmentalism and Postcolonialism,” 239.

²² Nixon, “Environmentalism and Postcolonialism,” 239.

²³ E.g., Cosgrove and Daniels, *Iconography of Landscape*; Meinig and Jackson, *Interpretation of Ordinary Landscapes*.

²⁴ Blackhawk, *Violence over the Land*; Burtner, “Crafting and Consuming”; Curley, “‘Our Winters’ Rights’”; Frymer, *Building an American Empire*; Knobloch, *Culture of Wilderness*; Koch, “Desert as Laboratory”; Worster, *Rivers of Empire*.

²⁵ Burtner, “Crafting and Consuming,” 11, 277–78. See also Wilder, “Years.”

²⁶ Jones, *Desert Kingdom*; Woertz, *Oil for Food*.

²⁷ Twitchell, *Saudi Arabia*, 44–45.

²⁸ Heslop, “Making the Desert.”

²⁹ See Fakry and Twitchell, *Report of the United States Agricultural Mission*, 99.

³⁰ See Lippman, *Inside the Mirage*, 179–99; Parker, *Making the Desert*, 91–118; Peterson, *Saudi Arabia*, 106–12; Vitalis, *America’s Kingdom*, 70–74; Woertz, *Oil for Food*, 67–70. For contemporaries’ accounts, see Crary, “Recent Agricultural Developments”; Hart, *Saudi Arabia*; Holm, *Agricultural Resources*; Sanger, “Ibn Saud’s Program”; Sanger, *Arabian Peninsula*; Twitchell, “Water Resources”; Twitchell, *Saudi Arabia*; van der Meulen, *Wells of Ibn Sa’ud*.

³¹ Hart, *Saudi Arabia*, 29.

³² Hart, *Saudi Arabia*, 30–31. The most substantive contemporary accounting of Rogers, his work, and his relationship with the King, including many quotes from the man himself and a vivid description of the locust attack, can be found in Nils E. Lind, “Report on the United States Agricultural Mission at Al Kharj,” Enclosure to Despatch No. 108 (April 15, 1945) from American Legation, Jidda, Saudi Arabia. US National Archives and Records Administration (NARA), Records of the Foreign Service Posts of the Department of State, 1788–1964, RG 84.121.8, 1945, Dhahran Post Files, Box 683.

³³ “Airgram: The Minister in Saudi Arabia (Eddy) to the Secretary of State” (June 16, 1945), 890F.612/6-1645, United States Department of State, *Foreign Relations of the United States: Diplomatic Papers, 1945: The Near East and Africa, Volume VIII*, Washington, DC., digital.library.wisc.edu/1711.dl/FRUS.FRUS1945v08, 907.

³⁴ “Airgram: The Minister in Saudi Arabia (Eddy) to the Secretary of State” (June 16, 1945), 890F.612/6-1645, United States Department of State, *Foreign Relations of the United States: Diplomatic Papers, 1945: The Near East and Africa, Volume VIII*, Washington, DC., digital.library.wisc.edu/1711.dl/FRUS.FRUS1945v08, 908.

³⁵ Some readers may assume that this project was part of the Saudi efforts to make Bedouins sedentary, but these nomadic groups’ mobility and lifestyle practices were not politicized in Saudi Arabia until somewhat later. Jones details this further, but the process of developing enlightenment programs and agriculture-focused settlement policies does not begin until the late 1950s. Jones, *Desert Kingdom*, 75–77. Al Kharj, in any case, was almost exclusively an elite project that did not aim to employ large numbers of locals, despite the frequent lip service paid to its potential to do so should its “lessons” ever be scaled up. Such was never the intention of the project, however.

³⁶ Francis, “Arab Farms Boom”; Peterson, *Saudi Arabia*, 112; Sanger, *Arabian Peninsula*, 66; Tompkins, “Arabs and Americans.”

³⁷ Cressey, “Water in the Desert,” 106.

³⁸ Frymer, *Building an American Empire*; Koch, “Desert as Laboratory.”

³⁹ The full archive is available at “Preserving the History of Agriculture and Rural Life: State and Local Literature, Arizona, 1820–1945,” University of Arizona Institutional Repository, uair.library.arizona.edu/item/294220. See also “Agriculture: Arizona: 1890–1930,” Southwestern Wonderland, University of Arizona Special Collections, www.library.arizona.edu/exhibits/pams/agricul.html.

⁴⁰ See Melillo, *Strangers on Familiar Soil*; Seitz, “Imagining Alfalfastan.”

⁴¹ Rio Verde Canal Co., “Alfalfa,” 1.

⁴² Wells, *New Arizona*, 11.

⁴³ Buffum, *Arid Agriculture*, 121.

⁴⁴ Alfalfa’s high protein and nutrient value makes it a favored feedstock to rapidly increase cattle size and improve milk outputs.

⁴⁵ “Arabians Learn Navajo Methods” (December 1943), *Desert Magazine*: 33. University of Arizona Institutional Repository, uair.library.arizona.edu/item/293647; “Arabian Prince Will Visit Grand Canyon,” *Tucson Daily Citizen*, October 13, 1943, newspaperarchive.com/tucson-daily-citizen-oct-13-1943-p-8/; “Saudi Arabia Princes Visit Grand Canyon: Royalty of Kingdom Said to Be Studying Industry in U.S.A.,” *Winslow Mail*, October 15, 1943, newspaperarchive.com/winslow-mail-oct-15-1943-p-1/.

⁴⁶ “Arabian Prince Will Visit Tucson Shortly,” *Tucson Daily Citizen*, January 20, 1947, <https://newspaperarchive.com/tucson-daily-citizen-jan-20-1947-p-1/>.

⁴⁷ “Welcome Set for Visitor,” *Phoenix Arizona Republic*, January 23, 1947, newspaperarchive.com/phoenix-arizona-republic-jan-23-1947-p-14/.

⁴⁸ “Arabian Crown Prince Due Today in Phoenix,” *Phoenix Arizona Republic*, January 26, 1947, newspaperarchive.com/phoenix-arizona-republic-jan-26-1947-p-2/.

⁴⁹ “Arabian Crown Prince Due Today in Phoenix,” *Phoenix Arizona Republic*, January 26, 1947,

newspaperarchive.com/phoenix-arizona-republic-jan-26-1947-p-2/. See also, “Royal Arabian Party Arrives for Inspection Tour of Valley,” *Phoenix Arizona Republic*, January 27, 1947, <https://newspaperarchive.com/phoenix-arizona-republic-jan-27-1947-p-3/>.

⁵⁰ McLain, “Arabians Delighted.”

⁵¹ “Arabian Visitors End Tour,” *Phoenix Arizona Republic*, January 29, 1947, newspaperarchive.com/phoenix-arizona-republic-jan-29-1947-p-2/. The Jokake Inn was later subsumed by Phoenix’s top luxury hotel, the Phoenician. See www.thephoenician.com/history/.

⁵² Sanger, *Arabian Peninsula*, 66.

⁵³ Mildred Logan, “Summary on Al Kharj from Sam T. Logan, Feb. 1985,” Mulligan Papers, box 8, folder 10: 1.

⁵⁴ Mildred Logan, “Summary on Al Kharj from Sam T. Logan, Feb. 1985,” Mulligan Papers, box 8, folder 10: 2.

⁵⁵ Peterson, *Saudi Arabia*, 107. See also, Hart, *Saudi Arabia*, 30.

⁵⁶ “Field Audit Report No. 4, Al Kharj Farms 1954,” August 28, 1954, Arabian American Oil Company, Dhahran, Saudi Arabia. Mulligan Papers, box 8, folder 10: 30–35.

⁵⁷ Peterson, *Saudi Arabia*, 107.

⁵⁸ Jones, *Desert Kingdom*, 11. See also Jones, “State of Nature.”

⁵⁹ Jones, *Desert Kingdom*, 24.

⁶⁰ Jones, *Desert Kingdom*, 237.

⁶¹ Knobloch, *Culture of Wilderness*, 1. See also Tesdell, “Wild Wheat.”

⁶² Fabbe et al., “Almarai Company”; Hanieh, *Money, Markets*, 128; Lambert and Bin Hashim, “Century.”

⁶³ Rasooldeen, “Almarai’s Pursuit”; National Geographic TV Abu Dhabi, “Operation Almarai.”

⁶⁴ Too substantial to outline here, see reviews of the food security concept in Conversi, “Sovereignty in a Changing World”; and Hopma and Woods, “Political Geographies.”

⁶⁵ Hanieh, *Money, Markets*, 115.

⁶⁶ This is a constant thread running through the *Foreign Relations of the United States, Diplomatic Papers* (available at uwdc.library.wisc.edu/collections/frus/), but for a review, see Peterson, *Saudi Arabia*.

⁶⁷ Latham, *Right Kind of Revolution*, 112. See also Ross, *Ecology and Power*; Shiva, *Violence of the Green Revolution*.

⁶⁸ Amery, “Food Security”; Babar and Mirgani, *Food Security*; Hanieh, *Money, Markets*; Jones, *Desert Kingdom*; Woertz and Keulertz, “Food Trade”; Koch, “Food as a Weapon?”; Lambert and Bin Hashim, “Century”; Woertz, *Oil for Food*.

⁶⁹ Gerlach, “Famine Responses,” 930.

⁷⁰ Bowen-Jones and Dutton, *Agriculture*, 162; Smith, “Al Kharj Journal”; Woertz, *Oil for Food*, 139.

- ⁷¹ For a timeline of these subsidy schemes, see Lambert and Bin Hashim, “Century,” 270.
- ⁷² Jones, *Desert Kingdom*, 230.
- ⁷³ Jones, *Desert Kingdom*, 232.
- ⁷⁴ Bowen-Jones and Dutton, *Agriculture*, 30.
- ⁷⁵ Elhadj, *Camels Don’t Fly*; Jones, *Desert Kingdom*; Lambert and Bin Hashim, “Century”; Kim and van der Beek, *Holistic Assessment*; Woertz, *Oil for Food*.
- ⁷⁶ See, e.g., Nowshirvani, “Yellow Brick Road.”
- ⁷⁷ “Saudis Invest in Foreign Agriculture for Food Security at Home,” *Wikileaks*, July 30, 2008, wikileaks.org/plusd/cables/08RIYADH1174_a.html.
- ⁷⁸ Amery, “Food Security”; Hanieh, *Money, Markets*; Jones, *Desert Kingdom*; Woertz, *Oil for Food*, “Global Food Crisis”; Woertz, “Governance”; Woertz and Keulertz, “Food Trade.”
- ⁷⁹ Fabbe et al., “Almarai Company”; Hanieh, *Money, Markets*, 128; Lambert and Bin Hashim, “Century.”
- ⁸⁰ Hanieh, *Money, Markets*, 118, 127–28.
- ⁸¹ Lippman, “Saudi Arabia’s Quest.”
- ⁸² Hanieh, *Money, Markets*, 122. See also Nooteboom and Bakker, “Beyond the Gulf”; Woertz, “Governance”; Woertz and Keulertz, “Food Trade,” 1109.
- ⁸³ Lambert and Bin Hashim, “Century,” 271.
- ⁸⁴ Lambert and Bin Hashim, “Century,” 268; Arizona PBS, “Water Issues.”
- ⁸⁵ Günel, “Infinity of Water.”
- ⁸⁶ Curley, ““Our Winters’ Rights””; Curley, “Unsettling Indian Water”; Smith, *Virgin Land*.
- ⁸⁷ Nixon, “Environmentalism and Postcolonialism,” 239.

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