Along the Shatt: An Environmental and Cultural History of Development in British Iraq, 1908-1932

Samuel Senseman

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Defense Committee Members:

John Willis - History Department - Honors Council Representative and Thesis Advisor

Henry Lovejoy - History Department - Additional Committee Member

Isabel Köster - Classics Department - Outsider Reader

History Department of the University of Colorado at Boulder

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Introduction

In 2014, the Islamic State controlled nearly 40% of Iraq's territory. The way that the jihadist group attracted membership from the local tribes of Iraq was not solely through religious extremism. Instead, they appealed to the country's struggling farmers.[1] Record-low rainfalls coupled with water projects in Syria and Turkey diminished the water available along the two major rivers of Iraq: the Tigris and the Euphrates. What is taught as the 'Fertile Crescent' in highschool world history classes had become a place untenable for most farmers. The impoverishment as a result of this agricultural destitution made the resource poor communities of Iraq ripe for extremist recruiting.

The story of how the environment of Iraq has reached its current state is a long one. For millennia, humans have manipulated the environment of the region to meet the agricultural and economic needs of civilization. 4,600 years ago, the demands of Mesopotamia and Egypt spawned the first large scale commercial timber cutting projects by Phoenicians and South Indians.[2] And, over the next thousands of years, various empires, regimes, and peoples continued to influence the landscape of Mesopotamia for various reasons. Toward the end of the 19th century, the Ottoman Empire undertook various reforms to modernize the empire. A great deal of these concerned the status of the three Ottoman vilayets that would later make up Iraq: Basra, Baghdad, and Mosul. Projects included vast surveys of tribes and land tenure, the construction of barrages and dams and canals, and even the beginnings of a railway system meant to connect from Berlin to Istanbul and from Istanbul to Baghdad.

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[1] Peter Schwartzstein, "Climate Change and Water Woes Drove ISIS Recruiting in Iraq," *National Geographic*, November 13, 2017, https://www.nationalgeographic.com/science/article/climate-change-drought-drove-isis-terrorist-recruiting-iraq.
[2] Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1800* (Cambridge: Cambridge University Press, 1995), 17.

The outbreak of the First World War suspended or even completely upended many of these reforms and projects in Mesopotamia. Initially a small fighting force meant to protect British interests in the Persian Gulf region, an Indian Expeditionary Force invaded the port city of Basra. As the war progressed, the Expeditionary Force slowly progressed up the Tigris and Euphrates. In 1916, the fall of Kut, a city located in central Iraq, briefly repulsed the advance. By the Spring of 1917, however, the ancient city of Baghdad fell to British forces. And at the close of the First World War, British military forces occupied the former Ottoman regions of Basra, Baghadad, and Mosul.

The invasion of Mesopotamia was not Britain's or the West's first encounter with the land between two rivers. For decades before the invasion, the British Empire had expended a great deal of resources to establish its influence in the Persian Gulf. As James Onley has argued, the 19th century British political residency in the Gulf was neither ephemeral nor shallow.[3] The manner in which political agents influenced local politics had far reaching effects upon both the communities that they were embedded in and as the Empire's security in the region. In a sense, much of Britain's initial interest in Mesopotamia was a continuation of the Great Game between the Russian Empire and the British Empire that extended from Afghanistan in the East to the Ottoman Empire in the West. The purpose of the great game was the protection of British India from the rising Russian power. But as international alliances shift and realign so too did the purposes of securing Mesopotamia. At the outbreak of the First World War, the incentive for the invasion was not so much to protect India from the Russian Empire. Rather, the region was under control of the Central Powers. The Ottoman Empire controlled the area *de jure* and the German Empire offered technical assistance in constructing railways and other projects. Even after the

[3] See James Onley, *The Arabian Frontier of the British Raj: Merchants, Rulers, and the British in the Nineteenth-Century Gulf* (Oxford: Oxford University Press, 2008).

war, a substantial reason for Britain's continued occupation of Mesopotamia was its importance as a potential air route to India.[4]

Beyond the needs of security, Mesopotamia and much of the Arab world had caught the British cultural imagination. Priya Satia has thoroughly explored the cultural foundations of a 'covert empire' in Arabia before and during the First World War in her seminal work *Spies in Arabia: The Great War and the Cultural Foundations of Britain's Covert Empire in the Middle East*. British and French orientalists, surveyors, and travelers had spread throughout Arabia, the Levant, and Mesopotamia. Individuals such as Gertrude Bell relayed their experiences of scorching heat, roaming Bedouin tribes, and the ruins of great and ancient civilizations to audiences in Western Europe. The Arabian and Mesopotamian fronts of the Great War offered an opportunity for many of these Edwardian Agents in the region to function in a military capacity. The most famous example being T. E. Lawrence who assisted the Great Arab Revolt against the Ottoman Empire.

A consciousness of the Middle East in the European imagination drew upon deeper sources than 19th and early-20th century writers, however. For many European Christians, the region was the origin of numerous Biblical myths. In addition to the religious connection, increased interest in the sciences of archaeology and ancient empires offered another way in which Europeans were familiar with the area. British surveyors hired by the Ottoman government could not help but identify the various branches of the Tigris and Euphrates over which Assyrians, Babylonians, and Achaeminid Persians had once fought. British military personnel could not help but feel a kinship to Alexander and the various Roman generals who had ventured into the territory. Moreover, translations of *One Thousand and One Nights* had

[4] See Toby Dodge, *Inventing Iraq: The Failure of Nation Building and a History Denied* (New York: Columbia University Press, 2003). After the war, there was still a great deal of hesitation toward connecting the incomplete Baghdad railway to Turkish and French Syrian rails. The reason for this was, once again, security.

become increasingly popular. Images of Abbasid Baghdad, fabulously wealthy caliphs, and strange courts had predisposed European readers to see Mesopotamia as a center of the Muslim Orient.

This myriad of cultural inputs resulted in a sense of familiarity within many Europeans who had little to no personal experience with Mesopotamia. What British forces found as they attempted to travel up the Tigris and the Euphrates was markedly different from images of a Garden of Eden or the Hanging Gardens of Babylon or the valiant conquests of antiquity. Instead, they found an isolated region of a centuries old empire that had fallen behind many of the political and technological innovations that European powers prided themselves on. The Euphrates regularly flooded large parts of the landscape. Many parts of the Tigris were too shallow or too narrow for most steamships to pass. The climate regularly instigated heat stroke and death in those unprepared for the heat. And much of the local flora and fauna was foreign and strange to even the most practiced botanists and zoologists.

However different the Mesopotamian landscape was from European preconceptions, the occupations of the region continued. From 1918 to 1920, Britain continued to administer the three territories. The Sykes-Picot Agreement of 1916 that divided up the Ottoman Empire between Britain and France did little to assuage the worries of proto-nationalists. In April 1920, the San Remo conference—an extension of the Paris Peace conference—formally conferred the three regions of Basra, Baghdad, and Mosul to Great Britain as a class A Mandate. The Mandatory system, supervised by the nascent League of Nations, was meant to develop the political and economic viability of countries until they were able to stand independently and as full-fledged members of the League of Nations. The international system that Woodrow Wilson presented to the world after the shock of European devastation, hoped to combine liberal

idealism with a desire for economic and political stability. “By 1919,” writes Toby Dodge, “with the rise of American power and President Wilson’s liberalism, it became increasingly obvious that annexation was not an option.”[5] For the more conservative political actors based in Delhi, the reality of the new international system had not yet set in. The Iraqi Revolt of 1920 quickly made the new international paradigm clear to members of the so-called ‘Indian’ school.[6]

Until independence in 1932, the British Mandatory government attempted to construct a viable Iraqi state. As the Iraqi Revolt of 1920 had made clear, the Mandatory government’s efforts would be met with a great deal of resistance. Just as much of the machinery of the Iraqi state was constructed, it began to seek accelerated independence from the imperial government seated in London, over 2,500 miles away from Baghdad. In 1921, the Cairo Conference determined Faisal bin Husein al-Hashemi would be king of Iraq. In 1924, the Constituent Assembly opened and the first Anglo-Iraq treaty, meant to cement the relationship between the Mandatory government and the Iraqi state, was ratified. And, in October 1932, the League of Nations terminated the Mandate, granting independence to Iraq.

In this work, I hope to reevaluate the British occupation of Iraq (1914-1932) through an environmental lens. By focusing on how the environment affected the European presence in Mesopotamia the locus of historical observation can become removed from the actions of a handful of political actors in Baghdad. But, perhaps more importantly, an environmental focus makes the paradoxes of colonialism all the more apparent. The paradoxes so often embedded in human models of reality are all too clear when the resulting abstractions are applied to the environment. But just as the environment affects human modes of thinking and exposes the contradictions embedded in human ideology, human actors possess a remarkable capacity to

[5] Dodge, *Inventing Iraq,* 9.
[6] Ibid..

affect landscapes at exceptional rates. Even before the industrial and scientific revolutions, the presence of people has regularly demonstrated its ability to destroy, redirect, and generally influence the environment. The number of Britons located in Mandatory Iraq were relatively few when compared to the vast state apparatuses of India, South Africa, and even Egypt. But those relatively few individuals were able to have a tremendous and lasting impact on the environment.

The previous historical works relevant to this piece can be roughly divided into three categories. First, there are the canonical histories of British Iraq. In this category, I draw largely from Toby Dodge's *Inventing Iraq; The Failure of Nation Building and a History Denied*. Dodge examines many of the contradictions in the British state building project as well as a thorough evaluation of the international system in which the project took place. Peter Sluglett's *Britain in Iraq: Contriving King and Country*, provides a similar narrative to Dodge's work while filling out certain aspects of the British system. I view the third major work in the category, Hanna Batatu's *The Old Social Classes and the Revolutionary Movements in Iraq* as the spiritual and literal predecessor to the two previously mentioned. Batatu is more concerned with developments in Iraq after 1932 but a great deal of the economic information he has is difficult to find elsewhere; moreover, his explanation of the tribal situation during the Mandatory is without comparison. These three works offer a comprehensive political history of Iraq. However, all three largely fail to acknowledge a particularly unique aspect of Iraqi history: the role of the environment in the construction of the state and how the inchoate state affected the environment for its own ends.[7] Moreover, these three histories and the canon that they have spawned poorly

[7] As always, there are exceptions to this statement. I am aware of a few instances wherein Sluglett, Dodge, and Batatu border on environmental histories. Most notably, all three make mention of projects such as the Hindiyah Barrage that allowed for the cultivation of large amounts of territory in Iraq. Additionally, Sluglett offers an interesting look into water pumps and their effects in the Amarrah province in Appendix II of his book, *Britain in Iraq: Contriving King and Country* (London: I. B. Tauris & Company, 2007).

incorporate earlier British awareness and influence in Iraq. What they do include, is generally restrained to importation of colonial experience from India before and during the Great War.

Second, there are several explicitly environmental histories of Mesopotamia before and after the British period. Most notable among these are Camille Cole's recent works on Ottoman Iraq. For the purposes of my own research, her article "Precarious Empires: A Social and Environmental History of Steam Navigation on the Tigris" as well as her co-authored paper "Ottoman Spatial Thinking in Iraq and Arabia" are particularly poignant. Others, such as Isacar Bolaños, have explored French perceptions of Ottoman Iraq before the First World War. Even more environmental histories of the regions around Iraq are readily available. Several authors have even tackled the environmental question in the context of other Mandates.[8] Toby Jones has done thorough investigations into the environmental history of the Saudi state.[9] While some of this research borders on the period and region that I hope to explore, there appears to be a relative void of research into the environmental history of British Iraq.

Finally, there are two historians whose vision I hope to directly build off of. Priya Satia has explored many of the cultural dimensions of British agents within Arabia and Mesopotamia. *Spies in Arabia* offers one such example. But she is—as far as I am aware—the only author to touch on certain aspects of development and technology in Mesopotamia during the First World War, a topic very near to the first chapter of this thesis.[10] Similar to the way Batatu, Dodge, and Sluglett are relatively unconcerned with the history preceding their research, however, Satia mainly refrains from exploring the British period after the First World War. Dale Stahl's unpublished PhD dissertation, "The Two Rivers: Water, Development and Politics in the

[8] See Anat Kidron, "Shaping the Acre region in Mandatory Palestine 1917-1948: Environmental Conditions and Conflicting Colonial Interests," *Mediterranean Historical Review* 37, no. 2 (2022): 229-253.
[9] See Toby Jones, *Desert Kingdom: How Oil and Water Forged Modern Saudi Arabia* (Cambridge, MA: Harvard University Press, 2010).
[10] See Pria Satia, "Developing Iraq: Britain, India and the Redemption of Empire and Technology in the First World War," *Past & Present* 197 (2007): 211-255.

Tigris-Euphrates Basin, 1920-1975," also explores many of the same historical developments, though the geographic and temporal scope of his project is much greater. I hope to construct an argument that combines Stahl's argument that environment development served to reinforce political legitimacy with Satia's foundation of British cultural history. The result, I hope, will supplement the political histories that Sluglett, Dodge, and Batatu have written while expanding the geographic and temporal range of environmental histories in the Middle Eastern region.

The preceding historiography is not exhaustive. The growing popularity of environmental history in regions outside of North America has precipitated a surge in relevant histories in the last decades. When necessary, all sources that I have directly used are credited in the footnotes. However, there remains the vast intellectual framework from which I draw that can not be laid out. Most notably, much of my methodology is derived from environmental histories of North America intentionally or unintentionally. My personal experience brings up a peculiar limitation in my research—I can not read Arabic. As a result of this limitation, the historical argument that follows is fundamentally one-sided. While I can attempt to glean meaning from British translations of Iraqi sources, I am mostly restricted to the British side of the story. This would not be so much of a problem if, like Priya Satia, I was attempting to write a purely cultural history of Britons in Iraq. But I hope to demonstrate that the environment affected and was affected by not just the British but also Iraqis. To compensate for a lack of Arabic language sources, I rely heavily upon empirical data that surveyors, administrators, and various other analysts accumulated. Nonetheless, science is not immune to the bias present. As the second section of this thesis explores, there was a profound lack of scientific knowledge of the Iraqi environment at the beginning of the Mandatory period. To supplement this lack of knowledge, British scientists turned to research being conducted in areas as far away as California and Australia.

The result is that even what may first appear as immutable empirical evidence may actually be the result of a haphazard process embedded with various biases and gaps. This is all to say that while the Iraqi side of this environmental history may be supplemented, it remains a largely speculative object for this researcher.

Furthermore, there is a great deal that can not be explored in the limited scope of this work but that has tremendous ramifications for the project. In particular, two subtopics are of great interest to the historian of Iraq, Britain in the Middle East, and the interwar international system: the role and conflict over ethnic minorities (e.g. Turkmens, Kurds, and Assyrians) and sectarian conflict between Shi'i and Sunni Muslims. While neither topic is directly addressed in this thesis, their historiographical tradition would certainly benefit from a similar environmental perspective.

This work is divided into three chapters roughly following three periods from 1914 to 1932. The first section will explore the encounters between British actors and the Mesopotamian environment before and during the First World War. New technologies such as steamships, economic incentives, and the strategic necessities of the War allowed, encouraged, and required an increase in the presence of British influence. But, as more and more military and colonial agents entered and later occupied Mesopotamia, the reality of what they found was markedly different from their expectations. Before the war, the average European could draw upon relatively few sources of information on Mesopotamia; and a large part of that knowledge was disseminated through Abrahamic religious texts, Eurocentric histories, and romantic travel logs. Moreover, a long tradition of searching for and then preserving 'Gardens of Eden' predisposed explorers, soldiers, and scientists to expect a thriving wilderness. What they generally found, however, was a desert region dominated by erratic rivers. The response to this dissonance took a

few forms. First, the degradation of the Mesopotamian environment from its ancient and biblical roots was widely acknowledged as unfortunate but something that could be remedied. Then British actors set about modifying the environment to both match their preconceptions of what it should be as well as meet the military, political, and economic demands of both the Ottoman and then Iraqi states. And finally, colonial agents regularly imported experiences from other parts of the British empire to make sense of the hostile environment. The effect of all three of these reactions was to support the political legitimacy of the military occupation and then the Mandatory government beginning in 1920. But all three also disregarded the realities of the Mesopotamian environment. Often, the image of an idyllic past caused observers to either exaggerate the rivers' disintegration or to misattribute it. The demands of the successive states and relative lack of knowledge about the Mesopotamian environment also encouraged engineers to pursue projects that were impractical or even damaging to both the environment and its indigenous inhabitants. And, finally, the importation of external environmental experience undermined the recognition of Mesopotamia's unique environment and reinforced antiquated notions of empire despite the rise of a new international system under the League of Nations.

The second chapter is concerned with how those initial encounters influenced attempts to improve the environmental condition of Mesopotamia after the Armistice of 1918. A 1921 study of one particular plant—the date palm—provides a particularly potent case study of how Western science was implemented to gain a more thorough understanding of the state of cultivation. After the war, the strategic and military demands slowly gave way to the needs of political and economic legitimacy. During the occupation and subsequent Mandate, British officials sought numerous means to validate their presence in Mesopotamia in an international culture that increasingly promoted a right to self-determination. For some scientists legitimately curious

about the flora and fauna of Mesopotamia, this gradual replacement allowed for more scientific investigation not so confined by the overbearing demands of strategy. And, as a result of this relaxation, a greater deal of trust could be lended to the methods of Arab cultivators and indigenous environmental projects. This greater allowance for indigenous methods, however, was not absolute. And the same preconceptions of the Mesopotamian environment and race that nagged early attempts to survey and affect the region persisted into this relatively more scientific period. Moreover, as the case of date palms makes clear, the same agricultural spheres that British officials saw as a source of potential legitimacy also provided a means for nationalist Iraqi politicians to promote the cause of independence and undermine British influence in the Persian Gulf.

The third chapter delves into an historical topic that has received more attention in the historiographical tradition but with new insight: tribes. While a great deal of energy has been put into examining how the British Mandatory government romanticized and then cemented the power of tribal shaikhs, less time has been devoted to understanding how the political agents were comfortable with relegating the tribesmen below the shaikh to the status of a pauper. As Hanna Batantu recognized in 1978, the primary reason for the elevation of the shaikh on the part of the British was twofold: the Mandatory government lacked the resources to interact with individual cultivators and the shaikhs offered a useful counterbalance to the growing power of King Faisal I and pro-Independence Iraqi politicians.[11] The romanticization of shaikhs as the natural and pseudo-democratic leaders of their tribes made the solidification of their power at the cost of their tribesmen more palatable. But there were British officials who recognized just how detrimental this practice was for individual tribesmen plunged into a semi-feudal status. Ernest

[11] Hannah Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq: A Study of Iraq's Old Landed and Commercial Classes and of its Communists, Ba'thists, and Free Officers* (Princeton, NJ: Princeton University Press, 1978), 89.

Dowson, in a report on the state of land tenure in late-Mandatory Iraq, saw this process as a direct affront to the Western ideals of individual rights that served as an essential sinew in the Wilsonian international system.[12] This section argues that, in addition to explicit policies that promoted the status of tribal shaikhs, a uniquely British geography of Iraq implicitly relegated tribesmen to a status similar to that of geographic features.

In all three sections there are certain themes that appear and reappear. There is a unique technological aspect to this history. A significant part of any interaction between a modern imperial power and its periphery is the diffusion of various technologies. And these are not limited to the produced industrial technologies such as guns, engines, and steel. Political, scientific, and economic technologies also filtered throughout the young Iraqi nation. Just as British companies introduced the steamship to the Tigris and the Euphrates in the 19th century, scientists introduced a distinctly Western scientific approach to the problems of agriculture, climate, and engineering. And just as the agents of empire viewed industrial products as superior to their predecessors, so too did those same agents often view other Western technologies superior to those present in Mesopotamia. The Mandate system essentially measured the progress of Mandate territories by their proximity to modern Western standards. This onslaught of progress toward Western ideals was not universally accepted by British officials. John Glubb, perhaps the British political officer with the most direct personal experience with Iraqi tribes, frequently lamented the end of the tribal system at the hands of technological advance.[13] In a diary entry from 1923 Glubb clearly laid the discontent he and some of his colleagues felt about the technological development of Iraq:

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[12] For a more complete look at the controversy over individual rights, see the chapter "The Social Meaning of Land" in Dodge, *Inventing Iraq*.
[13] Dodge, *Inventing Iraq,* 100.

> With effect from Woodrow Wilson, the West has continued to demand that the nations of Asia and Africa should make a clean cut with their past, and, at one fell stroke, adopt the mentality and traditions of the Western democracies. The British press, and often politicians also, continue to pour contempt on any country, which does not appear on the surface to have organized its political life on lines identical with those followed in Britain and the United States.[14]

But as we will see, the British project of adapting the Mesopotamian environment required the implementation of the same technologies that would dissolve tribal systems. In the process of trying to restore an ancient Garden of Eden within the land of two rivers, the British Empire sacrificed the realization of another romanticized environment, that of nomadic tribes unperturbed by Western greed and technology. The process of dissolving tribes and how it interacted with the Iraqi environment makes up the bulk of the third chapter. But motivations and processes that fed into that dissolution are evident throughout the British period.

Closely tied to but distinct from the thread of technology is that of knowledge and information. The outbreak of the First World War posed several difficulties to the invading British forces but chief among them was a lack of knowledge of the region's geography, tribes, climate, agriculture, and wild flora and fauna. As Priya Satia's work on Arabia has duly demonstrated, spies and experts on local affairs were essential to the campaigns in Sinai, Palestine, and Mesopotamia. Particularly astute British observers were aware that the Ottoman government possessed far more detailed maps of Mesopotamia's waterways. And, given the importance of those waterways for the transport of military personnel and materials, that

[14] Diary entry for April 1923, quoted in John Glubb, *Arabian Adventures: Ten Years of Joyful Service* (London: Cassell, 1978), 73.

information could have been used with devastating ramifications for the British troops downstream. Knowledge of local cultivation methods and the various environmental risks to that cultivation served as means of solidifying political legitimacy. If those resistant to the British occupation wished to blame a crop failure on mismanagement, the blame could be redirected toward known environmental threats—such as pests—that were largely understood to be outside the control of the state.

There is a third, more readily tangible, throughline in this thesis—the role of an organized international system in developing a country. The canonical authors of British Iraq—particularly Sluglett and Dodge—have thoroughly investigated the various ways in which the Iraq Mandatory government differed from earlier instances of European imperialism.[15] I will mostly refrain from delving too deeply into the international dimension of British Iraq. However, it is worth noting a few things about how it influenced the Iraqi environment. First, many of the environmental and ecological developments which I will discuss in more detail, were of the utmost importance in reports on the development of Iraq to the Permanent Mandate Commission, the organ of the League of Nations that oversaw the various Mandates. Regularly, sections on the state of agriculture and water development projects made up significant sections of these reports. As Dale Stahl has argued, the development of water infrastructure on the Tigris and Euphrates was essential to the Mandatory government's legitimacy within the Mandate but also on the international stage. Moreover, the British government in London was not the only political center attempting to influence the development of Iraq. Within the British Empire itself, both Delhi and Cairo generated their own schools of thought on development and the relationship between

[15] For a more explicit investigation into the formation of the Wilsonian international system and how it affected the development of Iraq, see Toby Dodge's chapter "The Mandate System, the End of Imperialism, and the Birth of the Iraqi State" in his book *Inventing Iraq.* Peter Sluglett's article "An Improvement to Colonialism? The 'A' Mandates and their Legacy in the Middle East," analyzes in what ways the Mandates actually differed from earlier instances of European imperialism.

empire and environment. Beyond Britain's own territories, French and German agents were present in the region in the 19th and 20th centuries.[16] In general, the history of British Iraq can not be reduced to a history of how the British Empire interacted with Iraq. The globalizing process of the late 19th and early 20th centuries ensured the international system had a greater hand in colonial affairs than it had previously; and internal divides in the British Empire as well as external rivalries meant that Iraq had become a battleground for ideologies and polities stretching from Washington to London and from Cairo to Delhi. Both of these throughlines—the history of technology and the international system in Iraq—and how they interact with the Iraqi environment merit a great deal of research that can not be explicitly explored in the scope of this thesis.

Through this thesis, I will argue that the British cultural conceptions of Mesopotamia and those who inhabited it had long-term impacts on how they managed the Iraqi environment. The history of how the British interacted with the Iraqi environment offers insight into both the general history of British Iraq but also into the paternalistic relationship between metropole and periphery, colonizer and colonized, the Global North and the Global South. The Wilsonian system that dominated the world during Britain's occupation of Iraq has had deeply lasting impacts on the international system that still exists. And, as the effects of human-induced climate change grows more and more present in the lives of billions, it is important to evaluate how environmental factors impact the process of developing underdeveloped countries. The majority of this project is focused on the direction of human impact on the environment. But just as every human developmental project had lasting effects on the Iraqi environment, so too did changes in

[16] The presence of Germany is most evident before and during the First World War. In particular, Berlin was heavily invested in the development of the Baghdad railway, something that I return to in the first chapter. For French presence in Mesopotamia, see Isacar Bolaños, "Water, Engineers, and French Environmental Imaginaries of Ottoman Iraq, 1868–1908," *American Society for Environmental History* 27, no. 4 (October, 2022).

climate, geography, weather, temperature, flora, and faun have impacts on humans. British commentators often remarked on how they would remedy the ‘ailments’ affecting Mesopotamia—river disintegration, blight, over-cultivation. But they were less willing to acknowledge how their interaction with the Iraqi environment manipulated themselves.

Chapter One

Encounters

The land between two rivers was not an entirely foreign place to the European imagination in the early 20th century. Rather, the region was the object of much historical and literary attention. Sir William Willcocks, a British engineer, held it to be the location of the Garden of Eden. It was the home of the Babylonian empires. Alexander had once traversed the landscape in his great conquest. And Roman generals and emperors followed suit. Baghdad—the heart of the Abbasid Caliphate—was known as a place of learning and wisdom. And the Arabian Nights—translated into European tongues in the preceding centuries—induced expectations of wild extravagance in the minds of those traversing the Mesopotamian landscape.[17] But the reality that the British-Indian Expeditionary Force found in Mesopotamia was very different from the expectations that had formed in a culture obsessed with the Orient.When British and Indian forces arrived in Basra at the opening of the First World War, there was no Garden of Eden. Instead, they encountered the periphery of another empire that had remained relatively undisturbed aside from a few late efforts at reform. The rivers that Assyrians, Babylonians, and Persians had constructed their empires along irregularly flooded vast parts of the Mesopotamian landscape. Many sections of the Tigris and the Euphrates, legendary for their volume, were too shallow for Western ships to pass. It seemed that Arab cultivators used inefficient irrigation not so much out of abundance of water but out of perceived laziness. The Tigris and the Euphrates were the first—and often only—part of the Iraqi landscape that most of the British-Indian Expeditionary Force Encountered. And the state of the two rivers, and areas the were most

[17] Nadia Atia, *World War I in Mesopotamia: The British and the Ottomans in Iraq* (London: I. B. Tauris, 2016), 33-34.

immediately affected by that condition, shaped later perceptions of the Iraqi environment in the British imagination for decades.

Rather than accepting the realities of Mesopotamia, however, British actors sought several remedies to the apparent discrepancy of what Mesopotamia *should* have been versus what it actually was. First, observers accepted the degradation of the Mesopotamian environment and then placed the blame upon the Turkish government and various racial attributes that were ascribed to Arabs. Second, was the material implementation of technology, engineering, and policy to regenerate what many had felt was lost under millenia of poor human management. And third, Britons regularly imported personal and impersonal experience derived from various other imperial territories to explain the alien landscapes and to envision a path for environmental restoration along Western models.

The following chapter is largely concerned with the most immediate reactions to the discrepancy between British expectations of a desert Eden and the reality of the Ottoman empire's periphery. While it is largely framed around the First World War, what I hope to write is not a military history. I am not so concerned with the victories and failures of battalions as I am with how their movements affected the landscapes they traversed, how their dietary needs impacted local cultivation, how their internal perceptions led to very real ramifications for themselves and the actual denizens of the area. In short, I am interested in how British conceptions of the Iraqi environment fed into the transformative effect of the military—and later civil—occupation on the Mesopotamian landscape.

Like a tell, the preconceived ideas of Mesopotamia consisted of various layers that depended upon the individuals learning, experience, and general disposition. But what is evident in all the chronicles of those who encountered Mesopotamia during and before the First World

War is a combination of preexisting personal colonial knowledge and the presence of a wider cultural understanding of what Mesopotamia ought to have been. The environment of Mesopotamia is the medium in which the disconnect between preconceived perceptions and reality is most evident. There was no doubt that Britons had been operating within and on the periphery of Arabia for years.[18] In fact, knowledge of the harsh climate and vast deserts was a significant part of the region's attractiveness to the likes of T. E. Lawrence and Gertrude Bell who came to enjoy the Arabian and Mesopotamian environment for its own sake. But, once again, the material realities of invasion and subsequent state building undermined much of this romanticization.

If the overt goal of this work is to understand how British actors interacted with the Mesopotamian environment during the military occupation and then Mandatory period, then it is necessary to understand the foundations of imperial ambition and perception upon which it was conceived. The reactions of Europeans to the discrepancy between environmental expectation and reality was varied and any attempt to universalize their impulses could easily be met with a succession of objections. But an environmental-cultural dissonance did not need to be present in *every* Briton who had a hand in the construction of Iraq; rather, just as small waterworks can be felt for hundreds of miles downriver, so too can the actions of imperial agents.

Gardens of Eden

Between 1908 and 1910, Sir William Willcocks undertook a survey of the rivers and irrigation system of Ottoman Mesopotamia. There, Willcocks hoped to successfully survey the region and provide suggestions to the Ottoman government for the improvement of its agricultural viability

[18] See Priya Satia, *Spies in Arabia: The Great War and the Cultural Foundations of Britain's Covert Empire in the Middle East* (Oxford: Oxford University Press, 2008).

and river navigability. In addition to his scientific undertakings, however, Willcocks was enraptured with the biblical significance of the region. His 1912 paper, "The Garden of Eden and its Restoration," intertwines descriptions of barrages, divots, salt flats with references to the Semites, Nimrod, Adam. Soon his program becomes clear: restore the environmental utopia of Eden through the use of modern engineering, science, and colonial machinery.

The history of early-modern and modern Europeans attempting to locate the location of the original Garden of Eden is a long one. Since at least the 15th century, the colonization of tropical Islands throughout the Atlantic and Pacific—in addition to the mainland Eden that the Cape of Good hope was—served to both reinforce European colonialism as well as redefine the role of nature in the Judeao-Christian mythology.[19] The generation of botanical gardens within colonies and the eventual discovery of just how vast the wildernesses of the Americas, Australia, Africa, and Asia were produced a new facet in the European imagination that civilizing missions could later exploit; at the same time, however, anticolonialists used the well-recorded of environmental degradation of these tropical Edens to argue against continued unrestrained economic exploitation. The places onto which this mental construction of a Garden of Eden were applied to were largely restrained to tropical areas around the equator, where the diversity of flora and fauna was at its greatest. But, in the 19th century, a new target for the projection was increasingly emphasized—Mesopotamia.

Unlike the islands of the Caribbean or the Cape of Good Hope, Mesopotamia in the 19th and 20th centuries lacked a tremendous degree of biodiversity. Moreover, the vast desert of the Arabian Peninsula that could be found not too far South from the Euphrates was a stark contrast to the endless forests of other colonial regions. In order to tie the Biblical Garden of Eden in the European imagination to the physical realities of Mesopotamia, observers such as Willcocks had

[19] Grove, *Green Imperialism*, 5.

to substantiate Mesopotamia's merit as the location of the Garden through other means. First, observers such as Willcocks drew primarily from geographical references in religious sources to substantiate the claim that Mesopotamia was the location of the Garden of Eden rather than point to the quality or quantity of local ecology. Second, the lack of quantity or quality of the local ecology could be explained away. The primary way of doing this was not to investigate the ecological complexity of the desert biome. Rather, aside from a few plants such as Date Palms, the flora and fauna of Mesopotamia was largely ignored in favor of emphasizing its ecological decline under the Ottoman state, its various predecessors, the poor practices of Arab cultivators, and the damage that marauding tribes constantly inflicted. "It is extraordinary," wrote Willcocks," how capable an Arab is of turning a country into a desert."[20] There were, as we will later see, valid reasons for concern about the environmental degradation of Mesopotamia. However, the reality of such concerns were often either exaggerated or their cause was misattributed. Regardless, British attempts to reconcile the difference between what the Garden of Eden should be and what they found in Mesopotamia

Beyond the application of Biblical geography to Mesopotamia, Willcocks represents another —perhaps more significant—development for how individuals and states interacted with the Mesopotamian environment. In addition to the cultural attitudes most clearly exemplified in notions of the Garden of Eden, Willcocks was also a harbinger of a new age of technology and science for the Mesopotamian landscape. As Europeans slowly began to trickle into Mesopotamia in greater quantities in the 19th century, they brought with them both the means to observe and affect the environment in a way that had not been done before. Advancements in engineering and the sciences of botany, zoology, climate, and the nascent discipline of ecology

[20] William Willcocks, "The Garden of Eden and Its Restoration," *The Geographical Journal* 40, no. 2 (August, 1912), 142.

meant that Europeans did not need to reserve their visions of Gardens of Edens to already existing tropical forests. Instead, by the close of the 19th century technological innovation made the creation of an Eden in even the harsh desert landscape feasible.

The Comet

In 1885, the *Comet*, a British steamship constructed the previous year in Bombay, ran aground the left bank of the Tigris about 23 miles North of Tikrit. The ships had embarked on a voyage to connect Baghdad to Mosul with steam power. The more southern area between Baghdad and Basra was not alien to Western traders. Basra had been a key part of British India's influence on the Persian Gulf region for decades. As early as 1837, the *Euphrates*, a British constructed steamship, navigated up the Tigris to Baghdad.[21] The *Euphrates* and several other steamships—both before and after the *Comet*—attempted to journey as far as Mosul with no success. Not far North of Baghdad along the Tigris, the river constricted into an obstacle known as the Narrows.[22] Indigenous craft made from reeds, willow, and wood such as *ashufs* (canoes), *taradas* (large canoes), *kufas* (similar to coracles), *keleks* (rafts), and *baghlahs* (barges) were used to navigate the whole of the Tigris and the Euphrates for centuries, if not millenia.[23] However, while such vessels were suitable for exploration and the transportation of low quantities of cultivated and manufactured goods, extensive trade along the Tigris would require larger and faster ships.

The overland route contributed its own difficulties to the connection of cities for the purposes of state building and commerce. Vast sections of the Iraqi landscape were prone to

[21] R. E. Cheesman, "A History of Steamboat Navigation on the Upper Tigris," *The Geographical Journal* 61, no. 1 (1923), 27.
[22] "Mesopotamia and Basra. Military and Transport Arrangements; General Papers for 1916 and 1917," MT 23/697-0029, The Middle East Online: Iraq, 1914-1974, The National Archives (Kew, United Kingdom), *Archives Unbound.*
[23] Ibid., 78.

flooding in the Spring and Summer months when snowmelt inundated the two rivers. Prospective overland trade routes rapidly changed according to the fluctuations of the rivers. In the late 19th century and early 20th century, the German Empire attempted to construct a railway that would connect Berlin to Istanbul and Istanbul to Baghdad.[24] The project, it was hoped, would give the German Empire greater access to the Indian Ocean, something that had been largely monopolized by the French and then the British with the construction of the Suez Canal. In exchange for permitting the construction of the railway, the Ottoman government hoped to both secure access to the trade routes of the Indian Ocean and solidify its political control over Mesopotamia and the Arabian Peninsula.[25] Progress was made and a railway was constructed across Anatolia but, ultimately, it would not be finished before the outbreak of the First World War. The absence of a railway and any other consistent means by which large quantities of goods—both commercial and military—could be moved across the land left emphasized the importance of controlling the Tigris.

In 1923, nearly half a century later, R. E. Cheesman, a secretary of the intermittent Civil Commissioner of British Mesopotamia, Sir Percy Cox, recalled the *Comet's* expedition to connect Basra to Baghdad and Baghdad to Mosul. Cheesman's account largely draws upon state and private records as well as the testimony of Tom Dexter, the teenage engine-driver of the *Comet* when it set out from Baghdad. While records and the less amorphous aspects of personal testimony denote the material reality of navigating and trying to control the Tigris, what Dexter remembered and did not remember—as well as how Cheesman choses to portray the events—make manifest the cultural dimension of the human-environment relationship.

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[24] Jonathan S. McMurray, *Distant Ties: Germany, the Ottoman Empire, and the Construction of the Baghdad Railway* (Westport, CT: Praeger Publishers, 2001).
[25] McMurray, *Distant Ties*.

As the *Comet* began to move upriver of Baghdad, Sir Trevor Plowden—the commanding officer after the death of the ship's original captain in a bath—was quick to send out scouts to tribes located along the anticipated route. Cheesman later commentated, "It is possible Mr. Plowden felt some anxiety as to the disposition of the tribes towards such an innovation as a steamboat passing through their territory, and for the success of the expedition a friendly attitude from those sons of lawlessness was essential."[26] Cheesman's speculation likely was not far off. While Western technology had been present in both the urban centers of Mesopotamia and along its riverways—a substantial portion of the goods that the aforementioned indigenous boats transported were manufactured goods from India—British observers consistently understood Iraqi tribesmen as untouched by European technology, capitalism, and ideology. This understanding took two paradoxical but inexorably connected images of tribesmen in the British imagination: the roving tribal raider inclined only toward anarchy and the noble Arab tribesman living in a primitive democratic society and unencumbered by the vices of modernism.

Plowden's actions certainly would not be unexpected in the context of an expedition regardless of the environment in which it took place. But Cheesman's explication of those actions is indicative of a practice that was well established by 1923: by interfacing with only the leader of a tribe—often the shaikh—British agents dramatically simplified the complexity of inter and intra tribal dynamics. The effect was often the relegation of tribesmen from political and economic actors to the aspects of the landscape, distinguishable from but indispensable to it. Why and how this reduction of tribesmen took place will be addressed more thoroughly in a later chapter. But British maneuvering along the waterways of Mesopotamia can not be understood without considering the role that tribes played in such maneuvers. Moreover, how the crewmembers of the *Comet* interacted with local tribes helps to clarify the attitudes that British

[26] Cheesman, "A History of Steamboat Navigation on the Upper Tigris," 30.

soldiers, agents, and bureaucrats would maintain toward the rural members of Iraqi society for decades.

In the same way that Plowden's actions concerning tribes would anticipate later British attitudes, his arrogance concerning the Tigris would do the same. Not long after the *Comet* became stuck on the bank of the river, the perennial pressure of the Iraqi summer months soon pressed against the Tigris and caused its waters to recede. For dry seasons of summer and autumn, there was no prospect of moving a steamer up or down the shallow waters of the upper Tigris. And the *Comet's* crewmembers were painfully aware of this fact. Plowden's push to depart despite the death of the ship's cabin was likely for fear of missing the spring floods. But the summer heat came sooner than expected and the entrenchment of the ship's prow suggested that the *Comet* would have to wait for the next year's flood before being dislodged. For nearly a year, the ship and much of her crew remained stuck between Baghdad and the journey's original destination, Mosul. Over one hundred miles from Baghdad and any significant British influence, the ribbon of water provided the primary avenue of communication and materials for the *Comet* and her crew.

Plowden, anticipating the coming isolation, sought out a raft by which he could return to Baghdad to relay the ship's plight. Rather than awaiting a raft from Mosul, Dexter suggested the accumulation of wood and the purchasing of skins from neighboring tribes for the purpose of constructing a raft.[27] Plowden assented and, the next day, the crew made contact with an unnamed local shaikh. After some teasing on account of the shaikh's naïveté, Plowden acquired the necessary materials for a raft and valiantly abandoned the ship, crying, "If you can't get out, stick it and do your best."[28] After Plowden left for Baghdad, Dexter attempted to enlist the

[27] Cheesman, "A History of Steamboat Navigation on the Upper Tigris," 30.
[28] Ibid., 31. Cheesman himself questions the modernity of such phrasing. This phrasing and another instance cause him to cast doubt upon some of Dexter's testimony.

services of the tribesmen once again in order to dislodge the ship. But as the men began to approach across the river, the presence of an infamous former Ottoman official, Mahdi Shah, aboard the *Comet* kept the tribesmen from offering their assistance. But a new commander soon arrived by caravan to find the ship and its crew members. He dismissed the troublesome former official and charged Dexter with maintaining relations with the local tribe. But, by this time, the water had receded too much for any manual extraction to be possible.

Over the following year, Dexter continuously interacted with the nearby tribes and, according to his own account, undertook a series of escapades that would not be out of place in a child's adventure book. Cheesman seemed to delight in recounting the series of events that befell the *Comet* and her crew. First, he recounts an encounter with Ottoman officers that "made the Shaikh of the Obaid tribe responsible for the safety of the crew." Moreover, Dexter was so adept at mending pots and pans for local tribes that "a petition was lodged by the blacksmiths and coppersmiths. . . to restrain the amateur tinker."[29] Cheesman goes on to recount how—by riding a bicycle in his white uniform—Dexter single-handedly scared off a group of unknown mounted Arabs. And, to top off the excursion into the mysterious land between two rivers, the daughter of the local Shaikh fell in love with him. Come Spring, "the river and their hopes rose, and on the top of a big flood the vessel once more moved into mid-stream with steam up. . . She reached Baghdad without mishap in twenty-four hours, after an enforced residence of over eleven months."[30]

Cheesman himself expresses some suspicion of Dexter's more outlandish claims. And he is willing to acknowledge the peculiarity of Dexter's "ultra-modern phraseology" in the account.[31] The inconsistency of Dexter's fantastical stories and his phraseology may indicate a

[29] Cheesman, 32.
[30] Ibid..
[31] Ibid., 31.

profound romanticization or misremembering of the past—the two are also not mutually exclusive. But, aside from the occasional remark, Cheesman is unwilling or perhaps unable to dismiss parts of Dexter's story as fanciful. In fact, Cheesman's article relishes in the quirky adventures of Dexter and the *Comet*. The majority of the article is less interested in successful feats of exploration on the Upper Tigris than it is with the ultimately unsuccessful voyage of the *Comet*. Moreover, the tribesmen that the crewmembers of the *Comet* encountered were never identified anymore than as members of the "Jubbur tribe."[32] The lack of identification of the shaikh or any other specific members suggests that either Dexter was unable to or could not be bothered to recall more detailed information. Dexter lived in Iraq for long enough that he was able to relay his story to Cheesman; but he evidently never tried to make contact with the section of the Jubur tribe that he had interacted with for almost an entire year. The effect is the anonymization of the tribesmen and their subsequent relegation to the background. Despite assisting the crewmembers of the *Comet* while stranded, they became nothing more than the backdrop to the adventures of the crewmembers. Cheesman expresses no attempt at or interest in identifying the specific tribal section that the *Comet* interacted with. This combined with the fact that the first known steamship to actually reach Mosul, the *Baghdad* received only minor attention in the article, suggests that Cheesman is less interested in the actual history of steamboat navigation along the Tigris than he is with the escapades of Britons in an foreign land.

Cheesman's preference for the romantic over the material realities of exploration will not be surprising to those familiar with the cultural history of British imperialism. But the romanticization of Mesopotamia and its landscape did not originate from a desire to explore the dark and unknown heart of a continent. Basra, Baghdad, and Mosul were relatively well known

[32] Cheesman, 30. Presumably, Dexter and Cheesman were referring to the Jubur Tribe, one of the largest tribes in Iraq.

to Europeans. Britains had been trading directly with Basra for over a century and sent numerous archaeologists, scientists, engineers and orientalists in the decades preceding the war. A sense of the region's history is ubiquitous in the memoirs and articles of Gertrude Bell, Percy Cox, R. E. Cheesman, William Dobbs, and Charles Townshend. In many ways, the physical place of Mesopotamia did not need to be discovered. Rather, the unfamiliar environment of the Ottoman Empire and Arabs had been grafted onto the place known for its history millenia ago. It was the presence of an alien Other that impeded the British colonial vision rather than a pure ignorance of Mesopotamia.To pierce this self-inflicted veil, the British attempted to reduce the actualities of the Iraqi environment into their more digestible but constructed idea of the Mesopotamian place. Cheesman's article reflects this desire. He never explores the specific reasons as to why the *Baghdad* reached Mosul while the *Comet* did not. He is not so much interested in the shape of barges or how Arab tribesmen used boats or why Turkish officials had done little to allay the difficulty of navigating the Tigris. Cheesman is interested in the story of the *Comet* and Dexter's account of it. By drawing upon past British explorations of Iraq, Cheesman reflected and reinforced the two-dimensional understanding of the environment that British officials had been and, at the time, still were implementing. The ramifications of which deeply affected the British administration of Iraq, the country's environment, and the very social fabric that constituted Iraq.

Fighting the Dragon

The *Comet* reemerged from relative obscurity at the onset of the First World War. Carrying British refugees from Baghdad to the Persian city Muhammerah, she narrowly escaped an Ottoman barrage thanks to the cunning of the leader of the Expeditionary Force, Sir Percy Cox.[33] But the memory of the ship's inability to ford through the upper Tigris was forgotten along with

[33] Cheesman, "A History of Steamboat Navigation on the Upper Tigris," 32.

any lessons that may have been gleaned. The first half of the campaign was marred with logistical and strategic failures. All of which were owing to or exacerbated by the unique geography and climate of Mesopotamia. In the second half of the campaign, after the infamous military disaster at Kut and once the Expeditionary Force had been reorganized, the campaign was beset by fewer logistical errors but still struggled to come to terms with the Iraqi environment. Some members of the Expeditionary Force imported their knowledge of previous colonial experiences throughout the British Empire to make sense of surprising landscapes. Others turned to science in the hope that it could explain or alleviate the struggles of the Iraqi environment. And still others constantly reminded themselves of the conquerors who had come to the land before them—typically Greek and Roman generals. The movements and actions of both Central and Allied powers—and independent actors either abstaining or moving between the two sides—would set the broader tone for British rule during the Mandatory period. And the attempts to reconcile British imaginations of Iraqi place with environmental reality were often the forebears of damaging British and Iraqi policy in the decades to come.

The semi-regular flooding of the rivers determined the nature and timing of various military operations. General Charles V. F. Townshend noted, "during the flood season on the Tigris the banks of the river are invariably inundated, which effectually prevents all marching, or movement of wheeled traffic, over great parts of the country."[34] And while portions of the Baghdad railway had been completed, there was still no rail completely connecting Basra to Baghdad to Mosul. So, following the lead of British explorers and traders of the previous decades, the expeditionary force opted to rely on the frustratingly irregular rivers as the essential means of movement.

[34] Charles Townshend, *My Campaign in Mesopotamia* (London: Thornton Butterworth Ltd., 1920), 42.

As the example of the *Comet* makes clear, navigating the upper portions of the Tigris and Euphrates rivers in even good conditions was difficult for the best suited Western ships, which they often were not. The Lynch Company, which began operating on the Tigris in 1861, was effective in establishing a varied traded network in the lower sections of the Tigris. But as Camille Cole argues, despite its centrality to British informal empire in Iraq, "steam shipping on the Tigris was primarily characterized by environmental and political precariousness. Steamships never conquered Iraq. Instead, they were gradually integrated into regional shipping networks and local prestige politics."[35] Both in spite of this and because of it, throughout the War, British officials regarded the company's expertise in steam shipping in the region as necessary: "after many experiments, [Messrs-Lynch Bros.] evolved what they consider the most satisfactory type, and with this our experiences tallies."[36] The Lynch company functioned as an intermediary between Iraqi technologies—such as the aforementioned water craft—for navigating the Tigris and the Western technologies that had not yet been adapted to the demands of the area.

The size of the company and its level of expertise, however, was insufficient for the needs of the British invasion and subsequent state building. The British invasion of Mesopotamia marked the transition from a policy of promoting trade at the periphery of a global empire to a policy of developing the political, economic, and environmental infrastructure necessary to first invade Mesopotamia and then to support a modern state. The effects for river navigation were profound. In 1915, the British Inland Water Transport section of the force consisted of six steamers and eight tugs. By the end of the war, it had grown to 466 steam tugs and launches, 774 barges, and 414 motor boats.[37] In 1916 alone, the tonnage transported on the Tigris from Basra to

[35] Camille Cole, "Precarious Empires: A Social and Environmental History of Steam Navigation on the Tigris," *Journal of Social History* 50, no. 1 (2016), 75.
[36] "Mesopotamia and Basra. Military and Transport Arrangements; General Papers for 1916 and 1917," MT 23/697-0029, 2.
[37] Arnold T. Wilson, *Loyalties, Mesopotamia: A Personal and Historical Record,* Vol. 1, 1914-1917 (London: Oxford University Press, 1936), 193.

Kut grew from 250 tons a day in April to 850 tons in November.[38] Soon, the Tigris "became overcrowded, and to prevent collisions and groundings an elaborate system of river controls became necessary."[39] In the span of a few years, Mesopotamia had become a key front in the largest war the world had known. And a significant focus for the world's hegemon. While the military operations were at the forefront of the environmental and infrastructural changes that took place in Mesopotamia between 1914 and 1918, concerns of political legitimacy, civil administration, and trade benefited from those developments and soon supplanted them as the primary engine of Mesopotamian development along Western lines.

To meet strategic goals, British forces attempted to adapt the Mesopotamian environment to their needs and vision of what the Mesopotamian landscape should be rather than adapt themselves to it. The British-Indian Expeditionary force called George Buchanan, a British engineer that had been based in Burma, to Mesopotamia in 1916 for the improvement of various river and port features as the Director-General of Port Administration and River Conservancy. In his time in Mesopotamia, Buchanan took on several smaller projects as well as the development of a general strategy for the improvement of Mesopotamian waterways.

The issue that first required Buchanan's expertise was the shallow Hammar Lake, located about 12 miles southeast of Qurnah. The Lower section of the Euphrates flooded into the fifteen mile long lake before resuming its path toward the sea in the southeastern portion. The original cause of the lake's formation is not entirely clear. But Buchanan and Willcocks attribute it to the destruction of the Euphrates' right bank sometime in the 19th century.[40] Despite the initial

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[38] Wilson, *Loyalties*, 193.
[39] Ibid., 195.
[40] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, British Library: India Office Records and Private Papers, *Qatar Digital Library,* 11.

destruction of the bank, however, Willcocks found that most of the water remained in the Euphrates' primary channel until the 1870s. Around then:

> Arabs of the Beni Khaizan tribe cut the Hakika channel originally as a stream a yard wide. As time went on the Hakika channel increased in size, other creeks formed, until finally the bulk of the water of the Euphrates was diverted to the Hakika, and the Euphrates began rapidly to deteriorate and to silt up. . . The tribes were seized with a panic and made a desperate effort to remedy matters: six tribes combining forces to build a bund across the Hakika channel. The first and second year the dam burst, but the third year the work was completed and the waters diverted to their original channel.[41]

In order to reach cities and strategic points along the Euphrates, such as the British garrison at Nasiriyah, it was necessary to traverse the shallow body of water. But, averaging a depth of around two feet during the dry season, Hammar Lake was impassable for most British vessels until the winter and spring floods.[42] And Nasiriyah "was practically isolated, while the tribes, far from being placated, were showing signs of hostility, especially since the failure to capture Baghdad."[43]

To make the lake passable, Buchanan set out about dredging a fifteen mile long channel. There were two preexisting shallower channels by which the main Euphrates could be reached: the Mazliq and the Akaika. After inspecting both, Buchanan determined that "for political reasons the Mazliq was the most suitable, as it passed through some of the richest country in

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[41] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 11.
[42] "Mesopotamia and Basra. Military and Transport Arrangements; General Papers for 1916 and 1917," MT 23/697-0029, 3.
[43] George Buchanan, *The Tragedy of Mesopotamia* (London: William Black Wood & Sons Ltd., 1938), 32.

Mesopotamia, and the dredging of a channel would assist irrigation and pacify a very turbulent people possessing many rifles and abundant ammunition."[44] But, for military reasons, the Akaika was initially chosen.

The Mesopotamian climate and the shape of Hammar Lake, however, would make the actual implementation of Buchanan's scheme difficult. As he later noted, "I do not suppose ever before has a dredger worked under such strange circumstances. A guard of armed men on board, crew's quarters protected with iron plating against Arab snipers, who all night and every night made the harmless dredger an object of attack."[45] The crew of the dredger also experienced scorching heat as high as 115 degrees on the deck and 150 degrees in the stokehold.[46] And—after having made little progress—the ship returned to Basra to await the next flood season.

By the time the dredger was to return to Hammar Lake, however, a railway had been completed that linked to Nasiriyah. The project of dredging a channel through Hammar Lake still continued but for political rather than military reasons:

> Ultimately it was decided to withdraw the dredger and put her on to land reclamation at Basra, and when that was completed she was to return to the lake, but as military reasons no longer existed, political reasons took their place, and it was decided to take in hand the alternative channel by the Mazliq, which would give great satisfaction to the tribes. The Akaika dam was to be rebuilt, and the bund thrown up by the dredger would form an integral part of one of Sir William Willcocks' irrigation scheme.[47]

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[44] Buchanan, *The Tragedy of Mesopotamia,* 133.
[45] Ibid., 135.
[46] Ibid..
[47] Ibid., 135-136.

Aside from flaunting the correctness of his original plan—Buchanan was eventually dismissed for his snobby behavior—the decision to continue the work of dredging Hammar Lake so as to improve relations with tribes is an early example of the British presence in Mesopotamia attempting to solidify its political legitimacy through the development of water infrastructure. The strategic demands of the war prompted British officers to pursue allegiances among local elites and tribes. During the occupation and Mandatory period, military reasoning gave way to the need to undermine nationalist Iraqi politicians. The project of dredging the fifteen mile trench was finally completed in February of 1919, long after Buchanan returned to Burma to continue his work.

Buchanan recalled the project fondly and worthy of the endeavor. But what he leaves out of his later portrayals of the Lake Hammar project is that the initial approach of the British Expeditionary Force toward Nasiriyah was largely responsible for the desolation of nearby tribes. In his own 1917 report, Buchanan notes that "With the advance of the Expeditionary Force to Nasiriyah, the Hakika channel was selected as the most suitable; and on the force reaching the bund it was demolished. From that time to the present the [Akaika] channel has remained open and increased in size to the detriment, not to say destruction, of all agriculture in the neighborhood of Suk-esh-Sheyukh and the ruin of the tribes in that locality."[48] One of which, the tribesmen located in Nashwah, "suffered severely from the high floods of 1915-1916 which destroyed the young palm trees. The people have scattered in consequence."[49] The bund that was destroyed was the same one that Arab tribes had spent three years trying to construct after the Beni Khaizan cut the Hakika channel in the 19th century.

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[48] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 11. It is worth noting that Buchanan refers to the Akaika channel as the Hakika channel in the 1917 report. But given the location described in both his book and the 1917 report, the two are presumed to be the same.

[49] "Tribes Round the Junction of the Euphrates and Tigris," IOR/L/PS/20/C152, British Library: India Office Records and Private Papers, *Qatar Digital Library*, 17.

Moreover, the cost of the total project was not as nominal as Buchanan would later portray it to be. The strategic risks toward a railway that proponents of the dredging project promulgated never arrived. The railway was safe and the channel—from the reflective strategic standpoint—was ultimately pointless and cost a total of three million pounds sterling.[50]

Later projects in, in the area of Lake Hammar included the cutting of an additional five mile long channel of several dimensions to Buchanan's original from Bani Sa'id to Mazliq.The channel was intended to minimize the amount of water that entered the Hammar Lake and reclaim a substantial amount of land that could be cultivate as well "made possible the pursuit of marauding tribes—an important military factor."[51] But, "unfortunately, shoals began to form almost immediate with the result that by October 1919. . . silting up was of such extent that where 10 feet of water was hoped for there was actually only a depth of 2 feet 6 inches."[52] Dredging was thus continued until the 1920 Iraqi Revolt as insurgents destroyed bunds in several places and nullified the majority of the work that had been expended upon the project.[53] The creation of a railway between Basra and Baghdad through Nasiriyah and Hillah further made any return to the project not fiscally viable.

The Disintegration

On a more general level, Buchanan was largely concerned with what he saw as the disintegration of two once mighty rivers. The origins of Buchanan's concern were two-fold. First, despite being

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[50] Wilson, *Loyalties,* Vol. 1, 198. It's not entirely clear that the cost in 1916 was equivalent to three million pounds sterling or if this is the equivalent cost at the time that Wilson published his book in 1936. Either way, three million pounds sterling at the time would be equivalent to hundreds-of-millions of pounds today. Regardless of the accuracy of the expenditure, it is clear that Wilson felt the project cost far more than the worth of political influence over local tribes.

[51] "Military Report on Iraq (Area 6 Lower Euphrates)," IOR/L/MIL/17/15/44, British Library: India Office Records and Private Papers, *Qatar Digital Library*, 404.

[52] Ibid..

[53] Ibid..

less of a romantic than Willcocks, Buchanan could not help but be attracted to the idea of returning Mesopotamia to the flourishing land that was in ancient times before human abuse—particularly Ottoman abuse. Second, there was actual cause for concern over the degradation of the two rivers.

A great deal of Buchanan's 1917 report—largely owing to the constraints of movement during wartime—is drawn from Willcocks' earlier expedition. And Willcocks' sentimentality shines through Buchanan. Just as the former constantly refers to the flowering of Mesopotamia as it once was and the abhorrence of human mismanagement, the latter is happy to intone the same thing, albeit with a grimmer outlook.

Buchanan's outlook is further substantiated by the historical evidence that he himself found for concern. Most notably, Buchanan found the rate of water flow at the Chahala Canal and at the Majar Kabir Canal—both along the Tigris—to be significantly lower. At the Chahala Canal, Buchanan found the rate of discharge to be 14,424 cusecs in the flood season where Willcocks estimated it to 35,000 cusecs; and where Buchanan found the discharge at the Majar Kabir Canal to be 7,818 cusecs, Willcocks estimated it to be 21,000 cusecs.[54] The rest of Buchanan's estimates of the discharge rate does not vary so greatly from Buchanan's.

Name of Locality	Flood Rate (cusecs)	Low-water Rate (cusecs)
Baghdad	106,000	10,600
Kut-el-Amara	160,000[55]	10,600
Amara, above Chahala Canal	35,000[56]	10,100

[54] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 7.
[55] According to Buchanan, the cause of the increase in flood at Kut is the result of the Diala channel between Baghdad and Kut which is completely dry in the low-water season.
[56] The large reduction at Amara is attributed to spill over at various banks between Baghdad and Amara.

Amara, below Chahala Canal	20,000	5,600
Qualat Saleh	4,000	2,800
Ezra's Tomb	13,400	7,700
Kurnah	28,000	
Chahala Canal	14,424	4,503
Majar Kabir Canal	7,818	
Abu Tabar	862	
Michiriyah Canal	4,296	1,500

Figure 1.1 The flow rate at various points along the Tigris in 1917.[57]

A few other surprising discrepancies emerge from Buchanan's survey. While the low-water rate at Baghdad and Amara were roughly the same, the flood discharge at Amara was a fraction of that at Baghdad (Figure 1). Buchanan, blames the 81 canals between Amara and Al-Aziziyah, a city located a little over 200 km to the northwest.[58] And the subsequent canals only made matters worse:

> The Chahala, sometimes known as the Hud, was opened out as a small irrigation ditch about 100 years ago. It now takes nearly half the low-water discharge of the Tigris above Amara, and, after irrigating in an extravagant manner the country through which it and its many branches pass, loses itself in the swamps. . . The Majar Kabir and the Michiriyah are equally wasteful of water.[59]

[57] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 607. The discharges at Baghdad and Kut are from Willcocks but the rest were done by Buchanan
[58] Ibid., 7.
[59] Ibid..

Aside from discharge, the rivers had also grown less direct over the span of the 19th and early 20th centuries. The approximate length between Baghdad and Kut—if one were to walk directly from one to the other—was about 103 miles in 1917. If one were to take the Tigris, however, they would find that the length extended to around 214 miles, over twice the direct distance. Rivers—especially those not yet cemented in their place by centuries of development as those in Europe—obviously meander a great deal. But what particularly distressed Buchanan about this observation was that an expedition in 1837 found the distance between Baghdad and Kut by river to be only 199 miles.[60] While 15 miles is a difference of less than 10% the river's length in 1837, the relatively short time span that the change occurred suggests rapid changes in both the path of the river and how it was utilized. Remarking on an excerpt from the expedition, Buchanan states his sentiment toward the state of the Tigris clearly: "To anyone who knows the river as it is to-day, it is astonishing to read of 'well wooded banks' and an average depth, in the low-water season, of 12 to 36 feet and a width of 600 feet in what is now the 'Narrows.'"[61] At the time of the British invasion, the Narrows were regularly of such low depth that two steamers could not pass each other—a significant restriction on the rapidly growing waterway transportation efforts.[62]

The degradation of the Tigris and the Euphrates was often attributed to either the ineptitude of the Ottoman government or the idleness of Arab cultivators. In British estimations, the disintegration of the waterways at the hand of the Ottoman government spanned the centuries that Mesopotamia was under Ottoman rule. British surveys of both the tribes and the geography of Mesopotamia generally contrasted themselves against Ottoman records—or more often the

[60] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 9.
[61] Ibid. 10.
[62] Wilson, *Loyalties,* Vol. 1, 198.

lack thereof. As Ottoman forces retreated further up the Tigris and the Euphrates throughout the war, they generally retained the administrative records that had been used to govern the area. Even following the war, the British administration was consistently pushing for the retrieval of archival materials that had been taken out of Mesopotamia.[63] As more recent studies of late Ottoman peripheries exemplify, however, the belief that thorough geographic and environmental surveys did not exist was unfounded.[64] In fact, the Ottoman military was particularly interested in creating extremely detailed surveys of rivers and tribal geographies in Mesopotamia and Arabia. Even Willcocks' report that many British officials later relied on was commissioned by the Ottoman government and was even in their position during the war, something that particularly astute observers such as Buchanan initially saw as a strategic risk for British forces.[65]

Even where the Ottoman government had made concerted efforts to mitigate environmental degradations, any successes before the war were entirely accredited to European—and specifically French and British rather than German—expertise. Robert I. Money chronicled the development of the Hindiya Barrage as a remedy to the disruption of ancient and natural water systems by Midhat Pasha in 1875, the Ottoman Grand Vizier. According to Money, Pasha ordered the closure of the ancient Saklawiya Canal located above Al-Fallujah leading to a large overflow of water along the Hindiya Branch of the Euphrates. "To combat this evil," Buchanan wrote in 1917, "the Hindia barrage has been built, and presumably will be taken over and maintained as soon as the country is in a sufficiently settled state."[66] There was some good reason for Buchanan to describe the closure of the canal which provided most of the water for

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[63] "Archives Of Turkish Government Desired By Mesopotamian Administration. British Delegation, Correspondence And Papers Relating To Middle East (Political); Peace Congress, 1919," FO 608/97-0014, The Middle East Online: Iraq, 1914-1974, The National Archives (Kew, United Kingdom), *Archives Unbound.*
[64] See Camille Cole, et al., "Ottoman Spatial Thinking in Iraq and Arabia, c. 1910," *Journal of the Ottoman and Turkish Studies Association* 9, no. 2 (2022): 205-242.
[65] Buchanan, *The Tragedy of Mesopotamia,* 130-132.
[66] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 10.

the Hillah branch of the Euphrates, one of two branches that reunited further downstream. British agents found along the Hillah branch numerous tribes—most notably the Fawwar—that had been devastated or at least attributed their poor status to the drying up of the branch.[67] But there is little reason to believe that Buchanan would have knowledge of tribes adversely affected by the Pasha's closure of the branch. Buchanan largely draws upon Willcocks for information preceding 1914 and, by the time when he ascribed the closure of the canal as "evil," the areas most affected were still largely outside of British influence. The suggestion is that Buchanan was willing to attribute a moral shortcoming on the part of the Ottoman government not for harming tribes in the region with a lack of foresight but for disrupting what he viewed as an ancient and almost natural feature.

At the beginning of the 20th century, following the Young Turk Revolution, the Ottoman government set about remedying the problem by hiring Willcocks and then a British engineer by the name of John Jackson to construct the Hindiyah Barrage. Jackson and his engineers completed work on the barrage right before the outbreak of the war and, upon British occupation of Al-Fallujah, it was found to still be in working order. Money emphasizes the contrast between the innovative European engineers and the conservative locals:

> When, on completion of the new barrage, Sir John Jackson's engineers proposed to commence work on the removal of the old one, the Arabs objected, fearing that the new barrage might be unable to perform the duty assigned to it, and 'besides,' said they,

[67] "See Arab Tribes of the Baghdad Wilayat" (Calcutta: Superintendent Government Publishing, 1919). References to the drying up of the Hillah branch can be found throughout the report but special focus may be directed to the sections on the Fatlah, a tribe that the Ottoman government reportedly moved into Fawwar territory sometime in the late 19th or early 20th centuries.

> ‘goods always have been unloaded at the barrage and transported overland, so why should they not continue to do so?’ The old barrage has therefore not yet been removed.[68]

The only success that British observers generally were willing to credit the Ottoman government for its environmental infrastructure was for its wisdom in hiring European engineers, a wisdom that provincial naïveté undercut. But, the Hindiyah Barrage was ultimately a success. As Money reported, “The delight of the inhabitants of Hilla was great when they saw water flowing past their town at a higher level than for many years previously.”[69] And later reports of tribes along the Hillah branch suggest a general improvement in the well-being of cultivators dependent upon the river.

Such a dismissal as Money’s directed toward the residents of Hillah was not reserved for urban residents and Turkish officials, however. As we have already seen, Buchanan and his contemporaries often expressed frustration at the activities of rural Arab cultivators attempting to improve crop yield. Rather than viewing their actions as practices honed through centuries of knowledge, British officials concerned with water and cultivation were frustrated with what they understood to be a remarkably inefficient and wasteful system. In the lower sections of the Euphrates and Tigris, Arab cultivators attached importance not only to the quantity of water used to irrigate crops but also to the fertile silt that floods could bring.

Western observers found the rice crop to consist of three sections: *Harfi*, rice sown below wheat and barley but above the other main section of rice in May and harvested at the end of August; *Affli*, rice sown in June and harvested in mid-October and the majority of grown rice; and *Shittal*, rice that is sown as *Harfi* or *Affli*, transplanted in August to the lower level of *Affli*,

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[68] Robert I. Money, “The Hindiya Barrage, Mesopotamia,” *The Geographical Journal* 50, no. 3 (1917), 221.
[69] Money, “The Hindiya Barrage, Mesopotamia,” 221.

and harvested at the end of October.[70] The reason for the complex division of rice crops can be found in the irregular flooding of the Tigris and the Euphrates. If the water of the river remained relatively high from May to August, it could be trusted that there would be a high yield of *Harfi* and *Affli* rice. But should the rivers recede early in the summer and not provide the necessary quantities of water, *Harfi* and *Affli* rice could be transplanted to lower ground where it would have access to more water, thus creating the *Shittal* crop. As a result of their proximity to the floods, the different crops received an inverse proportion of silt to water: *Harfi* received high levels of silt from the early floods but less time soaking; *Affli* received moderate amounts of silt and time soaking; and *Shittal* received the most exposure to water with varying amounts of silt depending upon where it was transplanted from.

The system as a whole represents a complex and dynamic process of cultivation with a high degree of resilience to variation in climate and water flow. But observers such as Buchanan were only able to recognize that while the system did away with the need for plowing, it came "at the cost of perhaps ten times the normal amount of water."[71] The British solution to the high water demands of the traditional system was its complete dismissal in favor of the plowing methods utilized in other rice-growing regions of the world. The question of cultivation and its improvement in British Iraq is a complex one to which I will return in the second chapter. But, for now, it is enough to understand that at the time of the British invasion there existed a very intentional and complex system of rice-growing different from that used in other regions. The rice growing system that Arabs in lower Mesopotamia had implemented was particularly suited to the vast quantities of water that the Tigris and Euphrates were able to provide while mitigating

[70] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 28.
[71] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 18-19.

the need for plowing in water. The cost was that the lower sections of the two rivers and the Shatt-el-Arab had a lower depth—an non-issue for indigenous watercraft but a significant problem for the implementation of Western watercraft. In any case, the lower levels and apparent disintegration of the Tigris and Euphrates was not owed entirely to the incompetency or idleness of cultivators; instead, there was a very intentional system in place that had drawbacks but also various benefits for the indigenous cultivator. An inability to see this fact precluded observers such as Buchanan from recognizing just how complex the relationship between Arab cultivators and the Tigris and Euphrates actually was.

Imperial Mirage

Buchanan and his contemporaries are quick to blame both the failures of Turkish governance as well as Arab cultivators. The Director of River Conservancy for the Expeditionary Force partially blamed the disintegration of the Tigris below Amara on Arab cultivation, stating, "the gravity of the situation has been greatly increased by the Arabs having been allowed to reclaim large areas of land on both banks of the Tigris between Qualat Saleh and Ezra's Tomb."[72] And Buchanan's frustration directed toward tribes for such efforts was not isolated to the lower Tigris region. As we have already seen, Buchanan placed the much of the blame for Hammar Lake's size on the Beni Khaizan for cutting the Hakika channel despite those same tribes being the ones to halt the escape of water with a bund that the British Expeditionary Force would later destroy.

Buchanan's willingness to place the blame for the disintegration of the two rivers on Arab cultivators draws—at least partially—from the discrepancy between what Buchanan and his contemporaries believed Mesopotamia *should be* rather than what it actually was. The image of

[72] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 7.

well-controlled rivers that obeyed the command of engineers was drawn largely from Buchanan's personal experience as well as the broader British imperial consciousness. For Buchanan, this experience was largely rooted in Burma and India. Throughout his 1917 report, his 1938 book, and various correspondence, Buchanan is quick to compare the Tigris and the Euphrates to the Irrawaddy River in Burma, where, for decades, British engineers had been working to survey the river and transport moguls had promoted the use of steamers.[73] On the topic of portage, he remarks that "In South Africa, France, Egypt, and India there were well-equipped ports, but at Basra there was only an anchorage, a river bank, and beyond—a swamp."[74]

Buchanan was not alone in his frustration that the water features of Mesopotamia resisted the same technological influence that had been used elsewhere in the empire. In 1907, Marks Sykes—who would later help draft the Sykes-Picot Agreement in 1916—compared the width of the Khabur river, the largest tributary to the Euphrates, to that of England's most familiar river: the Khabur "had grown far greater, being unfordable, and, I should say, almost of the same proportions as the Thames at Maidenhead."[75]And this is not the only reference to the iconic English river. In a report on the status of water transports during the war, one observer, recalled the blunder of Sir John Byles: "in face of the most determined opposition by everyone that knew what was wanted, but as he persistently refused to recognise that the Thames was not the Tigris, he has plant us with 30 entirely useless barges with square ends."[76] Obviously, Sykes and Byles likely did not believe the Euphrates and the Tigris to actually be comparable to the river Thames. But their tendency to do so is the attempt to map familiar environments onto hostile terrain.

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[73] "Report on the Development of Mesopotamia," 20.
[74] Buchanan, *The Tragedy of Mesopotamia*, 45.
[75] Mark Sykes, "Journeys in North Mesopotamia," *The Geographical Journal* 30, no. 3 (1907), 240.
[76] "Transport Arrangements: Control of the Port of Basra and Mesopotamia Waterways. Mesopotamia and Basra. Military and Transport Arrangements; General Papers for 1916 and 1917," MT 23/697-0017, The Middle East Online: Iraq, 1914-1974, The National Archives (Kew, United Kingdom), *Archives Unbound*, 5.

The importation of comforting environmental experiences also appeared in the recreation of British officers. In particular, Sand Grouse offered an avian object that could be hunted in the same fashion that European species of grouse could be. On one expedition up the Tigris, Buchanan "went ashore to shoot sand grouse, which, in this region, are literally in hundreds of thousands, and fly in huge flocks resembling clouds."[77] And the practice of hunting grouse did not subside with Buchanan. In 1923, P. A. Buxton, a British entomologist, recorded just how familiar hunters had become with sandgrouse:

> Among birds which fly to water the most remarkable are the Sandgrouse. . . Sportsmen are aware that the various species of Sandgrouse (pterocles [sic] and other genera) which inhabit nearly every part of the Great Palæarctic Desert water at certain sports on the banks of rivers, at certain regular hours.[78]

Neither Buchanan nor Buxton seem to have been particularly adamant hunters. But Buchanan was able to adequately convey what was so attractive about the sandgrouse of Mesopotamia. "They are slightly smaller than partridge," the engineer writes, "but very handsome birds, not unlike the Scotch grouse in their colouring."[79] Buchanan's relay of his hunting experience appears only in his later recount of his experiences in Mesopotamia. Given the book's intended audience of Britons, it would make sense to relate the sandgrouse to more familiar birds upon reflection. But he imbues the birds with the qualitative assessment of handsomeness, a judgment that goes beyond simply comparing the colors or simple habits of the avian species. Rather, the

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[77] Buchanan, *The Tragedy of Mesopotamia*, 144.
[78] P. A. Buxton, *Animal Life in Deserts: A Study of the Fauna in Relation to the Environment* (London: Edward Arnold & Co., 1923)„ 84. Palearctic is a zoogeographical term denoting Europe, North Africa, and Asia above the Himalayas. For our purposes, Buxton is referring to Northern Arabia, Mesopotamia, and the Levant.
[79] Buchanan, *The Tragedy of Mesopotamia,* 144.

engineer seems to be importing the respectable reputation of hunting in the British Isles.[80] The consequences of such an importation was not as simple as British officers being able to remind themselves of their favorite sport. Instead, it was also an importation of a disposition toward the local fauna.

The colonial knowledge imported from other parts of the British empire was often damaging to the individuals who brought in addition to the landscape that they grafted it onto. British commentators often tried to identify the Tigris and Euphrates with other water systems in its colonial subjects in addition to those in England proper. For Townshend, the flooded landscape recalled Egypt:

> Water extended as far as the eye could reach. Occasionally there were oases of palm trees in little groups or belts; and, here and there, flat-roofed, mud-built Arab villages on slight eminences resembled islands in an ocean. The scenery reminded me very much of High Nile between Cairo and Assiut. This gave me an idea of the sort of battle I should have to fight near Kurna.[81]

But the familiarity was hardly comforting. The association of the two landscapes offered little strategic benefit to Townshend as the flooding only helped to cement Ottoman positions and defenses.

The lack of knowledge concerning the unique conditions of Iraq in combination with a tendency to map English ideals onto colonial subjects helps to explain the mentality that Byles,

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[80] Buchanan is very concerned with his own reputation and goes so far to falsely relay certain claims made by some of contemporaries such as Arnold Wilson. This could help to explain his desire to draw from the respectability of hunting in the British Isles.

[81] Townshend, *My Campaign in Mesopotamia,* 42.

Sykes, Townshend and Buchanan exhibit. As Toby Dodge notes, "British officials were forced, individually and collectively, to fill the gap in their knowledge of Iraq by drawing on previous professional experiences."[82] This knowledge often came from India where the bulk of the expeditionary force and its officers had been operating in the years before the war. The surprises and difficulties of the Iraqi environment were certainly jarring enough that British officials sought familiar comparisons both to offset their ignorance of the area and to better understand Mesopotamia as an extension of the British Empire.

[82] Dodge, *Inventing Iraq,* 63.

Chapter Two

Cultivating the Garden

On November 10, 1918 the British Empire finally occupied Mosul ten days after signing an Armistice with the Ottoman Empire. It was the culmination of a multi-year confrontation of two global empires that spanned three continents and various fronts. But it also marked the beginning of transition. British occupation of the three Ottoman vilayets, or administrative states, was not to cease. Instead, the occupation would continue for nearly two more years without a clear idea of what the political situation was to be. The culmination of four years of open conflict and then nearly two years of political indeterminacy was the acceptance of the Mesopotamian Mandate from the inchoate League of Nations at the San Remo Conference in the April of 1920. The Mandate affirmed the British project of developing Mesopotamia—or Iraq as it was beginning to be called more frequently—in the eyes of the international community. The sentimentality behind the Mandate system was more idealistic than a repackaging of imperialism. The new Wilsonian international order—devised by politicians with new ideas of the Western world's obligations to the developing world—placed real pressures on Mandate-holders to develop their territories to the status of functional polities that could independently participate in the League of Nations.[83] The ramifications of the new international system were not appreciated by everyone who was subject to them. In Mesopotamia—and other mandates—European officials often expected the mandatory government to be a new iteration of older imperial systems but under a new name.[84] The reality of what was to be done in Mesopotamia, as we have already seen, was very different from the expectations formulated through a complex understanding of empire that had been developing for centuries.

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[83] See Dodge, *Inventing Iraq.*
[84] Charles Tripp, *A History of Iraq,* 3rd ed. (Cambridge: Cambridge University Press, 2007), 36.

The acceptance of the Mandate did not, however, go without challenge from the people most directly affected by it. In the years that followed the Armistice, British declarations about the future of Mesopotamia were decisively amorphous. When Iraqi independence should take place, what form of government would take control of the country, and who that government's leader(s) were to be all would remain unanswered. Moreover, new nationalist politics had begun to ferment in the urban centers of Baghdad, Mosul, and Basra. Conceptions of what the emerging state of Iraq was to be were myriad. But the actions of all political actors—British and Iraqi—were centered around the formation of the new Iraqi state.[85] And it was not long before nationalists came into direct conflict with the civil British government at a much larger scale than had been seen before. At the end of June 1920, various pressures culminated in armed revolt in the mid-Euphrates region, then the lower Euphrates region, and then the areas North, East, and West of Baghdad.[86] By late July, the revolt was mostly fading but it had left a lasting impact. For nationalists, the Iraqi Revolt of 1920 became a foundational event for a country carved from three Ottoman provinces that had few unifying forces.[87] For British officials and the Sunni political elites in Baghdad, the revolt represented the anarchist inclinations and wild impulses of nomadic and semi-nomadic tribes. To mitigate what was perceived as tribes' erratic actions, it became necessary for the British civil government and the forming Iraqi government to either control or ally with the tribes. Through environmental manipulation, the British civil administration hoped to reinforce its political and strategic position. By utilizing Western scientific methods, British officials hoped to understand the soil, crops, and water systems of Iraq and thus make them more pliable to change; and, once that greater level of scientific

[85] Tripp, *A History of Iraq*, 42.
[86] Ibid., 43.
[87] See Eli Amarilyo, "History, Memory and Commemoration: The Iraqi Revolution of 1920 and the Process of Nation Building in Iraq," *Middle Eastern Studies* 51, no. 1 (2015): 72-92.

understanding could be achieved, the environment could be manipulated to match with British ideals of a modern nation-state and to reinforce their legitimacy as the mandatory government.[88]

The visions of Willcocks and Buchanan and their various contemporaries of a fallen Garden of Eden persisted well into the Mandatory period. But the difference was that military actions and the romanticism that pervaded generals and soldiers could not aseasily obfuscate the realities of the Mesopotamian landscape as they had done during the war. The state's apparatus was continuously growing and the level of detail that could be achieved through surveys and reports grew with it; but the effects of lackluster information from during and before the War remained. Moreover, the Mandatory government regularly struggled to finance the same amount of state research and infrastructure projects that both British and Iraqi officials often wanted. And so, the reports of Willcocks, Buchanan, and countless other unnamed surveyors were not necessarily supplanted so much as added to or complicated; in this process, their increasingly antiquated notions of empire and environment survived into a markedly different era of international politics, scientific understanding, and economics. Later in the Mandate, the ramifications of such a conservative method became all too evident in the reports of individuals such as Sir Ernest Dowson who found disconcerting developments as a direct result of British policy.

We have already seen an instance of this environmental manipulation when a change in military strategic interests prompted Buchanan to reroute his dredging project on Hammar Lake in order to gain influence with local tribes. As in many others, just as environmental projects became bastions for political legitimacy they also became vulnerable targets for those dissatisfied with the British regime. They represented not just the ever-encroaching power of the

[88] For more on environmental development as a means of achieving political legitimacy, see Dale Stahl, "The Two Rivers: Water, Development and Politics in the Tigris-Euphrates Basin, 1920-1975," PhD diss. (Columbia University, 2014).

state but uniquely British ideas of nature, science, and the intersection of humans and their environment as a whole. The constant influx of methods and technologies from across the globe precipitated an ecological change not so different from the Columbian Exchange that saw the transferral of hundreds of crops, animals, and disease between the New and Old World. But at the time of the Mandate, the institutions of Western science allowed for a greater understanding—or false perception of such an understanding—of the environment and how to manipulate it. The British invasion was not so much an uneven exchange of novel species between previously isolated continents but a methodological coup wherein early 20th century conceptions of science supplanted the way that indigenous Iraqis had interacted with their environment for centuries. Certainly, this experience was not unprecedented in the region. In the 19th and early 20th centuries, the Ottoman government had undertaken various environmental projects to better integrate provincial Mesopotamia into the core of the empire: the Baghdad railway, new land tenure laws, and surveys to name a few. But the British invasion and subsequent occupation marked a turning point both in terms of quality and quantity.

What the Heck is a Date?

As Turkish forces besieged Kut-al-Amarrah in 1916, Patrick Hehir, the head of medical facilities during the siege, expressed a uniquely modern frustration at being besieged. Early in the siege, British forces were able to supplement their food provisions with local and Indian goods: chapati, atta, barley flour, dal, and dates. But when Hehir tried to estimate just how long the total amount of food rations could last he ran into a problem. While he was able to quantify the caloric bounty of military rations was well known to Hehir and fellow medical staff, “The heat equivalent of these fortuitous food accessories [had] not been estimated; nothing approaching

accuracy could be obtained and any theoretical calculation would be the merest guess work."[89] In the midst of vegetarian Indian soldiers eating horse meat to avoid starvation, Hehir was largely absorbed with outlining contemporaneous theories of caloric intake, exercise, and nutrition. And the fact that he was unable to procure an estimate for the caloric density of dates was certainly an embittering fact.

Similar shortcomings of knowledge perturbed various scientists and engineers during and after the war. Buchanan himself was unable to write a report on the waterways of Mesopotamia without first emphasizing the need for more surveys.[90] The primary difference that separated the engineers and surveyors that were operating in and around Mesopotamia until 1918 from scientists operating in the area after 1918 was the opportunity to observe ecology and climate for more purely scientific reasons or even political ones rather than strategic ones. This entailed longer studies unburdened by the pressures of wartime. But this greater care was still not enough for the European scientist to disengage themself from underlying preconceptions of the region as well as the political motivations underpinning European political presence.

One particular crop represented a particular interest for scientists: dates. Many of the most essential crops to Iraq's food production—such as rice and barley—were well known to British scientists and geographers as a result of domestic experience and experience from other holdings in the empire. But dates were, and still are, predominantly cultivated in Arab countries. Today, Arab countries still account for about 67% of *all* date production in the world.[91] And Iraq,

[89] "Report On State of Nutrition At Kut-Al-Amarah Garrison for Period 11th to 18th April 1916," WO 32/5113, The Middle East Online: Iraq, 1914-1974, The National Archives (Kew, United Kingdom), *Archives Unbound,* 4.
[90] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 7.
[91] Ahmed F. Zabar and Andrzej Borowy, "Cultivation of Date Palm in Iraq," Annales Horticulturae 22, no. 1 (2012), 39.

even after the devastation of date palm forests during the Iran-Iraq War, remains the fifth largest producer.[92]

Date palm (Phoenix dactylifera L.) is unlike other fruit crops in that it is well acclimated to drought conditions. With roots up to ten meters long and feather-like leaves up to six meters, date palms are well adapted to a landscape where drought is common but irregular—in other words, they are particularly suitable for cultivation in Iraq. In fact, some speculate that the region of Iraq is where the plant originated.[93] But regardless of its exact origins, date palms have been cultivated in the Mesopotamian region for millenia and, in 1919, the state of Basra still represented one of if not the most important date growing region in the world.[94]

Date palms were not unknown to Europeans in the early 20th century. Aside from their mention in the Bible, the leaves had become significant in Christian—especially Catholic—rituals surrounding Easter Sunday. Bordighera, an Italian town located 12 miles from France, had been growing date palms and supplying leaves to the Vatican for Palm Sunday since the 16th century.[95] By 1919, date palms could even be found as far north as Cornwall, England and as far West as California.[96] But in such locations, date palms rarely if ever fruited and served primarily as ornamentation or as a supply of leaves for religious ceremonies.[97] The principle western botanists who first undertook a serious investigation of date palms—namely Paul Popenoe, a eugenicist later known for founding American marriage counseling—took pains to

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[92] Food and Agriculture Organization of the United Nations, "FAOSTAT," Last modified December 27, 2013, https://www.fao.org/faostat/en/#data/QCL/visualize.
[93] Zabar and Borowy, "Cultivation of Date Palm in Iraq."
[94] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 1 (Cambridge: W. Heffer and Sons Ltd., 1921), 4.
[95] Frederick Fitzroy Hamilton, *Bordighera and the Western Riviera*, trans. Alfred C. Dowson (London: Edward Stanford, 1883).. I would be remiss to not mention this source for a number of coincidences. First, Bordighera is located very close to San Remo where the Mesopotamian Mandate was given to Great Britain. And second, because it was translated by Alfred C. Dowson, the third Dowson whose geographic reports appear in this thesis.
[96] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 4; Paul Popenoe, *Date Growing in the Old World and New* (Altadena, CA: West India Gardens, 1913), 27.
[97] By 1919, date palms had been shown to be able to fruit on every continent but South America and Antarctica. However, the frequency with which they fruited and the amount of water required varied tremendously depending upon location. See Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 3, 1-2.

emphasize the connection of the date palm to Abrahamic religious texts.[98] Thus, the cultivation of the date fruit was known to few Europeans outside of French Algeria and the United States and was generally relegated to the status of an oriental treat that had been commodified and imported from distant lands.

European scientists looking to investigate the climate, ecology, and geology of Iraq and Arabia predominantly turned to scientific experiences in French Algeria, Egypt, Australia, India, and the American Southwest. "The importance of [American deserts] to the botanist, and in a secondary manner to the zoologist," P. A. Buxton, a British entomologist wrote in his 1923 study of Desert Fauna, "lies in the fact that they have been more thoroughly studied than any other desert region in the world."[99] For scientists such as Buxton, opportunities to investigate the deserts of North Africa and the Middle East had been relatively few. But, just as European travel writers indulged the British homeland's imagination with tales of towering dunes, sultans, and roving tribes, museums helped to construct a scientific understanding disconnected from the realities of the environment from which they were drawn. Recalling how a scientific claim about camouflage that Buxton wished to disprove, he suggests an experience that his audience could largely relate to:

> Many of us, during our childhood, were taken to the Natural History Museum in Kensington, and shown the large case which illustrates desert life. We remember the sandy rocks, the sparse dry vegetation and the birds, beasts and reptiles all coloured so that they were inconspicuous. . . We were told that the animals were so coloured as a

[98] It is worth knowing that Popenoe—unlike Willcocks and other Christains—draws heavily from an Arab tradition, often citing the teachings of Muhammad and the experience of various Arab travelers. This is not to suggest that Popenoe was well-versed in Arab culture but merely to reemphasize that Westerner's primary contact with the geography and ecology of the Middle East was through translations of medieval Arab travelers and Islamic religious texts in addition to the European travel writers of the 19th and early 20th centuries.
[99] Buxton, *Animal Life in Deserts,* 3-4.

> protection from their enemies, and most of us have grown up without ever critically examining this statement.[100]

Just as various British actors had imported their experience with other colonial environments to make sense of Mesopotamia, scientists imported a dated and lackluster framework for understanding the desert of Iraq. In general, British zoologists and botanists found that their knowledge of animals and plants of the Mesopotamian region to be lacking. Buxton himself cites David Livingstone, the British abolitionist and explorer who had died about 50 years before, as a scientific authority for want of a more recent publication.[101]

Beyond just a lack of scientific experience with desert flora and fauna was also the innate difficulty of studying species that make the desert their home. The quantity of biomass was far less than that which could be found in other, more heavily researched, colonized regions such as sub-Saharan Africa, South America, and southeast Asia. And an unwillingness to seek potential answers in local mythologies and stories compounded this ignorance. On the subject of how sandgrouse water their young in the desert, Buxton writes, "Native hunters have always asserted that they carry water to their young in the hot, bare desert in their saturated breast plumage." But this assertion was disregarded until it was "proved by Meade-Waldo, who has had many broods of Sandgrouse. . . hatched in his aviaries."[102] European scientists disregarded any potential scientific knowledge of wild flora and fauna in indigenous stories until proven otherwise.

Slightly more sympathy was given to the knowledge of settled Arab cultivators. From the perspective of a waterway engineer such as Buchanan, the practices of indigenous farmers was a complete waste of water. But peacetime offered time for more thorough investigations of

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[100] Buxton, *Animal Life*, 156-157.
[101] Ibid., 39. Livingstone, while a physician, was not particularly well known as a scientist.
[102] Ibid., 84.

cultivation methods in Mesopotamia than could be undertaken during the war. Moreover, environmental factors aside from the availability of water adversely affected the agricultural sector at the same time that the British occupation was nearing completion. In the month of June 1918, roughly one quarter of the country's entire date yield failed.[103] P. A. Buxton identified the larvae of an unknown Gelechiid moth to be the cause. The 1918 date crop failure was significant for two reasons. First, there were the obvious economic ramifications for the country and any involved in the date trade. But there was also the fact that, by 1918, Britain had controlled the date growing region of Basra for years and had recently occupied Baghdad, the second most important date growing region in Mesopotamia. According to Buxton, those dissatisfied with the British occupation were quick to blame them for the partial failure of the country's most valuable product.[104] The British administration's response to this charge was to dispense various scientists to investigate the cause of the disease and, by extension, the broader characteristics of Iraqi crops and the pests that threatened them. The lack of knowledge about date fruits in combination with the need of the state to increase the stability of Iraq's agricultural sector made dates a prime candidate for a broader scientific study, something that V. H. W. Dowson first undertook in 1919.

Dowson published his three volume report in 1921, entitling it "Dates and Date Cultivation of the 'Iraq.'" The work that Dowson performed—and the way he reported it—is markedly different from that of surveyors and engineers such as William Willcocks and George Buchanan. Most notably, is Dowson's recognition of existing methods within Iraq of date cultivation, packaging, and exportation. In other words, he is largely concerned not so much with prescriptions as to how the state may improve date cultivation as he is with how dates were

[103] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol.1, 66-69; P. A. Buxton, "Insect Pests of Dates and the Date Palm in Mesopotamia and Elsewhere," *Bulletin of Entomological Research* 11, no. 3 (December, 1920): 287.
[104] Buxton, "Insect Pests of Dates and the Date Palm in Mesopotamia and Elsewhere," 287.

cultivated at the time. Part of the reason for this was that his assignment was largely focused on developing an understanding of the Iraqi date industry to enhance the civil administration's taxation capacity. Though data is scarce during the war and immediately following, in 1921 land taxes generated 27.6% of the state's total revenue and tariffs and excises generated 43.7% (Figure 2.1). The source of revenue that would ultimately supplant land taxes as a means of state income was concessions for oil. But, in the early Mandate period, the demand for, the necessary infrastructure, and knowledge of oil were not yet fully present. For the nascent Iraqi state and the

Year	Total	Land	Percent	Animal Tax	Percent	Oil Revenue	Percent	Customs Excise	Percent
1911	1,650	731	44.3	179	10.8			410	24.8
1918	2,198								
1919	3,715								
1920	5,199								
1921	3,962	1,096	27.6	204	5.2			1,735	43.7
1922	3,560	826	23.2	201	5.6			1,604	45
1923	3,821	816	21.3	230	6			1,814	47.4
1924	3,955	847	21.4	247	6.2			1,867	47.2
1925	4,358	1,114	25.5	215	4.9			1,903	43.6
1926	4,252	982	23	253	5.9			1,895	44.5
1927	4,432	984	22.2	272	6.1	8	0.1	2,063	46.5
1928	4,458	1,016	22.7	315	7	12	0.2	2,064	46.2
1929	4,310	866	20	297	6.8	14	0.3	2,060	47.7
1930	3,484	410	11.7	299	8.5	15	0.4	1,765	50.6
1931	4,219	401	9.5	262	6.2	869	20.5	2,033	48.2
1932	4,215	396	9.4	211	5	524	12.4	1,931	45.8

Figure 2.1 Approximate State Revenue of Iraq by Category from 1911-1932.[105]

British Mandatory administration, increasing the revenue drawn from the agricultural sector—both taxes, tariffs, and excises—was the logical choice.

[105] Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq*.

The prevailing lack of manpower and money in addition to the unique climate and soil of Iraq meant, however, that the development of the country's agricultural sector could not be done solely through the implementation of Western industrial farming at a large scale. At least until the state was on more solid footing, it would have to implement technology within the constraints of tradition rather than using technology to subvert it. Eventually, such a subversion would take place with the implementation of centrifugal water pumps throughout the country. And the effects would be devastating for both the economic status of human cultivators as well as the well-being of the environment upon which they depended.

Compared to Dowson's 1921 report, the perspective of other Westerners toward the method of Arab cultivation was less engaged. Popenoe, writing largely upon his experience of date cultivation in North America noted that "The Arab neglects [cultivation over irrigation] because of his indolence, but the scientific grower can not afford to do so" right before stating "It is impossible to give advice that will fit all conditions."[106] Rather than consider the possibility that Arabs in date growing regions had a greater access to fresh water than in the deserts of California and Arizona—as is the case with many of the cultivated gardens along the Tigris and Euphrates—Popenoe is quick to denounce Arab practices where science is concerned.[107] He is, however, willing to acknowledge the various recipes that Arabs, Indians, and Persians have invented to incorporate the date. He explores the myriad manners of cutting, cooking, refining, fermenting, pairing, and medicinal applications that Arabs employ against the date.[108] But he is not willing to acknowledge any potential merit in any practices where he was aware of an alternative Western model.

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[106] Popenoe, 90.
[107] Popenoe is, however, more than willing to acknowledge the various recipes that Arabs have utilized dates in.
[108] Popenoe, 187-199.

One of Dowson's more profound observations was that cultivation methods throughout Iraq varied tremendously according to region, size of the garden, relative knowledge of the owner, the type of dates being grown, soil, the size of the garden, and the availability of labor to name a few. Each garden seemed slightly different in its process, and heterogeneity pervaded the date landscapes. This result is not particularly surprising. Even before the effects of the war exacerbated their irregularity, the Tigris and the Euphrates took radically different forms depending upon the region and the rainfall of that year. And cultivation methods soon followed. In the area along the Shatt-el-Arab, where labor was inexpensive and water level was lower compared to other parts of the country, large trenches were typically dug between rows of date palms every year to maximize the amount of water that the palms had access to and thus their maximum date yield. But, in areas further North such as Baghdad, this practice of digging trenches was generally less frequent if present at all.[109]

Date gardens also demonstrated a tremendous instance of interspecies biodiversity. The space between date palms offered a large amount of room for secondary and tertiary crops to be grown. And, as Dowson found in 1919, what crops were planted varied widely across the country and even within individual gardens.[110] One of the most profitable combinations of crops in a date garden was to plant citrus trees between the date palms. The fronds of the date palms, in addition to their myriad uses as a material, offered shade for the citrus. Without such shade, the fruit would more often than not be irreparably damaged by the intense heat of the sun.[111] Numerous other crops were recorded in addition to citrus trees: pomegranates, olives, onions, spinach, cabbage, turnip, radish, carrot, tomato, potato, lettuce, artichoke, garlic, leek, celery, parsley, fennel, peppermint, various gourds, cucumber, chilies, rice, wheat, barley, and sesame to

[109] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 6-9.
[110] Ibid., 15.
[111] Ibid., 58.

name a few.[112] Such biodiversity may have offered a means to mitigate the effects of variable flooding levels and temperatures.

The date palms themselves exemplified their own intraspecies diversity. According to estimates from various political officers throughout Iraq, Dowson estimated the total number of date palms in the country to surpass 30,000,000, roughly three times the amount believed to be in Egypt at the time.[113] During his investigation from 1919 to 1922, Dowson was aware of 132 varieties of date palms within Iraq alone, but he believed there was likely an even greater number yet to be identified within Western taxonomy.[114] In 1917, the total export of dates from the port of Basra was reported as 73 lakhs of rupees (7,300,000 rupees). But the price per *kara* (roughly 6,048 lbs of dates) fluctuated tremendously according to the quality and the variety of the date fruit itself: exporters tended to pay anywhere between 100 rupees per *kara* to as much as 500 rupees for certain varieties.[115]

However, while the varieties of date palms and their fruits maintained a significance to local producers, consumers, and a handful of British researchers, upon reaching the European or Indian consumer, commodification reduced the tremendous variety into only a handful of different brands. Across Iraq, dates were packaged with a multitude of materials depending upon what was readily available as well as the quality of the date fruit. In northern Iraq —where

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[112] For a full list of subsidiary crops that Dowson observed in date garden polycultures, see V. H. W Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 11-15. Presumably, this variety is partly the result of the Shatt al-Arab's proximity to the major port of Basra and therefore its connectedness to a vast array of agricultural locales. However, the narrow breadth of geographic area that Dowson explored—restricted to date cultivation on the Shatt al-Arab — also suggests that in other parts of Iraq various other subsidiary crops that Dowson does not list may have been in use as well.

[113] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 3, 17. It is possible that Dowson's estimate is significantly off. Today, estimates of Iraq's total number of date palms range from a few million to likely exaggerated reports of twenty million. The sharp decline can, however, be attributed to the decimation of fertile areas along the Shatt al-Arab during the Iran-Iraq war. Regardless, even if Dowson's number is an overestimate, it is indicative of both the incredible magnitude of date palms in the country as well as a British conception of their importance to the country's culture and economy.

[114] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 58.

[115] Ibid., 45.

livestock was more common —dates were often packaged in skins; in southern Iraq —around the Shatt al-Arab where Dowson conducted most of his investigation — it was common to use sacks and palm leaf baskets. For shipping, the majority of dates in Basra were exported in wooden boxes containing 68 pounds of dates. However, some exporters at the time of Dowson's publication had begun to export using one-pound boxes. Dowson himself explained the gradual shift as an attempt to meet popularity of competitors:

> The dates which fetch the highest price in the English market are those from Tunisia and Algeria daintly packed in long, fancy cartons. Each contains about half a pound of dates with a date stalk laid down the centre. . . Dates are not packed in this particularly attractive manner in the 'Iraq, but it would seem that it might be profitable to do so.[116]

It seems likely that the plastic date forks that can still be found in some date packaging that imitate a branch sprung from this earlier practice in Algeria and Tunisia. However date packaging may have evolved, the presence of a date stalk in the center of the packaging suggests an odd evolution of the crop into a commodity. First, dates are packed into a box made of wood likely imported from scandinavia.[117] Then, date fruits from various gardens and varieties are packed into one box whose labels were indicative of only the exporter and possibly that agent who packed the date. Finally, in the case of Tunisian and Algerian dates—though how common the practice of placing date forks would become later in the century suggests that Dowson's suggestion was taken to heart—a date stalk or later fork resembling a date stalk is placed in the box. It is important to understand that the placement of the date stalk in the box is not a return to

[116] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 1, 49.
[117] Ibid..

indigenous methods of packaging dates. Rather, it is an example of further commodification that attempts to create the illusion that the dates were still connected to their origin in the Orient. In Basra, the retail price of the one-pound cartons was three annas (three-sixteenths of a rupee) each—roughly the actual cost that exporters paid cultivators for recently harvested dates. But, in 1921, the retail cost of such boxes in England was "between sixpence and a shilling."[118]

Given the quantity of dates being produced and consumed in Iraq in addition to their suitability for export, the crop was an obvious choice for both scientific research and state development. For a myriad of reasons, the British government in Iraq seemed to drift away from focusing on dates and date palms. One possible reason was the complex ownership systems of date palms made standardization and then taxation difficult if not impossible. Moreover, even if the ownership of certain date gardens could be identified, they were often foreign owners. The most important date growing region in Iraq —along the Shatt al-Arab near Basra —was subject to a great deal of controversy later in the Mandatory period as the predominant shaikh of Kuwait claimed ownership and then exemption from taxation.

The Sovereignty of the Date Palm

In October 1922, Sir Henry Dobbs, then acting High Commissioner of the Mandatory Government, signed the first Anglo-Iraqi treaty on behalf of Sir Percy Cox. While the Iraqi government would not ratify the treaty until 1924, the treaty itself became the centerpiece of a fight between nationalist Iraqis—most notably King Faisal I—looking for full independence and pro-Mandate Britons and their allies. The treaty itself offered the Iraqi government complete control over domestic affairs while the British government would maintain control over their

[118] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 49. Accounting for inflation, Dowson's estimate is roughly between £1.50 and £3.00.

foreign affairs. In the period between the initial draft of the treaty and its final ratification, the British authorities made an oversight of their obligations to the Shaikhs of Kuwait and al-Muhammerah, now Khorramshahr. During the war, British officials had maintained that the shaikhs would be exempt from taxation of the date gardens on the Ottoman sections of the Shatt al-Arab.[119] But the Iraqi government was quick to take advantage of the British oversight of this obligation toward the two major shaikhs and declared the date gardens to be subject to taxation. The reasons for doing so were obvious: first, the exemption meant missing out on a significant portion of revenue and, second, because precipitating tension between the British government and its allies in the Gulf region would increase the incentive of the British to withdraw from Iraq.

A sense of bitterness over the whole situation pervaded British correspondence over the issue, even in its early stages in 1924:

> In view of the fact that Iraq was captured from the Turks at immense cost to the British nation, that the territory so captured has been handed over to the new state of Iraq, and that the undertaking which were given by His Majesty's Government to the Shaikhs of Mohammerah and Kuwait were part, and a very small part indeed, of the price paid by His Majesty's Government for victory in Iraq, of which the Iraq State has reaped the full benefit, it would not seem unreasonable to expect the Iraq Government to take over and to discharge honourably the small obligations which were incurred by His Majesty's Government in capturing Iraq from the Turks.[120]

[119] "File 2/4 IV Taxation of Shaikh's Date Gardens," IOR/R/15/138, British Library: India Office Records and Private Papers, *Qatar Digital Library*, 40.
[120] Ibid., 24.

For the Iraqi government, the move was a tremendous success. The High Commissioners—Henry Dobbs and then Percy Cox again—were unable to find any legitimate way of forcing the Iraqi government to pass special legislation to permit the tax exemption nor a way to abandon the obligations to the two shaikhs without undermining their own position in the Persian Gulf. For the Iraqi government, it was an issue of establishing further independence from the British and sovereignty between Persia and Kuwait; but the British regarded the whole issue as "a debt of honour which the 'Iraq Government have rightly inherited from His Majesty's Government."[121]

As for the shaikhs of Kuwait and Mohammerah, there was plenty of incentive to avoid coming to an agreement with either the Iraqi or British government. The economic reason is apparent on its face; even if the Iraqi government did tax the date gardens, presumably the British would remediate the shaikhs either financially or politically. Furthermore, in the same way that the Iraqi government was seeking political and economic legitimacy, conducting affairs directly with the Iraqi government afforded the nearby shaikhs to affirm their own political and diplomatic legitimacy. Frequently, British officials saw no possible remediation for the problem other than forcing the shaikhs and the Iraqi government to sort out the issue amongst themselves. And thereby debasing Britain's position as the diplomatic hegemon in the area and demonstrating an ability to the increasingly powerful international stage that they were able to sort out their own affairs without the oversight of a Mandate.

To supplement or perhaps obfuscate these reasoning, the shaikhs provided another reason to the British government: "many Kuwait families visit the gardens for a change of air, and as often as not settle their slaves on the property. . . this is a greatly valued privilege among the

[121] "File 2/4 IV Taxation of Shaikh's Date Gardens," IOR/R/15/138, 32.

members of the al-Subah family."[122] Such reasoning played on British notions of Arab connectedness to the land. For the British, the shaikhs were a romanticized figure that could be contrasted against the corrupting influence of urban centers both within and around Iraq. In 1931, the British emissary in Kuwait wrote to the then British High Commissioner of Iraq, Sir francis Humphrey, that a shaikh "admitted frnakly [sic] that it was a question of what he regarded as his personal prestige, and I cannot help feeling a good deal of sympathy with him in the matter."[123] British affection did not get the political officers far, however. In the same letter, the British emissary lays out the desperation of British attempts to maintain a seat at the negotiating table:

> Unless Nuri Pasha denies the accuracy of his own emissary's statement, he has deliberately made a false statement, and it might be a useful argument to use in getting him to agree to the presence of a British representative on the assessing committee.[124]

The subject of shaikhs, tribesmen, and the British conception of them is the topic of the next chapter. But, for now, it is enough to understand that date gardens were a significant part not just of intrastate economics but also interstate diplomacy; moreover, the shaikhs of Kuwait and Mohammerah cited a connection to specific land as a reason to resist simple attempts on the part of the British to create a compromise. The British Mandatory government was never able to entirely resolve the issue of foreign-owned date gardens before the end of the Mandate in 1932. For the Iraqi government, the issue was even less important as the end of the Mandate approached. By 1932, only 5% of the state's revenue was from land taxation (Figure 2.1). And

[122] "File 2/4 II Taxation of Shaikh's Date Gardens," IOR/R/15/5/136, British Library: India Office Records and Private Papers, *Qatar Digital Library*, 22.
[123] Ibid., 30.
[124] Ibid., 32.

yet there is no evidence that the Iraqi government ever seriously considered British pleas to satisfy any sort of British obligation to the Kuwait or the Mohammerah shaikhs out of honor or respect for the Mandatory government.

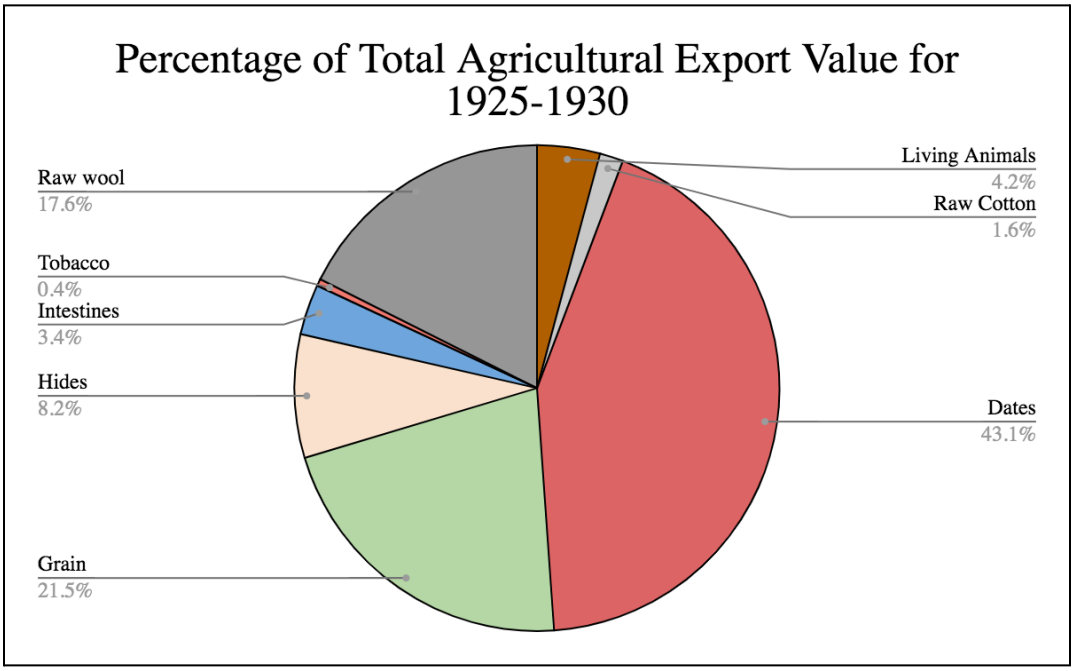

Figure 2.2 The Percentage of Cumulative Main Agricultural Exports from Iraq, 1925-1930.[125]

Regardless of the state's ability to profit directly from the cultivation and export of dates, throughout the Mandatory period they remained a significant part of the agricultural sector's well-being. Between 1925 and 1930, the average price of a ton of exported dates was approximately 14.45 lakhs of rupees, up from the price during V. H. W. Dowson's time. Even more surprisingly, dates comprised 43% of the *entire* value of all agricultural exports during the same period (Figure 2.2). The Mandatory government would implement various schemes to increase the production of various other exportable goods, in particular cotton. But ultimately,

[125] The figure is derived from Ernest Dowson, *An Inquiry into Land Tenure and Related Questions* (Letchworth: Garden City Press, 1931).

dates remained the most valuable export until the end of the Mandate in 1932. The profit derived from date exports, however, was not shared equitably between the landowners, exporters, and actual cultivators. While production of agricultural goods increased in most parts of Iraq with relatively few hiccups, neither the Iraqi state nor the British civil administration were able to derive significantly higher revenues from the increase. Rather, the two entities became increasingly dependent upon oil revenues from various deals, and, in doing so, were able to ignore the growing division between those who actually worked the land and those who owned it.

Chapter Three

The Erosion of Tribes

> The appeal of the natural sublime and of engineered space worked in concert to strip human presence from the land, while celebrating the technological marvel that charged through it. An unpeopled Eden and a civilizing technology: these were the symbolic currents that buoyed the ship of Manifest destiny.[126]

The dissolution of Iraqi tribes is a development that has received tremendous amounts of attention in the historiography of late Ottoman and British Iraq. From a superficial perspective, the development is not particularly surprising. Given the objective of the British and then Iraqi governments to create a modern state that could independently participate in the League of Nations, it is not surprising that policy would be directed toward settling the nomadic and semi-nomadic tribes that were difficult if not impossible to tax and that did not always engage in the same level of economic activity that settled groups did.

A labor shortage throughout the country only increased the value in settling tribes. To manage the labor shortage, the state had two options: increase the amount of individuals available to work and decrease the amount of laborers needed for a function. By dissolving tribal structures and ending nomadic and semi-nomadic lifestyles, administrators could hope to increase the supply of labor. The actual process of dissolution, however, took a surprising turn. Originating from the administration during the First World War, the British civil administration adopted a policy of indirect rule through tribal shaikhs. This policy had devastating consequences for the tribesmen that legally fell under a shaikh. This practice of indirect rule

[126] Alessandra Link, "Editing for Expansion: Railroad Photography, Native Peoples, and the American West," *The Western Historical Quarterly* 50 (Autumn 2019), 285.

through tribal leaders was largely imported from the northwest frontier of British India and had been utilized throughout the Persian Gulf for decades. By using shaikhs, the organs of British informal empire needed only to interface with a handful of individuals rather than entire populations. The practice was not always the *most* efficient way of influencing or outright controlling an area, but it required relatively few resources. The policy of indirect rule was the natural decision given strategic necessity and the previous experience of the colonial administrators within the Indian Expeditionary Force. But the Armistice and then Mandate did not mark the end of the policy of indirect rule. Rather, the British Mandatory government—most evidently in the attitude of Henry Dobbs, the High Commissioner from 1923-1929—opted to continue reinforcing the positions of tribal shaikhs so that they might serve as a counterbalance to the increasingly anti-British sentiments in the Iraqi court and Constituent Assembly.[127]

The alternative option to mitigate the labor shortage—reducing the number of laborers needed—has received less attention in the historiography of Iraq. The process was done relatively successfully. As we have and continue to see, there was not a nominal technological investment in Iraq. Through tax exemptions and various other state sponsored programs, the attractiveness of water pumps grew. And more centrifugal water pumps meant fewer laborers needed to irrigate the same area, an increase in demand for skilled laborers who could repair and maintain the pumps, and the creation of a way for the domestic center of the country to utilize the increasingly important oil deposits. But, while the Iraqi state and the British civil administration were successful in increasing the number of water pumps throughout the country, this only exacerbated the divide in economic status between shaikhs and their tribesmen. What I hope to demonstrate in this chapter is that through the policies that elevated tribal shaikhs to a

[127] Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq*, 103. Between 1924 and 1933, tribal shaikhs constituted between 15% and 35% of the total number of deputies in the Constituent Assembly.

higher socioeconomic status, the British Mandatory government generated two diametrically opposed metaphorical landscapes: one was the Edenic conception of a remote region of the world, untainted by Western greed; the other, was a distinctly technocratic imagination that dams, barrages, railways, steamships, and even the shaikhs fell into.

Labor and Tribes

The issue of labor became pronounced during the initial invasion of Mesopotamia. William Willcocks' report called for a total of five schemes to remediate the Tigris and the Euphrates: a barrage at Beled, a barrage at Kut, a barrage at Hindiyah, a Barrage near Basra, and various irrigation canals from the Diyala.[128] While the Hindiyah barrage was completed, his various other schemes would require extraordinary amounts of capital. Assuming that capital could even be secured, the projects would also, in the words of George Buchanan, require "labourers from Kurdistan flocking down from the hills, digging canals, constructing weirs and regulators, and then settling down in hundreds of thousands to reclaim and cultivate the land."[129] Once more accurate censi were available however, it became evident that even if capital was secured many of the regions of Iraq lacked the free labor population needed for the schemes to succeed.

It did not come as a surprise to European observers that there was a lack of skilled labor in Iraq both before and during the War. Robert Money argued that at the time of the Hindiya Barrage's initial construction, the "scarcity of experienced labour made difficulties not at that time overcome."[130] While Turkish bureaucrats were available if the British administration opted to utilize them, there was generally a pronounced lack of scientists and engineers from Iraq.

[128] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 13-14.
[129] Ibid., 14.
[130] Money, "The Hindiya Barrage, Mesopotamia," 219.

But there was also an unskilled labor shortage largely owing to the devastation of the War. V. H. W. Dowson observed the how the cost for unskilled laborers was impacting the date harvest in the years immediately after the Armistice:

> Owing to this high rate of pay, caused by the demand for labor of all kinds and by high prices, many garden-owners have not been able to afford to have their gardens dug thoroughly since the British occupation, and as a consequence the yield of their dates in some cases has decreased since Turkish times. The price of dates has not increased proportionately with the cost of labor.[131]

The lack of available labor was not likely restricted to the cultivation of dates. As we have seen already, date fruits were one of if not the most valuable exports from Iraq. Moreover, compared to other crops such as citrus, date palms required relatively little active labor aside from initial canal digging.

The lack of unskilled labor was not blamed solely on an actual lack of population. In a report on the 1920 uprising, a British officer stated plainly that "In Spite of obvious benefits of settled government there is among a community of semi-savage tribes a natural repugnance to his provision of labour."[132] The anonymous officer was certainly not alone in believing that the Arab race was inclined toward laziness. When Buchanan was writing on the cultivation practices of Arabs near Basra, he attributed the utilization of silt from flooding as an example of laziness on the part of Arabs.[133] Another aspect of the officer's statement makes clear that the nomadic

[131]V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 6.
[132] "Reports on Arab Uprising and Situation in Mesopotamia Dated 26th to 28th August 1920. Causes of Arab Uprising: Report by G. O. C.," FO 371/5229-0001, The National Archives (Kew, United Kingdom), *Archives Unbound*, 4.
[133] "Report on the Development of Mesopotamia with Special Reference to the Regeneration of the River Systems," IOR/L/MIL/17/15/53, 11.

and semi-nomadic nature of a great number of tribesmen also frustrated officials looking to resolve the labor shortage. Iraq's Arab tribes were divided into "the People of the Camel, *ahl-ul-ibl*; People of the Sheep, *shawiyah*; cultivators, *harrathah* or *falalih*; and buffalo-breeding Marshwellers, *ma'dan.*"[134] These divisions were not necessarily as distinct as they first appear. Many Arab tribesmen would move from the desert closer to the rivers in order to cultivate Date gardens or other crops during harvest before once again leaving the banks of the Tigris and Euphrates to raise various animals.

Because of the nomadic and semi-nomadic nature of tribes, both British and Iraqi officials struggled to quantify available populations throughout the country. During the First World War, numerous British agents had been sent throughout occupied and frontier territories to gain an understanding of tribes in each area. Given how few of these agents there were and the need for information to be made available at a rapid pace, agents were restricted almost entirely to learning about each tribe from the shaikh. But one of the most common complaints of the officers was that the numbers of tribesmen as reported by the shaikh were almost always exaggerated.[135]

Regardless of the quality of information that shaikhs provided British officers, they were dependent upon the tribal leaders. Even as late as 1929, the Census Department was not able to determine a systematic and reliable means of differentiating between the rural and urban populations.[136] The result was that tribal shaikhs often gained authority over their tribe's land as well as various other positions like levying taxes—a more widespread continuation of 19th century Ottoman tribal policy.[137] Moreover, because later officials still relied heavily upon those

[134] Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq,* 68.
[135] See "Arab Tribes of the Baghdad Wilayat." The reasons for believing that shaikhs exaggerated their numbers varies tremendously. But the general trend seems to be the recognition that shaikhs hoped to gain more profitable agreements with the invading British by exaggerating their military and economic value.
[136] Ernest Dowson, *An Inquiry into Land Tenure and Related Questions* (Letchworth: Garden City Press, 1931), 12.
[137] Peter Sluglett, *Britain in Iraq: Contriving King and Country* (London: I. B. Tauris & Company, 2007), 164.

early surveys of tribes, shaikhs gained additional power to control what information flowed to both the British and the Iraqi state. Ultimately, this created an epistemic landscape in the minds of the state officials wherein shaikhs that were able to boast their prominence were granted greater and wider authority over land and tribesmen.[138]

A prevailing feature of reports such as "Arab Tribes of the Baghdad Wilayat," is the importance of shaikhs' familial trees. For virtually every significant shaikh, an extensive family tree that spans several generations was recorded, regardless of how much speculation or reliance on the shaikh's own narrative was needed to create it. The result was a project that inadvertently cemented the oral traditions of tribes into the written histories that were more accessible to state-building projects.[139] The history of formerly nomadic tribes—or more specifically of the shaikh—became rooted in specific places or locations regardless of how mobile the tribe was. Often, tribes were located in surveys according to the bank of their respective river, in relation to their surrounding tribes, and their distance from a more solid landmark such as a canal or barrage. The result was that colonial knowledge of tribes was almost solely anchored to the rivers. As one moved further from the main paths of the Tigris and Euphrates into major branches such as the Hillah branch the amount of knowledge available to British and later Iraqi agents decreased. In turn, as one moved further inland from any body of water the presence of tribes—or more importantly the knowledge of that presence—exponentially decreased.

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[138] It is important to note the status of shaikh was not consistent in either British or Iraqi conceptions of rank. There was not a certain number of livestock or men or a distinct quantity of land that made a shaikh a shaikh. The status could belong to a tribal leader of no more than a few dozen men just as it could belong to so-called paramount shaikhs that led tribal confederations consisting of thousands and even tens-of-thousands of tribesmen. I use the word relatively broadly to denote those whom British authorities viewed as the leader of a distinct section.

[139] For a particularly good example of this historicizing, see the following quote from page 188 of "Arab Tribes of the Baghdad Wilayat": "His great grandfather, Saiyid Hasan, obtained permission from Shaikh Wadi of the Zubaid, who had at that time far reaching influence, to occupy and plant with palms some high ground on the edge of the Bahr Najaf, west of the present Abu Sukhair. The place in question, Sannin, was a pre-Mohammadan site with vestiges of ancient buildings which were probably remains of a settlement of the princess of Hirah, Sannin being one of their palaces according to pre-Mohammadan poets."

The development of this epistemic landscape afforded later British administrators to reduce Iraqi tribesmen to a state not dissimilar to how a bureaucrat may view the number of sheep in a shaikh's possession. Or, how an administrator may understand the number of centrifugal water pumps in a shaikh's possession.

Raising Water

V. H. W. Dowson, in his 1921 publication on date cultivation offers the most thorough look at the various implements that were being used in the central and lower regions of Iraq to pump water. In the area around Basra, owing to the tides in the Gulf, the fresh water flowing from the Shatt al-Arab was prevented from entering the sea and instead flooded daily twice into lower beds. This process meant that cultivators of date palms or any other crop in the area, needed only to do an initial digging of canals in the dry seasons in order to allow the fresh water to flow into their fields as they wished.[140]

On the middle Euphrates, largely owing to the Hindiyah Barrage constructed above al-Hindiyah by William Willcocks and then John Jackson, flow rates could be controlled well enough that fields could be watered in rotation.[141] In other areas throughout the country, barrages, canals, and dams provided the ability for the region to water fields and gardens with nothing more than the gravitational pull on the water and then cleverly devised systems of irrigation. In some areas, however, it was necessary to move water up from the rivers. To do so, Dowson identified three basic categories: means that employed the physical power of humans, animals, or the river with basic mechanical means constructed from wood, mud, rope, etc.; more complex mechanical means that either increased the power of humans and animals or that implemented

[140] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 1, 20.
[141] Ibid..

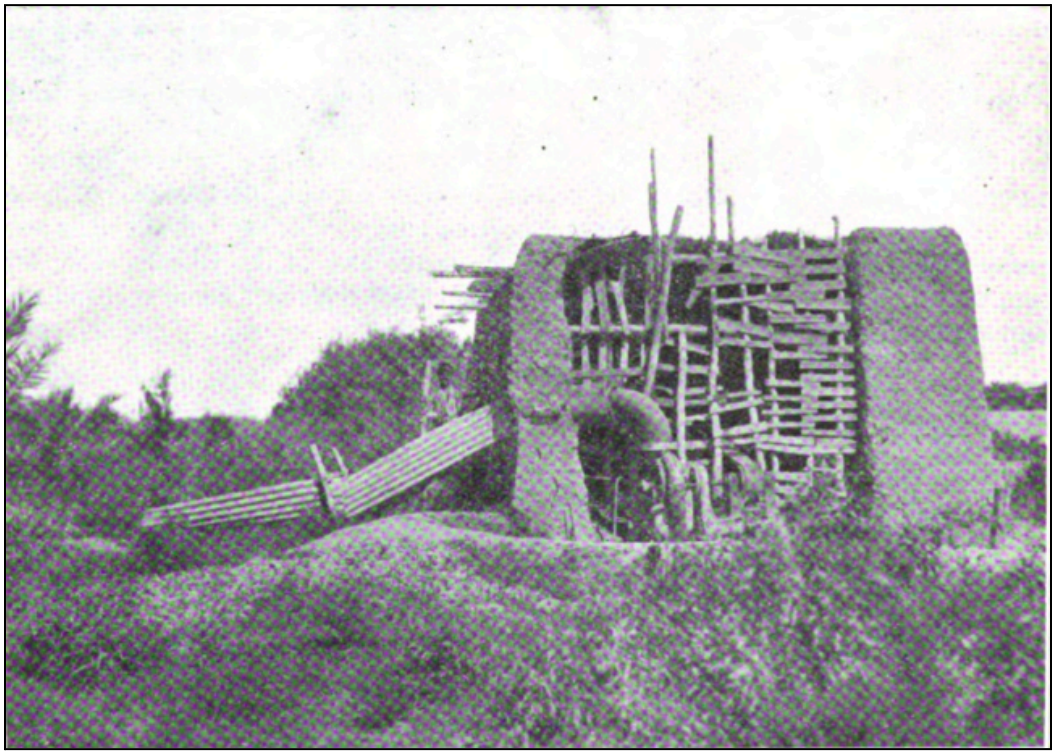
another energy source, and centrifugal water pumps. It is the last of these methods that would ultimately have the most impact on the Iraqi environment and its denizens. But, first, it is useful to examine the other means that Dowson identified before they became largely outmoded during the Mandate.

A *dalia* was the most rudimentary system of lifting water aside from just carrying it in a vessel to its destination.[142] The system was little more than a basic lever. A bucket or tin was attached to a wooden beam by a rope. Then, the beam to which the rope was attached crossed over another horizontal beam supported by two foundations. At the opposite end of the primary beam from the bucket a counterbalance was attached. A worker could then lower the bucket into water to fill it and, assisted by the counterbalance, lift the bucket to the level of the irrigation canal. The total cost of the system came out to about 50 rupees in 1917. The *charad* operated primarily with animal power, whether that be cow, bull, donkey, or camel.[143] The animal is attached to the bucket with a pulley system and then is walked down a steep ramp. At the bottom of the bucket, a sort of hose could be used to direct the water once it was lifted high enough. Along the Euphrates, a single instance of this system was known as a *bakra* and two *bakras* side-by-side constituted a *charad*. On the Tigris, a single instance of the system was simply known as a *charad*. The total cost of a double *charad*—including two leather ropes, two wooden wheels for the pulley, and four donkeys—came out to about 1400 rupees, a significant increase from the *dalia*. In date growing regions, only Hit gardens utilized water wheels to hoist water. Nowhere else was there rapids or "a firm bottom, both of which conditions are necessary for the comparatively easy construction and successful working of water-wheels."[144] All three of these

[142] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq,* Vol. 1, 22-23.
[143] Ibid., 23-24.
[144] Ibid., 25.

methods, owing to the relatively cheap price of their materials, were accessible to small farms and gardens.

More complex means were also available to larger farms and gardens if the owner or tenant was willing to pay for them. What Dowson calls a *Noria*—more commonly known as a Persian wheel or Saqiyah—is a circular chain along the length of which is attached several bucks.[145] An animal walking in a circle pulls a bar attached at one end to a cog wheel which, in turn, moves another cog that is attached to the circular chain. As the chain revolves around the secondary cog wheel, buckets dip below a water surface before rising to the necessary height where they are tipped into whatever means of irrigation is used. *Norias* are able to lift water roughly as far as 20 feet, about three times the distance that a typical *dalia* was able to manage. The cost of a *Noria* wheel averaged about 450 rupees and in addition to two donkeys the price for a *Noria* system came out to about 950 rupees—cheaper than a double *charad*.



[145] Ibid., 25.

Figure 3.1 A Centrifugal Water Pump Stored in a Shed, Amarra Province, June 1918.[146]

"The most effective implement of irrigation for a date garden, though requiring the greatest outlay of capital" writes Dowson, "is the centrifugal pump worked by an oil engine."[147] Unfortunately, Dowson does not ascribe any price to the average costs of the pumps or the oil at the time that they were in use. But given their rarity at the time, Dowson's admission of the large capital investment, and the fact that they were primarily present in the areas of Baghdad and Amarrah—the two states with the wealthiest cultivators—it can be assumed that their cost was several degrees greater than that of the *Noria* or the *charad*. Regardless of their price, the Mandatory government and the Iraqi state viewed the utilization of water pumps as essential to the state's modernization. As we have already seen, the vast majority of surveyors, engineers, and statesmen were not so concerned with the *quantity* of water in the Tigris and the Euphrates. Rather, the issue was how much of that water was lost to marshes and other non-profitable biomes. As projects such as the Hindiyah Barrage were completed and subsequently mitigated the problem of unused water, the issue became how to distribute the water efficiently for irrigation. Why the state saw water pumps as a necessary development for the agricultural sector over other forms of water lifts is twofold: first, there was a significant agricultural labor shortage in much of Iraq; and second, water pumps offered a more technologically advanced option that could increase an individual's control over their land and develop other sectors such as metalwork.

The popularization of the centrifugal water pump in rural areas did not come completely naturally. In particular, a 1926 law, "The Law for the Encouragement of Cultivators to the use of

[146] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 1 26.
[147] Ibid., 25.

Pumps," offered significant incentives to those who invested in water pumps. The basic object of the 1926 law was to "secure the extension of cultivation by granting exemption. . . to the produce of lands newly brought under irrigation and cultivation by the use of mechanical pumps."[148] Essentially, any land that was newly cultivated with water irrigated from mechanical pumps was either partially or fully exempt from government taxation for four consecutive harvests. The effect was rapid. The law went into effect on March 8, 1926, and by 1928 the total number of known water pumps in the entire country increased by a factor of nearly two-and-a-half. The number of pumps in 1929 was over three times the number in 1926 (Figure 3.2). The concentration of water pumps varied widely depending upon the administrative district. Baghdad both started with the greatest number of pumps in 1921 and had the greatest overall increase by 1929. But both Kut and Amarah also saw tremendous growth.

	1921	1922	1923	1924	1925	1926	1927	1928	1929
Mosul	1	1	1	1	2	4	6	9	13
Kirkuk	0	0	0	0	1	2	3	4	5
Diyala	0	3	4	8	17	32	37	54	55
Baghdad	103	111	102	107	195	380	490	856	1025
Dulaim	1	2	2	4	6	9	16	41	90
Karbala	1	1	1	1	1	1	1	2	3
Hillah	1	2	3	4	6	12	18	24	34
Kut	0	2	6	14	27	32	73	165	390
Diwaniyah	6	12	16	34	97	143	177	216	243
Muntafiq	0	0	0	0	4	4	15	20	34
Amarah	30	35	44	48	51	54	56	90	139
Total	143	169	179	221	407	673	892	1481	2031

Figure 3.2 Approximate Number of Water Pumps in Each Administrative District from 1921 to 1929[149]

[148] "The Law for the Encouragement of Cultivators to the Use of Pumps," (No. 11 of 1926).
[149] The figure is derived from Ernest Dowson, *An Inquiry into Land Tenure and Related Questions*, 29.

Within those provinces the distribution of water pumps was radically asymmetrical. In the province of Amarah in 1929, shaikhs owned nearly two-thirds of water pumps; and townsmen a little less of the remaining third (Figure 3.3). Based upon the cost of water pumps, a non-shaikh rural cultivator—even in the unlikely scenario that they owned or rented land—was precluded from purchasing expensive pumps and then receiving the tax exempt status. This process of concentrating the ownership of water pumps into the hands of tribal shaikhs was not unknown. And, for many British analysts the process was not an unwelcome one. In the midst of international economic uncertainty in the late 1920s, the British Mandatory government commissioned Sir Ernest Dowson, the British Empire's preeminent expert in colonial land, to make an inquiry into the disturbing developments in land tenure that the process of elevating shaikhs had contributed to. For Dowson, the process of tribal disintegration was a good one that would theoretically allow a tribesman to become a "rational individual, liberated from the constraints of the tribal system, [able to] pursue his life with all the freedom that a modern state and civilization allowed him."[150] Dowson's individualist framework contrasted greatly from the perspective of those who had pushed for tribal shaikhs to maintain traditional rights and gain more legal and political power—most notably Dobbs. But Dowson was less interested in the concept of economic equitability among tribes. On the topic of why programs to promote the use of water pumps did not present the returns that were initially hoped for, Dowson slipped into a rationale more similar to romantics like Dobbs:

> A sheikh or other leading member of a tribal section which claimed prescriptive rights over a promising area, himself erected a pump and cultivated the area with the labour of

[150] Dodge, *Inventing Iraq*, 100.

> the other members of the section. Under these circumstances the difficulties of divided interests and divided control, so frequently attending these pump ventures, may not arise. And so far as my information goes it is pump ventures inaugurated and worked by a capable tribal leader under these conditions that promise to be the most successful.[151]

For Dowson, the champion of individualist rights in contrast to the tribal configuration that the shaikh dominated, ventures that require large capital, and technical skill, were best done within that same tribal system that he feared would undermine individuals' rights. In the developing landscape of Iraq, Dowson inadvertently promotes the same tribal relationships that his land tenure survey set out to undermine. In addition to the romanticization of the shaikhs that past historians have pointed to as the reason for the pauper-like status of tribesmen, the impulse to introduce more advanced technology means into agriculture also furthered the peculiar relationship developing between shaikhs and tribesmen.

The heavy utilization of water pumps had environmentally adverse effects in addition to its impact on tribal dynamics. In the Amarah province, where shaikhs were afforded perhaps the least amount of supervision from political officers and the number of water pumps was large, a sharp decline in taxation spurred the government to send an inspector. The cause of the decline in taxes was over-cultivation leading to a decrease in the agricultural output. Sluglett describes the sequence of events perfectly:

> To maintain a high income under the taxation system in force until 1931, the landlords of 'Amara would have had to have been prepared to invest heavily in agricultural improvements. Instead, the fields were constantly over-irrigated by mechanical pumps, a

[151] Ernest Dowson, *An Inquiry into Land Tenure and Related Questions,* 31.

> form of speculation which brought high yields for a few years followed inevitably by soil exhaustion, since fallowing was hardly ever practiced.[152]

The over-cultivation in Amarah was one of the first instances where the British government in Iraq had to intervene to stop human-induced environmental destruction. The majority of human-environmental interaction that has been covered this far during the British period was significant in its cultural dimension and in how the environment impacted British policy. If the framing of this thesis were to extend further into the history of 20th century Iraq, however, it would likely find similar human-induced destruction of the environment.

Total Number of Pumps	105
Number Owned by Shaikhs	61
Number Owned in Shaikh-Sayyid Partnership	2
Number Owned by Sādah	9
Number Owned in Shaikh-Townsmen Partnership	3
Number Owned by Townsmen[153]	30

Figure 3.3 Pump Ownership in the Province of Amarah in 1929[154]

[152] Sluglett, *Britain in Iraq,* 242.

[153] The growing power of shaikhly power alongside the migration of urban capital into rural areas also helped reinforce the technocratic-rural divide. Shaikhs and townsmen both owned a large number of water pumps while Sādah and Sayyids, lower status members of the tribe, owned significantly less.

[154] Batatu*, The Old Social Classes*, . Mathematically inclined readers may notice that the total number of pumps in the ownership chart is greater than the number of pumps in the Amarah province according to Figure 3.2. It is not entirely clear why the two diverge. According to Batatu, the data for Figure 3.3 was from an unpublished list of pumps to be annexed that the administrative inspector of Amarah made in the month of August 1929. The data from which I created Figure 3.2 is drawn from Ernest Dowson's *An Inquiry into Land Tenure and Related Questions* but Dowson does not cite specifically where the information came from; but, given how Dowson's other collections of data were accumulated, we can guess that he was also drawing from the reports of various provincial administrators though the month may have been different. Dowson himself made the difficulty clear: "owing to the records having been differently dealt with at different times and in the various liwas and departments concerned, it has not been found possible. . . obtain consistent and comprehensive statistics of the numbers of pumps erected."Regardless of the origin of the discrepancy, the difference between the two totals is small enough that it can be ignored in favor of two more important points—the number of water pumps in Amarah in 1929 was significant and the distribution of those water pumps was unequal.

The Technocratic Landscape

As the British administration continued to warp the existing Iraqi environment to match its preconceived notions of a Garden of Eden and of the necessary infrastructure of a modern nation-state, two distinct imaginaries emerged. Even at the end of the Mandatory period, much of the degraded landscape that Britons encountered in the 19th and early 20th centuries remained. There were still nomadic tribes. The Euphrates and the Tigris still proved to be relatively unpredictable. Marshes continued to dominate the landscape of southeastern Iraq. It is the imagination that these landscapes invoked in the British mind that became the centerpiece of artwork. In the watercolors of Edith Cheesman—the sister of R. E. Cheesman who recorded the story of the *Comet* in 1923—there are no steamships or railways.[155] Instead there are *ashufs, taradas,* and *kufas*—the indigenous watercrafts constructed from reeds, willow, and wood. In Edith Cheesman's landscape there is—to be sure—evidence of advanced civilization. Colorful markets occupy the outer edges of the frames, gold-topped minarets rise in the background, and even some colonial architecture can be identified (Figure 3.1). But these hints of a complex society fade in the pale skies of the background. The tan buildings—however large or complex—are hardly discernible from Cheesman's desert landscapes. Even the colonial architecture feels closer to her depictions of ruins of the arch of Ctesiphon and Belshazzar's Hall in Babylon than it does to the colonial quarters of Algiers and Cairo. For individuals such as John Glubb—the political officer who lamented the rapid intrusion of Western ideals on Asia and Africa—the actual material loss of such landscapes was a tangible disaster. For others, such landscapes would inevitably falter and cease in the process of development.

[155] Edith Cheesman, *Mesopotamia (Iraq) Water-Colours* (London: A. & C. Black, Ltd., 1922).

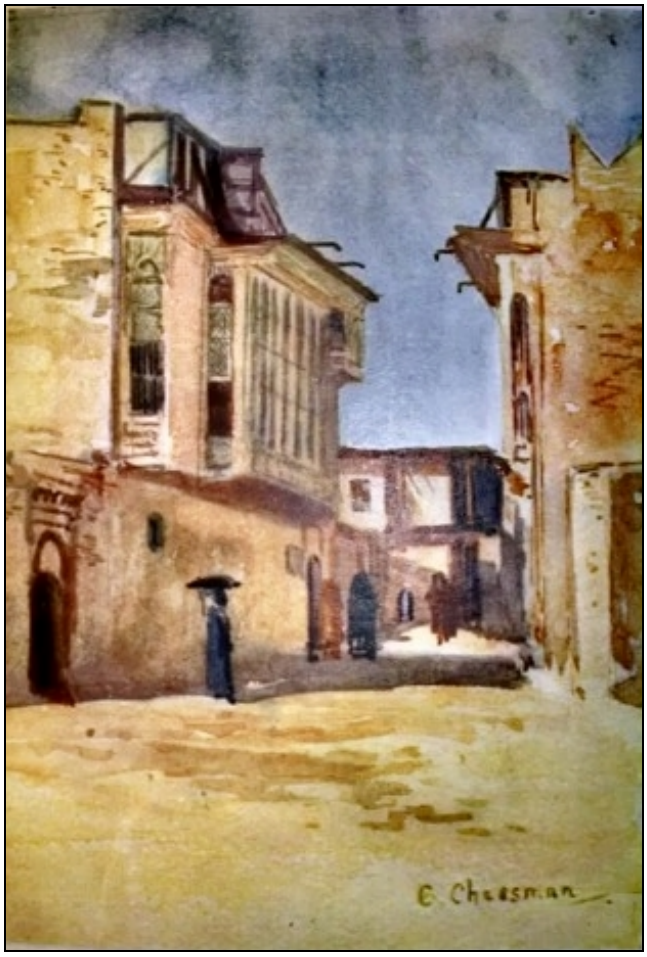


Figure 3.2 Edith Cheesman's "A Street in Kut (General Townshend's House)"[156]

The other imaginary that had begun to cut across the Iraqi landscape was that of Western technology—what Alessandra Link calls an "engineered space." The engineering projects of Willcocks, Buchanan, and their successors had begun to confine and restrict the wild floods of the Tigris and the Euphrates. The two rivers were becoming increasingly like the heavily regulated Thames, Irrawaddy, Nile, and Ganges rivers. Recall that Buchanan believed the construction of the Hindiyah Barrage to be a moral triumph.[157] The abandoned dams, canals, and various other water projects that had once evoked a sense of timelessness and wonder at the

[156] Excerpted from Cheesman, *Mesopotamia (Iraq) Water-Colours*, 4.
[157] Buchanan, report, 10

ancients in British explorers and surveyors were cataloged and reduced to only their potential to be used in later water projects.

What had once been a daunting task of learning the 132 varieties of date palm and over 70 Arabic words for different parts of the tree had been made relatively simple through the scientific investigations of P. A. Buxton and V. H. W. Dowson.[158] The underlying mysteries of *hashaf*—the Arabic word that indigenous date cultivators used for the sudden drying up of ripening dates— that caused the failure of roughly a quarter of the date crop in 1918 were revealed to be no more than the larvae of an unknown moth in the family Gelechiidae. Buxton and Dowson expressed no doubt that even this mysterious species of moth would soon be identified.[159] By captivating and raising sandgrouse in aviaries, Meade-Waldo had confirmed indigenous hunters' legends that sandgrouse brought water to their young with their breasts; and, in the process of doing, Meade-Waldo also supplanted an instance of indigenous oral knowledge with written empirical observation—something far more palatable to Western scientists.[160] Oral traditions concerning local flora and fauna had become little more than antiquated artifacts of a bygone age.

Wartime and postwar surveys of tribes quantified the fluctuating numbers of individual tribes.[161] And the early attempts to locate traditionally nomadic and semi-nomadic tribes according to a single place along the Tigris and Euphrates, promoted an illusion of sedimentation that would become the basis for the dispersal of land ownership and political power over tribes to shaikhs.[162] Tracts of land that once were isolated from the urban systems of Baghdad, Mosul, and

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[158] For the estimated number of varieties, see V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 3, 17; for the supposed number of Arabic words for different parts of the date palm, see P. A. Buxton, "Insect Pests of Dates and the Date Palm in Mesopotamia and Elsewhere," 287-288.
[159] V. H. W. Dowson, *Dates and Date Cultivation in the 'Iraq*, Vol. 1, 66-67.
[160] Buxton, *Animal Life,* 84.
[161]
[162] See Dodge's chapter "Using the Shaikhs" in *Inventing Iraq*.

Basra became both figuratively and literally fenced in. And, in this process of promoting tribal shaikhs to positions of political and economic power, the British government placed them solidly within the technocratic landscape that was developing. Previous historians have argued that the selection of the shaikh as the logical candidate for an infusion of political power was the result of a romantic understanding of Iraq as "pre-modern and 'rural,' untainted by the negative and destabilizing effects of capitalism."[163] If the British imagination of the Iraqi environment is understood as a dichotomy between the pre-modern Edenic landscape on the one hand and the engineered space on the other, then the process of promoting elevating tribal shaikhs to a higher status was akin to moving them from their provincial sphere into the civilized sphere. What Dodge and others fail to realize—like the British themselves—is that they presupposed that the Edenic landscape existed in the British colonial psychology at the outset. Rather, that Edenic landscape first had to be constructed through various processes before shaikhs could be framed within it and subsequently moved into the technocratic landscape. In other words, in order for the British to romanticize the shaikh as the natural leader within an imagined pre-modern Iraq, first the whole of the tribal systems had to be reduced to a status that was not markedly different from state practices of categorizing and taxonomizing desert sands, date palms, sand grouse.

The process which this reduction occurred began at the outset, or perhaps even before, the British Indian Expeditionary Force set foot on Mesopotamian soil. As British agents spread throughout the Mesopotamian landscape searching for allies against the Ottoman government among tribes, they increasingly focused on the unique character traits of the shaikhs while simultaneously referring "frequently to the unchanging nature of tribal custom and law."[164] Meanwhile, as mentioned earlier, the majority or tribal constituents were only referred to in the

[163] Dodge, *Inventing Iraq,* 83.
[164] Ibid., 95.

quantitative numbering of tribesmen. The combination of this initial reduction with continued policies such as the Law for the Encouragement of Water Pumps charged shaikhs with not just legal powers over their tribes but also with a sort of technocratic hierarchy. Water pumps, into which the British and Iraqi governments invested a substantial interest, became the sole domain of the political and economic rural elites. The technocratic nature of the divide between shaikh and tribesmen was only exacerbated by other policies such as the extensive funding for the children of shaikhs to go to university.[165] And as the chasm between shaikhs and tribesmen grew, it became easier and easier for administrators such as Henry Dobbs to excuse the relegation of tribesmen according to romantic ideals of the shaikh *in addition to* the shaikh's supposed suitability for participation in a technological modern state.

[165] Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq,* 94. Between 1920 and 24, every budget included funding for a shaikh's college.

Conclusion

Today, the Global North is still grappling with Wilsonian ideas of Western, developed countries undertaking developmental projects in the Global South. The course of the Second World War precipitated the rise of two new superpowers at the expense of the previous European hegemons' remaining international clout. In an attempt to persuade various undecided countries to their side in the emerging Cold War—especially those in Africa and the Middle East—the United States adopted policies of development. Christian evangelical organizations, branches of the United Nations, and American governmental agencies like the Peace Corps promulgated the notion that if only enough resources were spent in the development of the Global South, its members could rise to a status similar to the world's developed nations. In the decades since the end of the Second World War, these projects have regularly failed in their ambitious goals. The economic disparity between the developed and developing worlds has remained hauntingly large. And the existential threat of human-induced climate change has only emphasized the importance of mitigating the economic imbalance. Many of the world's regions most vulnerable to climate change are those in the Global South. And, as the example of Islamic State recruitment tactics in Iraq made clear, such regions have a high risk of becoming hotbeds of human conflict and suffering. The example of Mandatory Iraq does not provide a clean-cut answer to the questions of international development, climate change, economic disparity, neo-colonialisms, and environmental destruction. But it does provide warnings of the potential pitfalls of paternalistic attempts at environmental development.

The cultural attitudes that the Britons harbored toward Mesopotamia and its indigenous inhabitants directly impacted how they approached the environmental management of the region. Rather than working along with indigenous methods of cultivation and water management,

British engineers dismissed any alternative Western modes of agriculture. Moreover, the relegation of rural tribesmen to a status similar to that of the rest of the non-human environment permitted long-lasting wealth disparities and state apathy toward the treatment of a significant part of its population. The result of both of these developments was the promotion of various technologies such as centrifugal water pumps, barrages, canals, steamships, railways, and airplanes. Water pumps opened more areas for cultivation but only exacerbated the economic disparity between land-owners and laborers. And—as in the case of the Amarrah province in the late 1920s—resulted in over cultivation and a partial collapse of the agricultural sector. All too often, military necessity, political clout, and the desire for economic growth blinded British administrators from seeing how policy would affect the well-being of the Iraqi environment and those residing in it.

Even an ideal state would almost certainly have constructed and renovated the Hindiya Barrage, sent scientists out to find the cause of an agricultural blight, and censused its population—such functions are necessary for the functioning of any modern nation-state. But if a complex state apparatus is to be built, those building it would hopefully minimize how their own cultural background affects the process. I will not delve too deeply into hypotheticals or alternative histories. But what I will remind the reader of is how the Britons that constructed an engineered environment in Iraq viewed the remnants of past civilizations. In any of the vast surveys of Iraq that the Ottoman, British, or Iraqi governments sponsored in the early 20th century, one is almost certain to find references to dried river beds, ancient dikes that no longer served a purpose, the remnants of a centuries if not millennia-old dam. Some of the projects that many of the first settled humans constructed in ancient Mesopotamia were the predecessors of later works according to which British engineers constructed much of the environmental

infrastructure that Iraq still maintains today. Other such projects faded away, indiscernible from any other natural feature. The waterways of Mesopotamia moved and so too did the desert to the South and the forests to the North. The humans that lived according to those natural features were obligated to move with them and forget the remnants of past endeavors to constrain their environment. Regardless of how well-engineered the barrages, dams, ports, or any other environmental infrastructure that the British constructed in Iraq, they are still subject to the whims of the environment that they were meant to affect.

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