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Middle Eastern history has evolved over the past few decades to include works of environmental history in its oeuvre. Contributions range from Richard Bulliet’s research on the camel and irrigation systems in the lands of Persia, to Alan Mikhail’s history of water and animal power in Ottoman Egypt, to Jennifer Derr’s seminal work at the cross-section of science, labor and the environment. Ottoman historians, in particular, have taken up the challenge of expanding the field of Middle East history to include all new angles of study of the environment. They have connected the environment to questions of empire, imperialism, colonialism, labor and the politics of the region. The Nile has been the focus of many of these early works of Middle Eastern environmental history, and rightfully so. But with Faisal Husain’s *Rivers of the Sultan* our attention turns to what many believed was the periphery of the Ottoman empire, the Tigris and Euphrates river systems.

Christopher Morris, in his contribution, dives into the question of whether the Tigris and Euphrates river basins were actually at the boundary of empires, as the rivers acted like a interstate system moving ships, guns, agriculture and people from the core in Anatolia to the zone of conflict with the Safavid empire. Further, Morris, asks pointed questions about the effects of the variation in river flow and the changes that occurred to the system downstream from the areas of agricultural production in the northern region of the river basins. His contribution also looks into the possibility of comparisons to other river basin systems globally. Comparing the boats, transportation of peoples, and shipping materials along the Mississippi River with the rivers of the Ottoman province of Iraq could open up new questions about how were tolls collected and how different water currents affected the use of various shipping vessels. This train of questioning continues in other reviews in this roundtable.

Highlighting the power of the synthesis found in Husain’s *Rivers of the Sultan*, Sean Lawrence fully appreciates the work’s ability to make a strong connection between nature and humans. Lawrence highlights the ways in which the narrative does not fall into the trap of focusing on either nature or humans as subject without weaving together the intricacies that develop between the two. Because Husain examines the rivers of Iraq in this way, Lawrences argues, readers are treated to a history that is a “masterwork in synthesizing the inextricability of the human and the non-human worlds.” Additionally, Lawrence points out how Husain’s work furthers the fight against declensionist narratives of the Ottoman empire and in particular of the sites at the edge of empire, like the Tigris-Euphrates river basin of Iraq. The result is a text rich in history and one that centers the narratives of the rivers and the peoples surrounding the basin in new and unique ways.

Nancy Reynolds, in a very deep and close reading of Husain’s *Rivers of the Sultan*, posits that it offers an example of the type of decolonial work that can be done in the process of “the work of ‘unthinking’ naturalized states.” Substantial work has been
done on the Nile River Valley. Thus, it is no surprise that Reynolds uses the Nile River as a critical foil to the Tigris and Euphrates river system. By doing so, she offers an analysis of how we understand the colonial and imperial ways in which “rivers” and “basins” were/are imagined by cultures and political powers. At the heart of Reynolds’ critique is the question of how we can understand the rivers of Iraq critically, without essentializing them as a unified system. Reynolds’ contribution thus offers numerous important questions that weave in ideas from decolonial theory and critical geography, which help to place Husain’s work on the Tigris and Euphrates rivers within the growing literature on rivers.

For many environmental historians, the Ottoman periphery of Iraq is understood only in terms of the desertification and the ecological damage that empire wrought on the landscape. As Andrea Duffy rightfully points out, however, Husain’s incisive research recalibrates this imaginary by focusing on the history of the waterways that provided a central conduit to the Ottomans’ ability to centralize—and then later decentralize—control of Iraq. Duffy fully appreciates, as do the other contributors, the wonderful “detective story” that Husain presents us with through a new analysis and rereading of cadastral surveys and Ottoman bureaucratic documents. Husain’s use of the archives, which are vast, demonstrates the ways in which the historian can read already processed materials anew.

Finally, in response, we have a succinctly written summation of the major arguments and Husain’s replies to the questions and ideas posited by our roundtable contributors. Husain responds closely to the questions about the geographical term “basin” and to Reynolds’ arguments about the possibilities of rethinking the terms we use to define our environment. Further, Husain elaborates for us on how he came to his topic, and reconceptualizes the thesis of Rivers of the Sultan. The dialogue between the contributors and Husain will hopefully spur more debate, discussion, research and ultimately further monographs on rivers, basins, waterways, water-bodies and other ecologies in the wider field of Middle East and Ottoman studies.

Before turning to the first set of comments, I would like to pause here and thank all the roundtable participants for taking part. Finally, I would like to remind readers that as an open-access forum, H-Environment Roundtable Reviews is available to scholars and non-scholars alike, around the world, free of charge. Please circulate.
The usual story of Ottoman expansion into Iraq has the sultan’s cavalry charging through deserts and grasslands after mounted nomads and other equestrian invaders from the east. In contrast, Faisal Husain begins his history of Ottoman expansion into Arabia with a section entitled “The Amphibious State.” Amphibious state? Wait... what? There were boats between Istanbul and Baghdad? Gunboats? It turns out that, yes, there were boats, many of them armed with cannons, rowing and sailing the Tigris and Euphrates, visiting the many shipyards, ports, and riparian fortresses that lined the rivers between the foot of the Taurus Mountains and the Persian Gulf, where labored mariners of diverse origins and skills, shipwrights brought from Rhodes, caulkers from Greece, sailors captured from Venetian vessels on the Mediterranean Sea, in addition to carpenters, joiners, and other artisans from Istanbul. What became known as the Shatt al-Arab Fleet, named for the river formed by the confluence of the Tigris and Euphrates, transported timber from northern forests to shipbuilders in Basra, along with the Sultan’s directives, bureaucrats, soldiers, and artillery. The fleet also carried fruits, vegetables, and grains gathered from riverside orchards of date palms standing atop natural levees, ports, and beneath their shade and down the levees’ slope, from gardens of citrus trees, pomegranate shrubs, rice and legume fields, all maintained through dry seasons with muscle-powered devices that lifted water up from the river, a sophisticated, intensive agricultural complex reminiscent of China’s Pearl River Delta complex of silkworms and mulberry trees, rice, and ducks. Behind the date palms and rice paddies lay miles of irrigated wheat fields, and back of them, herders moved flocks of sheep in accord with the seasonal ebb and flow of the two great rivers upon which the sultans built their amphibious state. “The East is Blue,” Husain writes. Indeed.

Why the Ottomans expanded into Iraq is not entirely clear. Husain refers to the region around Baghdad as a frontier or borderland between the Ottoman and Safavid Persian Empires. The sultan’s fleet of more than 600 vessels proved instrumental in his capturing of Baghdad, which not only removed the Safavid threat and but also secured the region against Portuguese incursions from Goa in India. After threats from Persia and Portugal had subsided, investment in the development of Iraq and in imposing authoritarian control over its indigenous population continued. The region may have remained a frontier, but if so, it became a frontier of a different sort. There is also evidence that the region shifted politically and economically from periphery to core. One cannot be sure because the concept of frontier is not fully developed. The Tigris and Euphrates basin also may have served as a turnpike of sorts, between two primary east-west trade routes, one to the north through Anatolia and Persia, and one to the south through Egypt, the Red Sea, and the Arabian Sea, but this too is not developed.

It would have helped to learn more about what went upriver. How much rice, dates, and grain from Iraq, and trade goods from India, made their way up the rivers to
Anatolia? It is not clear how people returned from Baghdad and Bosra to Istanbul, after they deposited their cargoes and, as many did, dismantled and sold the wooden frames of their kelek boats. If they walked or rode, as Mississippi River flatboaters did in the time before steamboats, when they returned home from selling whiskey, bacon, and the timbers from their rafts in New Orleans, they could not have taken much with them. How far upriver were rafts and sailing vessels able to go before rivers became too swift, narrow, or shallow? Where was the primary point of transfer, the point at which people heading upriver disembarked and began the walk home? There is only brief mention of officials at Baghdad bridge assessing tolls on pack animals and on rafts and vessels passing up- and down-stream.

The three chapters that comprise the book’s middle section are the heart of the study, in that they fully integrate the Tigris and Euphrates rivers into human history. To feed armies of soldiers and bureaucrats and retainers in Baghdad, the Ottomans had to develop agriculture. To pay for armies, the Ottomans had to tax agriculturalists. This was tricky business. Offend indigenous populations and they might rebel, as in fact they did on several occasions. Rebellion called for more soldiers but left a shortage of supplies. Leave farmers alone and they might not cause trouble, but neither would they produce the surplus needed to sustain the tentacles of the Ottoman state that reached into Iraq. The state had to respect traditional agricultural ways. It also had to justify its presence, by offering good and just government. Finally, it had to balance investment in agricultural development in Iraq with development elsewhere in the Ottoman empire. Egypt and the Balkans made claims for state support, and they could base their claims on the fact that their soils and climates were conducive to agriculture, whereas Iraq had to be made into a land of milk and honey. The strategy that proved most effective was the tax incentive. By reducing taxes on farmers who expanded irrigation in their own traditional ways, the state demonstrated respect farmers’ traditions, avoided sending funds from Istanbul that could then be earmarked for Egypt or Serbia, and acted with beneficence and benignity while providing order and protection. By working with traditional associations of pastoralists, granting some of them official recognition, the state similarly worked its way into the good graces of herders.

The state acted more intrusively when it constructed several large canals over flat lands that reached across jurisdictions, and which required periodic dredging on a scale only the state could organize. Far from offending local populations, state canals provided opportunities for more farmers to take advantage of tax incentives by building their own locally- and traditionally managed canals off of them. State canals, along with the entire network of locally managed lateral canals, transformed plant ecologies in ways that benefitted herders. The social-political problems that did arise from the expansion of irrigated agriculture tended to pit farmers against herders. Herders easily accommodated themselves to the seasonal highs and lows of the rivers by moving livestock to high-ground pastures away from the mainstreams during flood seasons and returning to riverside pastures as floodwaters receded. Farmers had more trouble with the rivers’ cycles, which did not correspond to growing seasons. The Tigris and Euphrates inundated fields during winter and spring planting
time, and abandoned them in summer and fall when crops needed water, thus, the need for irrigation and water management. When pastoralists migrated toward the rivers in summer and fall, their herds found forage in fallow fields of legumes and grain stubble, but they also wandered into fields of ripening grain. Conflicts between agriculturalists and herders were in important respects set up by state success at agricultural development. By stepping in to mediate, the state demonstrated good and just government. Economic development of Tigris-Euphrates Basin environment created political opportunities.

In the days of the Sultans, more than 7,000 square miles of wetlands covered the alluvial basin, where the rivers slowed and frequently overtopped their banks. In the last half of the twentieth century, the Mesopotamian Wetlands, as they are often called, were mostly drained for political and military reasons. Since then, there have been some attempts at wetland restoration, although a warming global climate that has brought hotter summers to Iraq has frustrated those efforts. In the late sixteenth century, nearly 70,000 people lived in or made a living off of the wetlands, primarily by herding water buffaloes, which provided meat, dairy, and fuel. Wetlands also harbored wild boars, which could be dangerous, and malaria, which was deadly. Buffaloes represented wealth, and the state taxed each one it could find, with help from “official” herding associations, at a rate equal to eight sheep. A conservative estimate puts the number of buffaloes at 40,000, although one European observer believed the number reached 144,000. If recent states and invading armies have sought to control the Marsh Arabs of Iraq by draining the marshes, the Ottoman’s won control by letting them be, and taxing them. For the historian, tax records are a proxy for the extent of wetlands, which were themselves not measured or mapped.

The Ottomans extended their empire through Iraq to the Persian Gulf by working with, rather than against, the riparian environment and its human and natural resources. It comes a no surprise, therefore, when we learn that this part of the Ottoman Empire—the amphibious part—nearly collapsed in the face of environmental disruption. The seventeenth century saw depths of a five-centuries long global cooling trend known as the Little Ice Age. It brought severe winters to French and Indigenous Canada, and to New England. It closed passes through the Alps between Italy and France. Husain does not use the term, Little Ice Age, nor do his notes and bibliography mention key studies of the phenomenon by Brian Fagan and Sam White. Instead, Husain sets Iraq’s environmental disruptions within the narrow frame of the Late Maunder Minimum, a sun spot phenomenon that lasted about seventy years. Whether the relationship between the Little Ice Age and the Late Maunder Period was causal or coincidental is debated, although together they altered climate and weather patterns in Iraq. In Iraq, the maulder period and the longer global cooling trend brought drought, reduced water volume in the rivers, and avulsion, when one hundred miles of the Euphrates River abandoned its course. Weather and climate change touched off a cascade of crises, what might be termed negative synergies: crop failures caused people to migrate from countryside to town, where plague broke out, killing one hundred thousand. Faced with parched and shrinking grasslands, pastoralists began to prey on weakened town populations.
Avulsion, when “desert and river had changed places (126),” left the port of Rumahiyya and its surrounding wheat fields, “the most profitable farming region in Baghdad (123),” twenty or more miles from the river. Failure and conflict in the countryside brought financial crisis to Baghdad. There was nothing the state could do. Engineers tried in vain to “correct” the river’s flow. In the end, environmental reorganization led to political reorganization, as the Ottoman centralized state broke down, replaced by a decentralized, reduced Ottoman state. The seventeenth century saw the rise of provincial dynasties.

*Rivers of the Sultan* is rich with insight and is beautifully written. At 150 pages, it is brief, although I count that as a strength. The pace of the narrative is brisk, from opening chapters on the construction of empire through a middle section that bores down into the environmental history of the Tigris and Euphrates basin, before closing with chapters on the reorganization of empire: an environmental history bookended by political history, except that political and environmental history of never segregated. Still, a brisk and brief narrative leaves this reader wondering about some, for lack of a better term, technical aspects of riparian Iraq. For example, the discussion of ship technology focuses on cannons and left me wondering about hull, rudder, and sail design to accommodate the rivers. (The discussion of the inflatable kelek boats was fascinating.) The book enlightens on the political and economic relationship between towns and rivers, but left me wondering about environmental connections. For example, the town of Hilla, on the Euphrates, was home to nearly 30,000 people, and Baghdad, on the Tigris, while smaller than Hilla, had a substantial population. These populations took water from the rivers and let sewage and other waste into it, but with what effects on river ecologies, not to mention populations downstream, at Basra and elsewhere. Finally, what effect did irrigation have on evaporation, how significantly did it reduce the volume of water that made it to the Persian Gulf, with what effects on plant and animal life in the Shatt Delta and estuaries? How did irrigation affect patterns of silt deposition? Is it possible that irrigation altered the Euphrates River in ways that, combined with drought, brought about the devastating avulsion? Is it possible that the avulsion had nothing to do with drought or irrigation, and everything to do with the normal behavior of the river over the long term? The fact is, that we do not know. We do know that the Euphrates is a meandering river with a long history of changing course. While I certainly appreciate the need to add the “flesh and blood” of human history to the morphological history of the river uncovered by archaeologists and earth scientists, the late-seventeenth century avulsion, which serves as the climactic event in this narrative of environmental change and imperial withdrawal, needs to be situated within that long morphological history.

My questions perhaps venture too far into weeds that sharp editors at Oxford, with whom I am familiar, thought best to trim. Whatever the answers to these questions may be, they could not possibly diminish the story Faisal Husain tells, of the Sultan’s amphibious state. This is a model study of how natural systems, fluvial systems in this case, structure human history, even in the unlikeliest of places, the arid Middle East.
Political geographies and the ambitions of state power are often incompatible with the maintenance of either genuine wildlands or healthily managed ecosystems. As decades of environmental historiography has demonstrated, this mismatch often ends in catastrophe for either the natural ecosystem or the state, if not both. As such, declensionist environmental narratives are the bread and butter of much environmental history, and understandably so. It is therefore noteworthy that Ottomanists are among those historians who tend toward reflexive skepticism of declensionist narratives, having spent the better part of a century pushing back against the image of a retrograde Ottoman state, long characterized as the “sick man of Europe.” Accordingly, Faisal Husain’s *Rivers of the Sultan* does not fall neatly into the declensionist trope. Nor is the story of Sultanic power in the Iraqi alluvium entirely triumphant. By uniting the Tigris-Euphrates alluvium Ottoman statecraft shaped, and was shaped by, the unique matrix of geographic, infrastructural, and biotic circumstances that predominate between the Taurus Mountains in Anatolia and the Shatt al-Arab approaching the Persian Gulf.

As the arteries sustaining the fertile crescent, the Tigris and Euphrates rivers retain a special place in the imagination of professional historians and laymen alike. The first known bureaucracies, states, and empires grew up to govern the bounty of their floodplains. Arguably, no two bodies of water link the concepts of *ecology* and *empire* more readily than do these estuaries. Successive ancient and medieval kingdoms conquered segments of these riparian spaces but only the Ottomans united the entire watershed under a single political authority. In his book, *Rivers of the Sultan: The Tigris and Euphrates in the Ottoman Empire*, historian Faisal Husain sets himself a mighty task, “to overcome the historiographical dams that have divided the Tigris and Euphrates into artificial basins and demonstrate the utility of adopting a hydro-scale that considers the fluvial system as a continuous whole” (5). The result is an expansive yet intricate portrait of a river landscape that is alternatingly stage, actor, and sometimes director of an unremitting human drama.

The turn to environmental perspectives by historians has often looked to estuaries as essential features of social-political systems. Where Richard White and Alan Mikhail examine river systems in terms of energy flows, and Sarah Pritchard considers rivers in term of technologies of power, Husain argues that the governmental, economic, and ecological systems that emerged around these rivers can be understood only through the prism of mutually reinforcing complexity, dependence and entanglement.¹ Rarely has any historian before Husain so forcefully contended that these river environments were more than just the setting of an expansionist imperial project;

they were not just roads to travel, borders to cross, or landmarks to catalogue along the way to conquest. The rivers were the prize.

Environmental historians tend to take on one of three modes when it comes to assigning agency to the subjects of their narratives. Either the human, as subject, impacts nature, as object; or nature, as subject, impacts humans, as objects; or – the synthesis most strive for and few achieve – humans and nature impact one another in an embedded, ongoing, dialogical process. While certain sections of Husain’s text give more or less agency to the human or natural subjects of which he writes, his is, overall, a masterwork in synthesizing the inextricability of the human and non-human worlds.

Part I of Rivers of the Sultan’s three parts is the most willing to give agency squarely to the Ottoman state. It examines Ottoman military infrastructure on the Tigris and Euphrates, considering the geographies of water in the basin that both enabled and constrained the systems of rule available to Ottoman strategists. From the sixteenth century on, Ottoman authorities used the natural “waterwheel” of the Tigris and Euphrates to “deal with a chronic imbalance along its eastern borderland” (3). “The unification of the Tigris and Euphrates,” Husain argues, “allowed Istanbul to rebalance [its] natural resource disparity along its eastern frontier” (4). The Ottomans organized the movement of grain, metal, and timber “from upstream areas of surplus in Anatolia and the Jazira (the stony plateau between the Tigris and Euphrates north of Baghdad) to downstream areas of need in Iraq” (4). The imperative to militarize the rivers as highways of communication and transport led the Ottomans to establish complex infrastructures of martial power to manage – and profit from – the movement of peoples and goods between Syria, Anatolia, Persia, and Iraq.

Just as the reader begins to wonder if the narrative in Part I will give way to an overly statist paradigm in the rest of the text, Part II introduces the local communities of Iraq whose livelihoods and relationships to the distant government are mediated through the estuary’s annual water cycle. “Arable Lands” (chapter 3) examines settled economic life in the alluvium. The Ottomans’ much vaunted “pragmatism” in administering distant and culturally variegated communities took the form of continuous negotiation between competing imperial interests to, on the one hand developing Iraq’s agricultural landscape for fiscal reasons, and to maintain the pacific states quo among local communities on the other. “Esteem for the status quo,” Hussain writes, “steered the Ottoman empire toward an active approach to water management, but it restrained ventures to entirely remodel the irrigation infrastructure of Iraq” (60). Similar pragmatism impacted Ottoman rule in grassland ecosystems in the drier segments of the alluvium where transhumance and pastoralism predominated. Part II treats Ottoman administrators and local communities as historical agents shaping and affecting the riverine landscape. Husain’s text is especially enlightening when his analysis of the land and the government is framed in terms of the needs of localized actors, as in his treatment of Iraq’s pastoralists. In “Grasslands” (chapter 4) and “Wetlands” (chapter 5), building
on the work of Rudi Linder, Husain uses the tax registers of Iraq to evaluate the role of pastoralists in the economic throughput of Ottoman administration. The mobility of many pastoral communities made them notoriously difficult to govern and to tax. But as purveyors of animal products which, while alive, doubled as a reliable form of capital reserve, Ottomans relied on pastoral communities for essential products and sizeable tax revenues. “The Ottoman state did have an agrarian dream,” Husain writes, but “Ottoman agrarian predilections could be tempered with realism in a landscape well suited to animal rearing like Iraq, giving a free rein to a pastoral engine of economic development no less important than arable production” (80). To both enable and circumscribe the seasonal movements of these transhumant communities, Ottomans relied on sophisticated knowledge of the natural geography of water in the alluvium. This reliance on natural geography crafted a balance that made pastoralists essential to the Ottoman economy and even afforded them ways of asserting autonomy within the formal structure of the state.

Part III invites consideration of the inexorability of human and non-human systems as Husain weaves a compelling argument that the collapse of Ottoman rule in the Iraqi alluvium resulted from the sudden rupture of the Euphrates. Between 1687 and 1702, a large segment of the river overflowed its established channel and “gushed into a new one” (112). This disaster – partly caused by one man breaching a levee to water his own fields and subsequent foot dragging by Ottoman officials – resulted in a reshaped ecological landscape of the lower Euphrates to which the entrenched Ottoman systems of administration were ill equipped to adapt. This disruption led to an imbalance between cultivated land and marshland, which in turn caused a rift between Ottoman authorities in Istanbul and local elites. New tribal powers rose in the countryside and this shift “undermined the power of Istanbul-appointed governors in the alluvium” and gave rise to “a new localized system of river management based in Baghdad” (20).

The sweep and potency of Husain’s insight is hard won with an intimidating array of archival and scientific evidence. Dendrochronological data supplements his clever use of among, other sources, prominent Ottoman chronicles and the Ottoman Registers of Important Affairs (Mühimme Defterleri) to examine aspects of Ottoman water policy, European and Ottoman travelers accounts to detail the flora, fauna, and local customs found throughout the alluvium, and most excitingly for Ottomanists with an environmental bent, the Land Register and Cadasters archive in Ankara. Specialists will find Husain’s innovative use of cadastral surveys to chart ecological changes over time to be one of the book’s chief contributions to the field. The use of these surveys by Ottomanists has dwindled in recent years, partly because of the specialized script in which they are written and in which exceedingly few new Ottoman historians are trained. This new and thoughtful use of the cadasters is reason enough to name Rivers of the Sultan one of the most important works on the Ottoman premodern era to emerge in recent years.

Environmental approaches such as Husain's often denote a detached mode of analysis that elides the reality that Ottoman military infrastructure served the single purpose of maintaining the capacity to render violence. While the depth, rigor and scope of Husain's text represents a genuinely ground-breaking study of the literal nature of Ottoman statecraft, the elision that makes this study feasible relates to the moral nature of imperialism. Husain does not engage in detail with the cruel, even savage realities of empire as it was no doubt sometimes experienced on the ground. But Husain may be wise to maintain a distanced approach to the more well-trod historiographical territories of coercive core-periphery relationships. This posture allows Husain's work to contribute to a newer and growing body of cross-disciplinary scholarship that points the way for communities and leaders to rethink the human-environmental nexus altogether. *Rivers of the Sultan* reminds us that the ways in which states interact with, shape, and are shaped by the natural environment is itself a moral question. Indeed, we are left with the recognition that, ever since the emergence of states around the fertile crescent, histories of empire are always histories of environments – and vice versa.
Faisal Husain’s *Rivers of the Sultan* presents a well-researched and innovative history of Ottoman Iraq by placing human-river interactions at the center of its early modern story. Much like Alan Mikhail’s *Nature and Empire in Ottoman Egypt: An Environmental History*, Cambridge UP, 2012), Husain’s book demonstrates how local actors and peripheral areas actually shaped Ottoman politics at the center of the empire.

*Rivers of the Sultan* details the way that river ecologies and their navigability helped the early Ottoman state in Iraq develop its military logistics through the construction of riverine forts and shipyards that relied on the movement of materials along the Tigris and Euphrates rivers, which rise in the highlands of central and eastern Anatolia and empty into the Persian Gulf south of Basra. This river system gave the Ottoman state, based far away on the Western Asian seacoast in Istanbul, a competitive edge over its Safavid rivals to the east and helped to transform Iraq of the sixteenth and seventeenth centuries into a vital frontier for the empire and the Ottoman Empire itself, Husain asserts, into an “amphibious state.”

The book shifts in its middle section to explain the ways that the newly settled state governed and extracted revenue from the different regions comprising the very flat lowland alluvium of southern Iraq. “Enclosed by fortresses and shipyards, the Tigris-Euphrates alluvium could [now] be milked of its organic wealth by the Ottoman state” (59). In these chapters, Husain reconstructs the ecologies of three zones networked by the river system. Arable lands irrigated by annual flooding and human-distributed river water enabled residents to grow date palms in the high levees formed by the deposition of heavy sediments, which in turn created optimal microclimates in nearby basins for other crops and strong tax revenues for the state, which then engineered increasingly complex canal systems to irrigate it perennially. Grasslands, a second ecological zone, formed where the rivers’ flow regime supported seasonal migration for sheep and their shepherds, who maximized the energy available in meadows of rough grasses and protein-rich truffles and then were organized into increasingly complex herder associations by the state. Finally, Husain explores wetlands, a zone where water buffalo and human managed the thick and tough marsh vegetation to produce milk, fuel, and revenue that, like the land itself, came in and out of the state’s view and its tax registers.

In the book’s final two chapters, Husain explains the radical transformation of the alluvium as a new local hydraulic order emerged from the over-engineered irrigation landscape and increasing imperial neglect after 1700. It is a dramatic story of change, first set in motion by the radical redistribution of water and silt afforded by an avulsion of the Euphrates when a local notable cut an irrigation dyke in one of the levees, allowing the river to erode out of its usual bed. The shifting politics that followed gave rise to new configurations of power among tribes in the three alluvial
zones, ultimately leading to the retreat of the central Ottoman state and the rise of early modern Iraq in the form of the Pashalik of Baghdad by 1780.

In charting this story, Husain makes several important historiographical interventions. The formation of this powerful regional household government in Baghdad anticipated a similar formation in Egypt under Mehmed Ali over a quarter of a century later, thereby revising the periodization of the decentralization of the Ottoman Empire and the growth of its peripheries. In contrast to enduring scholarly and more popular views of Iraq as an entirely artificial state sutured weakly from three separate Ottoman provinces by British colonial and Hashemite monarchical forces during the interwar mandate period in the twentieth century, Rivers of the Sultan provides a longer and more local account of the emergence of Iraq as a nation state. As such, Husain brings environmental change directly into political history.

The book contributes innovatively to other important debates in Ottoman historiography, as Camille Cole’s excellent H-Net Water review argues, especially in Husain’s creative use of primary sources such as tax registers to estimate the extent of marshlands, the documentation of Ottoman flexibility and pragmatism in governing ecologies as well as human subjects, and the revision of a post-Mongol desertification narrative about early modern Iraq. As Cole writes, “Husain’s intervention….emphasizes local agency and its role in shaping environmental practice and forms of imperial authority together.” Compelling and lively, the book's thick descriptions of ecologies and early modern life and politics on Iraqi rivers makes it hard to put down.

The book’s overt connection of environmental change to politics offers the opportunity to consider much larger methodological questions that I pick up here for the sake of roundtable debate. Let me be clear that I list these issues as productive seams and tensions in the book that do not detract from the quality of its analysis or narrative. They merely provide a jumping off place to reflect on some of the methodological challenges and even mundane choices many environmental historians face when they select from archives or put words on a page. At their widest valence, these questions concern how we historicize “nature” and “rivers.”

Rivers have long stood in for change over time. David Blackbourn opens a 2008 chapter about writing river histories by listing many of the classical examples of using rivers as “a favorite metaphor for history”: from Marcus Aurelius to Machiavelli to Leopold van Ranke, he traces the notion that change over time moves “like a torrent,” often to create disorder. Blackbourn’s larger point, mostly drawing on European and American scholarship, is to argue that rivers as narrative through-lines can be used

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4 David Blackbourn, “‘Time is a Violent Torrent’: Constructing and Reconstructing Rivers in Modern German History,” in Rivers in History: Perspectives on Rivers in Europe and North America, edited by Christof Mauch and Thomas Zeller (Pittsburgh: University of Pittsburgh Press, 2008), 11.
to craft transnational histories (because long rivers cross political borders) and stories of “the evolution and development of human societies [by looking] at what they have done with, and to, their waterways.” The form of the movement of water in rivers to describe the passage of time continues to inform crucial threads in STS, including the oft-cited discussion between Michel Serres and Bruno Latour about “a different theory of time” where Serres proposes a “complex” and “chaotic” theory of time against “the classical theory ... of the line, continuous or interrupted.” Serres, whose father worked barges on the Garonne river in southwestern France, instead posits a non-laminar or turbulent view of water flow to represent the passage of time:

[Beneath the Mirabeau Bridge flows the Seine...] – thus flows classical linear time. But Apollinaire, who had never ever navigated at least on fresh water, hadn’t studied the Seine enough. He hadn’t noticed the counter-currents or the turbulences. Yes, time flows like the Seine, if one observes it well. All the water that passes beneath the Mirabeau Bridge will not necessarily flow out into the English Channel; many little trickles turn back toward Charenton or upstream.... It’s not always laminar. .... No, time flows in a turbulent and chaotic manner; it percolates. All of our difficulties with the theory of history come from the fact that we think of time in this inadequate and naïve way.

Serres has inspired scholars working outside Europe to theorize rivers as “time-substance” based in Indigenous/Native and Queer Trans water knowledges to amplify practices of ecological care and justice. Such work, according to Cleo Wölflé Hazard, “plays with the symbolic resonance of underflows and other watery words...[but] refuses to reduce water to a metaphor even as it recognizes the power trans/figurings that water lets one do.”

In the context of Husain’s book, however, I want to think with Heraclitus’s maxim that no one can step twice into the same river. Heraclitus’s saying may certainly be understood as the river doing proxy-work for time or history, as a theory of flux: the same moment can never happen twice, he is understood to imply, for the person is not the same and nor is the river. Heraclitus, who lived in roughly 500 BCE on another

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5 Blackbourn, “Time,” 12; 23 for quote.
Anatolian river, the Kayster, which flowed through Ephesus, asks us to consider, however, more than just the nature of time. He also suggests that naming practices – nouns such as river, person – coerce difference into flattened sameness.\textsuperscript{11}

River terminology is political, in other words, since it encodes and distributes certain forms of power. Husain points to some of the hydro-imaginaries that filter and frame Ottoman and British views of the Tigris and Euphrates rivers.\textsuperscript{12} One naming imaginary is geographically comparative: as “a second Egypt” that might be “redeemed” from “neglect” into a new imperial bread basket or by comparison to South Asian water systems manipulated by colonial geologists and irrigation engineers who applied what they had learned working in British colonial India to the hydrologies of Egypt and later to Iraq. Husain notes that in the sixteenth century, “the Ottoman reconfiguration of the Middle East alienated irrigation agriculture in Iraq by dragging it into an unpropitious competition with far more attractive sites for agricultural investment,” such as Egypt and the Balkans (Husain, 65; for other comparisons to the Nile’s regime in Egypt see 77-78; 84-85). In a forthcoming article, “The Radical Instability of the Present,” Cole shows that the late Ottoman narrative of Iraqi agrarian development plotted irrigation works alongside transportation infrastructure and the forced settlement of tribes to remake Iraq into a wealth-generating province in the nineteenth and early twentieth centuries by constructing an anticipatory past leading to what they envisioned as a known and inevitable future: fertile Iraq becoming both its deep Mesopotamian past and a second Egypt, while erasing the kinds of land and forms of cultivation that existed in the present.\textsuperscript{13}

In the post-Ottoman period, British colonial irrigation experts drew on comparison to India, where they had been trained in imperial hydrology before being relocated to Iraq and Egypt. Iraqi barrages and other engineering works figured prominently in the planning and design of British colonial hydrology on the Nile in Egypt. William Willcocks and J.I. Craig regularly illustrated their two-volume \textit{Egyptian Irrigation} (1913) with Iraqi comparisons, and Willcocks authored \textit{The Irrigation of Mesopotamia} in 1911.\textsuperscript{14} Egyptian geographer Gamal Hamdan used the Iraqi river regime as another arid lands foil for Egypt in his 1961 study, “Evolution of Irrigation Agriculture in Egypt.” Hamdan lamented, for instance, that perennial irrigation had


\textsuperscript{13} Forthcoming in \textit{Comparative Studies of South Asia, Africa, and the Middle East} 44, no. 2 (August 2024).

put "Egypt into the unenviable situation of Iraq where seasons of flood and cultivation are diametrically opposed."\(^{15}\)

A second set of nominative hydro-imaginaries frames the relationship of the Tigris to the Euphrates. Here the reader is confronted with the question of when and how these two bodies of water were viewed as “twinned rivers” or a “river basin.” Husain's book argues persuasively that when the two bodies of water were united politically under Ottoman imperial rule – or, as he puts it, when “the natural boundaries of this drainage basin... dovetailed with the webs of political power that regularly formed and fractured throughout history” (2) – and in the frame of one historical study through the unit of the “hydro-scale,” “the magnitude and significance” of the movement of water, silt, people, food, and military supplies and the “reach of natural and political disturbances” on the rivers were amplified (Husain, 5). Husain justifies, however, his restorative project of joining historiographically the two river basins into “a fluvial system as a continuous whole” through reference to contemporary Western science: “Writing a history of the Tigris and Euphrates is an attempt to piece back together a jigsaw that time has torn apart. Even though natural scientists take the physical and biological unity of river systems as an article of faith, the twin rivers appear in most historical works as dismembered bodies” (Husain, 5). An odd dissonance or essentialism surfaces here, much like his framing of the “dovetailing” the Ottomans achieved between the natural and political in this period, in a story otherwise richly told as a tale of historically contingent and locally specific politics.

To resort to the hydro-imaginary of Iraq-as-Egypt again: The Nile was administered from 1904 until 1956 as a single basin, a unified planning construct made possible by British imperial control over the major territories in the White Nile watershed.\(^{16}\) Terje Tvedt calls this “water imperialism,” an ecological politics that permitted “political leaders...to regard this widely varying resource as one hydrological and political unit, with far-reaching consequences for the peoples who for generations had been living along the banks of the river as if the river and its tributaries were local water courses.”\(^{17}\) For rivers as long as the Nile or the Tigris and Euphrates, “basin thinking” can only be "a product of high imperialism," Kären Wigen has argued.\(^{18}\) Indeed, it took extraordinary engineering to change the scale of the Nile from an imperial to a national river: the building of Egypt’s Aswan High Dam between 1960 and 1971 allowed the state to create a new river “source” largely within the bounds of the nation (the dam's vast reservoir) and a fixed “artificial flood” each year.\(^{19}\)

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\(^{16}\) The British were not interested in controlling the sources of the Blue Nile, in part because its flow was not important for the summer cotton crop in Egypt when most of the flood water could not be stored. See Terje Tvedt, ed., *The River Nile in the Post-Colonial Age: Conflict and Cooperation among the Nile Basin Countries* (NY: IB Tauris, 2010), 4.


Critical geography also asks us to consider the conceptual and political unity of river systems into a basin as evidence of a deep entanglement with coloniality. Following the call by Eve Tuck and K. Wayne Yang to reject decolonization as merely a metaphor, Tiffany Kaewen Dang analyzes the colonizing logics of landscape “as a disciplinary tool to facilitate the control of land and to naturalise colonial hegemonies,” since territorial appropriation is at the heart of colonization.20 Kathryn Yusoff has likewise framed landscape science as a practice of racialized and imperial terra-forming where colonial geology, extraction, and dispossession are “white man’s overburden.”21 It is hard then not to regard the universalized geological categories of “river” and “basin” as deformations of land into colonized landscapes.

Husain’s broader methodology extends this dissonance by invoking directly (though not uncritically) natural and archaeological sciences to pair with his otherwise archivally supported social and political history. At the center of his book are a set of methodological choices that he addresses quite directly in the introduction. Cole questions in her H-Net review Husain’s “reliance on modern scientific concepts (kinetic, biome, energy) to explain the actions and motivations of his early modern subjects,” although she finds clear and convincing his use of “scientific evidence and his explanations of how tree-ring and cave-ice data complement more traditional historical source analysis.”22 I would agree that he also does in fact read early modern Ottoman archival sources such as land surveys “with a fresh ecological eye” to augment and reorient the history of this period (Husain, 19). But he moves a step further.

To supplement environmental analysis of this fragmentary cadastral evidence, the book uses more recent ethnographic data on traditional subsistence strategies from the same geographical region as a source of analogy for the sixteenth and seventeenth centuries. Referred to as ‘direct historical analogy’ in the archaeological field, this approach shares with Ottoman environmental historians the assumption that systems of land use in West Asia and North Africa experienced long-term continuities until the gradual mechanization of agriculture during the past 150 years (Husain, 19).

In other words, the use of ethnographic fieldwork in communities engaged in farming practices “when documented under similar ecological and technological constraints” in the nineteenth and twentieth centuries and in nearby areas can allow historians to reconstruct ways of life otherwise not visible from patchy or destructed archives (and in Iraq, as Husain notes, archives have suffered disproportionate loss, especially from invasion and war). Such ethnographic analogy augments Husain’s descriptions of life in the three “zones” of the Iraqi alluvium: informing, for instance, his histories of

21 Kathryn Yusoff, A Billion Black Anthropocenes or None (Minneapolis: University of Minnesota Press, 2018), 28. See also John Wylie, Landscape (New York: Routledge, 2007).
sheep grazing on particular grasses, the husbandry of water buffalo, or the horticultural techniques of growing date palms. To give just one example among many: the sections of chapter five that detail the kinds of canoes that permitted mobility in the wetlands draw from contemporary observers in the 1970s or even the 2000s before the marshes were forcibly drained by Saddam Hussein (see p. 98).

While I appreciated the transparency of Husain’s methodology and the narrative animation in these sections, especially while teaching the book to graduate and undergraduate students of Ottoman history in fall 2023, I also wondered what other kinds of work this analogy might do in conceptualizing the past, and especially that of “the rivers” that lie at the center of his narrative. In this case, I find helpful Dilip da Cunha’s study of technologies of representation that separate land from water – the “lines with which this separation is imaged on maps, etched in the imagination, and enforced on the ground with regulations and constructions” – and the divisions that that such lines facilitate. In particular, Da Cunha shows that “presenting the river as a product of human intention rather than nature” can “make room for worlds without it,” including rain, “which the presence of the river has done much to malign and marginalize.”

In a similar spirit, Projit Bihari Mukharji cautions historians to consider what is forcibly erased when scholars “gloss [a] plant’s cultural name with a botanical name provided in parentheses.” Drawing on the Latourian critique of “retrofitting” the past with science, Mukharji frames “retro-botanizing” both as a practice that hollows out “plant names in other languages and at other times” as “waiting to be filled by the reality of botanical names” and that misrepresents them by “fundamentally alter[ing] them by inserting them into a very different and modern cosmological universe where plant identities are conceptualized in a radically different way.”

Denial of difference between two natural forms is perhaps a logical and necessary post-Orientalism strategy in Middle East studies, and I am not suggesting that the canoes of sixteenth-century Iraqi marsh-dwellers in fact differed radically from those of the late twentieth century. But it is worth considering what may be foreclosed by applying the word “river” across time and space in the Ottoman Middle East or framing the “reuniting” of the twinned rivers into “a natural basin.”

Might we need to consider the work that “retro-hydrologizing” or “retro-rivering” does to our historical case studies? One way might be to make scale both a tool and an object of analytical study. How do certain technologies allow individual or collective actors to “see” and “name” certain lengths of running fresh water? When, as detailed in Husain’s chapter 6, the local notable Sheikh Diyab cut a dyke on the Euphrates to irrigate his fields in 1688, did he regard the Euphrates as merely “water” but when in the coming months the Euphrates then broke its banks and flooded

downstream villages, did it become apparent as a much larger entity, such as a river? Or was it by 1702, when its avulsion was completed and it flowed in a new channel? I have suggested elsewhere that distance might determine what parts of wilderness (such as birds) are private property versus “natural commons.”

We might also learn from similar critiques about the naming of arid lands “desert”: Samia Henni argues that the “term ‘desert’ stands in for a complex locus of imageries, imaginaries, climates, landscapes, spaces, and histories”; Ariella Aïsha Azoulay names these “imperial desert effects”; and Nubian spatial justice designer Menna Agha goes even further to argue that given Egyptian hydraulic engineering's destruction of the Nile Valley south of Aswan, the “notion of ‘Nubian Desert’ brings a geographic project of epistemicide, designed to discount Nubian humanity and peoplehood and facilitate colonial modes of extraction.”

The work of “unthinking” naturalized states, such as rivers and river basis, is decolonial work that can enjoin us to “imagine into being” new forms of sovereignty and justice.

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In the past few years, there has been a flurry of development in Ottoman and Middle Eastern environmental history, offering innovative approaches and insights into the history of the Ottoman Empire and tying it to broader historical and historiographical currents. Faisal Husain’s *Rivers of the Sultan* represents a significant addition to this burgeoning subfield. In this work, Husain meticulously chronicles the incorporation of the Tigris and Euphrates rivers into the Ottoman Empire in the mid-sixteenth century along with the administration of the Tigris-Euphrates basin over the following two centuries. He exposes the development and transformation of an elaborate waterborne system of communication and transportation that, as he argues, supported Ottoman imperial administration by solidifying the Ottoman presence in Iraq, providing security against foreign and domestic threats, and promoting strategic environmental exploitation. *Rivers of the Sultan* complements previous scholarship by illuminating an understudied region of the Ottoman Empire, highlighting the environmental features and significance of this region, and intentionally framing this story within global environmental history and the history of empires.

*Rivers of the Sultan* blends thematic and chronological organization to provide a clear presentation of the Ottoman Empire’s incorporation and development of the Tigris-Euphrates basin. The first part, “Amphibious State,” focuses on the built environmental features of Ottoman control in the Tigris-Euphrates basin. Drawing extensively on construction orders and other Ottoman archival sources, Husain shows how the construction and maintenance of fortresses, ships, and shipyards along the Tigris and Euphrates contributed to the consolidation of Ottoman control over the region. More broadly, he highlights the key roles that navigable rivers played in provisioning and militarization of early modern empires. As he explains, the Ottomans maintained control of the Tigris-Euphrates basin in the sixteenth and seventeenth centuries “at the barrel of a gun” (21).

The second part, “The Water Wide Web,” surveys prominent types of land and land use in Ottoman Iraq, including agriculture, pastoralism, and marshlands. Husain uses these themes to contest common perceptions of the region as environmentally uniform as well as the notion that the Ottoman state was only interested in supporting agriculture. Instead, he shows how Ottoman officials maintained a “web” of subsistence options across the Tigris-Euphrates basin, which served to facilitate Ottoman authority in the region as well as to insulate inhabitants and the administration from the impacts of environmental crises. This section, moreover, introduces additional players and perspectives that refreshingly complement the predominantly administrative, military view provided in the first part. On a larger scale, “the Water Wide Web” informs world environmental history by highlighting the often-overlooked role of mobile pastoralism in the expansion and consolidation of early modern regimes and by challenging prominent desertification narratives about the region.
These first two parts set the stage for a dynamic and engaging narrative in "the Rumblings of Nature." This final section illuminates the abrupt unraveling and transformation of the Ottoman environmental system in the late seventeenth century. Husain demonstrates how major social, political, financial, and environmental upheavals, together with a few critical missteps, contributed to the decentralization of Ottoman rule in the region by the early eighteenth century. In this final episode, Husain's gift as a storyteller truly shines. He presents these developments as an intriguing detective story and, at the same time, fills in significant gaps in the history of the region. He convincingly shows that this history cannot be understood without taking the environment into account.

Overall, Husain's engaging style and detailed descriptions provide a vivid image of early modern life in the Tigris-Euphrates basin. *Rivers of the Sultan* showcases an impressive depth of knowledge of history and ecology, and it incorporates a diverse array of primary sources, including extensive archival materials, travel accounts, and paleoclimatological data. It is artfully written and thoughtfully structured. It is also well provisioned with maps and other explanatory images. Husain intentionally situates his work within the framework of world environmental historiography, adopting common methodological approaches, referencing key works, and highlighting patterns and connections with other regions. His target audience includes specialists in Ottoman and Middle Eastern history as well as scholars of environmental history in general. While his story significantly complements previous Ottoman historiography, he presents it in a way that is relatively accessible to non-regional specialists. The broad strokes of early modern Ottoman administration are outlined in the introduction, and each chapter includes relevant background, consistent signposting, and a brief historiographical review highlighting Husain's approach and distinction from previous scholarship. Throughout the book, Husain makes effective use of an environmental lens. His attention to the wide range of environmental factors in early modern Ottoman administration in Iraq makes this work a rich and valuable resource and an important contribution to the growing field of Middle Eastern environmental history.
My heartfelt thanks go out to the editor Mohamed Gamal-Eldin and H-Environment for organizing this roundtable. I am also grateful to the four reviewers for their close reading and deep engagement with my book.

Over a decade ago, I went to the Ottoman Archive in Istanbul for the first time with a basic question—what role, if any, did the Tigris and Euphrates play in Ottoman history? The question was born out of my frustration with the post-classical (post-Mongol) historiography of the Middle East, in which the Tigris and Euphrates appeared as a mere backdrop to human affairs. This marginalization stood out to me in sharp contrast to the centrality of the Tigris and Euphrates in the ancient and medieval literature. Surveys of Sumerian civilization, for instance, often begin with a chapter about how the Tigris and Euphrates nurtured the earliest forms of urbanism, writing, and state formation—now basic trappings of human civilization. Persia’s resurgence as a world power in the post-Hellenistic era, historians of late antiquity also told us, was intrinsically tied to the tax-power of the Tigris-Euphrates alluvial plain. And who can write a history of Abbasid Baghdad without reference to these two great rivers? The Mongol conquests in the thirteenth century, however, precipitated the Tigris and Euphrates into historiographical oblivion. The Mongol hordes, conventional wisdom had it, destroyed the irrigation system of the region, a calamity from which the rivers couldn’t recover until the arrival of British hydraulic engineers in the early twentieth century. My book was an attempt to scrutinize this popular narrative. The Tigris and Euphrates, I found out, mattered far more to post-classical state and society than historians had assumed.

Sean Lawrence perceptively observes that my preoccupation with Ottoman river management may have downplayed state violence that water control often enables. Other readers conveyed to me the same impression, reading the book as a celebration of Ottoman environment acumen and (by extension) benign imperial rule. My intention, however, was to document and elucidate rather than celebrate Ottoman water management. After all, I was writing in response to European and Arab historiography that blamed the “tyranny” or at best neglect of the Turks for the fall of the Tigris-Euphrates basin as a power center. Nonetheless, river control did indeed facilitate crude state violence, which occasionally appears in the book. The beginning of chapter 2, for instance, describes a “macabre series of atrocities” the Ottoman navy committed against a marshland community in southern Iraq in 1567. The rest of the chapter contains some other examples. But I agree with Lawrence that my book is not a sustained elaboration of this important subject. My top priority throughout the book, instead, was to demonstrate the centrality of the Tigris and Euphrates to the Ottoman imperial project in its eastern borderland, a reality that Ottoman historiography has largely ignored. The relationship between river control and state violence in the Ottoman context awaits its own historian.
Andrea Duffy calls attention to the different modes of writing I pursued in the book. She rightly notes that narrative only picks up steam in chapters 6 and 7, preceded by five chapters that revolve around historical structures—mostly river transportation and systems of land use. Writing five theme-driven chapters was a difficult choice for me to make, knowing full well that storytelling is king in our discipline; it trumps all other modes of historical writing. My sources, however, pushed me to recalibrate my writing preferences. In particular, a structural analysis proved the natural approach to write about the sixteenth-century Ottoman cadastral surveys (tapu tahrir defterleri)—the heart of my source base—and to make their economic and demographic data comprehensible to the reader. Having said that, regardless of the mode of writing adopted in different chapters, I hope the book’s big story won’t be lost to the reader. To summarize it in one sentence, the book is a story about the rise of a centralized Ottoman system of river management in the early sixteenth century, which would become localized or provincialized over the course of the eighteenth century. To narrate this story, my source base impelled me to blend narrative with structural analysis.

Christopher Morris—whose seminal book The Big Muddy (2012) was propitiously published the year I arrived at Georgetown University as a PhD student, inspiring me to become a river historian—raises a critical question about what went on upriver. Upstream settlements do appear in my book, but mostly as centers of boat construction and shipping. On the upper Euphrates, Birecik emerged in the early sixteenth century as the center of the Ottoman naval fleet in the Tigris-Euphrates basin, called Donanma-i Nehr-i Şatt in Ottoman bureaucratic parlance. Under the auspices of the Imperial Naval Arsenal in Istanbul, Birecik became a conduit for the diffusion of boat designs from the Mediterranean, Black Sea, and Danube River to the Tigris-Euphrates basin. I tell its story in chapter 2. On the upper Tigris, Diyarbakır and Mosul became major centers for raft construction for the Ottoman army. Raft-making is an ancient craft in the region, but the demand of the Ottoman army for naval support ratcheted up raft production level in both cities to an industrial scale. This is a story I tell in chapter 1. Beyond these two chapters, Morris is right. Once the book turns to a discussion of food production and channel shifts, the upper stretches of the Tigris and Euphrates recede to the background.

The downstream south overshadows the upstream north in the book because, until the twentieth century, the Tigris and Euphrates were relatively insignificant to northern settlements. Unlike the arid south, the north receives ample precipitation, which makes it less reliant on the Tigris and Euphrates for crop cultivation. The predominant agricultural system in the north, as a result, is rainfed agriculture, which I considered to be beyond the scope of a book about the Tigris and Euphrates. Even northern farmers who wanted to supplement rainfed agriculture with irrigation agriculture would have struggled. They would have to deal with a rocky and mountainous terrain, through which the rivers flow deep into the ground, rendering cross-country canal construction prohibitively costly and onerous. This is why, until the twentieth century, most irrigation projects in the Tigris-Euphrates basin clustered in the south. Furthermore, the upper Tigris and Euphrates are entrenched
in their beds, unable to seasonally flood and occasionally change their courses as they do in the south, where they flow above the ground. Geology, in other words, deprived the north of the Tigris-Euphrates pastures and wetlands that southern livestock herders took for granted. Instead, geology gifted the north with mountain chains, around which mobile pastoralism could revolve. The north’s mountain-centered system of mobile pastoralism (typically called transhumance) is important, but I concluded that it was beyond the scope of a book on the Tigris and Euphrates. The north’s relative marginalization in my book, in short, reflects the salient fact that the Tigris and Euphrates had been marginal to the history of northern agriculture and livestock management.

Nancy Reynolds criticizes the study of the Tigris and Euphrates together, questioning concepts I used to justify this endeavor. She asks, for example, when and how the Tigris and Euphrates were viewed as “twinned rivers.” In the book, I called the Tigris and Euphrates “twin” (rather than “twinned”) for many reasons; I will mention only three of them here. First, like human twins, the Tigris and Euphrates emerge from the same womb. The womb from which the Tigris and Euphrates emerge is geological and it is the Taurus Mountain system. Second, like other twins, the Tigris and Euphrates share a birth date. In geological history, both were born around the same time, about 35-20 million years ago. Finally, the Tigris and Euphrates—again, like other twins—simply look and behave in similar ways. They both flood in the spring months and sink low in the late summer and early fall. Of course, like all twins we’re fortunate to know in our family and social circles, the Tigris and Euphrates have their differences that make each of them unique in its own way and worthy enough of a separate treatment. But their shared genealogy, birth date, and habits—not to mention their proximity and shared history—gave me enough justification to call them twin rivers and to study them together as such.

Do other geomorphological concepts I use in the book to study the Tigris and Euphrates together—like “basin,” “fluvial system,” and even “river”—deform the region of my study into a colonized landscape? I hope they do not. By the standards of West Asia, the Tigris and Euphrates are indeed long and complex, with hydrological and geographical variations between them and within themselves. Effectively, however, they work in tandem to drain the same contiguous territory—what geomorphologists call a basin area—that today straddles the Turkish-Syrian-Iraqi-Iranian border. For this reason, earth scientists consider the Tigris and Euphrates constituent parts of the same drainage or fluvial system, the same way anatomists group different body organs and tissues that collectively perform a unified task into systems, like the “respiratory system” and the “urinary system.”

Is basin thinking only a product of high imperialism? I would say no. Since the eighteenth century, before the age of high imperialism, the basin concept has been malleable, deployed by different actors, in different contexts, for different goals. Colonial powers in the nineteenth and twentieth centuries may have invoked it to justify their projects of domination over water resources. But so did environmental and conservation groups, some of which have advocated for a basin approach to
control pollution and conserve fisheries. Likewise, the basin concept provided some international bodies a framework to promote a more equitable distribution of water along transboundary rivers. For a historian like Fernand Braudel, a basin approach to the Mediterranean Sea—which he considered to be both a physical and human unit—rationalized his humanistic claim that, in his sublime words, “the Turkish Mediterranean lived and breathed with the same rhythms as the Christian.” My basic point is that the basin concept is not inherently evil and has not always been a product of high imperialism. We should judge it based on the context in which it is used and the aims for which it is marshalled. I hope most readers will judge my use of it in the book this way.

It is true that the term “basin” first crystalized in the West as early as the eighteenth century, but societies worldwide had long implicitly conveyed their awareness of it. Without using the modern basin terminology, they understood that water in a basin area is interconnected and interdependent. Basic needs for drinking water, irrigation, navigation, and settlement nourished the ancient wisdom that living in a basin area exposed societies to upstream and downstream interactions fostered by a river’s drainage. To give just one example, in a story written about a hundred years later, the Abbasid ruler al-Mansur (d. 775 CE) reportedly scouted around for a site to build the city of Baghdad. After he settled on the site where Baghdad stands today, he declared: “Here’s the Tigris, with nothing between us and China, and on it arrives all that the sea can bring, as well as provisions from the Jazirah, Armenia and surrounding areas. Further, there is the Euphrates on which can arrive everything from Syria, al-Raqqa, and surrounding areas.” Without using the term basin, al-Mansur and his entourage—or at least the ninth-century chronicler who put this account into writing—understood that Baghdad stood at the heart of a basin region drained in concert by the Tigris and Euphrates from Armenia to the sea, and this drainage process could be exploited with watercraft to open up their new city to regular provisions from upstream and downstream regions.

Finally, is there anything radical or inherently wrong about the use of relatively recent ethnographic evidence as an aid in our analysis of the more distant past? Not at all. This method is more pertinent to historians of premodern societies and of populations that didn’t leave extensive written and archaeological records. It has been useful in my research, and I explained its rationale and theoretical basis to those unfamiliar with it in the book’s introduction. Here I will simply add that ethnographic evidence supplements (and does not supplant) a patchy archival, archaeological, and genomic record. Its use, moreover, is routine in historical studies. Just as scientists in different disciplines have developed models to forecast future events and trends, with varying degrees of certainty, historians of different stripes have developed methods to reconstruct the past, with a similarly wide range of certainty. Ethnography has been indispensable to many of those methods. Anthropologists have used it to reconstruct social structures as far back as the last glacial period. Archaeologists,
likewise, routinely use it to reconstruct Bronze Age systems of land use. In my book, I adopted a far more conservative approach to the use of ethnography, the subject and source sides in my historical analogical reasoning originating from the same environmental context and separated by a much shorter span of time.

I researched my book in full awareness that writing a history of the Tigris and Euphrates is a monumental task. Fortunately, when I started my journey, many historians had already cut through the methodological trails for me, writing books (sometimes much shorter than mine) about bodies of water much larger than the Tigris and Euphrates. Their work gave me the courage and inspiration to pursue this project. As Morris's review shows, my book leaves so many questions unanswered and leaves room for many more books to be written on the subject. Still, at the most basic level, I hope my book will start a conversation about the feasibility and merits of the Tigris and Euphrates as categories of historical analysis.
About the Contributors

Andrea Duffy serves as Assistant Vice Provost and Associate Professor of History at Colorado State University. She holds a B.A. in Modern European History from Princeton University and a Ph.D. from Georgetown University with specializations in European, Middle Eastern, Ottoman, and environmental histories. In addition to other publications, she is author of Nomad’s Land: Pastoralism and French Environmental Policy in the Nineteenth-Century Mediterranean World, winner of the Weyerhaeuser Book Award for best book in forest and conservation history.

Faisal H. Husain Faisal Husain is assistant professor of history at Penn State University, where he teaches courses on global environmental history, the Ottoman Empire, and the Silk Road. He is a member of the State College Bird Club.

Mohamed Gamal-Eldin is a lecturer in the history department at Rutgers University-Newark. He is a historian interested in the built environment, nature, and infrastructure. His most recent article, “Looking at Suez Canal Infrastructures: Water, Plants, and the Urban Drainage, Sewage and Bathroom Systems,” was published in the International Journal of Middle East Studies. He is currently working on a book on the history of the Suez Canal cities to be published shortly as Cities of Sand.

Sean Lawrence is an assistant professor of history at West Virginia University specializing in modern Europe, German-Turkish relations, environment, capitalism, and empire. He holds an M.A. in World Heritage Studies from Brandenburg University of Technology and a Ph.D. from the University of California, Santa Cruz. His current book project, Arcadia Lost: Business and Nature at the End of Empire explores the entangled environmental histories of the German and Ottoman empires in the early twentieth century.

Christopher Morris lives in Dallas, Texas, and is Professor of History at the University of Texas, Arlington. He is the author of two books, Becoming Southern: The Evolution of a Way of Life, Warren County and Vicksburg, Mississippi, 1770-1860, and The Big Muddy: An Environmental History of the Mississippi and Its Peoples from Hernando de Soto to Hurricane Katrina. In addition, he has authored articles, essays, and book chapters, and co-edited three essay collections, on subjects ranging from slavery in the sugarcane fields of Louisiana to climate change as revealed in the cartographic history of the Great Lakes. He is best known for his work on slavery and on the relationship between people and the natural environment in the American South. Morris holds a doctorate from the University of Florida. He has received several awards, including a senior fellowship at the Stanford Humanities Center. At present Morris is working on a book tentatively titled Chemistry, Capitalism, and the Commodification of Nitrogen: A Global History of an Alabama Cotton Patch. The study begins with an early twentieth-century Alabama tenant farmer in need of nitrogen fertilizer and situates him within the global networks of science, industry, war, and politics that transformed our planet.
Nancy Reynolds is Associate Professor of History and of Jewish, Islamic, and Middle East Studies (JIMES) at Washington University in St. Louis. Her research investigates the history of twentieth-century Egypt. Her first book, *A City Consumed: Urban Commerce, the Cairo Fire, and the Politics of Decolonization in Egypt*, was published by Stanford University Press in 2012. She is currently completing a book manuscript on the building of the Aswan High Dam, on which she published “City of the High Dam: Aswan and the Promise of Postcolonialism in Egypt,” in *City & Society*. Her environmental history research has recently been supported by a Mellon New Directions Fellowship (2014-23; “Heat: Recent Egyptian Histories”) and a Mellon Sawyer Seminar on the Comparative Study of Cultures (2016-23, “Grounding the Ecocritical: Materializing Wastelands and Living on in the Middle East”; co-directed with Anne-Marie McManus).