Salt of the Earth: Unsettled Histories of the North American Interior

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Abstract

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This dissertation argues that inland salt resources shaped processes of Indigenous place-making, settler colonization, and socioecological transformation across North America. It focuses on and features three areas of the continental interior—the Ohio River Valley, the western Mississippi River Valley, and the continental southwest—to demonstrate how salt's deeper environmental and more recent human history structured patterns of interspecies and international consolidation, coalescence, and conflict through the settler colonial present. Indigenous nations, prospective empires, and settler colonizers alike long understood that salt—naturally manifest in the form of licks, springs, brine seeps, rivers, and lakes—was critical to their futures on the continent. For over 10,000 years, humans and animals throughout the North American interior have sought out salt resources for sustenance. Successive generations of salt-makers transformed inland salt resources into ecologically central, culturally significant, and economically productive nodes of power. Euro-American colonization did not introduce industrious ideas about salt use. Colonization did, however, initiate an unprecedented transformation of the many modes of relation tethering salt resources to their surrounding environments and the people who relied upon them for sustenance, income, and livelihood. For over a thousand years, from the start of manual salt production to the consolidation of the U.S. settler state, inland salt resources transformed and were transformed by a plurality of Indigenous nations, colonial polities, and settlers who sought to use local salt resources to secure their futures.

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A story must be told or there'll be no story, yet it is the untold stories that are most moving.

- J.R.R. Tolkien to his son, Christopher, January 30, 1945

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It takes an immensity of investment, time, and tenacity to trace down and to tell untold stories. It also takes a veritable village of people. A single name may be attached to this dissertation, but the stories within it were made by many.

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Introduction

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Benjamin Howard wasn't quite sure what to make of Boone's Lick. "This settlement, is on the finest body of land … in Louisiana," the Missouri Territory's governor reported in June 1812. Founded in 1806 by the sons of Kentucky settler and salt-maker Daniel Boone, Boone's Lick was a singularly critical settlement in the territory: it was where several hundred American settlers obtained salt they needed to preserve foodstuffs, season their meals, and maintain access to a biologically essential mineral. At the time, Boone's Lick was also, technically, in Indian Country. It fell beyond the boundaries of Missouri Territory, on treaty-defined Sauk and Fox land, yet it was occupied by several hundred American families engaged in a particularly precious pioneer industry. "'Tis true," Howard wrote to Secretary of War, Willian Eustice, "that by the treaty between the States, and the Sacs & Foxes, the Superintendent of Indian affairs is empower'd to remove settlers on their lands, in case they make complaint to him." Sacs & Foxes had seized the opportunity to keep settlers from treaty-protected territory the year prior, when settlers attempted "to possess themselves" of some valuable lead mines. "But as it respects the settlement at Boone's Lick near the Missouri [River], no complaint has been made," and so Howard's own "power under the treaty does not attach." Indeed, Howard had heard that "the Indians" were not only "not dissatisfied with their intrusion," but benefited from the white people's work—that "in their hunting season" they went to the place "to obtain some supplies of salt." The situation at Boone's Lick put Howard in a legal bind: should he evict the settlers, who were technically squatting and violating federal treaty law? Or would doing so only upset the delicate dependencies that had emerged from the illegal saltworks?[1]

Boone's Lick was more than a legal anomaly. Conflict—not cooperation—tended to define American-Indigenous interaction the early trans-Mississippian west. Sauk, Fox, Osage, and other nations indigenous to the region had challenged American attempts to claim, control, and command lands and resources since the United States nominally acquired title to Louisiana Territory in 1803. This resistance came to a head within months of Howard's correspondence with Eustice, erupting with the outbreak of the War of 1812 and continuing through Missouri statehood in 1821. Throughout this period, both individual settlers and the federal state seized upon readily exploitable resources—lead mines, timber stands, and salt springs and licks, like those that made Boone's Lick so valuable—with ever-increasing frequency, often prompting more Indigenous resistance. Boone's Lick did not entirely evade these problems; since the saltworks' foundation in 1806, the so-called Sioux (Dakota or Lakota peoples) sometimes attacked the saltworks and destroyed or stole settler property. But still the place clung to life, in spite of its precarious legal and geopolitical position between Indigenous and settler colonial systems in the early American west. No wonder the place perplexed territorial officials like Benjamin Howard. Boone's Lick, like other valuable mineral resources across the region, seems, at face, like it would have been another site of overt struggle over sustenance and security among Indigenous and Euro-American peoples seeking to secure increasingly exclusive futures in the continental interior. On paper, the place should have fallen firmly into either settler or Indigenous control. In practice, however, many people's shared dependency upon a single universal resource had made the place into a legal and geopolitical grey area. Salt resources like Boone's Lick sustained several peoples survival, they

[1] Benjamin Howard to the Secretary of War, June 14, 1812, in Clarence Edwin Carter (ed.), *The Territorial Papers of the United Sates, Vol. 14: The Territory of Louisiana-Missouri, 1806-1814* (Washington, DC: Government Printing Office, 1949), 567-568.

often troubled territorial officials tasked with managing colonial claims and aims, and they therefore invite important investigation.

The particularities of Boone's Lick were true of (though not necessarily identical to) other salt resources across the North American interior. Historically understudied relative to other resources, North American salt resources constitute a complicated story of survival, sustenance, and sovereignty. Indigenous nations, prospective empires, and settler colonizers alike understood that it was critical to their futures on the continent. For nearly 20,000 years, humans and the animals they relied on have sought out salt resources for sustenance. Generations of salt-makers transformed inland salt resources into ecologically central, culturally significant, and economically productive nodes of power. Euro-American colonization did not introduce industrious ideas about salt use. Colonization did, however, initiate an unprecedented transformation of salt resources themselves, their surrounding environments, and the multiple people and beings who relied upon and related to these resources them for sustenance, income, and livelihood. For over a thousand years, from the start of manual salt production on the continent to the consolidation of the U.S. settler state, inland salt resources transformed and were transformed by Indigenous nations, colonial polities, and settlers who sought to use local salt resources to secure their futures. This dissertation ultimately argues that adding salt to the story of interspecies, ecological, and international transformation in North America can clarify and complicate our comprehension of how the continental interior came to be settled—and unsettled.

This dissertation proves and proceeds forward from a simple argument: salt mattered. It establishes basic explanations for salt's universal yet dynamic utility to multiple actors and contexts in North America. It explains how salt's availability—or lack thereof—informed major technological, political, sociocultural, economic, international, and environmental trajectories. It demonstrates how salt provided stability and security amidst moments of upheaval and uncertainty. This dissertation explores salt's significance as both a reason for and reflection of change, continuity, and, above all, complexity over time, across space, among many actors, between multiple contexts, and beyond. It shows how salt—and its unique historical significance—dictated generations of interaction and imposition, development and destruction, conflict and coalescence among the many actors who knew and understood the mineral's significance to their survival, security, profit, and power.

Strata of Salt's Significance

In North America, multiple strata of salt's significance occur in an important sequence. Prior to and through the continent's creation and re-composition, prehistorical transformations in climate, geology, hydrology, and other ecological contexts created salt-rich pockets of the continental interior. Salt's appearance at earth's surface produced ecological—and thus historical—diversity. Some areas yielded an abundance of groundwater springs, made salty by ancient seawater, dried salt deposits locked deep within subcontinental crust, or the soil through which water passes as it seeps upward to the surface. Any of these contexts could produce salt (or mineral) licks that attracted animals and, eventually, people. Elsewhere, higher potency saltwater sources—places like bayous, brine seeps, and springs situated in more consistently arid, hotter environments (which tend to turn into intensely crystalline salt plains or flats)—evince greater concentrations of salt. Sometimes these concentrations were strong enough to turn salt into solid form without manual labor. Still elsewhere, much salt remained embedded in subterranean rock, sometimes stored in near-microscopic cracks or crevices. At their most impressive, these salt

deposits took the form of colossal caverns, caves, or clusters accessible only by way of digging, drilling, or blasting beneath the surface.

Salt matters to history because it is essential to life. Most animals require salt to survive. Sodium chloride (salt's primary chemical compound) provides bestial bodies with the micronutrients and elements required for cellular reproduction, water retention, muscular repair, and other basic physiological functions. Mammals are especially dependent upon salt to survive—so much so that they have to go out of their way to find it. This is especially true for terrestrial herbivores and ungulates, whose sodium-poor diet of plant material requires the manual addition of salt sufficient for physiological function. Across North America, mammalian migrations to, from, and between salt resources produces unique geographies grafted to surface salt deposits. And at and around salt resources themselves, subsistence behaviors—as basic as licking up mineral-rich mud and salt-rich water and as purposeful as skirmishing for access to sometimes finite nutrient supplies—leave legible evidence of change, continuity, and transformation that transcend even evolutionary time scales.

Like other mammals, humans have sought and singled out salt for our survival. Today, many people know sodium as a substance recommended and required in moderation; excess sodium consumption is often to blame for hypertension (high blood pressure), circulatory malfunction, poor or inconsistent fluid retention, and related cardiovascular or homeostatic complications. But without enough salt, we experience dehydration, muscle fatigue, neurological dysregulation, and nutrient imbalances. And the more salt we consume, the more we crave it, prompting both dependency-driven and taste-based dietary decisions. People who subsist primarily on vegetables must add salt to their food. Those with more omnivorous dietary practices and preferences consume more salt from animal products like meat, eggs, and dairy, at once fulfilling and heightening an innate appetite for more salt. Over the long course of our biological, dietary, and cultural evolution, humans have deepened our dependency upon and desire for salt unlike any other mineral, nutrient, or additive.

Beyond mammalian bodies, salt serves equally important purposes as a primary preservative. Before refrigeration (that is, for the vast majority of human history), salt was used to prevent perishability. That's because salt's elemental makeup reduces water activity in organic microenvironments, inhibiting microbial and chemical processes upon which bacteria and other pathogenic organisms thrive. Thus, while people have long produced salt for more immediate or local consumption, the mineral's unique chemical properties as a preserving agent exploded its value, encouraging early commercial production and distribution across Europe, the Middle East and eastern Africa, and eastern Asia. Salt became the commodity that begot commodities, allowing cultures and communities near workable salt resources (mainly coastal regions, but also among some salt-rich inner continental areas) to preserve and treat foods like meat, fish, dairy products, and even some fruits and vegetables for wider as well as later consumption. Most critically, because salt resources attracted non-human animals, they also attracted humans, who found these places frequently full of multiple food sources—salt and game—to sustain themselves.

Workable salt resources subsequently facilitated developments and dependencies of equal—sometimes even deeper—significance in North America. Having discovered salt deposits out of necessity, certain peoples became salt-makers; first for the sake of convenience and eventually for commerce. Archaeological evidence of North America's oldest salt production sites date to the seventh century, though older sites are likely awaiting discovery. Indigenous narratives—preserved in stories as well as sacred saline spaces—place salt's origins even earlier, in unquantified deep time. Both explanations expose profound pasts in salt production. Early

saltworks were hardly rudimentary; even the smallest works, which might have hosted only a handful of salt making episodes or sustained only a few families, featured specialized equipment (like salt pans, jars, molds, and other ceramic wares), technology (such as furnaces and water or soil collecting mechanisms), and production processes (reflected in the aforementioned material remains). Archaeologists who specialize in early North American salt production speculate that most salt production was limited to local consumption and use. Nonetheless, certain communities with access to and knowledge about workable salt resources—and the means to work them—provided both neighboring and distant peoples with a valued commodity. Rock salt collected from surface deposits on the southern plains travelled several hundred miles northward to the Missouri River Valley. Salt made manually through intensive evaporation at bayous and rivers in the Ouachita and lower Arkansas River valleys was traded along and across the Mississippi. Small molds recovered from salt springs in the central and eastern Mississippi alluvial basin suggest pre-scaled salt production, wherein salt was measured into set quantities for simpler sale. Though largely small in scope, Indigenous salt production has long sustained both local subsistence and interregional commerce.

European colonization did not introduce salt's value to North America or its peoples, in other words. Colonialism did, however, transform it. Starting in the mid sixteenth century, exploratory and invasive expeditions brought proven and potentially profitable salt resources into imperial purview. At first, access to salt resources was a matter of basic survival for early colonial agents moving into and through foreign spaces and systems. Once those agents helped colonial enterprises take root, though, local salt resources quickly became strategic objectives and outposts of conquest and development. Through multiple European colonial periods, most of the continent's salt resources remained situated within Indigenous spaces and systems of exchange, production, and interaction, as they had been for millennia. But the eventual rise of British and especially American settler colonization threatened these continuities. From the late eighteenth century onward, settler colonies and states sought to claim, secure, and work salt resources exclusively for settler use. As the United States expanded across the continent, inland salt resources became irrevocably and intrinsically bound to the legal, physical, ecological, and economic dispossession of Indigenous peoples both historically and contemporarily dependent upon those salt resources. While sometimes successful, the settler colonization of salt resources—and the attendant destruction of deep human and more-than-human ties to those resources—remains incomplete through the present. Indigenous and more-than-human pasts and their power remain preserved through histories found deep in the land, among the many actors who lived upon it, and now in the pages of this dissertation.[2]

Today, salt is considered such a mundane mineral that its past may seem inconsequential. Rather than looking for licks or salt lakes, most people purchase cheaply made salt almost anywhere. Most of the once-valuable salt resources studied in this dissertation have long since disappeared. But their significance to past matters of power, place-making, conflict, and coalescence remains uniquely revealing and largely understudied. The depth or distance of salt's historic significance does not detract from the enduring importance of that past—how it illuminates

[2] This dissertation interprets land itself as an archive, equal in its significance to archaeological, archival, and oral vestiges of Indigenous, settler, international, and more-than-human pasts relative to salt resources. For an argument and example of this as a methodological approach to the study of history, see Lisa Brooks, *Our Beloved Kin: Remapping a New History of King Philip's War* (New Haven, CT: Yale University Press, 2019). See also Ann McGrath and Mary Anne Jebb, *Long History, Deep Time: Deepening Histories of Place* (Canberra, AUS: Australia National University Press, 2015).

and informs our understanding of ecological transformation, international interaction, Indigenous place-making, and settler colonization in North America. Excavating the strata of salt's significance to the continent's long transformation—from geological origins through the settler colonial present—offers new opportunities to understand change and continuity over time and across space in North America.

Scholarly Interventions, Methods, & Materials

The history of salt in North America requires engagement with multiple scholarly subfields and disciplines. Most synthetic studies of salt start with Greek, Roman, and other ancient European peoples—producers who made and traded the mineral, consumers dependent upon its circulation, polities who commanded and controlled its commercial power, and philosophers who pondered salt's multiple values in writing. Indeed, salt production and commerce cultivated societal conflict and coalescence as early as 8,000 to 9,000 years ago (roughly 5000 to 6000 BCE) in present-day Romania and Bulgaria, where Neolithic societies exploited central Europe's abundance of rock salt mines and surface salines. Contemporary mid-Neolithic peoples in eastern China produced salt from seawater by way of solar evaporation, an industry that, in subsequent centuries, became integral to the consolidation and commerce of a Chinese imperial state as well as to the earliest synthetic studies of salt use and production. By the first century, salt trading that originated at shallow mines and salt flats in the northern Sahara transcended the mass economic and ecological obstacle posed by the Saharan Desert, tethering together western, northern, and central African economies. Salt lakes (also known as alkaline or soda lakes) in present-day Tanzania and Kenya have long anchored animal migration and human settlement and subsistence patterns. Salt's commercial properties only increased with time and across space. Profitable salt resources encouraged and propelled imperial expansion across and beyond Europe and east Asia through the seventeenth century. Consequently, colonial commercial salt production locales strengthened transregional and transoceanic trading ties and industries anchored to the mass production, circulation, and consumption of preserved foodstuffs. These examples—and several modern synthetic studies that summarize them—attest to salt's historic value as a dynamic commodity around ancient, early, and modernizing worlds.[3]

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[3] Most popular has been Mark Kurlansky's synthetic history of salt throughout world history; see Mark Kurlansky, *Salt: A World History* (New York, NY: Walker and Company, 2002). For a now dated popular study akin to Kurlansky's, see Robert P. Multhauf, *Neptune's Gift: A History of Common Salt* (Baltimore, MD and London, UK: The Johns Hopkins University Press, 1978). For a foundational ethnohistorical approach to the study of salt, see Maurice R. Bloch, "The Social Influence of Salt," *Scientific American* Vol. 209, No. 1 (1963), 88-98. For a more strictly archaeological overview of salt's economic significance in ancient global contexts, see Jacques A. E. Nenquin, *Salt, A Study in Economic Prehistory* (De Tempel, Brugge, Belgium, 1961). S. A. M. Adshead, *Salt and Civilization* (London, UK: Macmillan Academic and Professional Ltd., 1921). Mark Batterson and William W. Boddie (eds.), *Salt, the Mysterious Necessity* (Dow Chemical Company, dist. Mason and Lipscomb Publishers, 1972). Shuicheng Li and Lothar von Falkenhausen (eds.), *Salt Archaeology in China: Global Comparative Perspectives* (Beijing, China: Kexue chubanshe (Science Press), 2010). A.F. Calvert, *Salt in Cheshire* (London, UK: E. & F. N. Spon, Limited, 1915). Graham Connah, *Kibiro: The Salt of Bunyoro, Past and Present* (London, UK: Memoirs of the British Institute in Eastern Africa No. 13, 1996). S. Davison, "Saltmaking in Early Malawi," *Azania* Vol. 28 (Nairobi, 1993), 7-46. Brian M. Fagan and John E. Yellen, "Iyuna: Ancient Salt-working in Southern Tanzania," *Azania* Vol. 3 (Nairobi, 1968), 1-43. Rowan K. Flad, *Salt Production and Social Hierarchy in Ancient China: An Archeological Investigation of Specialization in China's Three Gorges* (New York, NY: Cambridge University Press, 2011). Paul E. Lovejoy, *Salt of the Desert Sun: A History of Salt Production and Trade in the Central Sudan* (Cambridge, UK: Cambridge University Press, 1986). Haile M. Mesghinna, "Salt Mining in Enderta," *Journal of Ethiopian Studies* Vol. 4, No. 2 (1966), 127-135. David R. Morgan, "Salt Production in Tanzania: Past and Present," *Tanzania Notes and Records* Vol. 74 (1974), 31-37. Daniel Potts, "On Salt and Salt

There is no comprehensive study of salt's continental significance in North America. Indeed, compared to scholars on other world regions, North American historians have had little to say about it. That's worth rectifying. Salt's significance in North America has long transcended its value as a circulatable, colonizable commodity. Inland salt resources were equally important to matters of mammalian movement, interspecies interaction, Indigenous place-making, international transformation, and more. The chapters that follow thus push beyond a conventional commodity framework by exploring and excavating deeper, more dynamic, and sometimes diffuse dimensions of salt's importance. They first establish a strictly simple (and heretofore unstudied) case for and explanation of salt's significance to imperialism, settler colonization, and other systems of socioeconomic power in North America. In doing so, this dissertation offers several necessarily inter-field and interdisciplinary interventions in North American history writ large.

This study is the first to put salt at the center of the continent's international history. Previous historical studies of salt's significance in North America have focused exclusively on commercial U.S. salt production. These works associate salt-making with settlers. Archaeological studies, in contrast, stress salt's material importance to Indigenous life prior to colonization, revealing the deeper roots of salt's significance to place-making, production, and power. These siloed examinations of salt's role in Euro-American and Indigenous pasts have cleaved the continental history of salt in two. My dissertation recovers the unity of this story. It demonstrates salt's significance to North America's international systems before and after European colonization. In the process, it challenges the disciplinary divide between "pre-" history and "history;" affirms the continuity and endurance of Indigenous power, paradigms, and precedents; recovers the tenuousness of colonial futures; and offers a case study in how ecological contingencies structure international relations. These contexts bore directly upon the United States' efforts to seize and secure salt resources in ways that serviced the project of settler colonialism in its nascent stages. My dissertation thus makes another major intervention by explaining how inland salt resources shaped U.S. settler colonization and Indigenous peoples' responses to it. This study of salt resources offer new ways of understanding how and why U.S. settler colonialism succeeded and failed, further problematizing neat narratives of settler hegemony, Indigenous declension, and ecological annihilation.

This dissertation begins at the beginning, with salt's geological, ecological, and archaeological origins. It takes inspiration from the field of deep history—an approach pioneered and practiced by environmentally-minded historians who incorporate geology and environmental studies, and that aims to establish more universal historical starting points. Deep temporal, geological, and environmental contexts support this study of salt in two primary ways. First, these broad contexts are necessary for understanding how and where salt appears in exploitable forms and, when and where it does appear, its impact on its immediate environment—everything from soil and groundwater to floral and faunal life. A deep historical approach to salt's history makes a second related intervention: it challenges conventional temporalities that constrict otherwise comprehensive continental studies. Moving deeper in time and space introduces more aspects and agents to salt's significance as well as the mineral's importance to matters of colonization, ecological transformation, international and interspecies interaction, and other historical processes.[4]

Gathering in Ancient Mesopotamia," *Journal of the Economic and Social History of the Orient* No. 27, No. 3 (1984), 225-271. Karl Riehm, "Prehistoric Salt-Boiling," *Antiquity* Vol. 35, No. 139 (1961), 181-191.

[4] For a recent pointed critique of periodization and the prescription of deep historical approaches, see Julia E. Rodriguez, "Deep History and the Pitfalls of Periodization," *Interventions* Vol. 24, No. 2 (2022), 161-180. James C.

Deep history alone does not dismantle the distinction between so-called "pre" history and history. Archaeology, however, helps to bridge this gap. And archaeology has provided the richest source of scholarship on salt's past in North America. Though salt dissolves easily, its presence and past is preserved through material remains—salt-making equipment like pots, pans, molds, furnaces, and other (typically) fragmentary and (occasionally) full wares—that reflect where and how people made and used salt. In tracing the origins, evolution, and sophistication of Indigenous salt production technology in North America, archaeological scholarship also establishes equally important economic, cultural, and political contexts for salt's utility, versality, and influence among diverse Indigenous peoples. Beyond revealing salt's profound historic value, these contexts can help historians understand colonization as one of multiple chapters not only of salt's history but of continental history more broadly. This dissertation engages archaeological evidence throughout to establish the complexity and dynamism of salt's precolonial past and to determine the degree to which colonization did—and did not—transform inland salt resources, Indigenous peoples' attachments to those resources, and the enduring significance of those relations during and despite colonial upheavals.[5]

Though comprehensive, most archaeological studies of salt also suffer from disciplinary boundaries. Few of these studies continue to trace changes in Indigenous salt use, production, and dependency through colonization. Those that do come short of interrogating how Indigenous precedents and pasts relative to local salt resources remained important throughout U.S. settler colonization. This limitation magnifies persistent problems in how historians understand and frame Indigenous and colonial pasts. Whether colonization is used as the starting or stopping point for salt's history in Indigenous contexts, both strategies ultimately center colonialism as salt's central cataclysm and most critical context. Colonization in North America did dramatically transform salt's significance. But it does not define that significance in entirety or with exclusivity. Thus, by tracing salt's significance before and through changes wrought by colonization, we can better

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Scott, *Against the Grain: A Deep History of the Earliest States* (New Haven, CT: Yale University Press, 2011). Andrew Shryock and Daniel Lord Smail (eds.), *Deep History: The Architecture of Past and Present* (Berkeley, CA: University of California Press, 2011). Roger C. Echohawk, "Ancient History in the New World: Integrating Oral Traditions and the Archaeological Record in Deep Time," *American Antiquity* Vol. 65, No. 2 (2000), 267-290.

[5] A more pointed critique of so-called "prehistory" and its uses and limitations in archaeology in particular appears later in this dissertation; see Chapters 1 and 3 in particular. Archaeologists Ian Brown, Ashley Dumas, Ann Early, and Paul Eubanks, among others, have led the scholastic vanguard in the archaeology of salt production in North America. For a most recent sampling of exciting new work in salt archaeology and history, see Ashley A. Dumas and Paul N. Eubanks, *Salt in Eastern North America and the Caribbean: History and Archaeology* (Tuscaloosa, AL: University of Alabama Press, 2021). For a foundational study of salt among eastern North American peoples, see Ian W. Brown, *Salt and the Eastern North American Indian: An Archaeological Study* (Lower Mississippi Survey, Bulletin No. 6, Peabody Museum, Harvard University, 1980); see also Brown, "Why Study Salt?" *Journal of Alabama Archaeology* Vol. 50, No. 1 (2004), 36-49. Anthony P. Andrews, *Maya Salt Production and Trade* (Tucson, AZ: University of Arizona Press, 1983). K.W. De Brisay and K.A. Evans, *Salt, the Study of an Ancient Industry* (Colchester, UK: Colchester Archaeological Group, 1975). Michael B. Barber and Eugene B. Barfield, "The Late Woodland Period in the Environs of Saltville: A Case for Petty Chiefdom Development," *Journal of Middle Atlantic Archaeology* Vol. 16 (2000), 117-132. Mark R. Harrington, "Ancient Salt Mine near St. Thomas, Nevada," *Indian Notes* Vol. 2, No. 3 (Museum of the American Indian, Heye Foundation, New York, 1925), 227-231; and "Another Ancient Salt Mine in Nevada," *Indian Notes* Vol. 3, No. 4 (Museum of the American Indian, Heye Foundation, New York, 1926), 221-232. John W. Hilton, "Salt Caves of the Ancients," *The Desert Magazine* Vol. 3, No. 12 (El Centro, CA, 1940), 11-14. Heather McKillop, *Salt: White Gold of the Ancient Maya* (Gainesville, FL: University Press of Florida, 2002). Gloria Wentowski, "Salt as an Ecological Factor in the Prehistory of the Southeastern United States," Master's Thesis, Department of Anthropology, University of North Carolina, Chapel Hill, 1970.

understand the enduring importance of Indigenous pasts, presents, presence, and pursuits of futurity despite colonization.

To provide a more complete history of salt in North America, this dissertation takes inspiration from the practices, materials, and methods of Native American and Indigenous Studies (NAIS). Foundational and recent NAIS scholarship shows how expanded temporal approaches to the study of Indigenous and ecological time challenge colonial chronologies, periodization, and conceptions of historical change. More specific to historical research, NAIS-informed approaches, as articulated by Alyssa Mt. Pleasant, Kelly Wisecup, and Caroline Wigginton, also explain how "Native people were and continue to be active presences who shape texts, political discourses, and historical events." NAIS methods thus ask historians to center Indigenous sources; acknowledge and anticipate the persistent presence of Native agents; recognize the cultural, epistemological, and spatial specificity of Native pasts; and connect past and present struggles under and against colonization. Careful application of these principles to the study of salt reveal how Indigenous peoples made salt's history and did so long before and after European invasion. In doing so, this dissertation challenges the immediacy and centrality of settler colonialism as a historic event, emphasizing instead how the persistence of Indigenous power, paradigms, presence, and pasts limited settler colonial aims, agents.[6]

Adjoining this dissertation's engagement with NAIS methods and materials is a fourth interdisciplinary intervention into settler colonial studies and theory. First originating in British colonization and eventually evolving into U.S. expansion and hegemony, settler colonialism in North America constitutes a major chapter of salt's past and place in continental history. Local salt resources mattered in many colonial contexts that preceded more permanent colonial trajectories, aims, and structures. These pasts—and the second half of this dissertation—ultimately culminate in an analysis of how salt shaped settler colonial systems, processes, and power. In doing so, this dissertation reveals not only how local salt resources anchored and ameliorated settler colonial aims and actions, but, in conjunction with NAIS methods, how those efforts failed to fully materialize.[7]

By engaging with a range of materials and methods across disciplines, this dissertation makes two major interventions into North American historiography. It first engages and expands a rich yet limited scholarship on salt's local and continental significance. Most formal histories of salt in North America center upon three categories and contexts: the role of salt in early Euro-American expansion and settlement, the role of salt in military contexts (particularly the U.S. Civil War), and the role of salt in modern manufactory and mining. Salt-centric studies explain, respectively, how salt resources allowed for and anchored early Euro-American expansion and settlement in the late eighteenth century, how particularly potent resources (especially across the continental south) supported mass martial provisioning in the nineteenth century, and how salt products (specifically rock salt or halite, potash, and other non-consumable alkaline materials)

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[6] Gesa Mackenthun and Christen Mucher (eds.), *Decolonizing "Prehistory": Deep Time and Indigenous Knowledges in North America* (Tucson, AZ: University of Arizona Press, 2021). Paulette F. Steeves, *The Indigenous Paleolithic of the Western Hemisphere* (Lincoln, NE: University of Nebraska Press, 2021). Ann McGrath, Jakelin Troy, and Laura Rademaker (eds.), *Everywhen: Australia and the Language of Deep History* (Lincoln, NE: University of Nebraska Press, 2023). Laura Rademaker, "A History of Deep Time: Indigenous Knowledges and Deep Pasts in Settler-Colonial Presents," *History Australia* Vol. 18, No. 4 (2021), 658-675. Alyssa Mt. Pleasant, Caroline Wigginton, and Kelly Wisecup, "Materials and Methods in Native American and Indigenous Studies: Completing the Turn," *The William and Mary Quarterly* Vol. 75, No. 2 (2018), 207-236.

[7] For the foundation of settler colonial theory, see Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research* Vol. 8, No. 4 (2006), 387–409.

related fossil fuel extraction and chemical industries in the twentieth century. This scholarship overwhelmingly focuses on U.S. settler industry, thereby siloing and suffering from important Indigenous, international, and environmental contexts equally significant to the scope and shape of salt's past and power. In challenging existing temporal and spatial boundaries surrounding salt's significance, this dissertation re-introduces forgotten actors in and aspects of salt's history. In doing so, this study thus makes a second intervention in continental historiography by introducing salt to several subfields specific to saline spaces and salt-rich regions across the North American interior. Doing so, most immediately, highlights how salt mattered in previously understudied and underappreciated ways; from mammalian migratory patterns to settler property speculation to coal extraction, local salt resources, sometimes directly and oftentimes more diffusely, dictated matters of survival, sustenance, settlement, and more. It also challenges how historians have periodized Indigenous, environmental, colonial, and other continental histories.[8]

Scope & Selection

The chapters that follow focus on three broad regions: the Ohio River Valley, the western Mississippi River Valley, and the continental southwest. Salt abounds in all these places. Over several thousand years, movement toward and through salt-rich spaces in these regions transformed them into places of profound ecological, sociocultural, economic, and even spiritual significance. They became places of contested meaning and international significance. All these regions historically hosted a diversity of communities, cultures, and nations who, despite other differences, shared a desire for and dependency upon salt resources. Competition prompted both conflict and coalescence over these resources. Colonization sought to overturn this tangled history. All of these regions—the salt resources themselves, the lands upon which they were situated, and the peoples who depended upon those lands and resources—came into the purview of (settler) colonial interests, tethering otherwise disparate types of salt resources to broader systems of dispossession and destruction. And yet deeper ecological, interspecies, and Indigenous pasts anchored to inland salt resources persisted through the colonial and early national eras. Indeed, they often persist into the present, an enduring and ultimately unifying factor that makes these regions ripe for comparative and collective analysis.

The differences are as revealing as the similarities in these salt-rich regions. In the Ohio River Valley, salt springs and licks that long hosted human and more-than-human dependents created unique conditions for the formation of Indigenous, international, and eventually imperial futures, especially during the politically pivotal final decades of the eighteenth century. Further west, in the Mississippi River Valley, exceptionally profound pasts and precedents in precolonial salt production—at salt springs, near bayous, and along exceptionally salty rivers and creeks—at once cultivated and curtailed colonial expansion toward and from salt resources well into the nineteenth century. And in the continental southwest, exposed salt flats, lakes, and basins both tempted and troubled colonial extraction, most recently excavated and epitomized by Puebloan peoples' successful efforts to reclaim regional salt resources to re-establish their territorial, political, and spiritual sovereignty. This dissertation comparatively analyzes these case studies to

[8] Existing scholarship on the significance of salt to U.S. settlement and colonialism in the Ohio River Valley and broader trans-Appalachian West is discussed in Chapters Three and Four. While beyond the purview of this dissertation, settler-centric studies of salt's significance in other U.S. context still inform the scope of this study. Cyrus Forman, "A Briny Crossroads: Salt, Slavery, and Sectionalism in The Kanawha Salines," Master's Thesis, City College of the City University of New York, 2014. Ella Lonn, *Salt as a Factor in the Confederacy* (New York, NY: Walter Neale, 1933). Robert C. Whisonant, *Arming the Confederacy: How Virginia's Minerals Forged the Rebel War Machine* (New York, NY: Springer, 2016).

convey the depth, dynamism, and distinctions in salt's significance across many places and periods in North American history.

Dissertation Overview

By tracing salt's history from human origins on the continent through the recent past, the following chapters explain how a relatively mundane, understudied American resource transforms our understanding of environmental temporality, colonial consolidation, and Indigenous survivance across North America. While chapters precede in roughly chronological order, the materials and methods required to wholly and comprehensively excavate salt's past demand considerable deviation from temporal or spatial linearity. Readers should anticipate sometimes anachronous and atypical processions to and through the places and periods that constitute the following six chapters.

Chapter One introduces archival, ethnographic, and geological evidence of salt's deep significance to Puebloan life in the southwest. It explains how Native peoples' economic, cultural, and spiritual connections to surface-level and subterranean salt resources shaped two centuries of Spanish efforts to claim, colonize, and commercialize saline environments across the increasingly contested continental southwest. Chapter Two turns to the Mississippi River Valley, where a thousand years of salt dependency, use, and production by Caddoan, Tunican, and other ancestral Mississippian peoples constrained early Spanish and French attempts to explore and exploit mineral resources. This chapter explains how Indigenous salt production at brackish rivers, brine seeps, and bayous shaped colonial commerce, consolidation, and territorial claims through the end of the eighteenth century. Chapter Three continues eastward across the Mississippi and into the equally salt-rich Ohio River Valley, where salt springs and licks invited several thousand years of interspecies interaction, intercommunal consolidation, and international coalescence. This chapter explores how mammalian and human dependency upon sodium-laden licks and springs established a geography of saline subsistence that, through the eighteenth century, facilitated patterns of subsistence, settlement, and survival for mammalian, Indigenous, and, eventually, Euro-American actors.

Chapter Four follows salt's history in the Ohio River Valley through early U.S. expansion into the region. It argues that local salt resources facilitated the establishment and consolidation of settler sovereignty, violence, and commerce. These resources, the chapter demonstrates, thus also served as sites at which Indigenous peoples asserted their persistence to remain connected to familiar resources and homelands. The settler colonization of salt resources in the Ohio River Valley established important legal, practical, and procedural precedents that were soon exported to the trans-Mississippian west. Chapter Five explains how the settler state, individual colonizers, and both local and forcibly removed Indigenous nations competed for commercial access to salt resources in ways fundamental to matters of sovereignty, territoriality, and geopolitical power across the western Mississippi River Valley. In Chapter Six, the dissertation concludes back in the continental southwest to discuss how the prolonged dispossession and more recent decolonization of Puebloan salt resources in New Mexico and Arizona establishes important lessons and legacies for salt's enduring significance through the settler colonial present.

Chapter I | Rock

> *During the celebration of a feast long ago, Salt Old-Woman took the form of a mortal and attended the feast. She wore a white manta of cotton, white doeskin boots, and in her had she carried a white abalone shell … There was much grumbling among those partaking of the food, the chief complaint being that it was not properly seasoned. Becoming weary of their complaints, the old woman finally rose and blew her nose into the food to salt it. The people then refused to eat the food. Angered, the old woman vanished … informing them that their nearby salt lake would dry up and they would be forced to travel many miles to obtain salt.*
>
> - Santa Clara salt myth, recorded in 1957[9]

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Ma'l Okyattsik'i had never met the man, but he hardly hesitated as he drove his pickaxe through her heart and took her salt with him. Her more familiar visitors came—from Zuni, Acoma, Laguna, and sometimes beyond—with care, carrying prayer plumes and gracious sentiments. They treaded carefully on the trails she had first made in moving through the pueblos, temporarily to Zuni, and finally to the more isolated volcanic crater where she settled in perpetuity. Those visitors agreed among one another to leave weapons and warfare at their camps and villages whenever they needed salt, and arrived unarmed to periodically collect it. But the newcomers came atop horses and carrying harquebuses. What's more, they had come to take control of the pueblos that Ma'l Okyattsik'i herself had long looked after, and demanded gold, silver, provisions, and tribute from her human dependents. The Salt Woman, for her part, had dealt with ungrateful dependents before; she had moved south of Zuni from Black Rock after the people polluted her salt and took it too greedily. Ma'l Okyattsik'i could again disappear with the desert dust. But she stayed where she was long after the man with the pickaxe departed with her salt in stow.[10]

The salt-stealing intruders—Spaniards led by Captain Marcos Farfán de los Godos, a close consort of then New Mexican governor Juan de Oñate—saw her as one of the few mineral resources that could justify imperial investment in what many colonial officials considered an economically and environmentally desolate world. Starting in the 1530s, Spanish entradas invaded the North American interior searching for precious metals, profitable lands, and labor to work both. They found little gold or silver and peoples more powerful than expected. Early Spanish invaders did, however, often find something less intrinsically valuable yet more immediately critical to the fate of colonization in the heart of a continent controlled by powerful Indigenous polities: they found salt. Though mundane relative to gold or silver and marginal relative to the Spanish imperial economy, local salt resources mattered deeply to the Spanish colonial project. Access to them

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[9] Box 5, Folder 13, Mss. 317, Baughman Folklore Collection, Center for Southwest Research, Zimmerman Library, University of New Mexico, Albuquerque, NM [hereafter "CSWR, UNM"].

[10] While spellings of her name vary across accounts and generations, Ma'l Okyattsik'i (the Salt Woman, or Salt Mother) is a figure central to Zuni cosmology and geography, and resides at the Zuni Salt Lake in present-day western-central New Mexico roughly forty miles south of Zuni Pueblo; see Teresa Pijoan, *Myths of Magical Native American Women: Including Salt Woman Stories* (Santa Fe, NM: Sunstone Press, 2019). Farfán visited the Zuni Salt Lake in November 1598; see "Account of the Journey to the Salines, the Xumanas, and the Sea, 1599," in Herbert Eugene Bolton, *Spanish Exploration in the Southwest, 1542-1706* (New York, NY: C. Scribner's Sons, 1916), 235-236.

could make or break the Spanish Empire's colonial aspirations in the North American southwest and, by extension, the continent. And Spanish efforts to locate, use, and claim salt resources varied widely across space and over time alike. Environmental factors—salinity, aridity, seasonality, and topography—and geopolitical factors—Native trading patterns, labor availability, international competition and cooperation—facilitated and frustrated Spanish officials' ability to harness the power of salt resources for colonial sustenance. Both the survival of Spaniards themselves in Native spaces and the imperial aims their presence in those places represented depended upon salt resources utilized, understood, and controlled by Native peoples.[11]

Existing scholarship on salt's significance to life in the pre- and early colonial southwest is scant. Most histories of salt in the continental southwest are anecdotal, appended to more sweeping narratives of Indigenous cultural development, Spanish economic exploitation, and, occasionally, ecological transitions prior to and through colonization. More concentrated studies of pre- and early colonial salt use focus instead on Central America, and are owed largely to archaeological and anthropological scholarship. Research by Ursula Ewald, Anthony Andrews, and Heather McKillop demonstrates how several centuries of Mayan, Mexica, and more local salt production across Central America—in places like present-day Belize and Mexico—established precedence for sixteenth- and seventeenth-century Spanish salt production in the Americas. But few of these studies interrogate contemporary archival evidence illustrative of how Indigenous peoples continued to interact with salt resources while living under and adjacent to European colonies. In doing so, they leave veritably ancient Indigenous and early colonial salt production separated by several seemingly stagnant centuries of salt's history.[12]

But local salt resources—and the several strata of its significance—mattered deeply to life, labor, and power in the continental southwest. This became especially apparent at the onset of Spanish colonization in the region. In Spanish and other American colonial contexts, salt extraction and circulation was a monetarily minor economy compared to more precious minerals like silver, lead, or gold. Still, the provisioning of salt mattered. And when it came to provisioning remotely situated colonial enclaves, accessing salt could be a costly—albeit still essential—endeavor.

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[11] Historians have long recognized gold and silver as the primary impetus for Spanish "exploration" in North America. Only recently have scholars acknowledged the centrality of inland salt resources to early Spanish entradas; see Ashley A. Dumas and Paul N. Eubanks (eds.), *Salt in Eastern North America and the Caribbean: History and Archaeology* (Tuscaloosa, AL: University of Alabama Press, 2021).

[12] For examples of pre-colonial Indigenous salt-making in North America, see Ian W. Brown, *Salt and the Eastern North American Indian: An Archaeological Study* (Peabody Museum, Cambridge, MA: Lower Mississippi Valley Survey Bulletin No. 6, 1980) and "Why Study Salt?" *Journal of Alabama Archaeology* Vol. 50, No. 1 (2004), 36-49; Ashley Dumas, "The Role of Salt in the Late Woodland to Early Mississippian Transition in Southwest Alabama," PhD Dissertation, University of Alabama, Tuscaloosa Department of Anthropology (2007); Ann M. Early (ed.) *Caddoan Saltmakers in the Ouachita Valley: The Hardman Site* (Fayetteville, AR: Arkansas Archaeological Survey, Research Series No. 43, 1993); Paul N. Eubanks, "Salt Production in the Southeastern Caddo Homeland" PhD Dissertation, University of Alabama Department of Anthropology (2015); Richard O. Keslin, *Archaeological Implications on the Role of Salt as an Element of Cultural Diffusion* (Columbia, MO: Missouri Archaeologist 26, 1964); and Gloria Wentowski, "Salt as an Ecological Factor in the Prehistory of the Southeastern United States," Master's Thesis, University of North Carolina, Chapel Hill Department of Anthropology (1970). Salt-making was practiced on a greater scale in Central America, particularly during the Classical Maya period; see Anthony P. Andrews, *Maya Salt Production and Trade* (Tucson, AZ: University of Arizona Press, 1983); William P. Hewitt, Marcus C. Winter, and David A. Peterson, "Salt Production at Hierve el Agua, Oaxaca," *American Antiquity* Vol. 52, No. 4 (1987), 799-816; Jefferson MacKinnon and Susan Kepecs, Fred Valdez Jr. and Shirley B. Mock, forum on pre-Hispanic salt-making in Belize in *American Antiquity* Vol. 56, No. 3 (1991), 520-530; and Heather McKillop, *Salt: White Gold of the Ancient Maya* (Gainesville, FL: University Press of Florida, 2002).

Especially in the continental interior, where Spanish expeditions, missions, and military outposts subsisted far from the security of colonial supplies and imperial sovereignty, access to basic necessities like food and water could make or break the success of their endeavor. This included access to salt, biologically essential to human and non-human life alike. Thus to find the salt they needed, colonizers found themselves increasingly reliant on Indigenous labor, knowledge, precedents, and notions of place. Precisely because of its oft-forgotten necessity to human survival, salt changes how historians understand environmental contexts of early European colonization and Indigenous placemaking; the significance of mundane minerals to colonial schemes and systems; and the tenuous nature of early colonial endeavors. Moreover, the necessary integration of archaeological, ethnographic, and archival evidence of salt's significance helps to bridge the default disciplinary and temporal division between "prehistory" and "history." As the most recent generation of Indigenous archaeologists and archaeologists of colonialism have demonstrated, situating Euro-American colonialism in longer human and environmental histories of the continent can provide a more detailed picture of what colonialism changed and what changed colonialism. This practice also helps to resituate Indigenous histories as primary temporal context.[13]

In the continental southwest, salt's significance originated far beneath earth's surface and long before European arrival. Prior to Spanish colonization, salt figured largely into how diverse Indigenous peoples related to and utilized vital resources. These relationships dictated how Spanish entradas sought out salt resources while invading Indigenous lands. Assured and incentivized by promises of mineral wealth, imperial officials endeavored to exploit salt resources in order to sustain colonial populations, stabilize Spanish sovereignty, and expand lucrative domestic industries. These pursuits, however, were a paradox; as this chapter argues, Spanish expropriation of salt resources hinged upon Indigenous environmental knowledge, political power, and labor near through the conclusion of Spanish colonial rule in southern North America. Salt's value changed considerably across space and over time, but one reality remained constant through three centuries of encounter, conflict, and reconstitution: because of its dynamic value and universal necessity, salt shaped how Native peoples and Spanish colonizers interacted with one another and with their surrounding environments. Knowledge about, access to, and use of salt resources in Indigenous homelands had immediate bearing on the near and distant futures of Indigenous polities and colonial projects alike.

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[13] For the problems of dividing "pre-history" from "history" in North American colonial contexts, see Kent G. Lightfoot, "Culture Contact Studies: Redefining the Relationship between Prehistoric and Historical Archaeology," *American Antiquity* Vol. 60, No. 2 (1995), 199-217. Lightfoot's suggestion that "any historical anthropological study that attempts to understand the long-term implications of culture contact must consider the archaeology of pre-contact contexts" (200) has since influenced scholarship in the subfields of Indigenous archaeology, collaborative archaeology, historical archaeology, and more; for most recent work of this kind, see Maxine Oland, Siobhan Hart, and Liam Frink (eds.), *Decolonizing Indigenous Histories: Exploring Prehistoric/Colonial Transitions in Archaeology* (Tucson, AZ: University of Arizona Press, 2020). Juliana Barr offers a model for adapting these questions and critiques to the study of early Spanish colonialism in the broader southwest; see Barr, "There's No Such Thing as "Prehistory": What the Longue Durée of Caddo and Pueblo History Tells Us About Colonial America," *William and Mary Quarterly* Vol. 74, No. 2 (2017), 202-242. Deep history has also been another avenue through which scholars have challenged the teleology of change over time following colonization in North America; see Gesa Mackenthun and Christen Mucher (eds.), *Decolonizing "Prehistory": Deep Time and Indigenous Knowledges in North America* (Tucson, AZ: University of Arizona Press, 2021). Often described as archaeology "by, for, and with" Indigenous peoples, Indigenous archaeology has developed into its own discipline with particular ethics, methods, and innovations useful for historians as much as for other archaeologists; for a summary, see Chip Cowell-Chanthaphonh, T.J. Ferguson, Dorothy Lippert, Randall H. McGuire, George P. Nicholas, Joe E. Watkins, and Larry Zimmerman, "The Premise and Promise of Indigenous Archaeology," *American Antiquity* Vol. 75, No. 2 (2010), 228-238.

The prevalence of salt in Spanish colonial archives is reflective of its ubiquity and importance in colonial projects and Indigenous life in the sixteenth-, seventeenth-, and eighteenth-century southwest borderlands. Published accounts of early Spanish entradas—including the Coronado, Espejo, Rodriguez-Sanchez, Oñate, and later expeditions—speak to salt's significance in Spanish minds and the mineral's place and power across the North American south and, more specifically, southwest. Mexican audiencia records, imperial orders, and other sixteenth- and seventeenth-century administrative documents provide bureaucratic context to the management of salt flats and lakes, coastlines, and mines claimed as property of the Spanish crown. Salt continued to shape relationships among Indigenous polities as well as between Indigenous peoples and Spanish officials well into the eighteenth century. Military and civil records, too, show how Spanish management of salt resources in the broader northern Mexican borderlands—including Puebloan New Mexico, Texas, Chihuahua, and Sinaloa—shaped and was shaped by Indigenous politics largely independent of Spanish control. Puebloan peoples, Apaches, Yaquis, and other polities exposed Spanish mineral claims—and the territorial, economic, and legal stability they afforded—for the unstable assertions of sovereignty that they really were. Across the southwest, increasingly coveted and contested saline environments long remained part of coalescent and colliding Indigenous worlds.

To convey salt's significance to matters of survival, sustenance, place, and power in the southwest, this first chapter in salt's story begins with—and retains focus on—Indigenous pasts. Despite Spanish efforts to initially reduce and ultimately replace Indigenous ties and claims to mineral resources, diverse Indigenous connections to salt resources did not die with Spanish colonization. Rather the opposite; Indigenous peoples—their environmental knowledge, their economic activities, their land-based cultural and religious practices, and their lived experiences under and adjacent to Spanish colonization—continued to shape the past significance of salt resources, their present accessibility, and the mineral's future place and potential. Like elsewhere across the continent, peoples first indigenous to the southwest first made salt's history, and continued to do so long after the formal conclusion of a Spanish colonial period. This is sometimes reflected in the Spanish colonial archive itself. Jean O'Brien has argued that while colonial archives often functioned to diminish Indigenous sovereignty and erase Indigenous voices, historic Indigenous peoples asserted their presence in colonial records; this is true for several Spanish-language documents that admit to the significance of Indigenous attachments to place, power, politics, and pasts. But much of salt's history remained well-guarded by Indigenous peoples enduring Spanish colonization until long after its conclusion. Documents from the Works Progress Administration, the Indian Claims Commission, the United Pueblos Agency, and other modern organizations contain Indigenous peoples' knowledge of salt's historic and contemporary significance to Indigenous life. This ethnographic practice of "upstreaming"—the use of modern ethnographic documents to illuminate historical experiences, changes, and continuities—allows space for Indigenous actors to narrate salt's ongoing history, continued in Chapter Six.[14]

[14] For the use of colonial archives in the study of Native American history, see Jean M. O'Brien, "Historical Sources and Methods in Indigenous Studies: Touching the Past, Looking to the Future," in Chris Andersen and Jean M. O'Brien (eds.), *Sources and Methods in Indigenous Studies* (New York, NY: Routledge, 2017), 12-20.Collaboration and consultation with relevant tribes and nations is another area historians might work to correct injustices fostered by colonial methodologies. Archaeology "by, for, and with" southwestern tribes and nations has fostered productive relationships between non-community-based scholars and Indigenous communities seeking historical, anthropological, and archaeological skill and/or data to protect tribal lands, rights, and sovereignty; for a directly relevant example of the power of collaborative research and academic consultation with descendant communities, see Andrew I. Duff, T.J. Ferguson, Susan Bruning, and Peter Whiteley, "Collaborative Research in a Living

Spanish and Indigenous engagements with salt resources constitute one part of a continental history of salt and its significance to processes of Euro-American colonization and Indigenous place-making. Since Indigenous origins, the multidimensional value and universal necessity of salt shaped and was shaped by how people interacted with their environments and how they interacted with each other. Spanish, French, British, and eventually American colonization introduced new disruptions and demands that had direct bearing upon inland salt resources; Indigenous peoples responded to these disruptions in a variety of ways, changing how they engaged with salt resources that had long sustained human and non-human life in their homelands. Quotidian encounters like the one between Captain Farfán's men and Ma'l Okyattsik'i would come to shape colonial and Indigenous futures across an increasingly contested continent.

Pre-Colonial Salt Use & Indigenous Sustenance

Before Spanish colonizers claimed to discover salt resources, Native peoples found them first. They were driven to do so by innate biological necessity. Sodium enables the human nervous, muscular, and circulatory systems to transmit nerve impulses, operate vital muscle fibers, and regulate fluid balance. How much salt one needs depends on diet, climate, and environment, among other factors influencing biological function. Ancestral Puebloans, for instance, whose diet consisted largely of naturally low-sodium grains and legumes, likely added salt to meals consistent of maize, beans, squash, and other vegetables. Other foods (especially red meat) provides humans with sufficient quantities of sodium to support these functions. This is because large mammals like bison and deer share these biological demands, and frequently resort to salt licks and springs to consume mineral-rich mud and water. Sodium-dependent mammals provided hunters with more than salt-rich meat; their migrations to salt resources indicated to humans where salt was. Over generations, the coalescence of human and non-human movements to and from salt resources produced shared geographies that highlight salt's centrality to life in North America.[15]

Landscape: Pueblo Land, Culture, and History in Central New Mexico," *Archaeology Southwest* Vol. 22, No. 1 (2008), 1-24. For examples of upstreaming and related effective ethnohistorical approaches in southwestern and borderlands studies, see Thomas E. Sheridan, "How to Tell the Story of a "People without History": Narrative versus Ethnohistorical Approaches to the Study of the Yaqui Indians through Time," *Journal of the Southwest* (1988), 168-189. For a now dated but still useful overview of the problems and possibilities of ethnographic applications in Native American history, see James Axtell, "Ethnohistory: A Historian's Viewpoint," *Ethnohistory* Vol. 26, No. 1 (1979), 1-13.

[15] For sodium chloride's effect on the human body, see Niels Graudal, Gesche Jürgens, Bo Baslund, and Michael H. Alderman, "Compared With Usual Sodium Intake, Low- and Excessive-Sodium Diets Are Associated With Increased Mortality: A Meta-Analysis," *American Journal of Hypertension* Vol. 27, Iss. 9 (2014): 1129-1137; and United States Institute of Medicine, Committee on Strategies to Reduce Sodium Intake (Jane E. Henney, Christine L. Taylor, and Caitlin S. Boon (eds.)), *Strategies to Reduce Sodium Intake in the United States* (Washington, DC: The National Academies Press, 2010). Ancestral Puebloans who lived and farmed at Chaco Canyon may have acquired a relatively greater taste for salt due to the high salinity levels in soils in the area. Anthropologists and geologists have long debated whether elevated salinity levels harmed or helped Puebloan agricultural and dietary practices at Chaco; see Kenneth Barnett Tankersley et. al., "Evaluating soil salinity and water management in Chaco Canyon, New Mexico," *Journal of Archaeological Science: Reports* Vol. 9 (2016), 94-104.

Because of its necessity to (more than) human life, Native peoples came to attach particular value to salt resources. This includes the Zuni Salt Lake, a uniquely revered resource among many pueblos in present-day New Mexico and Arizona. Narratives explaining the lake's origins several miles south of the Pueblo of Zuni vary. In one telling, the Salt Woman once resided at Black Rock, but wasteful Zunis who polluted her home prompted her departure; the punishment for her ungrateful dependents was the arduous trek from Zuni Pueblo to a remote volcanic maar some forty miles southward. Similar stories state that the Salt Woman (called Mawa-sitsa in one version), while residing at Black Rock, fell in love with the god of turquoise; the mineralic lovers turned themselves into birds and flew south, but Mawa-sitsa grew tired and made permanent rest in a crater roughly halfway between Zuni Pueblo and her lover's new home near the Black Range. Still another narrative introduces the Salt Woman as a nomadic figure. In one version, Ma'l Okyattsik'i was "made of white powder" and visited the pueblos "to spread her mucous over the food," a service shunned by the people. In retaliation, she strayed far from the pueblos and, curiously, refused to give her salt to women and allowed access "only to men who show respect for her." A similar narrative states that she stopped for shelter and sustenance at Acoma and Laguna, where she was rejected and cast out of the pueblos. Zunis welcomed her, and as thanks she made her permanent home closest to the people who had treated her kindly. Regardless of her motives for moving south of Zuni, the Salt Woman—and, *ma/k/a-ya*, the crater in which she still resides—still factors among the most sacred sites of Zuni cosmology and geography, alongside places like *chimik/ankyate/a* (the place of beginning, in the eastern Grand Canyon), *tewanque:k/apa:chuyallan/e* (Mount Taylor), and *kolhu/wala:wa* (the Sacred Lakes in eastern



Figure 1. Salt lake mural at the Painted Desert Inn, Petrified Forest National Park, Arizona. Completed in the 1940s by Hopi artist Fred Kabotie, the mural depicts the eventful journey of two Hopi men to the Zuni Salt Lake. Though the lake's English name might imply exclusivity, multiple Indigenous communities and nations continue to share access to and appreciation for the lake. Photo by author.

Arizona). Despite her affiliation with Zuni life, all pueblos were welcome at her shores. Still-utilized trails tether the pueblos of Zuni, Acoma, Laguna, and Santo Domingo to the Salt Woman.[16]

Other pueblos articulated their affinity for salt resources in similar yet distinctive ways. Women remain central figures in Puebloan explanations for the origins of salt, and their salinized bodies elicited disgust as well as dependency. A potential alternative explanation of the Zuni Salt Lake's origins concerns three maiden sisters whose salty "skin looked like it had sores on it." The sisters stopped first at Taos, and then at Jemez, where the people, afraid of their appearance, refused them. Finally, a village somewhere "between Acoma and Laguna" took the sisters in; as a reward for the kindness of the villagers, one of the sisters seasoned their food with a salty finger and the sisters "brushed some of the salt stones from their arms and left them" for the villagers to use in the preparation of bread, stew, and deer. The sisters finally travelled toward Zuni and waited for the rain, which "melted their skin" and made them into a salt bed. During a feast at Santa Clara Pueblo, Salt Old-Woman took human form and donned a white manta, white doeskin boots, and a white abalone shell. The feast, according to the diners, had not been properly seasoned, and so the Salt Old-Woman "rose and blew her nose into the food to salt it." When the people refused to eat the food she seasoned, she informed them "that their nearby salt lake would dry up and they would be forced to travel many miles to obtain salt" before vanishing. The Salt Old-Woman went east, past the Manzano Mountains, to live in "'onyage," also known as the Estancia Valley, where over a dozen alkali and saline lakes blanket an ancient seabed.[17]

Whatever their explanations for the origins of surface-level salt exposures, Puebloan narratives describing the delicacy of salt's place reflected deeper geological complexities unique to the arid southwest. Shallow salt lakes, flats, and playas across present-day New Mexico and

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[16] Cochiti and Zuni stories about the Salt Woman have most recently been recorded and published by Teresa Pijoan; see Pijoan, *Myths of Magical Native American Women: Including Salt Woman Stories* (Santa Fe, NM: Sunstone Press, 2019). A critical mass of material on the Zuni Salt Lake originates from two modern eras of Zuni history. The first began in the mid-1970s, when the Pueblo of Zuni belatedly applied for territorial compensation through the Indian Claims Commission [ICC]. Zuni had missed the appeal window by nearly three decades, and so appealed through Congress to expand their reservation which was illegally shrunk by the U.S. federal government following the transfer of territory stipulated under the Treaty of Guadalupe-Hidalgo in 1848 and the ensuing re-colonization of New Mexico. Because of its role in Zuni economics, sustenance, and religion, the Zuni Salt Lake was a central component of the Pueblo's case. For more on the lake's role in the ICC case, see "Zuni Land Claims: Hearing Before the House Subcommittee on Indian Affairs," (Washington, DC: Government Printing Office, 1976), Mss. 142, Box 6, Manuel Lujan Congressional Papers, Center for Southwest Research, University of New Mexico, Albuquerque, New Mexico [hereafter "MLCP, CSWR, UNM"]; and Mss. 815, Boxes 6 and 7, Ward Alan Minge Papers, CSWR, UNM. Zuni did not succeed in its initial effort to use the ICC to reincorporate the lake into its reservation, which led to the second major phase of the lake's history. During the 1980s and 90s, Salt River Project [SRP], an Arizona utility company, applied for and won state and federal permits to erect a strip mine and rail spur line near the lake; the mine threatened to corrupt the aquifer that fed the lake (and allowed it to regularly produce salt, which Zunis still used) as well as disrupt burial sites and other cultural resources like trails and shrines. Zuni protested from the project's inception, and a decade-long legal and publicity battle ensued between SRP, the State of New Mexico, the U.S. Department of the Interior, and the Pueblo of Zuni (which received support from several other pueblos and tribes, as well as the Green Party and Sierra Club). In the summer of 2003, Zuni emerged victorious, and the mine's construction was shut down indefinitely. For more on the SRP-Zuni controversy, see 467, Box 2, Folders 19 and 20, Mss. 467, Sierra Club Grand Canyon Chapter, Special Collections and Archives, Cline Library, Northern Arizona University, Flagstaff, Arizona [hereafter "SCGCC, NAU"]; Mss. 761, Box 10, Audiotape 4, Green Party of New Mexico, CSWR, UNM.; and "Testimony of Malcom B. Bowekaty, Governor of the Zuni Tribe, to the United States Senate Committee on Indian Affairs," July 17, 2002, Washington, DC.

[17] The story of the three salt sisters was told by Gokamaytha McCracken to Jon Ward, who recorded it, sometime in the 1980s or 90s; see Mss. 317, Box 5, Folder 69, Baughman Folklore Collection, CSWR, UNM. For Santa Clara, see Mss. 317, Box 5, Folder 13, Baughman Folklore Collection, CSWR, UNM.

Arizona result from hydrated alkaline minerals like halite (rock salt), potassium, and sulfates. Halite and sodium-bearing rock deposits extend below the earth's surface for thousands of feet, constituting clastic formations that, when saturated by groundwater, release their soluble minerals. During the last ice age, lower temperatures and higher precipitation levels filled closed basins across present-day New Mexico, western Texas, and northern Chihuahua with water. Over time, evaporation leave behind hyper concentrated alkali deposits of sodium chloride, potassium, and other minerals in high altitude valley beds and ancient lake basins. More sudden geological events also help to create surface-level saline environments. Two million years ago, a volcanic eruption at the present site of Zuni Salt Lake created a crack in the 260-million-year-old Permian rock belying the lake. A groundwater spring carries salt from these beds into the crater created by the explosion, where evaporation turns the natural brine into near-pristine salt. Salt's tendency to easily dissolve and permeate across geologic strata makes it a nuisance as well as an asset in a region where freshwater runs scarce.[18]

Not all salt surfaced so easily, but topological inaccessibility did not deter ancestral Native peoples from finding it. For generations, Hopis trekked by foot toward the eastern Grand Canyon to collect small yet potent samples from salt seeps in Marble Canyon. Only men took the journey, arduous for younger and older participants alike. Experienced elders and veteran pilgrims would descend on ropes to the floor of the canyon, while the youngest men were tasked with ascending canyon walls with the collected rock salt in sacks on their backs. The salt was then hauled—by foot or by hoof—over a hundred miles back to the Hopi mesas. Native peoples went to great lengths and even greater depths to obtain salt. Beyond the Mogollon Rim, in the Verde Valley, pickaxe handles and mummified miners at the Camp Verde Salt Mine verify that subsurface mining constituted yet another method of salt collecting in the Indigenous southwest. In the 1920s and 30s, American rock salt miners removed stone toolheads, wood handles, sandals, ropes, and human remains from Camp Verde's mine shafts. Archaeologists later dated these items to the fourteenth and fifteenth centuries, during which Sinagua peoples—whom modern Hopi, Yavapai, Pima, and Tohono O'odham communities claim as their ancestors—inhabited and worked in the valley.[19]

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[18] For the geology of salt resources in New Mexico, see 1971-006 (Series II), "Mineral and Water Resources of New Mexico," Salines-Mining History, Lucien A. File Research Files, State Archives of New Mexico [State Archives NM], Santa Fe, New Mexico; Bruce D. Allen, "Ice Age Lakes in New Mexico," in S.G. Lucas, G.S. Morgan, and K.E. Zeigler (eds.), *New Mexico's Ice Ages* (New Mexico Museum of Natural History and Science Bulletin No. 28, 2005), 107-115; Charles Leslie Jones, Maurice E. Cooley, and George Odell Bachman, *Salt Deposits of Los Medaños Area, Eddy and Lea Counties, New Mexico*, No. USGS-4339-7 (Reston, VA; United States Geological Survey, 1973); and Brent D. Newman, Lewis Land, Fred M. Phillips, and Geoffrey C. Rawling, "The Hydrogeology of the Sacramento Mountains and Roswell and Salt Basins of New Mexico, USA: Overview of Investigations on Dryland Groundwater Systems Using Environmental Tracers and Geochemical Approaches," *Hydrogeology Journal* Vol. 24, No. 4 (2016), 753-756. For the geology of salt resources in Arizona, see MS 1520.02, Box 8, Case 608, J.E. Kinnison Files, Arizona Department of Mines and Mineral Resources, Arizona Historical Society [AHS], Tucson, AZ [hereafter "ADMMR, AHS"]; MS 1520.04, Box 6, Case 305, Commodity Files, ADMMR, AHS; LCHS, "Mineral Resources – Salt," AHS, Tucson, Arizona; and Steven L. Rauzi, "Arizona Has Salt!," *Arizona Geological Survey* Circular 30 (January 2002). For the geology of Zuni Salt Lake, see Mss. 714, Box 1, Folder 8, Edith Cherry Historic Preservation Papers, CSWR, UNM; SWA-Graham-Drawings, Stack 1, Drawer 7, Channell Graham Drawings and Plans, CSWR, UNM; and Gary Huckleberry and Andrew I. Duff, "Alluvial Cycles, Climate, and Puebloan Settlement Shifts near Zuni Salt Lake, New Mexico, USA," *Geoarchaeology: An International Journal* Vol. 23, No. 1 (2008), 107-130.

[19] Like the Zuni people, Hopis share deep spiritual attachments to salt resources—at Zuni Salt Lake and in the Grand Canyon. Past studies of Hopi salt gathering practices (and their spiritual/ritual associations) were conducted by non-Hopi ethnographers and anthropologists in ways that failed to respect the privacy of certain knowledges. Hopis have

Geology and exposure only partly dictated salt's availability and abundance. A combination of domestic factors (labor, local environment, and diet) and external forces (geopolitics, trade, and economy) shaped who produced salt, how they made or collected it, and where and when it was put to use. The recovery of Hopi salt storage pots from a remote cache in present-day Canyonlands National Parks have allowed archaeologists to hypothesize that fifteenth- and sixteenth-century Hopi salt collectors provisioned—either through sale or through gifting—salt over a hundred miles north of their pueblos. Hopis also often travelled over a hundred miles southward from their homelands, to the Zuni Salt Lake, to obtain salt for spiritual fulfillment and subsistence alike. The small yet uncommonly salty and spiritually significant lake was a several-day trek for Hopis and Navajos who lived atop and along the elevated Mogollon Rim. Residents of the pueblos of Zuni, Laguna, Santo Domingo, and other communities across the southeastern expanses of the Colorado Plateau enjoyed closer access to the Zuni Salt Lake, Zuni being the closest. Because their diets consisted primarily of sodium-poor foods and relatively lower quantities of sodium-rich meats, Puebloan peoples across the broader Colorado Plateau were particularly motivated to source salt for use as a food additive, preservative, and article of commerce.[20]

Beyond the heart of the Puebloan world, salt resources proved just as critical in providing sustenance and, sometimes, commercial security for peoples in between worlds and often on the move. The pueblos of Abo, Tenabo, Quarai, and Gran Quivira (appropriately pluralized as Las Salinas by Spanish friars in the seventeenth century) exploited their proximity to the Estancia Valley, an ancient seabed filled with alkali and salt lakes, to sustain themselves and expand their economies. Eastern Tompiros, who lived between the valley and the high plains that expanded eastward, likely traded salt to Plains hunters for perishable items like bison hides, fat and tallow, and jerked meat. Tompiros sometimes then traded these products further westward, toward agriculturally-focused Puebloan producers. Apaches, Comanches, Tejas, and other more mobile nations likely preferred purchasing or trading for salt produced by sedentary nations who lived in more permanent proximity to salt resources. Similar patterns of salt exchange existed on the eastern plains; archaeological recoveries from Caddo villages in present-day eastern Texas, Oklahoma, Arkansas, and Louisiana reveal how Caddo salt-makers boiled greater-than-domestic quantities of brine to produce salt. Ceramic molds, extra-large salt pans (which were placed over shallow furnaces to hold and boil brine), and other implements indicate that Caddos were likely

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since established archival restrictions on unpublished materials pertaining to their salt trails. For a firsthand Hopi account of salt gathering, see Don Talayesva and Leo Simmons (ed.), *Sun Chief: The Autobiography of a Hopi Indian* (Second Edition. New Haven, CT: Yale University Press, 2013), 165-186 and 232-267. For subsurface mining at Camp Verde, see MS 1520.01, "Camp Verde Salt Mine," Box 11, Case 158, general mining files, ADMMR, AHS, Tucson, Arizona. When American miners unearthed human remains and artefacts at Camp Verde, the materials were stolen by the Arizona State Museum. A mining operation similar to the one recovered at Camp Verde was uncovered by the Museum of the American Indian's Nevada Expedition in the 1920s in Clark County, Nevada. M.R. Harrington, the expedition's lead archaeologist, published the sole existing description of the expedition's findings in a 1926 issue of *Scientific American.* Like at Camp Verde, archaeologists found wooden digging and drilling implements (used by miners to create tunnels), stone picks and hammers (used to break down rock salt), torches, and sandals; the Clark County mine also contained organic matter like corn cobs. The expedition speculated that salt making at the mine was "at its height about the end of the Pre-Pueblo Period and the beginning of the Early Pueblo Period, roughly estimated at two thousand years ago." What happened to the recoveries is unclear. See M.R. Harrington, "Ancient Salt Mines of the Indians," *Scientific American* (August 1926), 116-117.

[20] For the recovery of Hopi salt storage pottery in southeastern Utah, see Sharyl Kinnear-Ferris, Winston Hurst, and Kelley Hays-Gilpin, "Hopi Pottery and Prehistoric Salt Procurement in Southern Utah Canyon Country," *Kiva* Vol. 80, Nos. 3 and 4 (2015), 250-280.

making commercial quantities of salt as early as the 1200s. As a semi-perishable good, salt was a widely distributable and well demanded commodity that linked together diverse economies, environments, and peoples between and beyond the broader continental south's many biomes.[21]

The diversity of engagements with salt resources across the broader southwest is indicative of the mineral's universality to human and non-human life. Whether it functioned as a domestic culinary commodity, a pillar of Puebloan cosmology, a transregional trade good, or a standalone industry, salt figured into the environments, economies, and epistemologies of various Indigenous peoples unlike any other mineral. Salt itself leaves no archaeological trace, but the labor Native peoples invested in its collection, production, and use did. Indigenous salt-makers and collectors developed ecologically specific techniques to maximize their proximity to saline resources in their homelands. Still-told oral histories of salt's significance also help to complete a fuller picture of salt's past, especially among pueblos who depend(ed) upon places like the Zuni Salt Lake, the Estancia Valley, and Marble Canyon for spiritual guidance as much as sustenance. These resources gave people life while also embodying it, reflecting deep geological transformations at the earth's surface in ways that seemed to bring salt to life. Spanish invasion hardly introduced Indigenous peoples to salt. Instead, Indigenous peoples introduced foreigners to saline environments and resources that determined their immediate fates and more distant futures across the North American interior.

Spanish Invasions & the Search for Salt

Starting in the late 1530s, Spanish entradas embarked into the North American interior seeking gold or silver. Most expeditions failed to do so. Instead, many early Spanish invasions became preoccupied with finding a comparative more mundane mineral: salt. Some expeditions struggled to find enough salt to survive another week, whereas others felt themselves at liberty to speculate on the potential value of high quality, high yield salt resources. Local ecological and invisible geological factors in part dictated Spanish successes in and failures to find salt. In the lower Mississippi River Valley (and explained in greater detail in Chapter Two), saline bayous and subsurface deposits beckoned desperate expeditions who lacked manpower, energy, and equipment to turn brine into potable salt. Elsewhere, including the high and dry southwest, salt flats yielded peculiarly perfect salt ready for the taking. Or so Spanish invaders thought. Wherever and however salt appeared at earth's surface, its accessibility hinged upon the political, economic, and even cultural currents of Indigenous systems of production, exchange, movement, and

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[21] The Estancia Valley is the now-exposed seabed of a Permian-age saltwater sea that once encompassed the majority of present-day New Mexico and far west Texas. Over the course of two million years, geologic pressure and surface climate transformed the bed into an alkali-rich valley that sinks downward from the eastern slope of central New Mexico's Manzano Mountains. The valley's several salt and alkaline lakes had already been formed and reformed by the time Ancestral Puebloans started settling permanently in the valley around 900. From then onward, archaeologists have speculated, Ancestral Puebloan, Tompiro, Piro, and Tewa peoples likely exploited their proximity to the valley's salt to create a niche economy that served Plains communities to the east and south and sedentary pueblos to the west and north. For more on the pre-colonial history of the Estancia Valley, see Stuart James Baldwin, "Tompiro Culture, Subsistence and Trade," PhD Thesis, Department of Archaeology, University of Calgary, 1988; and Box 7, Folders 46, 47, 52, 53, 60, John L. Kessell Papers, CSWR, UNM. Likely due to the relative abundance of archaeological evidence indicating salt-making in the western Mississippi River Valley and eastern Plains, archaeologists have devoted considerable attention to Caddo salt-makers; see Ann M. Early (ed.), *Caddoan Saltmakers in the Ouachita Valley;* and Paul N. Eubanks, "The Timing and Distribution of Caddo Salt Production in Northwestern Louisiana," *Southeastern Archaeology* Vol. 33 No. 1 (2014), 108-122, and "A Reconstruction of the Caddo Salt Production Process at Drake's Salt Works," *Caddo Archeology Journal* Vol. 25 (2015), 145-166.

settlement. From Apalachee to Acoma, Spanish entradas into the North American south sought salt for immediate consumption and prospective production alike. Initial Spanish movements through and motives to exploit mineral environments reveal how Indigenous precedents and presence altered the trajectory of colonial encounters and futures in the continental interior.

In February 1540, the Coronado Expedition departed from Compostela, Mexico with near 2,000 European and allied Native soldiers, friars, and enslaved African and Native peoples for the pueblos north of the Rio Grande. Bound for fictional cities of gold, the entrada instead encountered high-quality saline resources with greater frequency. Zuni was the first to capture Spanish interests. Early in the expedition, Coronado attacked Zuni and prompted its inhabitants to flee. In occupying the pueblo, "we found what [we] had more need of that gold silver," as one anonymously authored account put it, "that is, a great quantity of corn, beans, […] and the best and whitest salt I have seen in my whole life." The invaders soon found the salt's source: the Zuni Salt Lake. Coronado himself felt the lake—and its superior salt—worthy enough to bring to Viceroy Antonio de Mendoza's attention. After seizing control of Hawikuh, Coronado wrote to the viceroy of the Zuni's "finest order and cleanliness" in their preparation of food and the "excellent granular salt that they bring from a lake one day's journey" from the village. The Spanish stole what they needed from the pueblo, and Zunis managed to keep their sacred lake a secret from Coronado's entrada, reflected in inconsistent reports about the lake's precise proximity to the pueblo.[22]

After failing to find gold among the Rio Grande pueblos, Coronado pushed further into the continent. His hopes (and trust in his expeditioners) were dashed again at Quivira in the spring of 1542. That summer, led by Teyas guides, the expedition returned from the central plains to Tiguex. "Neither gold nor silver was seen among those people, nor [was there] news of it," but there "were many salt lakes which had [salt] in great quantity." The heat and aridity of the high plains at mid-summer must have been oppressive, but to the Spaniards' interest, the climate yielded uncommonly rich salt:

> On top of the water there were slabs of it, four and five fingers thick and larger than table-tops. Two and three *palmos* beneath the water [there was] granular salt [which was] more flavorful than the [salt] in the slabs … this [slab salt] tasted a little bitter. [The granular salt] was clear.[23]

For human and non-human life in such arid and exposed climates, salt constituted an ecological conundrum. Climatic, pedological, and hydrological factors could transform potable springs and streams into what Spaniards described as "brackish" waters. Drinking fluids with excess alkali and

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[22] For the anonymous description of the lake's high-quality salt, see "Traslado de las Nuevas (Anonymous Narrative), 1540," in Richard Flint and Shirley Cushing Flint (eds.), *Documents of the Coronado Expedition, 1539-1542: "They Were Not Familiar with His Majesty, Nor Did They Wish to Be His Subjects* (Albuquerque, NM: University of New Mexico Press, 2005). For Coronado's mention of the lake, see "Vasquez de Coronado's Letter to the Viceroy, August 3, 1540," in Flint and Flint, *Documents of the Coronado Expedition, 1539-1542.* Hawikuh refers to the main Zuni pueblo, though Zunis occupied at least two other pueblos at the time of Coronado's arrival. Viceroy Mendoza had written to the king in April of the same year (1540) about the Zuni Salt Lake. Mendoza, using information provided by Melchior Diaz and Juan de Zaldivar, reported that the Zunis' "eat salt from a lake that is two days' journey from the provincia of Cibola;" see "The Viceroy's Letter to the King, Jacona, April 17, 1540," in Flint and Flint, *Documents of the Coronado Expedition, 1539-1542.*

[23] "The Relacion de la Jornada de Cibola, Pedro de Castaneda de Najera's Narrative, 1560 (copy 1596)," in Flint and Flint, *Documents of the Coronado Expedition, 1539-1542.*

saline elements can cause dehydration, made worse by elemental exposure or fluid loss. Teyas guides, using their familiarity with the bison pastures of the present-day Texas panhandle, ensured the entrada had access to sufficient drinking water. Still the scarcity of freshwater and the potency and power of saltwater was not lost on the Spaniards. They even speculated that evaporating salt lakes were powerful enough to slaughter herds of bison:

> Another thing, which was found on the shore of a salt lake, on the south side, in an area where there are no people who could have created it, [was] a great accumulation of [bison] bones … What was thought about it was that, with the retreat of the waves [which] the lake or pond must have formed during a time of north winds, it has amassed the [bones] of the grazing animals that died within the pond. On entering [the water] they [could] not get out, because of [being] either old or weak. What must be noted is what a number of animals would be necessary for so many skeletons.[24]

Seasonal salt lakes and flats that riddled the southwest continued to capture Spanish attention long after Coronado's withdrawal in 1542. In 1583, Antonio de Espejo, while leading a small military contingent up the Rio Grande to rescue two friars living in New Mexico, encountered a nation of Jumanos living at the confluence of the Conchos River and Rio Grande who "have salines consisting of lagoons of salt water, which at certain times of the year solidifies and forms salt like that of the sea." That Espejo differentiated between "salines" and the "lagoons" that constituted them suggests that Jumanos had invested time and energy into making the lagoons into productive salines.[25]

By the turn of the century, Spanish colonizers had accumulated a wealth of knowledge about the location and abundance of salt resources north of Mexico. After becoming New Mexican governor in 1598, Juan de Oñate leveraged this information to legitimate his effort to colonize and control the pueblos of New Mexico. "The wealth of the abundant salines," Oñate wrote to the viceroy in 1599, was among a few "very great treasures"—including some silver mines, Native labor, and their tribute payments—that would soon fill royal coffers. To verify salt's abundance and its commercial viability, Oñate explained to imperial officials that "salt is the universal article of traffic of all these barbarians." "Indian herdsmen" from the Salinas district often travelled northwest to Taos and Picuris, "where they sell meat, hides, tallow, suit, and salt in exchange for cotton blankets, pottery, maize, and some small green stones." The sellers most certainly provisioned their salt from the lakes in the Estancia Valley, which according to Oñate "consist[ed] of white salt [and] … are seven or eight leagues in circumference." Oñate boasted, too, that "the said pueblos of the salines and Xumanas [Jumanos] all rendered obedience to his majesty." In the following decades, the supposed fealty of Native peoples living in the Salinas district would underpin Spanish efforts to export salt from the Estancia Valley to southern colonies using local Native labor.[26]

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[24] "The Relacion de la Jornada de Cibola, Pedro de Castaneda de Najera's Narrative, 1560 (copy 1596)," in Flint and Flint, *Documents of the Coronado Expedition, 1539-1542.*

[25] For Espejo's description of the Jumanos' salines, see Antonio Espejo, "Account of the Journey to the Provinces and Settlements of New Mexico, 1583," in Bolton, *Spanish Exploration in the Southwest, 1542-1706*, 172.

[26] For "The wealth of the abundant salines…" and "Salt is the universal article of traffic…," see "Letter Written by Don Juan de Onate from New Mexico," in Bolton, *Spanish Exploration in the Southwest, 1542-1706*, 219-220. For "Indian herdsmen…," see "Account of the Discovery of the Buffalo, 1599," in Bolton, *Spanish Exploration in the*

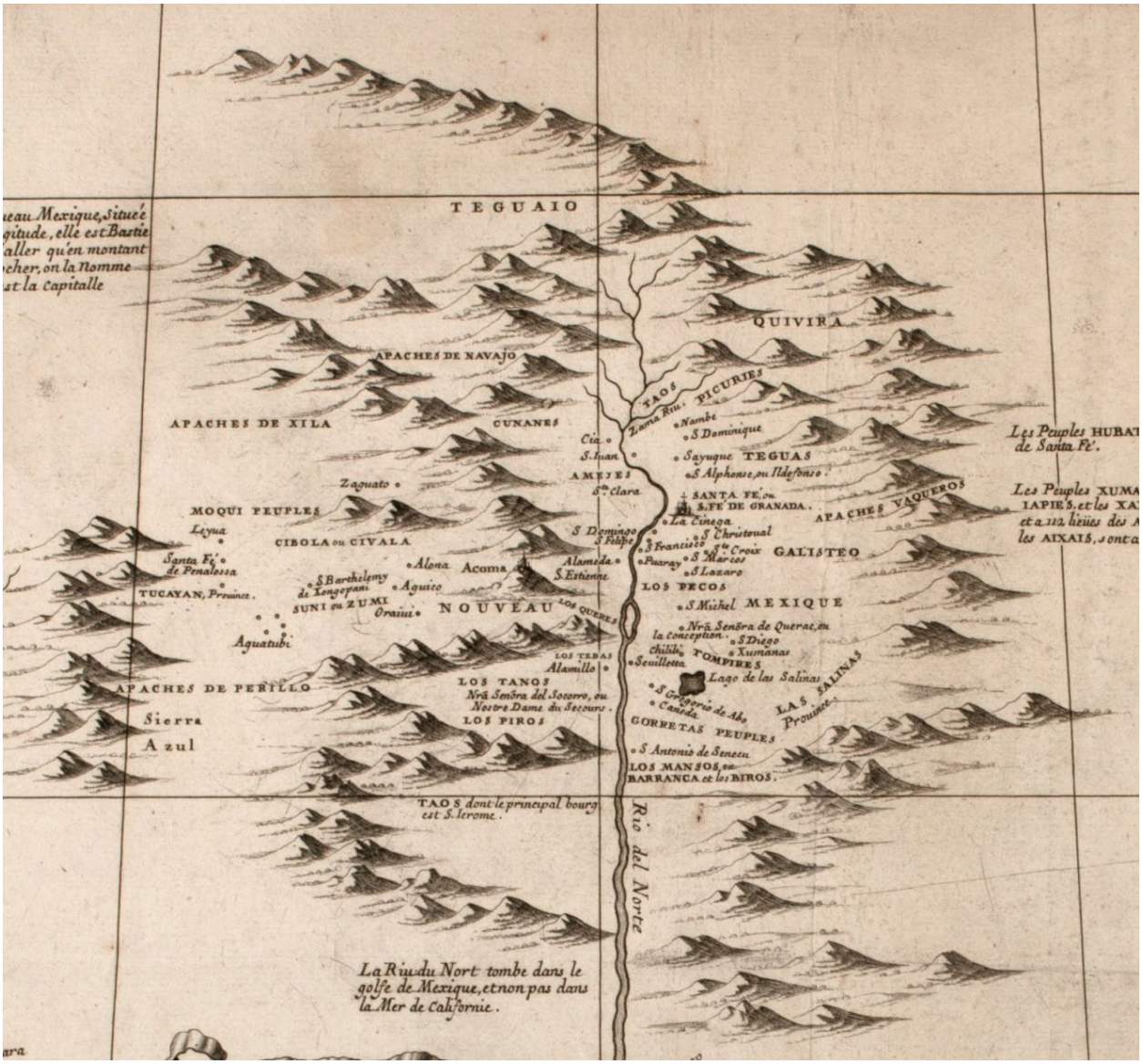


Figure 2. Inset of French map of New Mexico including Lago de las Salinas and Las Salinas Province. Source: Vincenzo Coronelli, *Le Nouveau Mexique Appelé Aussi Nouvelle Grenade et Marata* (detail) (Paris: Chez J.B. Nolin sur le Quay de l'Horloge à l'enseigne de la Plas des Victoires vers le Pont Neuf avec Privilege du Roy, 1685). Library of Congress Geography and Map Division, http://hdl.loc.gov/loc.gmd/g4300.ct001821.

Early Spanish incursions into the North American south during the sixteenth century reveal how and why the "discovery" of salt resources mattered to the near and far future of Spanish colonization. Documents from the Coronado, Espejo, and Oñate expeditions reveal, too, that salt strengthened the foundations of Native presence, political power, environmental knowledge, and economic influence. These two realities of salt's significance—to Spanish survival and to Native

Southwest, 1542-1706, 226. For Onate's description of the Estancia Valley and the local pueblos, see "Account of the Journey to the Salines, the Xumanas, and the Sea, 1599," in Bolton, *Spanish Exploration in the Southwest, 1542-1706,* 233-234.

sustenance—mutually reinforced one another. Native labor, exchange, movement, and settlement indicated to early Spanish invaders where salt could be found, how it could be made or collected, and where it could be distributed. These precedents—and the promises of mineral wealth they embodied—soon came to shape the legal, economic, and environmental foundations of Spanish colonization. As the Spanish Empire fixed its focus upon Mexico's northern borderlands, it did so in the interest of mineral exploitation; this included the very salt resources depended upon by Spanish entradas and Native peoples alike.

Early Spanish Colonial Salt Use

Literally and figuratively, sixteenth-century entradas placed potentially valuable salt resources on Spanish maps. To harness their profitability, the Spanish crown—operating through a regimented colonial bureaucracy of governors, local mayors, and other secular offices—claimed salt resources as exclusive royal property. Early Spanish mining law married the assumption of the king's absolute sovereignty with the doctrine of discovery; in doing so, the empire created avenues for applicational exceptionality and legal exclusivity in the production, circulation, and regulation of valuable minerals. Penetrative (subsurface) rock salt mining was a technologically intensive and therefore marginal colonial industry; most of the salt produced across New Spain and its borderlands came from coastal regions (where sea salt was made), nearby playas, or salt flats. Nonetheless, colonial officials and the crown itself seized these resources as mineral property manipulatable through mining law. As this effort expanded northward from central and coastal Mexico to the North American southwest, the stability of Spanish sovereignty relative to saline resources wobbled and waned. A broad view of initial Spanish efforts to exploit salt resources in the service of colonial industries and sustenance reveals how local ecologies shaped the expansion of Spanish sovereignty and power into the continental southwest. Spanish officials endeavored to turn salt resources into another source of individual and imperial revenue. In doing so, they tested the limitations of Spanish sovereignty in lands, over labor, and relative to resources far beyond Spanish reach.[27]

Silver production was the primary impetus for commercial salt production in early colonial Mexico. In the mid-sixteenth century, Mexican silversmiths developed a novel dependency upon and application of salt. American silver ore was traditionally recovered and refined in two ways: direct smelting and amalgamation. Both proved costly to early colonial refinery endeavors; direct smelting was expensive as it required high-grade ore, and amalgamation worked only with metallic

[27] Most salt produced and consumed throughout early colonial Mexico was not mined (like gold or silver, for instance); it was mostly produced through evaporative methods, if not collected from flats that did not require the physical action of mining or digging for rock salt. Legally, however, salt was considered a mineral resource, and was thus claimed as crown property as were silver, gold, copper, iron, and lead mines. Curiously, the Real de Minas did not exercise exclusive administrative authority over salt resources. Depending on their location, the environment in which they were situated, and the variegated landscape of Indian titles that may have bordered or encompassed them, salt resources across Mexico and the continental southwest could be subject to multiple sources of authority. For more on the legal and political complexities of salt's administration and management in colonial Mexico, see Ursula Ewald, *The Mexican Salt Industry, 1560-1980: A Study in Change* (New York, NY: Gustav Fischer Verlag, 1985). For more on the function of the Real de Minas, see J. Lloyd Mecham, "The Real de Minas as a Political Institution: A Study of a Frontier Institution in Spanish Colonial America," *The Hispanic American Historical Review* Vol. 7, No. 1 (1927), 25-83. For more on the foundation and establishment of Spanish mining law, see Arthur S. Aiton, "The First American Mining Code," *Michigan Law Review* Vol. 23, No. 2 (1924), 105-113. For more on the relationship between royal claims to mineral resources and Spanish sovereignty, see Manuel P. Servin, "The Legal Basis for Spanish Colonial Sovereignty: The Act of Possession," *New Mexico Historical Review* Vol. 53, No, 4 (1978), 295-303.

ores that already contained enough silver or gold. Constrained by tight budgets, a volatile labor supply, and mid-grade ores, northern Mexican silversmiths pursued alternative processes. By 1557, silversmiths in Pachuca, Hidalgo had pioneered a process by which silver ores were crushed into a viscous paste and combined with salt, water, copper sulfate, and mercury before being spread across open-air patios and ground down and mixed by horsepower. Roughly a month later, the silver sulfides oxidized into silver ready for amalgamation and, when combined with additional mercury, ultimate recovery and refinement. Labor- and time-intensive, the patio process consumed a considerable amount of Native male labor as well as chemical additives. Nonetheless, the process became a primary mode of production in northern Mexico through the early 1600s.[28]

The push to produce commercial quantities of salt to support the silver production prompted the crown and its representatives in early colonial Mexico to expand the application of Spanish mining law. Spanish expropriation of silver mines and salt resources beyond the Central Valley of Mexico occurred in succession. In the heart of Chichimec territory, Spanish discovery of the Zacatecas silver mines in 1546 precipitated the founding of Nueva Galicia two years later. It took Spanish officials another two decades to reduce the power of Chichimec polities in the salt-rich El Salado Basin to a point that allowed Spanish administrators access to of the region's abundant salt flats. In 1583, the crown appointed alcalde mayors to administer salt production at Peñón Blanco and nearby Santa Maria. Spanish officials recruited local Native men not already employed in silver production to harvest salt during the spring, roughly between January and April.[29]

Spanish "discovery" of salt resources did not always wholly extinguish aboriginal title. When Hernando de Trejo, the governor of Nueva Vizcaya, reported the discovery of potentially productive salt flats in the province in 1577, Phillip II tasked Trejo with figuring out how to purchase the flats from local *indios*. Even where Native peoples nominally lost formal title to salt resources in salt-producing provinces, imperial ordinances often relegated distribution rights to local Native leaders—like Pedro de Castillo, for instance, who in October 1590 received a license to sell salt commercially beyond his village of Chiapulco, Puebla. Colonial and royal coffers certainly benefited from claiming salt resources as state property. But the real political, economic, and environmental climate in Indigenous-dominated enclaves of early colonial Mexico still shaped imperial regulations over salt collection, production, and distribution.[30]

As the century of "conquest" came to a close, the Spanish crown sought to further expand domestic salt production. In Yucatan, the region's coastal flats and shallow seashores had been a prized resource nearly one thousand years prior to Spanish arrival. Terrestrial and aquatic

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[28] For a contemporary description of salt's significance to silver mining, see "ordenanza del Virrey don Martin Enriques acerca del beneficio de la sal," April 23, 1580, Mss. 841, Box 8, Folder 5, Archivo General de las Indias [hereafter "AGI"], CSWR, UNM. For a description of the patio process, see Paul M. Kraemer, "New Mexico's Ancient Salt Trade," *El Palacio* (Spring 1976), 16. For the environmental and chemical contexts of Mexican silver refining, see Saúl José Guerrero Quintero, "The Environmental History of Silver Refining in New Spain: A Shift of Paradigm," PhD thesis, Department of History and Classical Studies, McGill University, March 2015. For the proliferation of amalgamation across the Mexican silver industry, see Henry R. Wagner, "Early Silver Mining in New Spain," *Revista de Historia de América* No. 14 (June 1942), 49-71. For an overview of salt's role in the refinement of silver ores, see J.V. Tingley, "Salt and Silver," *Nevada Geology: Quarterly Newsletter of the Nevada Bureau of Mines and Geology* (Summer 1990).

[29] Ewald, *The Mexican Salt Industry, 1560-1980*, 17-25; for a comprehensive account of colonial salt production at Peñón Blanco, see Ewald, 58-90.

[30] For the king's correspondence with Governor Trejo, see Phillip II to Hernando de Trejo, March 22, 1577, Vol. 104a, AGI, CSWR, UNM. For Castillo's license, see "licencia a don Pedro de Castillo," Box 3, Folder 120, Archivo General de la Nacion [hereafter "AGN"], CSWR, UNM.

recoveries from the region—initially the heart of Mayan settlement—have prompted archaeologists to argue for salt's significance to the formation of the Mayan state during the sixth, seventh, and eighth centuries. The decline of the Mayan state in the centuries immediately prior to Spanish invasion did not spell the end of salt production; small households and villages continued to source salt from well-worked lagoons, flats, and seashores. It took Spanish officials nearly half a century to formally co-opt coastal salt resource as crown property. In July 1603, King Phillip III ordered Yucatan governor Carlos de Luna y Arellano to claim the region's salt flats as property of the crown. By late 1604, local Native men were working the flats daily and transporting the salt to the port of San Juan de Ulúa near Veracruz. Central Mexican salt production in Yucatan and Nueva Galicia flourished and floundered in waves, and throughout the first decades of the seventeenth century, imperial officials became increasingly willing to lease out salt resources to individual lessees.[31]



Figure 3. A salt lake in the southern Estancia Valley, central New Mexico. Ancestral Puebloan peoples collected salt from the Estancia Valley at least as early as 900. In the mid-seventeenth century, Piro, Tompiro, and Tewa peoples living at and nearby the Salinas pueblos collected salt that was shipped southward to Spanish silver refineries in northern Mexico. Photo by author.

As salt became increasingly important to silver production in northern Mexico, Spanish claims to salt resources extended to the furthest fringes of empire. Though New Mexico remained sparsely populated following Oñate's initial attempt at colonization, Spanish officials sought to exploit whatever mineral resources they could. By midcentury, Spanish governors and military officers expropriated Puebloan labor to reap resources from the Estancia Valley's Laguna del Perro, a twelve-mile-long salt lake situated at the valley's lowest point. Bernardo López de Mendizábal, who presided as New Mexican governor in 1659-1660, ordered Tewas and Tompiros living in the Salinas district to haul salt from the valley's lakes to the Rio Grande—shipments and labor that went uncompensated by the Spanish state, presumably by virtue of the legalities

[31] The scholarship on Mayan salt production is expansive, particularly in the field of archaeology; for foundational studies, see Anthony Parshall Andrews, "Salt-Making, Merchants and Markets: The Role of a Critical Resource in the Development of Maya Civilization," PhD thesis, Department of Anthropology, University of Arizona, 1980; and McKillop, *Salt.* For the crown's order to Governor Luna, see cedula real, July 3, 1603, Box 3, Folder 12, AGI, CSWR, UNM. For the governor's report on Native labor at the flats and transportation, see Luna to Phillip III, January 7, 1605, Box 3, Folder 12, AGI, CSWR, UNM.

surrounding mineral resources within Spanish territorial claims. Even after the expiry of López's especially exploitative tenure, salt trafficking between the Estancia Valley and Parral seemed to have continued at least through 1668. Once in Parral, New Mexican salt was sold as a preservative for miners' meals or as a chemical additive at manufactories that still used the patio process. That Spanish officials sought profit in shipping salt nearly 700 miles across the rugged and politically tumultuous terrain of northern Mexico speaks suggests that New Mexican salt resources were as critical to imperial industry as they were to the personal profiteering of men like López.[32]

The slow creep of Spanish colonialism into southwestern North America introduced new demands for local salt supplies in other ways. Peoples indigenous to the southwest most often used salt as a condiment. But meats, fish, and other perishables were preserved through smoking, drying, or jerking. Europeans, by contrast, were accustomed to higher sodium diets because salt was a favorite preservative; salting prevents spoilage by dehydrating microbial cells, creating an environment hostile toward exogenous disease and organic bacteria. Like the entradas that preceded them, early Spanish friars dispatched to the upper Rio Grande Valley in the early 1600s brought imported appetites. Missionaries did eat indigenous foots like piñons, venison, maize, and various local vegetables and legumes. But they also requested familiar provisions like wine, wheat, and pork. One of few ingredients appreciated by Native and non-Native peoples in the southwest, salt would have allowed Spanish friars to prepare and consume indigenous ingredients in ways they considered more palatable. Prior to Spanish settlement at Paso del Norte, Spanish foods were likely shipped from as far south as Chihuahua, Parral, or even Zacatecas. Salt no doubt traveled both directions along the Camino Real de Adentro bounding New Mexican missions to better provisioned Mexican provinces. But salt, due to its weight and its tendency to dissolve in the event of spillage or inclement weather, could be expensive to transport. It seems more likely that friars and encomenderos (state-supported proprietors of land, labor, and resources) exploited Native workers with knowledge about and proximity to readily edible salt in the Estancia Valley and at the Zuni Salt Lake to provision their pantries.[33]

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[32] The shipment of salt from the Saline de Lorenzo Moreno (possibly nearby New Mexico's Tularosa Basin) to Parral may have occurred as early as 1657; see Mss. 767, Box 7, Folder 46, John L. Kessell Papers, CSWR, UNM, Albuquerque, New Mexico. For Native labor and salt gathering in the Salinas district, see Box 7, Folder 60, Kessell Papers, CSWR, UNM; Lorin W. Brown, "The Salt Traffic from the Estancia Salt Lakes to Mexico," July 17, 1939, New Mexico Works Progress Administration, Fray Angelico Chavez History Library, Santa Fe, New Mexico; and Kraemer, "New Mexico's Ancient Salt Trade," 13-16. Ramon Gutierrez suggests that Puebloan salt collecting was part of the tribute obligations Native peoples owed to their *encomendero*; that Lopez redirected such tribute payments toward distant markets prompted friction between the governor himself, friars who relied upon the *encomienda* for basic staples, and Native people forced to perform tribute labor. For more, see Ramon A. Gutierrez, "Dona Teresa de Aguilera y Roche before the Inquisition: The Travails of a Seventeenth-Century Aristocratic Woman in New Mexico," in Jennifer L. Morgan, Carol Berkin, and Thomas A. Foster (eds.), *Women in Early America* (New York, NY: NYU Press, 2015), 7-42.

[33] Indigenous preferences for jerked and dried meats has exacerbated the false assumption among historians, anthropologists, and ethnographers that Native peoples did not use salt prior to colonization, and that European colonizers introduced the mineral to Native peoples. As discussed throughout this chapter, this assumption does not hold true across North America and particularly in the continental southwest; in their own tribal histories, Zunis, Hopis, Navajos, and other peoples indigenous to the southwest often mention the use of salt as a condiment. Spaniards also made note of Indigenous salt consumption; Onate reported to the Viceroy, Count of Monterey, in 1599 that salt was a "regular food" of Puebloan peoples and that "they even eat or suck it alone as we do sugar" (see Onate in Bolton, *Spanish Exploration in the Southwest, 1542-1706*, 220). More recently, historians, anthropologists, and archaeologists of early Spanish colonization have argued that early Spaniards—particularly those who embarked temporarily through Indigenous territories and those who resided in imperial frontier regions—expressed anxieties about consuming non-Iberian foods. That Spaniards in the continental south broadly demonstrated virtually no

Animals, too, need salt to survive. Prior to the rise of commercial animal husbandry, large mammals across the North American south played a major role in the use and transformation of saline environments. In present-day Texas, bison and other large migratory mammals forged traces to salt flats and licks to replenish depleted sodium stores and other necessary minerals. Prior to the proliferation of horses across the plains, hunters would have found the greatest luck in securing game by stationing themselves near grazing sites and salt licks frequented by unsuspecting game. Spaniards followed suit. In 1672, while stationed as a soldier in Albuquerque, Juan Dominguez de Mendoza went hunting near the Rio Salado, where there was "a great saline abounding in good, white, granulated salt," and managed to kill six bison. The introduction of sheep, horse, and cattle to the northern Mexican borderlands further expanded mammalian exploitation of salt resources. Sheep flocks in Cerralvo, Neuvo León strayed away from haciendas and "in the midst of the indigenous nations of those frontiers," where "fine water holes, springs, pastures, and salt licks" were found in greater abundance. That Spanish flocks drifted toward Native-controlled resources concerned some colonial administrators. To manage and secure settler property in Nuevo León, Don Antonio Ladrón de Guevara recommended that Spanish officials "distribute the land and water rights to the settlers, and […] gather each Indian nation under the direct of the settlers;" Ladrón further advised that "the salt produced on the lands of the heathen tribes […] be used to support" settler commerce, the construction of presidios, and the provisioning of Spanish livestock. For administrators like Ladrón, the management of salt resources and the animals that depended on them hinged upon "[luring] these Indian nations […] to reduction and quietude."[34]

From the court and crown in Madrid to friars and other low-ranking officials stationed across *Nuevo Mexico,* Spanish officials deployed a repertoire of legal actions to claim salt resources, control the circulation of their products, and commandeer colonial futures in mineral extraction. Salt harvested from coastal, inland, and subterranean enclaves travelled far and varied widely in its consumption; it appeared as a condiment in Native and non-Native cuisines, a livestock provision, and a chemical additive to silver ore. Salt's importance to colonial mineral industries as well as colonial settlement encouraged the extension of Spanish mineral law and claims to territorial sovereignty into regions where the wealth of salt resources could be channeled toward colonial enclaves. Doing so did not automatically destroy and replace Indigenous

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hesitation to consuming salt collected and/or produced by Native peoples further complicates the corporeal, dietary, and sociocultural differences established by Spanish colonizers to distinguish between peoples and cultures (distinctions that also functioned to mark Spanish bodies and culture as "superior" to their Indigenous counterparts). For Spanish-American consumption habits and anxieties surrounding corporeal and cultural transformation through consumption, see Rebecca Earle, "'If You Eat Their Food…': Diets and Bodies in Early Colonial Spanish America," *The American Historical Review* Vol. 115, No. 3 (2010), 688-713, and *The Body of the Conquistador: Food, Race and the Colonial Experience in Spanish America, 1492-1700* (Cambridge, UK: Cambridge University Press, 2012); and Enrique Rodríguez-Alegría, "Eating Like an Indian: Negotiating Social Relations in the Spanish Colonies," *Current Anthropology* Vol. 46, No. 4 (2005), 551-573. For cross-cultural consumption and culturally particular food habits in early New Mexico, see Heather Trigg, "Food Choice and Social Identity in Early Colonial New Mexico," *Journal of the Southwest* Vol. 46, No. 2 (2004), 223-252.

[34] For Mendoza's hunting expedition to the Rio Salado, see Frances V. Scholes, Marc Simmons, and Jose Antonio Esquibel (eds.) and Eleanor B. Adams (trans.), *Juan Dominguez de Mendoza: Soldier and Frontiersman of the Spanish Southwest, 1627-1693* (Albuquerque, NM: University of New Mexico Press, 2012), 201. For Ladrón's prescription for the management of resources in Nuevo León, see Don Antonio Ladrón de Guevara, "reports concerning the settlements and agreements that constitute the Kingdom of Nuevo Leon, the Province of Coahuila, Nueva Extremadura, and the Province of Texas, Nuevas Filipinas, and the cause of their small or complete absence of growth," in Diana Hadley, Thomas H. Naylor, and Mardith K. Schuetz-Miller (eds.), T*he Presidio and Militia on the Northern Frontier of New Spain: A Documentary History - Volume Two, Part Two: The Central Corridor and the Texas Corridor, 1770-1765* (Tucson, AZ: University of Arizona Press, 2021), 89-90 and 99.

attachments to salt resources in their homelands. Indigenous peoples—in the heart of Mexico and in its imperial borderlands—continued to use salt resources in ways that asserted their autonomy. In the North American southwest, the persistence of Indigenous autonomy over resource access frustrated Spain's joint effort to subdue Native peoples and the mineral resources still under their control.

Salt Resources in the Eighteenth-Century Indigenous Borderlands

Claiming salt did not always easily equate to controlling it. This was true in closely regulated enclaves in central Mexico, and even more so in borderlands regions where Spanish authority was dwarfed by more populous Indigenous nations. Indigenous control over access to vital and valuable salt resources across the continental southwest continued to shape the trajectory of Spanish settlement, movement, and geopolitical influence well into the eighteenth century. Following the Pueblo Revolt of 1680, Spanish officials tried to bring the resources and the residents of the upper Rio Grande Valley under tighter control. But on all sides of the Puebloan world, newly empowered equestrian entities bounded in Spanish influence. Documents from the post-revolt decades reveal how Indigenous peoples and politics impacted Spanish efforts to use local salt resources. As was true elsewhere across the continent, salt supported the naissance of settler colonialism in the southwest. This was because local salt resources attracted settler populations, justified martial presence in Indigenous territories, and encouraged the enforcement of European claims to exclusive territorial sovereignty. Yet settlers who sourced salt locally for their immediate subsistence, soldiers who guarded salt caravans, and officials who tried to commandeer salt resources struggled to do so with adequate security. Instead, they found themselves reminded of their still marginal place in Indigenous worlds. The future of southwestern salt resources—and Spanish reliance upon them—rested largely in Native hands and remained situated in still Native lands.

Prior to the Pueblo Revolt of 1680 that rocked the upper Rio Grande, the Salinas pueblos of the Estancia Valley launched their own revolt. Since the 1650s, missionaries in the Salinas district enforced tribute demands for salt collected by Piro, Tompiro, and Tewa peoples living at and around Quarai, Abo, Las Humanas, and nearby villages. While Spanish officials shipped salt southward to Mexican silver districts, Native laborers continued to use it as a local commodity, selling it to Apaches and northern Puebloans in exchange for hides, meats, and exotic wares. But by the early 1670s, mounting tensions between Apaches and Spaniards jeopardized saline commerce in and beyond the valley. Tewa salt collectors allegedly complained to missionaries that Apache combatants would kill people travelling to and from the valley's salt marshes. Apaches also held up southbound Spanish salt shipments as early as 1670.[35]

Rather than offering increased protection to Salinas residents, the missions increased tribute demands to ensure their own survival. Demonstrative of Spain's (soon-to-be refuted)

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[35] For Spanish exploits in the Salinas district and the strains they placed on local Native peoples, see John L. Kessell, *Spain in the Southwest: A Narrative History of Colonial New Mexico, Arizona, Texas, and California* (Norman, OK: University of Oklahoma Press, 2002); and Dan Murphy, *Salinas Pueblo Missions: Abo, Quarai, and Gran Quivira* (Western National Parks Association, 1993). For a broader overview of the Salinas district from initial Puebloan settlement to U.S. federal preservation, see Jeanette L. Wolfe, "Salinas Pueblo Missions: The Early History," PhD thesis, Department of History, University of New Mexico, 2013. For trade between eastern pueblos and Apaches and Apache disruptions along the Camino Real de Tierra Adentro, see Box 7, Folder 60, Kessell Papers, CSWR, UNM. For Tewa complaints about Apache attacks, see Paul A.F. Walter, "The Cities that Died of Fear: The Story of the Saline Pueblos," (Santa Fe, New Mexico: El Palacio Press, 1931) in Box 7, Folder 47, Kessell Papers, CSWR, UNM.

paternalistic approach to the management of New Mexican pueblos, officials argued that the security of the pueblos themselves originated with the security of the missions to which they paid taxes and supplied provisions. But many Piro, Tompiro, and Tewa peoples called their bluff, and migrated northward and westward out of the valley to find new homes. For those who stayed, a sustained drought in the mid-1670s dealt the final blow. Through the first half of the seventeenth century, Spanish missions introduced new demands and management techniques for local water supplies. To accommodate Spanish harvest schedules, Puebloan peoples once largely reliant on seasonal streams from the Manzano Mountains and high plains became increasingly dependent on artificial wells and groundwater springs closer to the base of the valley. When drought struck, the wells grew dry, and the groundwater became salty. The salt lakes themselves, long central to eastern Puebloan commerce, also suffered; this was because excess evaporation and irregular hydrology disrupts the organic production and purification of salt crystals. Overburdened and under protected by Spanish rulers, Piro, Tompiro, and Tewa salt collectors abandoned the drought-ridden valley for more stable living environments. Missionaries soon followed, and the salt flats fell out of regular use for the first time in seven centuries.[36]

The abandonment of the Salinas district signaled a potential end to Spanish rule over the Puebloan world. Soon after, the 1680 rebellion rocked the upper Rio Grande and the southwestern borderlands at large. At stake was Puebloan religious, political, economic, and territorial autonomy; in the decades prior, Catholic missionaries had criminalized Puebloan worship, disempowered religious headmen, demanded taxes and tribute, and reordered land and resource use patterns. In fewer than two weeks during the summer of 1680, combatants from Taos, Pecos, Zuni, Hopi, and other northern pueblos who had pledged to revolt killed over four hundred missionaries and drove some 2,000 settlers out of New Mexico. The Pueblo Revolt did not usher in an era of pristine politics as its planners had intended, but the pueblos had made clear to the colonial state that cooperation—not conquest—would dictate Spain's place in New Mexico. In an effort to demonstrate gentler intentions, Spanish officials overhauled its tribute system, transferred greater administrative power to alcalde mayors, and issued land grants to several pueblos. Yet Spain remained reluctant to relinquish royal control over New Mexico's few mineral resources. In 1689, Governor Domingo Jironza Pétriz de Cruzate issued a land grant to the Pueblo of Zuni that encompassed economically and religiously significant sites in the Zuni Mountains, the far eastern Salt River Valley, and elsewhere. The grant did not include the Zuni Salt Lake, the home of the Salt Woman and several shrines dedicated to her, the Zuni war gods, and rain deities. Several factors may have dictated why Zunis failed to establish formal claim to the lake under Spanish law. During and after the revolt, Salineros Apaches (named so by the Spanish due to the proximity of their camps to the Zuni Salt Lake) were using the lake's southern plateau more frequently for travel and hunting. Moreover, like his predecessors, Cruzate may have revived Spanish mineral law that, by the end of the seventeenth century, nominally granted the Spanish crown exclusive title to salt resources near Paso del Norte and in the provinces of Sinaloa and Nuevo Santander.

[36] Historians, ethnographers, anthropologists, and archaeologists have long debated the abandonment of the Salinas district/Estancia Valley; historian John Kessell collected several of these materials and included them in his research collection at University of New Mexico's Center for Southwest Research. For a more accessible, published synthesis of these debates, see Wolfe, "Salinas Pueblo Missions." Paul A.F. Walter suggests that drought—and its negative impact on the Estancia Valley's freshwater and saltwater resources alike—was a primary cause of "death" for the Salinas pueblos, see Walter, "The Cities that Died of Fear" in Kessell Papers, CSWR, UNM.

Whatever the reasons, the seemingly accommodative grant precipitated a centuries-long struggle at Zuni to formally reclaim the lake and its salt.[37]

Dispossessing pueblos within proximity to salt resources constituted one of several obstacles for Spanish officials seeking to revive mineral commerce in New Mexico. Equally—if not more—pressing was the deteriorating security of commercial corridors like the Camino Real del Tierra Adentro. Imperial administrators relied upon the road to tether remote resources, distant colonial commerce, and Spanish settlements to Mexican nuclei. The rise of Comanche and Apache power in particular suffocated Spanish expectations on all sides. Prior to the Pueblo Revolt, Apache parties successfully delayed southbound salt shipments along the road, facilitating the eventual demise of Spanish control in Salinas. Following the abandonment of the Salinas pueblos, Apaches appropriated the valley, its resources, and its roadways, definitively foreclosing future colonial efforts to revive the export of salt to Parral. Apache control over salt resources came to stymie Spanish sustenance at El Paso del Norte, too, where salt flats at the base of the Guadalupe Mountains supplied the small settler enclave. In April 1692, New Mexico governor Diego de Vargas reported to the viceroy, Gaspar de la Cerda, that Apaches had taken possession of a local saline, a freshwater well, and the roads that connected both resources to the settlement at El Paso. "La salina [es] muy necesaria a esta vezindad", Vargas explained, and nearby settlers depended upon it to store food through the winter, sustain livestock, and more. The flats north of El Paso del Norte were well suited to settler sustenance; after an Apache prisoner-of-war led Vargas and a party of scouts to the flats earlier in 1692 for inspection and assessment, Vargas reported that the salt crusts reproduced themselves only a few days after mining. But settlers themselves seemed reluctant to make the journey into Apache territory. In the spring of 1709, Spanish administrators at El Paso del Norte reported that 35 "friendly Indians"—escorted by local presidio soldiers—were the sole volunteers for a salt gathering expedition bound for Cerro Hueco.[38]

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[37] For Spanish efforts to restore colonial order following the Pueblo Revolt, see Edward J. Spicer, *Cycles of Conquest: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533-1960* (Tucson, AZ: University of Arizona Press, 1967); and Joe E. Sando and Herman Agoyo (eds.), *Po'Pay: Leader of the First American Revolution* (Santa Fe, NM: Clear Light Publishers, 2005). The limitations of the Cruzate grant was a primary point of controversy in the Pueblo of Zuni's ICC appeal in the 1970s and 80s; for a transcription of the original grant, corresponding maps, and ensuing correspondence and legal dispute, see Zuni historic land documents, Box 27, Folder 8, Sophie Aberle Papers, CSWR, UNM.

[38] Don Diego de Vargas to Virrey Conde de Galve, April 7, 1692, Vol. 32b, AGN, CSWR, UNM. Tatiana Seijas argues that disruptions to Spanish commerce along the Camino Real de Tierra Adentro may be interpreted as a barometer for Indigenous power and mobility in the southwestern borderlands; see Tatiana Seijas, "The Royal Road of the Interior in New Spain: Indigenous Commerce and Political Action," in Danna A. Levin Rojo and Cynthia Radding (eds.), *The Oxford Handbook of Borderlands of the Iberian World* (New York, NY: Oxford University Press, 2019), 294-313. For Vargas's 1692 report on the thickness and quality of the salt flats north of El Paso, see May Schmidt, Carly Whelan, and Steve Carpenter, "Salt Trade, Trails, and Wars," *Texas Beyond History.* For the 1709 expedition to Las Salinas de Cerro Hueco, see documents concerning expeditions to salt fields of Cerro Hueco, March 13, 1709 and April 20, 1709, AZU Film 0318, Reel 1711a, Documentary Relations of the Southwest [DRSW], Arizona State Museum [ASM], University of Arizona, Tucson, AZ.



Figure 4. Map inset of Spanish New Mexico. The Estancia Valley (marked by four blue lakes titled "salinas") is located at the very top of this inset. Far to the left is Pueblo of Zuni (marked with a red dot and tent); immediately to the right of the pueblo is the Zuni Salt Lake (another blue lake marked "salina"). The salt flats north of El Paso del Norte are located at the bottom of the inset (marked by eight connected blue lakes titled "salinas del passo"). Source : José de Urrita and Nicolas de la Fora, *Mapa que comprende la Frontera, de los Dominios del Rey en la America Septentrional* (1769). Library of Congress Geography and Map Division, http://hdl.loc.gov/loc.gmd/g4410.ct000539.

The advance of New Spain's military frontier further into Texas brought more salt resources into Spanish purview. Civilian populations and soldiers shared a reliance on salt as a primary preservative. And like civilians, presidios in the Indigenous borderlands found themselves beholden to local Native power and distant Spanish authority alike. Martín de Alarcón, governor of Coahuila and Texas, established the San Antonio de Béxar presidio in the spring of 1718, but the presidio struggled for several years to secure access to salt for provisions. In the fall of 1720, Native informants told Texas officials that the closest exploitable salt flats lay over 300 kilometers south of San Antonio, but to trek that distance was not worth the danger. According to one report, "many tribes of very warlike Indians" controlled the salt flats, "Indians who have repeatedly prevented fifty, and even sixty, armed men from the Nuevo Reino de Leon from taking the salt." Further east, in the heart of Caddo country, Native informants proved equally significant in providing Spanish soldiers with access to salt. "The Indians" near the Spanish settlement of Los Adaes on the lower Sabine River in far eastern Texas "affirmed […] that there were some salt beds nearby." The governor promptly "dispatched a lieutenant with a party of twenty soldiers and twenty-five mules;" the party "brought back loads of a salt earth so fine that when worked it yields 50 percent salt." Military officers did not always treat so directly with Native peoples who knew where to find salt. In June 1731, Captain Gabriel Costales, commanding officer at Bahía del Espíritu Santo, requested a license from Viceroy Juan de Acuña to mine salt from Indian lands for

the presidio's use. Brigadier General Pedro de Rivera recommended against it, explaining to the viceroy that doing so would only incite rebellion among local *indios*.[39]

Civilians and presidios also reinforced one another's presence in frontier regions and within proximity to mineral resources. Wherever settlers depended upon local salt resources, military presence could be justified and provided in order to guard settler populations from purportedly "hostile" Natives who also depended upon those resources. In 1716, New Mexico governor Felix Martinez requested guards and guides to escort an expedition from Santa Cruz to "las salinas atraenzal" near Tiguas villages beyond the southern Estancia Valley. Guarded salt collecting expeditions to the Estancia Valley and nearby saline enclaves persisted through the 1730s and 40s. For five consecutive summers starting in 1744, Governor Joachín Codallos y Rabal instructed alcalde mayors at Santa Fe, Albuquerque, Santo Domingo, Santa Ana, Laguna, Pecos, and elsewhere to solicit volunteers for salt gathering expeditions into the previously abandoned Estancia Valley. According to Rabal's orders, the volunteers would be guarded by Spanish soldiers. Even in 1748, over half a century following Spain's "reconquest" of New Mexico, salt resources remained situated squarely within Indigenous borderlands.[40]

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Salt resources in the southwest had long shaped systems of settlement, sustenance, and place-making among ancestral Puebloan peoples and their descendants. The advent of Spanish colonialism transformed Indigenous peoples' relationships to salt resources in their homelands; in exploiting law, labor, and land, Spanish officials, militaries, and settlers tried to control salt resources and harness the profits of their products. Salt resources across the southwest underpinned Spanish territorial claims, the projection of royal sovereignty, and colonial commerce and sustenance in imperially remote regions. But dependency did not easily equate to domination. Indigenous pasts, peoples, and power dictated Spanish access to salt resources in the mid-eighteenth century as much as they had two centuries prior. Despite Spanish efforts to control salt resources and the diverse peoples who held deep connections to them, Native peoples' connections to local salt resources did not dissolve under the weight of Spanish rule; they continued to shape salt's future across an increasingly contested corner of the continent.

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[39] The salt expeditions at San Antonio and Los Adaes occurred during the Marques de Aguayo's 1720-22 attempt to re-establish Spanish control in Texas. During the 1700s and 1710s, France had made considerable inroads in the western Mississippi River Valley, threatening Spanish claims in the interior. When it came to salt provisions, the French, too, were beholden to Native informants and producers; it was during this period that the French began purchasing salt regularly from local Caddo salt-makers to supply Louisianan settlements and settlers. Both of the above descriptions appear in Bachiller Don Juan Antonio de la Pena's account of the 1720-22 entrada; see "Pena's Account of the 1720-1722 Entrada," in Hadley et al (eds.), *The Presidio and the Militia on the Northern Frontier of New Spain*, 408 and 427. For Costales' request and ensuing correspondence between Rivera and other officials, see Gabriel Costales, request for license to take salt from Indian lands, June 1, 1731 and July 14, 1731, AZTM, AGN, Vol. 236, DRSW, ASM, University of Arizona, Tucson, AZ.

[40] For Martinez' order, see Felix Martinez, auto, July 8, 1716, Twitchell no. 0252, Spanish Archives of New Mexico [SANM], Series 2 (access via Ancestry.com). For additional orders, see Juan Domingo Bustamenta, bandos, June 1 and 6, 1730, Twitchell no. 0357, SANM, Series 2 (access via Ancestry.com); Gervasio Cruzat y Gongora, bandos, August 18 and 30, 1732, Twitchell no. 0371, SANM, Series 2 (access via Ancestry.com); Gaspar Domingo de Mendoza, bando, September 19, 1739, Twitchell no. 0425, SANM, Series 2 (access via Ancestry.com); and Mendoza, bando, May 25, 1742, Twitchell no. 0444, SANM, Series 2 (access via Ancestry.com). For Rabal's orders, see Joachin Codallos y Rabal, bandos, various dates, AZU Film 2182, Reel 8, DRSW, ASM, University of Arizona, Tucson, AZ.

Chapter II | River

> *The Indians shew'd us a Spring of Salt Water, within a Musket Shot of us, and made us go ashore to view it. We observ'd the Ground about it was much beaten by Bullocks [bison] Feet, as they love that Salt Water.*
>
> - Henri Joutel visits La Saline on the Mississippi River, 1687[41]

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The Quapaw man pointed to the western riverbank, and the Frenchmen obeyed. After pulling their canoes up from the Mississippi's muddy waters, Henri Joutel and his companions followed Quapaw guides through stands of oak, walnut, and plum. It was late August, and the flora of the central Mississippi River Valley dripped with plums, pears, and other "wild fruit" that squished under the visitors' steps and filled their mouths with flavors sweeter than the ripest peaches. But the bountiful earth soon grew barren, the terrain having been overtrodden by hooves. A spring bubbled up at the center of the mammal-made clearing, quietly conveying brackish saltwater to the surface. The Frenchmen and the Quapaws did not linger; they shot and slaughtered a bison, packed their spoils, and pushed out from the western bank up the Mississippi River in perpetual search of an exit from the North American interior.[42]

Beneath their boots, preserved within the salty soil, the travelers trampled atop a thousand-year-old past and potential promise in saline subsistence. Since the eighth century—almost a millennia before Henri Joutel and his party stopped in the summer of 1687 at "La Saline" (the name French hunters and colonists henceforth gave to the salt spring-rich region)—peoples indigenous to the central Mississippi River Valley had worked the springs using ceramic saltpans made onsite and used to boil the spring's water into salt they could consume and sell. And long before humans, migratory mammals like bison, elk, bear, and deer visited the place to replenish their depleted sodium stores. La Saline was an especially rich salt resource; within a century of Joutel's 1687 visit, the place proved strong enough to sustain colonial commerce and consumption as far south as the mouth of the Mississippi. Still, salt-rich springs, rivers, lakes, licks, and bayous elsewhere across the broader Mississippi River Valley evinced similar patterns of shared dependency.[43]

The French were latecomers to salt's story. At least as early as the sixth century, salt resources across the continental interior informed processes and patterns of interspecies interaction, international commerce, and intracommunity industry. Like in the continental

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[41] Excerpted from "Joutel's Historical Journal of M. de la Salle's last Voyage to discover the River Mississippi" in Benjamin Franklin French, *Historical Collections of Louisiana, Embracing Many Rare and Valuable Documents Relating to the Natural, Civil and Political History of that State* Pt. I (New York, NY: Wiley and Putnam, 1846), 181-182.

[42] For further description of Joutel's initial visit to La Saline and its relevance to subsequent French settlement at Ste. Genevieve, see Carl J. Ekberg, *Colonial Ste. Genevieve: An Adventure on the Mississippi Frontier* (Gerald, MO: Patrice Press, 1985), 5.

[43] Richard Keslin's foundational study of salt-making in the central Mississippi River Valley (namely in the Saline River Valley and the nearby Kimmiswick site) dates the start of Indigenous occupancy and manual salt production at La Saline to 700; Keslin argued that the site was occupied sporadically yet, temporally, fairly consistently through 1500; see Richard O. Keslin, *Archaeological Implications on the Role of Salt as an Element of Cultural Diffusion* (Columbia, MO: *The Missouri Archaeologist* Vol. 26, University of Missouri, 1964).

southwest, these deep histories of saline dependency also dictated the trajectory of early colonization and Indigenous responses to it. Starting first with Spanish entradas in the mid sixteenth century and then French exploration in the late seventeenth century, European colonization in the Mississippi River Valley both transformed and was transformed by salt's already established significance. Europeans identified productive salt resources among the many mineral exploits that might justify colonization of the Mississippi River Valley. Treading closely in their wake came colonial hunters and traders who, like the initial interlocutors, depended upon Indigenous knowledge about, use of, and access to salt resources to sustain themselves and the colonial enterprises to which they belonged. Colonial dependency upon local salt resources deepened through the late eighteenth century as the politics of European colonization in the Mississippi River Valley became more contentious. Through the United States' annexation of the vast and resource-rich Louisiana Territory in 1803, salt resources impacted interactions among Native nations and aspiring colonial powers as much as between these increasingly diverse peoples and shared environments.

Studying and centering salt can help historians better understand continuities and changes in Indigenous and colonial life across the Mississippi River Valley. Since Louisiana's French colonial period, historians have written of the region's reputation as a land of raw abundance and its frustrating unconquerability. More modern, studies of the Mississippi River Valley by Kathleen DuVal, Daniel Usner, Morris Arnold, F. Todd Smith, and others have since demonstrated how Indigenous power, the pragmatics of colonial subsistence and frontier commerce, and broader geopolitical and environmental contexts variously helped or hindered colonial ambitions in the continental interior. Most recently, historians Sophie White, Jacob Lee, and Elizabeth Ellis have deepened our understanding of the enduring primacy of Indigenous political, ecological, and socioeconomic paradigms and practices across the broader Mississippi River Valley. Few of these studies mention salt, however. A deeper dive into both archaeological and archival sources reveals how local salt resources were critical to the history of commerce, conflict, and coalescence in the region.[44]

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[44] Antoine-Simone Le Page Du Pratz, *The History of Louisiana or of the Western Parts of Virginia and Carolina* (original, 1774) (new edition, London, UL: T. Becket, 1776) (reprint, New Orleans, LA: Pelican Press, Inc., 1947). Henry Marie Brackenridge, *View of Louisiana; Containing Geographical, Statistical and Historical Notices of that Vast and Important Portion of America* (Baltimore, MD: Schaeffer & Maund, 1817). Francois Xavier Martin, *The History of Louisiana from the Earliest Period* (New Orleans, LA: A.T. Penniman & Co. 1829). Francois Barbé-Marbois, *History of Louisiana: Particularly of the Cession of that Colony to the United States of America* (Philadelphia, PA: Carey & Lea, 1830). Benjamin Franklin French, *Historical Collections of Louisiana: Embracing Translations of Rare and Valuable Documents Relating to the Natural, Civic and Political History of that State* Pts. I and II (New York, NY: Wiley & Putnam, 1846); and *Historical Memoirs of Louisiana, From the First Settlement of the Colonies to the Departure of Governor O'Reilly in 1770* (New York, NY: Lamport, Blakeman & Law, 1853). Charles Gayarré, *Louisiana: Its History as a French Colony* (New York, NY: John Wiley, 1852); and *History of Louisiana* Vols. I, II, and III (New York, NY: Redfield, 1852). Alcée Fortier, *A History of Louisiana* Vols. I, II, III, and IV (New York, NY: Manzi, Joyant & Co., 1904). Kathleen DuVal, *The Native Ground: Indians and Colonists in the Heart of the Continent* (Pennsylvania, PA: University of Pennsylvania Press, Early American Studies Series, 2006). Daniel H. Usner, Jr., *Indians, Settlers, and Slaves in a Frontier Exchange Economy: The Lower Mississippi Valley Before 1783* (Chapel Hill, NC: University of North Carolina Press, 1992). Morris S. Arnold, *Unequal Laws unto a Savage Race: European Legal Traditions in Arkansas, 1686-1836* (Fayetteville, AR: University of Arkansas Press, 1985); *Colonial Arkansas, 1686-1804: A Social and Cultural History* (Fayetteville, AR: University of Arkansas Press, 1991); *The Rumble of a Distant Drum:* and *The Quapaws and Old World Newcomers, 1673-1804* (Fayetteville, AR: University of Arkansas Press, 2000). F. Todd Smith, *The Caddo Indians: Tribes at the Convergence of Empires, 1542-1854* (College Station, TX: Texas A & M University Press, 1995); *The Wichita Indians: Traders of Texas and the Southern Plains* (College Station, TX: Texas A & M University Press, 2000); and

More so than other salt-rich regions of North America, the Mississippi River Valley has attracted salt-focused scholarship since the early twentieth century. Archaeologists have produced pathbreaking studies of salt's significance to successive epochs of Indigenous life, economy, and settlement in the immediate Mississippi River Valley (among Late Woodland and Mississippian societies) as well as the broader western Mississippi Watershed (particularly in Caddo homelands). Much archaeological research on salt's role in the region's pre-colonial and so-called protohistoric past has effectively incorporated historical documentation with material evidence. More archivally-based studies, meanwhile, have tended to focus more exclusively on salt's role within colonial economic contexts. Traditionally historical studies of salt in the Mississippi River Valley, too, integrate some archaeological, ethnographic, and ecological evidence corroborating salt's significance to broader Indigenous and environmental contexts that dictated colonial engagement with salt resources. But these now-dated studies seldom recognize the enduring significance of Indigenous and environmental contexts through the end of the European colonial period. This chapter integrates previously isolated archival and more recent archaeological research to provide a fuller, deeper history of salt's significance to nearly a thousand years of change, continuity, and transformation in the historically dynamic Mississippi River Valley.[45]

Louisiana and the Gulf South Frontier, 1500-1821 (Baton Rouge, LA: Louisiana State University Press, 2014). Sophie White, *Wild Frenchmen and Frenchified Indians: Material Culture and Race* (Philadelphia, PA: University of Pennsylvania Press, 2012). Jacob F. Lee, *Masters of the Middle Waters: Indian Nations and Colonial Ambitions along the Mississippi* (Cambridge, MA: Harvard University Press, 2019). Elizabeth N. Ellis, *The Great Power of Small Nations: Indigenous Diplomacy in the Gulf South* (Pennsylvania, PA: University of Pennsylvania Press, Early American Studies Series, 2022).

[45] Ian W. Brown, "Why Study Salt?" *Journal of Alabama Archaeology* Vol. 50, No. 1 (2004), 36-49; "The Archaeology of Salt Springs in the Eastern Woodlands of the United States," in Shuicheng Li and Lothar von Falkenhausen (eds.), *Salt Archaeology in China: Global Comparative Perspectives, Vol. 2* (Beijing, China: Science Press, 2010), 375-409; *Salt and the Eastern North American Indian: An Archaeological Study* (Cambridge, MA: Peabody Museum, Harvard University, 1980); and *The Role of Salt in Eastern North American Prehistory* (Baton Rouge, LA: Department of Recreation and Tourism, Louisiana Archaeological Survey and Antiques Commission, 1981). David I. Bushnell, Jr., "Primitive Salt Making in the Mississippi Valley, I" *Man* No. 7 (1907). Ashley A. Dumas, "The Role of Salt in the Late Woodland to Early Mississippian Transition in Southwest Alabama," (Ph.D. Dissertation, Department of Anthropology, The University of Alabama, Tuscaloosa, 2007); and with Paul N. Eubanks (eds.), *Salt in Eastern North America and the Caribbean: History and Archaeology* (Tuscaloosa, AL: University of Alabama Press, 2021). Ann M. Early, "Salt Making," *Encyclopedia of Arkansas*, https://encyclopediaofarkansas.net/entries/salt-making-567/, and (ed.), *Caddoan Saltmakers in the Ouachita Valley: The Hardman Site* (Fayetteville, AR: Arkansas Archaeological Survey, Research Series No. 43, 1993). Paul N. Eubanks, "The Effects of Horses and Raiding on the Salt Industry in Northwest Louisiana," *Caddo Archaeology* Vol. 28 (2018), 5-20; "Salt Production, Standardization, and Specialization: An Example from Drake's Salt Works," *North American Archaeologist* Vol. 37, No. 4 (2016), 203-230; "Salt Production in the Southeastern Caddo Homeland," (Ph.D. Dissertation, Department of Anthropology, The University of Alabama, Tuscaloosa, 2016); with Ian W. Brown, "Certain Trends in Eastern Woodlands Salt Production Technology," *Midcontinental Journal of Archaeology* Vol. 40, No. 3 (2015), 231-256; "A Reconstruction of the Caddo Salt Making Process at Drake's Salt Works," *Caddo Archaeology* Vol. 25 (2015), 145-166; "The Timing and Distribution of Caddo Salt Production in Northwestern Louisiana," *Southeastern Archaeology* Vol. 33, No. 1 (2014), 108-122; "Mississippian Salt Production at the Stimpson Site (1Ck29) in Southern Alabama," *Journal of Alabama Archaeology* Vol. 59, Nos. 1 and 2 (2013), 1-21. Jon Muller, "Mississippian Specialization and Salt," *American Antiquity* Vol. 49, No. 3 (1984), 489-507; "Pans and a Grain of Salt: Mississippian Specialization Revisited," *American Antiquity* Vol. 51, No. 2 (1986), 405-409; and *Mississippian Political Economy* (New York, NY: Springer, 1997). Nancy A. Kenmotsu, "Salt Well Slough," *Bulletin of the Texas Archaeological Society* No. 72 (2001), 213-222, and *Investigations at the Salt Well Slough, 41RR204, a Salt-Making Site in Red River County, Texas* (Austin, TX: Texas Historical Commission, Archaeological Reports Series No. 4, 2005). Richard O. Keslin, *Archaeological Implications of the Role of Salt as an Element of Cultural Diffusion* (Columbia, MO: The Missouri Archaeologist No. 26, 1964). Timothy K. Perttula, Mary Beth

This chapter restores salt's depth and centrality to the *longue durée* of life, labor, and power in the region. For centuries prior to European arrival, the local abundance of salt resources anchored Indigenous peoples' attachments to place, economic autonomy, and spatial knowledge. This deeply rooted knowledge about, contemporary access to, and pluralistic use of salt resources shaped the actions, aims, independence, and interactions of Indigenous and colonial actors. Starting in the sixteenth and seventeenth centuries, salt attracted colonial interests, encouraging European exploration, exploitation, speculation, and settlement. European access to salt depended upon productive precedents established and reproduced by Indigenous peoples with ecological, technological, and spatial knowledge specific to salt resources. While European colonization transformed existing relationships to salt resources in the region in critical and novel ways, Native peoples, precedents, and paradigms continued to dictate salt's availability and value. Local salt resources thus underpinned both changes and continuities that distinguished and transformed the Mississippi River Valley through the end of the eighteenth century.

Brine, Bones, & Broken Pans: Salt in the Pre-European Mississippi River Valley

The Mississippi River flows through the continental interior like a great artery. Feeding its western banks are hundreds of rivers, creeks, streamlets, and bayous. Together, thy create an expansive alluvial of distantly transported water, continually relocated sediment, and gently upturned minerals. While the Mississippi and its western tributaries convey freshwater across the American interior, these conduits carry another essential resource: salt. Slow-flowing rivers that originate on the Great Plains, carve through the Osage Plains and Ozark Plateau, and terminate in the low-lying Mississippi Embayment flow over hundreds of miles of mineral-rich soil imbued with common salts. When and where these waterways become inert and create static bodies of water, evaporation renders typically potable water saltier and more mineral-concentrated. A geologically common mineral, salt also appears at earth's surface by way of seepage. Multi-layered deposits of halite (rock salt) streak through strata beneath the Ouachita Mountains throughout present-day Arkansas, Louisiana, Oklahoma, and Texas, along coastal Louisiana, and in eastern Missouri, where the Lower Missouri River joins the Mississippi. Here, salt moves upward with rising groundwater; as water moves through ancient geologic strata, salt dissolves easily and, upon reaching earth's surface, creates saltwater springs and brine seeps.[46]

Saltwater resources became increasingly important as ancestral North Americans consolidated into more permanent communities. During the early Archaic (roughly 10,000 years ago), the gradual stabilization of aquatic environments and regional warming encouraged communities to cluster in riverine regions where huntable game, gatherable foods, and, eventually, agricultural land were all within reach. Salt licks, springs, and seeps sometimes shaped foundational settlement patterns; archaeological recoveries of Clovis-dated hunting materials and other manufactured tools nearby saline resources in present-day Louisiana, Tennessee, and

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Trubitt, and Jeffery S. Girard, "The Use of Shell-Tempered Pottery in the Caddo Area of the Southeastern United States," *Journal of Southeastern Archaeology* Vol. 30, No. 2 (2011), 242-267. Gloria Wentowski, "Salt as an Ecological Factor in the Prehistory of the Southeastern United States," (Master's Thesis, Department of Anthropology, University of North Carolina, Chapel Hill, 1970). Arthur C. Vetch, "The Salines of North Louisiana," in G.D. Harris, A.C. Veatch, and J.A.A. Pacheco, *A Report on the Geology of Louisiana* (Special Report No. 2, 1902).

[46] Paul N. Eubanks and Ashley A. Dumas, "Introduction," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean*, 6-11. Stephanie Erin Welch, "Source(s) of Salinity in the Mississippi River Alluvial Aquifer, Iberville Parish, Louisiana," Master's Thesis, Department of Geology and Geophysics, Louisiana State University (2009).

Alabama suggest that ancestral residents of the Mississippi River Valley found naturally occurring saltwater resources by following game. In doing so, they established the foundation of an interspecies geography of saline subsistence powerful enough to dictate settlement, sustenance, and production patterns for several thousand years onward.[47]

People in the broader Mississippi River Valley began making salt during the Late Woodland Period (roughly 1,500 years ago). Salt-making began at a small scale; the earliest traces of saltworks at salines in present-day northern and southern Louisiana, southeastern Illinois, and eastern Missouri show scales of production suited to, at maximum, a few families who either lived near or occasionally traveled to salt springs, brine seeps, bayous, or brackish rivers. To boil saltwater into edible and useable salt, these early salt makers applied their knowledge in pottery making, as well as a perpetual abundance of wood for fuel, to boil saltwater to the point of evaporation. Small and often seasonally worked yet hardly rudimentary, pre-colonial saltworks across the Mississippi River Valley were veritable epicenters of production; here, hunting, timbering, pottery production, and mineral manufacture at once reproduced and reflected the highly specialized commercial and ecological contexts necessary to make salt.[48]

From its start, salt-making in the broader Mississippi River Valley was likely gendered labor. Game tracking and hunting were male-dominated practices, and wood gathering, well digging, salt scraping, and furnace maintenance may have been tasks shared across genders and age groups. But adult women possessed particular prowess in producing pottery that enabled greater, more effective salt production. In the salt-rich Ouachita River Valley, for instance, eleventh- and twelfth-century Caddo women engineered mussel shell-tempered salt pans capable of withstanding higher, more sustained amounts of direct heat; this technology allowed them to boil salty soil or water for longer periods of time without having to constantly replenish their supply or protect their wares from overheating, yielding a greater quantity and concentration of salt. They typically use baskets to mold the pans into a shallow concave shape ideal for maximizing evaporation rates. Salt pans tended to be large—capable of holding at least 10 and up to 24 liters of brine—and were made and left at saltworks themselves, where they sat atop either sunken or elevated furnaces. Blessed with particularly salt-rich homelands, ancestral Caddo women used salt resources to sustain their communities, apply their knowledge in pottery making and food production, and consequently carve an economic niche for themselves that ameliorated their contributions to Caddoan commercial livelihood.[49]

Self-supplied with the wares necessary for salt production, some early salt makers eventually worked salt resources to meet both local and more distant demands. The timing of commercialized salt production in the Mississippi River Valley evades precise estimation; salt

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[47] Eubanks and Dumas, "Introduction," in Dumas and Eubanks (eds.), *Salt In Eastern North America and the Caribbean*, 8-14. Wentowski, "Salt as an Ecological Factor in the Prehistory of the Southeastern United States." Brown, "Why Study Salt?," *Journal of Alabama Archaeology* Vol. 50, No. 1 (2004), 36-49; *Salt and the Eastern North American Indian: An Archaeological Study*; and *The Role of Salt in Eastern North American Prehistory.*

[48] Brown and Eubanks, "Certain Trends in Eastern Woodland Salt Production Technology." Brown, *Salt and the Eastern North American Indian: An Archaeological Study*; and *The Role of Salt in Eastern North American Prehistory.* Keslin, *Archaeological Implications on the Role of Salt as an Element of Cultural Diffusion.* Eubanks, Kevin E. Smith, Hannah Guidry, and Larry McKee "Prehistoric Uses of Salt and Mineral Springs in the Middle Cumberland Region of North-Central Tennessee" and Steven M. Meredith, "Salines in the Late Pleistocene Human Landscape of Southeastern North America," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean*, 21-26, 85-97.

[49] Early, "Salt Making," *Encyclopedia of Arkansas*, https://encyclopediaofarkansas.net/entries/salt-making-567/, and (ed.), *Caddoan Saltmakers in the Ouachita Valley.* Eubanks, "A Reconstruction of the Caddo Salt Making Process at Drake's Salt Works."

pans, the most concrete material evidence of salt-making, indicate limited variability in their size across several centuries of production. Archaeologists instead look to contemporary socioeconomic contexts to recover this particularly invisible aspect of salt's past. Increased demands for salt often correspond for dietary changes; all humans require salt—but to varying degrees, dependent upon climate, physiology, and dietary practices or preferences. In central North America, at the acme of North America's agricultural revolution, Late Woodland and early Mississippian peoples grew increasingly dependent on naturally sodium-poor foods like corn, beans, squash, and other agricultural products. They added salt to maximize the flavor and nutrition of their food. And while people who consumed greater quantities of animal products replenished their bodies' craving for salt by eating red meat like bison, bear, or deer, they still used salt to season or preserve food and possibly to treat and tan animal hides. These demands likely drove people to produce salt in present-day southwestern Alabama in the ninth century, central Tennessee in the eleventh century, and southeastern Illinois and northeastern Missouri certainly as early as 500 or 600.[50]

The timing and spatial distribution of salt-making materials further corroborates evidence of salt's commercial value across the pre-colonial Mississippi River Valley. Non-seasonal, permanently occupied saltworks suggest that salt-making was a year-round activity for mid (roughly 500-600) and late/terminal (roughly 800-1200) Woodland communities in present-day southeastern Missouri and central Tennessee, respectively. Elsewhere at springs and bayous in present-day southwestern Alabama (worked seasonally starting in 800) and southern Louisiana's Salt Mine Valley (worked seasonally starting in 1000), the recovery of uniformly sized molds manufactured with automatic drainage mechanisms have led some archaeologists to suggest that salt may have been molded into readily transportable, uniformly saleable quantities—an indication that salt was made to be sold or even used as a medium of exchange. Other indicators have helped archaeologists trace salt's otherwise invisible past; heavily fired stone might indicate uncommonly high frequency furnacing required to boil brine, and water-tight lidded jars and containers may have stored salt (for consumptive and even sometimes ritualistic or funerary purposes).[51]

Knowledge about, access to, and use of salt resources became all the more important to life—and, increasingly, power—following the rise and reorganization of Mississippian societies. Starting in the tenth and eleventh centuries, communities across the broader Mississippi River Valley became more politically hierarchical, more geographically distinct, more dietarily diverse, and more permanently rooted to particular places. Trade networks and once-localized economies expanded in all directions, political leaders assumed new responsibilities over resources and people alike, and rudimentary subsistence patterns morphed into new consumptive preferences and productive practices. The Mississippian era (a term referencing shared economic, political, and cultural distinctions rather than the river or physical region itself) consequently encouraged industrial specialization in salt-making. Mississippian-era salt producers resorted to already known salt resources like Castilian Springs (worked between 1200 to 1350) and French Lick (worked between 1000 and 1400) in present-day central Tennessee, salines in the Tombigbee River Valley in southern Alabama (worked between 1250 and 1550), and seeps and rivers the Ouachita River

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[50] Brown and Eubanks, "Certain Trends in Eastern Woodland Salt Production Technology." Rachel V. Briggs, "The Hominy Foodway of the Historic Native Eastern Woodlands," *Native South* Vol. 8 (2015), 112-146. Keslin, *Archaeological Implications on the Role of Salt as an Element of Cultural Diffusion.*

[51] Brown, *Salt and the Eastern North American Indian: An Archaeological Study*; and *The Role of Salt in Eastern North American Prehistory.* Dumas, "The Role of Salt in the Late Woodland to Early Mississippian Transition in Southwest Alabama."

Valley (worked between 1100 and 1500) to make salt and settle their families and communities. Salt resources provided Mississippian peoples and polities with a plurality of subsistence opportunities capable of sustaining local life, tributary provisioning, and lateral exchange.[52]

Archaeologists debate the degree to which Mississippian salt-makers embraced commercial salt production or industrial specialization. Some Mississippian salt-making sites—like those in present-day eastern Illinois and Missouri—have yielded seemingly specialized tools such as augets and molds, furnaces, and an abundance of abnormally large pans and pots. Some scholars have argued, however, that such materials do not necessarily reflect industrial specialization in salt-making; rather, salt-making might have been a more periodic or opportunistic activity conducted contemporaneously with cooking, hunting, food processing and preservation, and other subsistence activities. In an increasingly unequal world of more rigid territorial claims and greater geopolitical consolidation, salt resources might have allowed smaller communities increased autonomy. Conversely, shared use of salt resources among non-specialist or opportunistic salt makers might also have functioned as a bulwark against resource competition. At one saline affiliated with a large salt production site called Drake's Salt Works in present-day northwestern Louisiana (squarely within the Caddo homeland), a combination of cultural debris and pottery styles dated to the same period of production indicate that Caddo and non-Caddo people may have worked the saline at the same time. Site archaeologists Paul Eubanks and Ian Brown further postulate that salt-makers who shared salines may have even "elected to work in such close proximity in an effort to discourage raiding" and the stealing of salt "or to guard against territorial encroachment." Regardless of the scope, scale, or security of their industry, Mississippian salt makers produced and were receptive of important technological changes relative to salt-making. Almost continuously through the end of the Mississippian period in the sixteenth century, salt-makers periodically replaced the shape and substance of their equipment according to microecological factors such as salinity-hydration ratios, brine purity, and evaporation rates. Materially legible transformations in salt-making technology and techniques demonstrate the dynamism of salt production as well as an attentiveness to the peculiarities of salt production broadly and specific salt resources alike.[53]

At least since human origins in central North America (and especially through the eve of European colonization), salt resources provided successive generations of people with ways to sustain themselves, settle around, and secure their prosperity and place. These resources were particularly crucial in the densely populated, dynamic Mississippi River Valley through the eve of European colonization. Historically, salt resources across the region offered often small communities with, at minimum, a stable source of sustenance and, more maximally, a means by which to create new commercial opportunities for themselves. Analytically, salt resources function as sites at which scholars might access and interpret changes in diet, labor, technology, commerce,

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[52] Dumas argues for important distinctions between the political, economic, and ecological contexts that shaped Mississippian salt production across the lower and central Mississippi River Valley; see Dumas, "The Role of Salt in the Late Woodland to Early Mississippian Transition in Southwest Alabama."

[53] Jon Muller, "Mississippian Specialization and Salt," *American Antiquity* Vol. 49, No. 3 (1984), 489-507; and "Pans and a Grain of Salt: Mississippian Specialization Revisited [Reply to 'Licks, Pans, and Chiefs' by R.W. Yerkes]," *American Antiquity* Vol. 51, No. 2 (1986), 405-409. Richard W. Yerkes, "Licks, Pans, and Chiefs: A Comment on "Mississippian Specialization and Salt," *American Antiquity* Vol. 51, No. 2 (1986), 402-404. While the debate over specialization (both industrial and site/locational) is now four decades past, it continues to shape how archaeologists interpret pre-colonial salt production, Mississippian economic and political development, and salt's significance to societal (trans)formation in North America. Brown and Eubanks, "Certain Trends in Eastern Woodlands Salt Production Technology."

and other contexts of pre-colonial Indigenous life. Precisely because of salt's centrality to various matters of subsistence, settlement, and socioecological adaptation, these places and evidence of their extensive use offer an opportunity to understand changes and continuities on the eve of European invasion in North America.

Finding Naguatex: Midcontinental Exploration & Mineral Reconnaissance

Europeans who first arrived in the Mississippi River Valley in the 1530s and 40s hoped to find precious minerals and mass quantities of exportable resources that would justify imperial investment and colonization. They seldom found gold or silver, but they did find another valuable mineral: salt. Salt resources presented a conundrum for aspiring colonizers. On the one hand, they allowed sometimes starving Europeans to survive in unfamiliar places. Where and when it was abundant, salt affirmed and encouraged aspirations in potentially profitable mineral commerce. On the other hand, salt frustrated early European aims, actions, and abilities. This was largely because, like some other essential resources, Europeans' ability to find salt often depended upon Native peoples' knowledge—and their willingness to share it with outsiders. Early Europeans' ability to access exploitable resources like salt hinged upon the cooperation of Native nations who usually saw Europeans as small, seemingly temporary interlocutors in political, economic, and sociocultural networks constituted of many nations and interests. From the start, salt's ecological and geopolitical context dictated immediate and broader imperial and colonial trajectories.

Beginning in 1539, Hernando de Soto's three-year entrada across the North American south offers a revealing first glimpse into the importance of inland salt resources to early invasions. De Soto came to North America to locate labor, land, and resources sufficient for Spanish colonization. Though well-provisioned and well-armed, the expedition struggled early on to survive in American environments, especially when it came to securing a most basic subsistence staple: salt. Within months of tracing and trespassing their way across the continental southeast, Spanish soldiers soon suffered from a lack of salty foods upon which their sodium-heavy diets depended. In April 1540, when De Soto breached the province of Ocuté in present-day central Georgia, the salt-starved Spaniards abandon their dietary discretion and feasted upon "many dogs, which are esteemed among the Christians as if they were fat sheep because there was a great lack of meat and salt." "Of this there was so much need and lack in many places and on many occasions," the account continued, "that if a man fell sick, there was nothing with which to make him well; and he would waste away […] until nothing but his bones were left and he would die from pure weakness, some saying: 'If I had a bit of meat or some lumps of salt, I should not die.'" The Spaniards found little reprieve until they reached coastal South Carolina over a month later, where the *cacica* (female leader or chieftan) of Cofitachequi "gave [the expedition] many presents of very well tanned hides and blankets, all very good, and a large amount of jerked venison and dry wafers, and much very good salt."[54]

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[54] Charles M. Hudson, *Knights of Spain, Warriors of the Sun: Hernando de Soto and the South's Ancient Chiefdoms* (Athens, GA: University of Georgia Press, 2018 reprint). James Alexander Robertson (trans. and ed.), "The Account by a Gentleman from Elvas," in Lawrence A Clayton, Vernon James Jr. Knight, and Edward C. Moore (eds.), *The De Soto Chronicles: The Expedition of Hernando De Soto to North America in 1539-1543* Vol. 1 (Tuscaloosa, AL: University of Alabama Press, 1995), 77. Rodrigo Rangel (trans. John E. Worth), "Account of the Northern Conquest and Discovery of Hernando De Soto" in *The De Soto Chronicles,* 178-180. For more on the cacica of Cofitachequi, see Christina Snyder, "The Lady of Cofitachequi: Gender and Political Power Among Native Southerners," in Joan Johnson, Valinda Littlefield, and Marjorie Spruill (eds.), *South Carolina Women: Their Lives and Times* (Athens, GA: University of Georgia Press, 2009), 11-25.

The De Soto expedition continued westward until they reached the eastern banks of the Mississippi River, some six hundred miles away, without finding salt again. In the interim, some Spaniards again fell victim to extreme cases of sodium deficiency. In a particularly gruesome account from Garcilaso de la Vega, salt-deprived Spaniards began rotting away upon entry to Chicaza territory, just beyond the eastern boundary of the Mississippi River's lower basin:

> Some of those whose constitutions must have demanded salt more than others died a most unusual death for lack of it. They were seized with a very slow fever, on the third or fourth day of which there was no one who at fifty feet could endure the stench of their bodies, it being more offensive than that of the carcasses of dogs or cats … From the moment they first felt the fever, their bodies were already in a state of decomposition. Indeed, from the chest down, their bellies and intestines were as green as grass.[55]

According to Vega, "more than sixty Spaniards" died due to lack of salt over the course of a year. To alleviate these symptoms and the real possibility of death, the expedition eventually extracted an edible herbal remedy to the mortal problem of hyponatremia (sodium deficiency) from healers in the province the expedition referred to as Tascalusa:

> Some of [the Spaniards] began to die, to the great horror and consternation of their companions. In their fear many of them made use of the remedy the Indians prepared to save and help themselves in that necessity. This was that they burned a certain herb they knew about and made lye with the ashes. They dipped what they ate in it as if it were a sauce and with this they saved themselves from rotting away and dying, like the Spaniards.[56]

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[55] What Vega means by "those who constitutions must have demanded more salt" is unclear, though still noteworthy. Moreover, based on scholarship detailing the biopsychology and physiology of salt hunger and hyponatremia (sodium deficiency), it seems unlikely (though not impossible) that the afflicted Spaniards exhibited and succumbed to these symptoms solely due to a lack of salt. Humans can indeed die from sustained hyponatremia; lack of salt, typically combined with physical overexertion or malnutrition, can lead to brain swelling, shock, and transition to a comatose state, all of which can cause death. Why Vega attributed these symptoms and the resulting fatalities specifically to a lack of salt is unclear, and is worthy of further historical analysis. For primary source excerpt, see: Garcilaso de la Vega, *The Florida of the Inca: A History of Adelantado, Hernando De Soto, Governor and Captain General of the Kingdom of Florida, and other Heroic Spanish and Indian Cavaliers,* trans. and ed. By John Grier Varner and Jeanette Johnson Varner (Austin, TX: University of Texas Press, 1951, 2013), 421. For more on the biopsychological and physiological effects of salt hunger and hyponatremia, see Seth W. Hurley and Alan Kim Johnson, "The Biopsychology of Salt Hunger and Sodium Deficiency," *Pflugers Arch* Vol. 467, No. 3 (2015).

[56] Vega, *The Florida of the Inca*, 383-384. Despite the remedy's apparent efficacy in sustaining salt-deprived European bodies, "a number of our men because of their pride refused to take advantage of this remedy, for they felt that it was filthy and unbecoming to their quality, and that to imitate the Indians was base." As John Swanton notes of the same passage in *Indians of the Southeastern United States*, a similar grass-burning practice persisted among Cherokees and Chickasaws into the late eighteenth and early nineteenth centuries; one observer of the latter noted that they had "seen amongst the Chigasaws very sharp salt in christalline lumps, which they told [him] was made of a grass growing on rocks in fresh rivers." See John R. Swanton, *Indians of the Southeastern United States* (Washington, DC: Smithsonian Institution Bureau of Ethnology Bulletin 137, 1946), 300-304.

That Muscogeean peoples had a solution to hyponatremia suggests that the ailment was a familiar one. Moreover, that Vega believed salt to be the ultimate cause of the gruesome death of sixty men speaks to a temporally and culturally particular understanding of salt's effect on the human body. As for when the expedition finally found a source of salt, the Spaniards were overeager:

> There were some who in their craving for salt, seeing that there was now an abundance of it, ate it by itself in mouthfuls, as if it were sugar. To those who scolded them they said, "Let us get our fill of salt, because have had a great craving for it." Nine or ten of them ate their fill of it in such a manner that in a few days they died of dropsy.[57]

In Vega's own words, "thus some died from lack of salt and some from too much."[58]

Elsewhere closer to the Mississippi River Valley, salt was not always so readily sacrificed for European demands. When De Soto crossed the Mississippi River near present-day Memphis, "the great necessity for salt that his people were experiencing" had again scourged the expedition, "for they were dying for lack of it." The entrada thus set about seeking salt deposits and gold mines near a village Spaniards called (and its chief) Pacaha:

> In the course of this questioning he [De Soto] found eight Indians in the hands of the Spaniards who had been captured the day they entered that pueblo, and were not natives of it, but strangers and merchants who had traversed many provinces with their goods; and among other things, they were accustomed to bring salt to sell. Being brought to the governor, they told him that in some mountains forty leagues away there was a great deal of very good salt, and to the repeated questions they asked them, they replied that there was also in that country much of the yellow metal they asked for.[59]

"After eleven days of search" Spanish scouts succeeded in their mission. "To barter for and purchase the salt and the gold," two Spanish soldiers and the kidnapped merchants "took pearls and deerskins and some vegetables called *frisoles* that Capaha [sic.] had ordered to be given to them." The party came back "with six loads of rock-salt crystals, not made artificially, but found in this state" and "the Spaniards consoled themselves with the salt for their disappointment and misunderstanding regarding the gold." Spanish accounts give no indication of who lived at Pacaha's village nor the identity or origin of the "strangers and merchants" selling salt. The traders were likely Tunicas, who provisioned and sold salt among Quapaws, Caddos, Wichitas, and other central Mississippi nations (and who the expedition later identified as the residents of Tanico).[60]

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[57] Garcilaso de la Vega (trans. Charmion Shelby, ed. David Bost), *La Florida,* in *The De Soto Chronicles* Vol. 2, 410. Dropsy is a now-dated term for edema, a potentially fatal condition characterized by an excess of fluid in body cavities or tissues.

[58] Vega, *The De Soto Chronicles,* 410.

[59] Vega, *The De Soto Chronicles* Vol. 2, 407.

[60] Vega, *The De Soto Chronicles* Vol. 2, 407. For more on Tunicas' role as middlemen in salt trading on the eve of European colonization in the Mississippi River Valley, see Jeffery P. Brian, *On the Tunica Trail* (Baton Rouge, LA: Department of Culture, Recreation, and Tourism, Louisiana Archaeological Survey and Antiquities Commission, 1994).

Once on the western side of the Mississippi River, De Soto and his expedition had comparatively less trouble finding salt. Quite the opposite; salt production in the western Mississippi River Valley was not only comparatively more common but technologically developed. Pushing further into present-day Arkansas, De Soto reached the salt-rich province he called Cayas, where

> The salt is made along a river, which, when the water goes down, leaves it upon the sand. As they cannot gather the salt without a large mixture of sand, it is thrown together into certain baskets they have for the purpose, made large at the mouth and small at the bottom. These are set in the air on a ridge-pole; and water being thrown on, vessels are placed under them wherein it may fall; then, being strained and placed on the fire, it boiled away, leaving salt at the bottom.[61]

Linguistic and locational context suggest that these basket-using salt-makers in Cayas province were again likely Tunicas. But Tunicas were not the only salt specialists. Following De Soto's death in May 1542, Luis de Moscoso Alvarado led what remained of the expedition to the central Red River Valley, which Caddoes had called home for at least seven centuries. Here the expedition found the province of Naguatex, named after the Caddo term *Nawadish*, or "place of salt." Caddoes had lived at Naguatex at least 140 years prior to European arrival, reflected in the region's well-defended, well-organized villages. The defenses surprised but did not deter Alvarado; after sending the "right arm and nostrils" of a captured Caddo defender to the caddi of Naguatex, Alvarado invaded the "very extensive" village and demanded the caddi show him how and where to cross the Red River. By the time the expedition went to cross, however, "it had swollen greatly," despite the fact that "it had not rained for more than a month" in the region. The Caddoes at Naguatex "conjectured that it might be the sea which came up through the river."[62]

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[61] Excerpted from the Gentleman from Elvas' account in Edward Gaylord Bourne (ed.) *Narratives of the Career of Hernando de Soto in the Conquest of Florida as Told By A Knight of Elvas, and in a Relation by Luys Hernandez de Biedman, Factor of the Expedition* (New York, NY: A. S. Barnes and Company, 1904), 136. This translation is more clear than the translation given in the Clayton, Knight, and Moore volumes. This passage appears in a slightly different translation in the latter volume on p. 124-125.

[62] "Account by a Gentleman from Elvas" in *The De Soto Chronicles*, 143-144. In 1542, after De Soto's death at the hands of Chickasaws or Choctaws likely acting in retaliation for the destruction of Mabila, Alvarado led the expedition in search of gold as well as an outlet to Mexico. According to Caddo tribal historian Cecile Elkins Carter, "the Naguatex caddi was powerful enough to direct three other caddis and many warriors in an attack on the Spaniards," in 1542. See Cecile Elkins Carter, "Caddo Nation," *Encyclopedia of Arkansas* (2018), https://encyclopediaofarkansas.net/entries/caddo-nation-549/. The *widish* suffix also described a particularly salty region in present-day northwestern Louisiana, known today as Upper Lick. In the middle of the Upper Lick Salt Flat is Widdish Island, or "Salt Island" in Caddoan language. Upper Lick is one of several salt licks in present-day northwestern Louisiana at which archaeologists have found evidence of both seasonal and year-round salt production; for more, see Eubanks, "The Timing and Distribution of Caddo Salt Production in Northwestern Louisiana," 113. Caddo tribal historian Cecile Elkins Carter cites archaeological records that indicate "a single great Caddo settlement, within the area identified in the De Soto documents as the province of Naguatex, had persisted from about A.D. 1400 through 1788 to 1790 and that ruins of compounds in that settlement were observed and identified by members of the Freeman-Custis expedition in 1806 as the last village of the Kadohadacho." Why the Kadohadacho, a sub-polity of the Caddo Confederacy, abandoned the site in the late eighteenth century is unclear, and is worthy of investigation; see Cecile Elkins Carter, *Caddo Indians: Where We Come From* (Norman, OK: University of Oklahoma Press, 2001), 363.

Spanish stragglers came and went at Naguatex, but the Caddoes' "place of salt" remained inhabited in their wake. While De Soto's entrada was highly destructive for many Native communities, this initial European endeavor to colonize central North America was also fleeting. Coordinated European expeditions did not return to the Mississippi River Valley until 1673, when Jacques Marquette and Louis Joliet travelled southward from the Great Lakes to the mouth of the Arkansas River. Though they failed to find the Pacific passage to eastern Asia for which they searched, Marquette and Joliet's encounters in the interior legitimated further French efforts to explore and ultimately settle the French crown's claim to North American territories. This task fell to René-Robert Cavalier, Sieur de la Salle, who twice—first in 1682 and again in 1684—embarked on ambitious expeditions to claim and settle vast swaths of the continental interior for the French crown. Like De Soto a century and a half prior, La Salle depended upon Native informants to locate lucrative lands and resources; in doing so, early French explorers added to a burgeoning archival trail of ecological, economic, and geopolitical knowledge—rooted in Indigenous paradigms, practices, and precedents—about salt's place and power. This information, more immediately, reflected and reshaped Franco-Native interactions in the Mississippi River Valley and, more broadly, determined the scope and strategy of French efforts to legitimate its claims to Louisiana. And in conjunction with the accounts of initial Spanish entradas, early French reconnaissance revealed how European colonization might transform—and be transformed by—salt's enduring significance to life across the Mississippi River Valley.[63]

Like De Soto before them, French explorers in the Mississippi River Valley joined a world in flux—one in which salt resources were becoming increasingly important to matters of interspecies interaction, international transformation, and inter- and intra-community coalescence. In the century and a half between De Soto's entrada and La Salle's voyages, the immediate and residual impacts of European colonization—and Native peoples' responses to new agents, opportunities, and obstacles introduced by early European invasion, exploration, and settlement—transformed salt's political context and practical use. In the immediate Mississippi River Valley, European invasion had, by and large, disadvantaged (and sometimes devastated) small villages and nations who struggled to re-source stolen food stores or rebound from foreign diseases. Mississippian refugees joined larger, more contemporarily identifiable nations—Choctaws and Chickasaws in the eastern Mississippi Valley and Quapaws and Caddoes west of the river—who consequently expanded their territorial and substantive reach. Access to salt resources was important for expanding nations. In the case of skin- and hide-specialists like Choctaws and Chickasaws (who, by the end of the seventeenth century, had begun hunting and producing animal products for Spanish and British markets situated to their east), salt licks, springs, and bayous attracted herds of huntable game; salt might also have been used to prepare and preserve skins prior to increasingly distant exports and markets. The same was true for Quapaws, who, enabled by horses, expanded their own hunting claims and commercial interests in skin, hide, and fur

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[63] While Marquette and Joliet produced only one brief account of their 1673 expedition, members of La Salle's expeditions—namely Henri de Tonti and Henri Joutel—left more detailed records that, among many other observations of the natural and human world of the Mississippi River Valley, speak to salt's enduring significance in the wake of Spanish invasion and on the eve of French colonization. William C. Foster (ed.) and Johanna S. Warren (trans.), *The La Salle Expedition to Texas: The Journal of Henri Joutel, 1684-1687* (Austin, TX: Texas Historical Association, 1998). Melville B. Anderson (trans.), *Relation of Henri de Tonty Concerning the Explorations of La Salle from 1678 to 1683* (Chicago, IL: The Caxton Club, 1898). Compared to Joutel, whose journal offers greater detail of Indigenous life and local environments, Tonty's account of La Salle's expeditions seldom mentions any salt resources encountered by early French expeditions.

production. Expansion did not necessarily equate to territorial exclusivity. Archaeological recoveries from Bayou Sel in the Ouachita River Valley, for instance, indicate that Quapaws had moved into the region by 1650 to make salt contemporaneously with Caddo salt-makers who had periodically used local salt springs, rivers, and brine seeps since the 1200s. As historian Elizabeth Ellis writes of the early contact-era Lower Mississippi Valley, "Native nations shared access … to 'other than human relations' … like deer, fish, rivers, and salt," an "ability to exist as autonomous polities while enmeshed in webs of relationships with other peoples" that "made the region appealing for small Native nations"—and, more broadly, stabilized international and intercommunal interaction at and with universally coveted resources like salt.[64]

Besides transforming game-oriented commerce and commercial consolidation, the proliferation of horses also impacted salt-making nations in the continental interior. Like other mammals, horses require salt—not just ample grazing lands—to sustain themselves. By roughly the 1650s, newly mounted nations (Comanches, Apaches, Tejas, and others) introduced horses originally sourced from southwestern Spanish stocks to Hasinai Caddoes in present-day east Texas; Hasinais henceforth brought horses to Kadohadachos and Yatasis in the Ouachita River Valley by the 1690s and to Natchitoches in the lower Red River Valley by the early eighteenth century. Caddoes' familiarity with suitable grazing lands and local salt resources was likely central to their equine adoption. Indeed, Caddoan adoption of horses corresponds closely with an uptick in the scope and scale of salt production at salt-making sites such as Drake's Salt Works, Potter's Pond, and Little Lick all in present-day northwestern Louisiana. Notably, the archaeologically visible increases in Caddoan salt production predates the introduction and consolidation of livestock at French settlements such as Natchitoches—an indication that Indigenous salt consumption, incentivized by equestrian expansion, predated colonial demands.[65]

Small salt-making nations sometimes managed to retain their roles as production specialists through these transregional transformations. Such was the case for the Tunica, a small yet resilient nation residing immediately west of the central Mississippi River. When approached by De Soto in 1541, Tunicas had already established a reputation for themselves as salt traders, a regional specialty they clung to through a century and a half of major geopolitical change. While La Salle embarked through eastern Caddo territories in 1687, expeditioner Henri Joutel reported

> Our Indians [Caddos] explained that there was a village a day's distance on the lower stretch of the river; they called it Tonicas. This village was a friend and ally to them…Two other [Caddos] came to join us who told us they were also going to the Cappas. They were making bows and arrows to trade for other things; they were also

[64] Archaeologist Timothy Perttula writes that "Sometime after ca. 1650 in the middle Ouachita River region, the area was reoccupied by people of the Quapaw phase or Menard complex […] A Quapaw phase component has additionally been identified at the salt-making Bayou Sel site in the middle Ouachita River region." Quapaw expansion henceforth proceeded southeastward, where newly introduced French commerce prompted them to seek out additional salt resources; according to Perttula, "by 1685 Quapaw groups had begun to move into the sparsely populated lower Ouachita River basin and into Southeast Arkansas in general to exploit salt and other natural resources as part of their commerce with the French at Arkansas Post" (see Perttula, *The Caddo Nation*, 135-136 and 166). Elizabeth Ellis, *The Great Power of Small Nations*, 41-42.

[65] Eubanks, "The Timing and Distribution of Caddo Salt Production in Northwestern Louisiana," and "The Effects of Horses and Raiding on the salt Industry in Northwest Louisiana."

> taking salt in small cakes, weighing about two or three pounds each. They made it understood that the salt came from the Tonicas.[66]

Tunicas had not embraced equine culture nor commercial buffalo and deer hunting like their Quapaw, Caddo, or Wichita neighbors. But they seemed to have capitalized on the gradual uptick in salt's demand by purveying the precious substance to neighboring nations through healthy trade. Moreover, that Tunicas sold salt in uniformly sized "small cakes" suggests that the Caddoan-Tunican salt-for-weapons exchange was hardly a one-time barter; Tunicas apparently had the equipment, productive capacity, and mercantile incentive necessary to make salt for more consistent commerce.[67]

Other Indigenous polities across the western Mississippi River Valley, too, used salt as a medium exchange. When La Salle's first expedition visited an Arkansa village in 1682, the Frenchmen were "well received" by the village chief, who "sent twenty canoes with provisions" including a miscellany of meats (bison, deer, crocodile, and what expeditioner Nicolas de la Salle referred to as "Indian chicken"), dried fruits, and salt. The salt, apparently, was an imported delicacy; when the Frenchmen asked their hosts where they had found the salt, the Arkansa "responded by turning their heads" and "pointed to the setting sun […] making it understood that they knew nothing about [the salt water], having never been there." Salt was a particularly common commodity in the lower western Mississippi River Valley, where Taensa, Caddo, Koroa, and other local peoples engaged frequently in a multilateral exchange of locally abundant salt. When Henri de Tonti stayed at the Caddo village of Nachitoches in February 1690, his Taensa guides insisted they remain "some days in the village to traffic with salt, which these nations got from a salt lake in the neighborhood." Natchitoches Caddoes were still trading salt in 1699 and 1700, when Jean-Baptiste Le Moyne de Bienville joined his brother, Pierre Le Moyne d'Iberville, on two expeditions through the Mississippi River Valley; Bienville, too, noted that Natchitoches Caddoes took salt produced from the Ouachita River to sell to neighboring Koroas. Natchitoches Caddoes soon expanded their sale of salt to the French; according to another one of Iberville's relatives and co-expeditioners, Louis Juchereau de St. Denis, from 1701 onward French traders travelled to Natchitoches to procure salt "from these Indians [that] was whiter and purer than the salt that came from France."[68]

While increasingly important to matters of international exchange and interspecies dependency, people still consumed salt locally. And while men assumed primary roles in externally-oriented hunting and trading economies, women retained responsibility for sustaining their communities. When La Salle's expedition pushed into the central Red River Valley, they, like the stragglers of De Soto's expedition during the century prior, came across Naguatex, the

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[66] Joutel, *The La Salle Expedition to Texas*, 258.

[67] Brian, *On the Tunica Trail.*

[68] Account of Nicolas de la Salle (1682) in Pierre Margry, *Découvertes et Établissements des Français dans L'Ouest et dans le Sud de L'Amerique Septentrionale* (Paris, FR: Imprimerie D. Jouaust, 1876), Vol. 1, 556. Bienville, "Journal du Voyage" (1700) in Pierre Margry, *Découvertes et Établissements des Français dans L'Ouest et dans le Sud de L'Amerique Septentrionale* (Paris, FR: Imprimerie D. Jouaust, 1880), Vol. 4, 443-445. Koroas might have been both purchasers and purveyors of salt at the time of Bienville and Iberville's expedition in the Lower Mississippi Valley; in his summary of Bienville's account, John Swanton states that "Bienville met two Koroa Indians bringing salt to the Taensa on the Mississippi but later he came upon six Natchitoches who were taking salt to the Koroa, so that the latter were to some extent middle men"; see Swanton, *Source Material on the History and Ethnology of the Caddo Indian* (Washington, DC: Smithsonian Institution Bureau of American Ethnology Bulletin 132, Government Printing Office, 1942), 193. St. Denis excerpted in Swanton, *Source Material on the History and Ethnology of the Caddo Indians*, 139.

Caddoes' "place of salt." Here, Joutel noted, the salt-making process was simplified for more immediate consumption:

> They [Caddoes] have a certain type of sand that they collect near the village where we were. This place was called Naouidiche which means salt, and, from what I noted, the residents of this village have taken the name of this sand. They take a handful or two, more or less, depending on whatever they have to salt, and they put it in water for a length of time to steep. After this, they pour the water into the beans or meat that they want to salt, and this gives it taste.[69]



Figure 5. A reconstructed salt pan most likely recovered from 3HS110, the Barkman Salt Works, in present-day Clark County, Arkansas. Amateur archaeologists who visited the defunct saltworks collected sherds, which have since been reconstructed to produce the region's largest ceramic salt pan. Salvage excavations elsewhere in southwestern Arkansas have produced similar fragments. Caddo peoples made salt in this region—using these broad, shallow ceramic pans—between roughly 1100 and 1700. Source: Mary Beth Trubitt and Ann M. Early, "A Salt Processing Pan," *Arkansas Archaeological Survey* (April 2019), https://archeology.uark.edu/artifacts/salt-processing-pan/.

After cooking the beans in salted water, Joutel went on, "the good old woman took care to give" the Frenchmen their own "portion in a reed basket, and we would then peel and eat them." In preparing salted foods like boiled beans, Caddo women at Naguatex demonstrated a developed knowledge in using what might otherwise be considered unpotable water for sustenance and applied this knowledge to new commercial demands for salt. At the historically Caddo-occupied Drake's Salt Works site in present-day northwestern Louisiana, archaeologists speculate that Caddo women were singularly responsible for making salt as well as the production of salt-making tools: baskets for storage, ceramic bowls for heating, and cloth wrappings to seal pottery. At this and other salt production sites in northeastern Caddo territory, a lack of materials traditionally associated with male activity—"hunting and knapping-related materials such as projectile points, lithic debitage, and animal bones"— further suggests a gendered division of labor.[70]

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[69] Joutel, *The La Salle Expedition to Texas*, 237-238. "Naouadiche" is Joutel's (more phonetically literal) translation of what the Spanish had originally recorded as "Naguatex" during the mid-sixteenth century.

[70] Paul Eubanks, "A Reconstruction of the Caddo Salt Making at Drake's Salt Works," *Caddo Archeology Journal* Vol. 25 (2015).

Early Europeans thought of, talked about, and trekked after salt a great deal. Most simply, sixteenth- and seventeenth-century Europeans sought salt because their survival and subsistence depended upon it. They were also motivated by a desire to locate precious resources that might support more sustained European settlement, consumption, and commerce. Accordingly, they frequently noted (and sometimes participated in) both longstanding and more recently developed habits of salt production, exchange, and consumption. In doing so, they recorded important information indicating both changes and continuities in the location and utility of workable salt resources. Written accounts that resulted from Spanish and French encounters with salt resources also provide a useful supplement to archaeological indications of how salt production, exchange, and use changed—and stayed the same—following initial invasions and encounters in the continental interior. Most importantly, while salt's value had changed in noticeable ways, one reality remained constant across the first two centuries of European exploration and exploitation in the Mississippi River Valley: Indigenous politics, peoples, and paradigms determined Europeans' knowledge about, access to, and use of salt resources. This reality remained true through the following century of more coordinated attempts at colonization.

Salées & *Salaison:* Local Salt Resources & Louisianan Commerce

In ways explicit and obscure, salt resources underpinned Louisiana's reputation as a land of abundance and, by extension, French ambitions in colonizing it. Places with salt served multiple purposes for French aims in the continental interior. In their most organic and ancient function, salt resources naturally attracted game like buffalo, elk, and deer, all of which were central to France's early American commerce in hide, skin, and fur trading. Workable salt resources—places where Native peoples showed early Europeans where and how to make salt, often from brine but sometimes from more easily acquired rock salt—also assured French interests of a provision critical to preserving food for colonial populations. The most potent salt resources even suggested pockets of mineral wealth that might service markets beyond Louisiana's loosely populated enclaves. Remove salt, and colonial commerce, aims, and abilities to keep the project of Louisiana alive through the eighteenth century would have collapsed.

Early Spanish and French explorers (and those who produced contemporaneous accounts of their exploits) put local salt resources on European maps and introduced them to European minds. *Lacs de sel, eaux salées,* and *les salines* puncture French maps of Louisiana, situated among copper and lead mines, timbered territories, resource-rich river valleys, and prairies teeming with game. These maps also identified established and burgeoning Indigenous nations with strong claims to valuable resources. Along with early descriptive accounts, spatial renditions of salt's place in the continental interior illustrated a broader truth especially true to French Louisiana: Indigenous polities dominated and dwarfed their colonial counterparts. Locating salt resources therefore constituted but one prerequisite in colonizing Louisiana. When it came to accessing and using those resources in ways that serviced colonial aims, French interests and actors found themselves beholden to political, economic, and ecological realities largely beyond their control.[71]

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[71] The salt springs at La Saline are marked on several French maps starting as early as La Salle's voyages, owed to Herni de Tonti; according to David Denman's history of the place, Tonti "provided the notes for a crude map of the Middle Mississippi River Valley in the late seventeenth century" on which "he noted the location oof the stream he called "saline;" see David D. Denman, "History of 'La Saline': Salt Manufacturing Site, 1675-1825," *Missouri Historical Review* Vol. 73, No. 3 (1979), 309. Guillaume de L'Isle noted "la saline" on the northern bank of the Saline River, directly across from a "Caskaquias" village. Further south, De L'Isle also noted "Naouadiches" (Naguatex) in the heart of Caddo territory, and situated at several exploratory and commercial crossroads, as well as a "Lac de Sel" between a Tunica and several Caddo villages between the Red and Ouachita Rivers; see Guillaume

French colonization of Louisiana began in earnest in the late 1600s after explorers like La Salle and Marquette laid sweeping nominal claims to the region and its resources. One by one, trading and military outposts—including Fort St. Louis du Rocher (1682), Arkansas Post (1686), the village of Cahokia (1696), Fort Maurepas (1699), Mobile (1702), and Kaskaskia (1703)—anchored French ambitions in international diplomacy and commerce, resource exploitation, and permanent settlement. The foundation of a sizeable French colonial population floundered through the early eighteenth century; only in the 1720s and 30s did a considerable number of permanent colonists and primarily enslaved African people constitute a lasting plantation economy in Lower Louisiana. This meant that French commerce in the broader Mississippi River Valley originated in diplomacy with Indigenous nations who occupied the majority of so-called Louisiana. French futures and fates hinged upon the healthy exchange of local resources required to keep small colonial populations afloat. Thus to put local salt resources to colonial use, Europeans in the broader Mississippi River Valley remained beholden to Indigenous power, polities, practices, and precedents.[72]

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de L'Isle, "Carte de la Louisiane et du cours du Mississippi," (Paris, FR: 1718), access via Library of Congress Geography and Map Division, https://lccn.loc.gov/98685731. The same two features appear on Jacques Nicolas Bellin's map of North America; see Jacques Nicolas Bellin, "Carte de la Louisiane et de Pays Voisins," (Paris, FR: 1755-1762), access via Library of Congress Geography and Map Division, https://lccn.loc.gov/73693831. In the map accompanying his *History of Louisiana*, du Pratz noted "A Salt pit" situated southeast of an unmarked river (presumably the Saline River) and the central Mississippi River, directly across from a "French Ft." and a village of "Tamaroas & Kaskaquias"; see Le Page du Pratz, "A map of Louisiana, with the course of the Missisipi, and the adjacent rivers, the nations of the natives, the French establishments and the mines," (London, UK: T. Becket and P.A. De Hondt, 1763), access via Library of Congress Geography and Map Division, https://lccn.loc.gov/73697611. Other maps offer equally rich detail of salt resources further across and beyond territorial Louisiana. A 1720 map based on Jean Benard de la Harpe's 1718-1719 travels through Lower Louisiana and the Southern Plains identifies several salines—notably one among a "Nation de Canci" (Apaches) near the westernmost headwaters of the Red River, one nearby La Harpe's trading post in the heart of Caddo territory (near present-day Texarkana, TX), and one south of the lower Red River nearby two villages identified as "nations ayouelle" (likely near present-day Natchitoches, LA); see De Beauvilliers, "Carte de La Louisiane, vue de la Nouvelle-Orleans," (1720), access via Library of Congress Geography and Map Division, https://lccn.loc.gov/2021668639. Likewise, an earlier map by du Pratz dated to 1735 locates two "lacs d'eau sale" just east of Natchitoches on a fork of the Ouachita River; see Le Page du Pratz, "Carte de la Province et Colonie de la Louisiane, dans la partie Septentrionnal de l'Amerique" (1735), access via Library of Congress Geography and Map Division, https://lccn.loc.gov/2007633234.

[72] Kathleen DuVal makes the most explicit case for the primacy of Indigenous power relative to early Spanish and French efforts to colonize the broader Arkansas River Valley; see DuVal, *The Native Ground.* For more on the significance of subsistence-based commerce to Franco-Native interaction and settlement, see Usner, *Indians, Settlers, and Slaves in a Frontier Exchange Economy.* For one assessment of Franco-Indigenous diplomacy, see Joseph Zitomersky, "The Function of French-Native American Relations in Early Eighteenth-Century French Colonial Louisiana," *Proceedings of the Meeting of the French Colonial Historical Society* Vol. 15 (1992). For a synthetic overview of French struggles to populate and commercialize the colony of Louisiana, see "Louisiana: European Explorations and the Louisiana Purchase" (Library of Congress Geography and Map Division), https://www.loc.gov/static/collections/louisiana-european-explorations-and-the-louisiana-purchase/images/lapurchase.pdf.



Figure 6. Inset from French royal engineer de Beauvillier's *Carte de la Lousiane* (1720). De Beauvillier used the journal of Jean-Baptiste Bénard de la Harpe, who traveled up the Red River Valley in 1719, to produce this hydrographic map of Louisiana. Besides indicating the location of major contemporary Indigenous villages and nations as well as Spanish and French outposts, de Beauvillier also notes several salines nearby Caddo, Avoyelles, Apache, and other settlements. Source: de Beauvillier's, *Carte de la Lousiane, vie de la Nouvelle-Orléans* (1720). Library of Congress Geography and Maps Division, https://hdl.loc.gov/loc.wdl/wdl.15491.

Since the sixteenth century, early European searches for salt resources in the continental interior were shaped by culturally particular dietary needs. Native peoples and early European colonizers in the western Mississippi River Valley shared a dependency upon salt—a necessity of basic subsistence that encouraged communication about (and, sometimes, competition over) how and where to source salt. They also expressed common practices and understandings of the use of

salt as a flavor additive used to enhance various foods. But when it came to food preservation, consumption habits varied widely. Many Native peoples tended to dry or jerk meats, vegetables, and other perishable foods to extend their edibility. Europeans, by contrast, used large quantities of salt to preserve perishables. As English writer Daniel Coxe summarized in his 1722 account of French Louisiana:

> Salt is of great use, especially unto Europeans, without which they cannot well subsist, being accustomed thereunto from their infancy, and without which food has no relish. Besides, it is supposed that it prevents putrefaction and innumerable diseases […] It is moreover necessary to preserve fish and flesh […] In this country it may be easily and abundantly procured. We know divers places, on both sides of the [Mississippi] river, where there are many springs and lakes, producing plentifully excellent salt; and also one mine of rock-salt, almost clear as crystal […] By these, we may not only supply ourselves with what is necessary for our ordinary daily food, during the winter or other seasons, but also furnish our (I may call them neighbor) plantations in the islands (we not being very remote from them) with fish, flesh, and salt.[73]

Besides preserving food to keep people alive (especially through provision-poor periods, like a harsh winter or a poor harvest season), salt simply kept people healthy, happy, and satiated. And for Europeans in particular, salt might familiarize the flavors of foreign meats like bison; salted bison flanks and tongues, for instance, were early staples of the Louisiana diet that indicated hybrid tastes and preservation methods.[74]

While their preferred preservation methods varied, European and Native peoples in the western Mississippi River Valley also shared a taste for wild game as a primary protein source. This common dependency deepened both Native and European hunters' reliance upon local salt resources—not as sites of mineral extraction, but as prized hunting locales. Salt and mineral licks (called *glaises* or *salées* by Francophones) were, at once, sites of slaughter and sustenance. As Louisiana's first historian, Antoine-Simone Le Page du Pratz, noted with curiosity and detail:

> all cloven-footed animals are extremely fond of salt, and that Louisiana in general contains a great deal of saltpetre. And thus we are not to wonder, if the buffalo, the elk, and the deer, have a greater inclination to some certain places than to others, though they are there often hunted. We ought to therefore conclude, that there is more saltpetre in those places, than in such as they haunt but rarely. […] these animals, after their ordinary repass, fail but rarely go to

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[73] Daniel Coxe, *A Description of the English Province of Carolana, by the Spaniards called Florida, and by the French la Louisiane,* in Benjamin Franklin French, *Historical Collections of Louisiana, Embracing Translations of Many Rare and Valuable Documents Relating to the Natural, Civil and Political History of that State* Pt. 2 (second edition) (Philadelphia, PA: Daniels and Smith, 1850), 266-267.

[74] Christopher Morris, "How to Prepare Buffalo, and Other Things French Taught Indians about Nature," in Bradley G. Bond (ed.) *French Colonial Louisiana and the Atlantic World* (Baton Rouge, LA: Louisiana State University Press, 2005). Shannon Lee Dawdy, "'A Wild Taste': Food and Colonialism in Eighteenth-Century Louisiana," *Ethnohistory* Vol. 57, No. 3 (2010), 389-414.

> the torrents, where the earth is cut, and even to the clay; which they lick, especially after rain, because they there find a taste of salt, which allures them thither […] in such places they only go in quest of the salt, which to them is so strong an allurement as to make them bid defiance to dangers in order to get at it.[75]

Like their Native counterparts had done several generations prior, French hunters were quick to affix value to salt and mineral licks as hunting sites. André Pénicaut, who allegedly traveled up the Mississippi River with Pierre Le Moyne d'Iberville in 1700, stated that the expedition stopped at La Saline and "stayed for a few days […] hunting deer, where there are a large number of them because [they] love the salt." Jean Bernard Bossu made similar observations of the same place in 1753, noting that "the Illinois country is one of the finest in the world" on account of its "many salt springs, that attract the wild oxen, and the roe-bucks." The salt licks at La Saline became so popular among commercial hunters that by the turn of the nineteenth century, bison had begun disappearing from the Saline River region.[76]

Besides attracting game and functioning as a preferred preservative, salt might also have been used to treat hides, skins, and furs. Because salt prevents the development of bacteria and decay in organic material, some hide and fur treatment processes use salt as a preservative. Climate, commerce, and distance also mattered. In the continental southeast, for instance, salt became increasingly important to ensure skins remained intact while travelling over longer and longer distances, especially in humid or hot weather. Proper preservation was no doubt equally (if not more) critical in Louisiana, where humidity, heat, and damp terrain tended to corrupt organic animal materials by prompting the onset of rot. In his history of colonial salt production at La Saline, historian David Denman estimates that "a heavy hide, such as bear or buffalo, required fully one-third of its weight in salt to adequately preserve it from decay." By this approximation, a raw buffalo cow (female) hide, averaging 50 to 60 pounds, might require 15 to 20 pounds of salt; a larger buffalo bull (male) hide, which could weigh up to 90 pounds, may use upward of 30 pounds of salt. French and Indigenous hunters left little written indication as to whether they used salt to treat hides, skins, or furs. But as archaeologist Paul Eubanks has argued, the concurrent uptick in hunting and salt production among Caddo during the late seventeenth and early eighteenth centuries well proceeded the establishment of sizeable French colonial populations in the Lower Mississippi Valley; Caddo salt-makers who began making salt at protohistoric production sites like Drake's Salt Works, Potter's Pond, and other salines in northwestern Louisiana most likely did so in service of French and Indigenous hunters seeking salt to preserve game in flesh, fur, and meat.[77]

By virtue of their attraction to game and their exploitable mineral contents, many salt resources across the western Mississippi River Valley created commercial conditions ideal for

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[75] Du Pratz, *History of Louisiana.*

[76] Walter A. Schroeder, *Opening the Ozarks: A Historical Geography of Missouri's Ste. Genevieve District, 1760-1830* (Columbia, MO: Missouri University Press, 2002), 33. Pénicaut, in Margry, *Découvertes et Établissements des Français dans L'Ouest et dans le Sud de L'Amerique Septentrional (1614-1754)* Vol. 5 (Paris, FR: D. Jouaust, 1883), 413. Bossu, originally from John Reinhold Forester (trans.), *Travels through that Part of North American Formerly Called Louisiana* Vol. 1 (London, UK: T. Davies, 1771), excerpted in David I. Bushnell, Jr., "Archaeological Investigations in Ste. Genevieve County, Missouri," in *Proceedings of the U.S. National Museum* Vol. 46, No. 2042 (Washington, DC: Government Printing Office, 1914), 643. Joseph P. Key, "Indians and Ecological Conflict in Territorial Arkansas," *Arkansas Historical Quarterly* Vol. 59, No. 2 (2000).

[77] Denman, "History of La Saline, Missouri," 310. Eubanks, "The Timing and Distribution of Caddo Salt Production in Northwestern Louisiana."

hunters to slaughter and preserve game in one place. Running parallel to the Mississippi through present-day eastern Missouri and Arkansas, the St. Francis River region attracted animals and hunters alike. As Daniel Usner describes them, the heavily forested, well-watered, and, notwithstanding, mineral lick-rich St. Francis Basin invited professional hunting from early in the eighteenth century, making it one of the few places in French Louisiana that fostered "geographical specialization and long-distance transportation" unique to commercial—rather than strictly subsistence—production activities. Indeed, Du Pratz reported that the region was "always covered with herds of buffaloes, despite the hunting expeditions made to the region every winter" where "the French and the Canadians go to lay in stores of salted meats for the inhabitants of the capital and the neighboring plantations." According to Du Pratz, French hunters hired "Arkansas natives" just "for this purpose." Native hunters instructed their French counterparts in a timber-intensive method of meat preservation by using trees to make pirogues, "the middle of which they use for a salting tub […] closed on both ends, leaving enough room for only one man at each end." Once salted, bison, venison, bear, and other meats were left to cure until the salt created an insulative layer that prevented water—and therefore bacteria—from corrupting the flesh.[78]

The joint exploitation of salt resources and sodium-seeking game also thrived along the Black River in present-day northeastern Arkansas. Here, according to Du Pratz, "the Indians come a great way off […] to hunt in the winter, and make salt." Native hunters—likely Caddoes, Quapaws, Tunicas, and other peoples with knowledge about salt production in the immediate region—had made these trips well "before the French trucked coppers with them," reported Du Pratz, and "they [Indians] made upon the spot pots of earth for this operation" before "they returned home loaded with salt and dry provisions." Quapaws seemed particularly adept at capitalizing on colonial demands for salted buffalo meat. Quapaw hunters, for their part, were among the few Plains-based peoples who jerked and salted their meat—a practice possibly attributable to the relative abundance of salt resources within the hunting territories they claimed during the seventeenth and eighteenth centuries. After travelling through the central Mississippi River Valley in 1727, Paul ("Father") du Poisson observed that Quapaws "at the end of the summer ascend the Mississippi for two or three hundred leagues" to hunt bison and "make *plats cotés*, —that is to say, they dry in the sun the flesh that is on the flanks of those animals, —and salt the rest;" come spring, "they descend the river and supply the Colony with meat."[79]

Beyond the immediate Mississippi River Valley and across the buffalo-rich Plains, hunters used salt resources and riverways to carry out longer distance commerce and carve a commercial niche in salted meat production. Just west of the Ouachita Mountains, near the present-day Oklahoma-Arkansas border, Salisaw Creek and Bayou derived its name and reputation (a derivation of *salaison*, meaning "salted meat," or possibly *salés eaux*, meaning "salted waters") from hunters who went there to make salted meat. Just further west, Osage and French hunters also flocked to a place later called Grand Saline at the forks of the Neosho (Grand), Arkansas, and Verdigris rivers (also known as Three Forks) in present-day eastern Oklahoma and Rock Saline on the Cimmaron River in present-day southern Kansas. Here they hunted, processed hides, and used readily available rock salt to preserve meat in salt for export to Arkansas Post and New Orleans. The Arkansas River provided Plains hunters with a convenient conduit by which to convey typically bulky salted meat products to French markets further easter. In 1739, a French expedition

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[78] Usner, *Indians, Settlers, and Slaves in a Frontier Exchange Economy*, 174. Du Pratz, *History of Louisiana.*

[79] Du Pratz, *History of Louisiana.* Du Poisson excerpted in Reuben Gold Thwaites (ed.), *The Jesuit Relations and Allied Documents: Travels and Explorations of the Jesuit Missionaries in New France, 1610-1719* Vol. 67 (Cleveland, OH: The Burrows Brothers Company, 1900), 285; see also DuVal, *The Native Ground*, 79.

traveling up the Arkansas in search of its source encountered "a cabin of Canadians, who were hunting for salted meats" at the Three Forks. From there, the hunters loaded their "*pirogues de salaison*, with which they went to Fort Arkansas [Arkansas Post] and from there to New Orleans." The following year, "a boat from Arkansas arrived" at Fort St. Francis in eastern Arkansas to provision "eight thousand pounds of *salaison*" to the troops stationed there to fight Chickasaws. According to another French source, "hunting, salting meats, and trade in tallow and bears' oil"—most of which was exported downriver to New Orleans—remained hallmark industries at Arkansas Post through 1750 and beyond. When British captain Philip Pittman visited the Post in 1765, he noted that the "people subsist mostly by hunting, and every season send to New Orleans great quantities of bear's oil, tallow, salted buffaloe meat, and a few skins." Even in 1802, a French visitor to Arkansas Post noted the place consisted mostly of "women, children, and old people […] The men go hunting for deer […] for buffalo, which they salt for their use."[80]

Besides the lateral trade that bound the buffalo- and mineral-rich Plains to New Orleans, salted meat exports also tethered together Upper and Lower Louisiana. In 1722, hunters in Lower Louisiana trafficked 5,000 pounds of salted buffalo meat—yielded from some 80 buffaloes—through Point Coupée near the confluence of the Red and Mississippi Rivers, where it was shipped southward for sale and consumption in New Orleans. Arkansas, too, provided increasingly large quantities of salted buffalo products to colonial enclaves in the Mississippi River Valley. By the end of the 1720s, Illinois hunters were also involved in the salted meat market, shipping hundreds of pounds of salted venison, beef, and buffalo south from the Ste. Genevieve district in present-day northeastern Missouri. Most conveniently, Ste. Genevieve encompassed the salt-rich region that had become widely known as La Saline, by virtue of its high potency salt springs. Kaskaskia peoples had lived near and worked the springs since 1703, attracting the interest of a small number of French settlers and, more critically, of Upper Louisianan hunters looking for a convenient commercial outlet. Bénard de la Harpe was travelling up the Mississippi River in 1722 when he encountered two pirogues bound from the Illinois country for New Orleans and brimming with 5,000 pounds of salted buffalo meat. The trans-colonial trade in salted meat products soon boomed; by 1732, residents of Upper Louisiana and Illinois were exporting an annual 20,000 pounds of salt beef and 600 to 700 salted hams.[81]

The export of salted wild game products from Upper Louisiana and other colonially sparse districts to (at least comparatively) more populated Lower Louisiana depended upon matters of cooperation and climate. In present-day central Missouri, a widely known salt spring on the Lamine River in present-day central Missouri attracted game herds, hunters, and amateur salt-makers. But its diverse dependents had to hunt, tread, and toil attentively; the springs sat beside "a noted warpath to the Osage villages, alternately traversed on their forays by the Saukees, Foxes and Osage villages." By one early historian's assessment, amicable relations among Native peoples and French settlers, merchants, and hunters in Upper Louisiana apparently allowed colonists to secure salt necessary to carry out a reliable trade in *salaison* through the 1720s and 30s. Even when and where peace prevailed, French interests were sometimes hampered by climactic and

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[80] John C. Branner, "Some Old French Place Names in the State of Arkansas," *Arkansas Historical Quarterly* Vol. 19, No. 3(1960), 191-206. Margry, *Découvertes et Établissements des Français dans L'Ouest et dans le Sud de L'Amerique Septentrional* Vol. 6, 466. Arnold, *Rumble of a Distant Drum*, 34-35, 42-43, 143.

[81] For the 1722 export estimate, see Nancy Maria Surrey, "Commerce of Louisiana During the French Regime, 1699-1763," PhD Dissertation, Department of Political Science, Columbia University, 1916, 253. For La Harpe and the 1732 export estimates, see Denman, "History of La Saline, Missouri," 311.

transportational tribulations. In 1733, for instance, a 6,000-pound shipment of salted meat, which had been cured with salt "of inferior quality," spoiled prior to arriving in New Orleans.[82]

Locating, processing, and preserving wild game constituted but one critical component of the increasingly commercial relationship between people, mammals, and salt resources. By the midcentury, the gradual albeit steady growth of colonial populations in the immediate Mississippi River Valley introduced another major source of demand for salt: livestock provisioning. From the start of colonization, Native peoples and early Europeans shared an understanding of mammalian sodium dependency, indicated by the importance of salt licks to Indigenous and European hunting patterns and practices. And during the seventeenth century, the proliferation of domesticated horses into the western Mississippi River Valley had a noticeable impact on the scope and scale of salt production, especially among salt-making Caddoes. The same proved true for eighteenth-century Louisianans who brought cattle, oxen, goats, and other salt-loving mammals to the region, the majority of which originated from westward Spanish settlements. Though many Europeans across Louisiana apparently depended heavily upon hunted (and salted) meat for their protein intake, colonial enclaves—where people tended to live in one place year-round, where grazing land could be fenced, and where French products could be delivered more immediately—offered opportunities for the import, rearing, and eventual consumption of livestock. In 1708, the small smattering of Louisianan settlements hosted a meager 50 milk cows, 40 calves, 4 bulls, and 8 oxen; by 1724, those numbers blossomed to 1,100 cows and 300 bulls concentrated around rapidly and recently populated places like Mobile. New avenues of inter-imperial commerce also fostered Louisiana's embrace of animal husbandry. After Louis Juchereau de St. Denis established an international trading post at Natchitoches on the Red River in 1714, Spaniards, Apaches, Caddoes, Comanches, Wichitas, Tunicas, Avoyelles, and other peoples used Louisiana as an outlet through which to traffic an excess of mules, horses, oxen, and other sodium-dependent stock animals. By 1748, the multi-nationally conducted eastward movement of domestic mammals improved Louisiana's stock numbers to an estimated 10,000 head of cattle alone. Even if livestock were not given salt for sustenance, their multiple byproducts—butchered meat, hides, and dairy—most always required the addition of salt.[83]

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[82] Historian Joseph Zitomersky argues that while Louisiana shared a dependency upon a diversely constituted commercial hunting economy with French Canada, the colony's socio-spatial arrangement was distinguished by a "pervasive pattern of dual French and Native settlements;" rather than being separated into regions of distinctively Indigenous or distinctively French settlement and commerce (as was the case in Canada), Zitomersky argues that Franco-Native interaction occurred "along locally collective lines, in spheres of activity more particularly concerned with daily life: subsistence, family building, or labor generally;" see Zitomersky, "The Function of French-Native American Relations in Early Eighteenth-Century French Colonial Louisiana," 155, 157. Louis Houck, *A History of Missouri, From the Earliest Explorations and Settlements until the Admission of the State into the Union* Vol. 1 (Chicago, IL: R.R. Donnelley & Sons Co., 1908), 230. Surrey writes that "in 1729 the Illinois country had a fine harvest" of colonial provisions; Surrey further states that "it began to be asserted that as soon as that part of Louisiana had become well established and free from Indian turmoil, it would be able to furnish flour and salt meat sufficient in quantity to supply the whole colony" and that "this belief was strengthened by the large quantities of both of these products then being brought to New Orleans from the Illinois country;" see Surrey, "The Commerce of Louisiana During the French Regime," 289.

[83] G.A. Bowling, "The Introduction of Cattle into Colonial North America," *Journal of Dairy Science* Vol. 25, Iss. 2 (1942), 129-154. Charlotte Jones, "Conveyors of Creolization: Animal Husbandry Practices in Louisiana, 1716-1822," *Louisiana History: The Journal of the Louisiana Historical Association* Vol. 62, No. 1 (2021), 33-60. The movement of Spanish-origin livestock across the Southern Plains and into the Lower Mississippi River Valley constituted, along with commercial hunting in the broader St. Francis Basin, what Usner identifies as the "two sets of production activities" that "involved geographical specialization and long-distance transportation"—and therefore

Elsewhere, the gradual increase in colonial populations throughout the Mississippi River Valley encouraged some French settlers to start making salt themselves. Such was the case at La Saline at the confluence of the Meramec and Mississippi Rivers. Situated at the cusp of Upper and Lower Louisiana, the region's uncommonly brackish springs had attracted salt-makers since the eighth century. When André Pénicaut stopped there to hunt in 1700, he claimed that both "the French and Illinois [came] to get their salt" from the springs. Indeed, in 1703, Kaskaskias from the southwestern Great Lakes region had established their own village there to make salt and trade. In subsequent decades, a slow stream of French miners, traders, and, eventually, farmers into Upper Louisiana rendered the region appealing enough for settlement. By 1744, the salt springs themselves were nominally claimed, managed, and leased by lead miner and proprietor Antoine de Gruys Verloins, who leased production rights to a small number of French families. While the settlement never exceeded one hundred people, La Saline's value waxed through subsequent years of warfare. After the outbreak of the Seven Years' War in 1754, La Saline—and the adjacent settlement of Ste. Genevieve, founded by 1735—"sent annually a convoy of about sixteen boats loaded with biscuits, corn, oil, lard, tallow, tobacco, salt, powder and bullets to the French posts that were surrounded by hostile Indians."[84]

La Saline was an anomaly. Free-laboring Europeans and enslaved African-descended peoples in Louisiana worked primarily in agriculture and, less frequently, in lead and copper mining, lumbering, and other minor industries. Native peoples, for their part, continued to use familiar and new salt resources to their commercial advantage. Caddoes in the Red, Ouachita, and Sabine River regions had been among the first to respond to new demands for salt; they did so by expanding production at previously used saltworks and by establishing new ones at unworked salines, springs, bayous, and brine seeps. In 1719, for instance, Caddoes sold 200 pounds of fine salt to French traders at nearby Natchitoches and Arkansas Post, from whence the mineral was shipped downriver for sale in New Orleans. Caddoes also operated a small yet sizeable saltworks at the Salt Well Slough site (near present-day Texarkana) on the Red River through at least the 1750s. That Native salt-making remained vital to Louisianan commerce near through the conclusion of French rule demonstrates the degree to which France's colonial project—its people, commerce, and grander geopolitical importance—in the Mississippi River Valley depended upon the cooperation and enduring power and prosperity of Native peoples familiar with those resources.[85]

Through the second half of the eighteenth century, French colonial commerce and ambitions in Louisiana clung to life largely because of salt. At their most useful, local salt resources allowed French and Indigenous hunters to source and preserve wild game products that bound

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stood apart as distinctively commercial industries in a predominantly subsistence- or semi-subsistence-based world; see Usner, *Indians, Settlers, and Slaves in a Frontier Exchange Economy,* 174.

[84] Denman, "History of La Saline, Missouri." Surrey, *The Commerce of Louisiana During the French Regime,* 298.

[85] Nancy A. Kenmotsu, "Salt Well Slough," *Bulletin of the Texas Archaeological Society* No. 72 (2001), 213-222; *Investigations at the Salt Well Slough, 41RR204, a Salt-Making Site in Red River County, Texas* (Austin, TX: Texas Historical Commission, Archaeological Reports Series No. 4, 2005). In more recent scholarship, Kenmotsu takes care to explain why salt production remained quantitatively small among Caddoes in the Red River Valley; while the material remains of early colonial Caddo salt-making in the region indicate little more than local production, other factors and additional scholarship (see Eubanks) indicate that this might not necessarily correlate to a lack of interest in commercial salt production. For more, see Kenmotsu and Timothy K. Perttula, "Prehistoric Salt Making Writ Small: An Ancestral Caddo Example from East Texas," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean,* 113-123. Eubanks, "The Timing and Distribution of Caddo Salt Making in Northwestern Louisiana;" and "Salt Archaeological in Northwest Louisiana," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean,* 123-137.

backcountry commerce to colonial subsistence. Salt also supported animal husbandry and, in few instances, encouraged Europeans to settle near salt resources suited to commercial production. Eventual changes in settlement and production patterns heralded an important transitionary moment for salt's value to colonial aims in the region; the coming and conclusion of the Seven Years' War (1754-1763) coincided with the gradual decline in French fur trading and corresponding uptick in agricultural production in more tightly settled areas like Lower Louisiana. More concretely, the war's political fallout—including the 1762 Treaty of Fontainebleau and the 1763 Treaty of Paris—redistributed French territories in the continental interior to the Spanish and British crowns. Their political, commercial, and legal worth changed, but salt resources in Spanish Louisiana remained essential to many peoples, powers, and polities.[86]

From *Saline* to *Salina*: Situating Salt in the Spanish-Era Mississippi River Valley

The transition from French to Spanish rule in Louisiana precipitated two major changes that directly and indirectly shaped and were shaped by the territory's salt resources. The first was the Spanish government's investment in immigration. Starting with Acadian refugees who began migrating to Louisiana during the Seven Years' War (1754-1763), a diversity of European migrants—Spanish, French, British, German, and various Euro-American people—prompted an unprecedented 500% percent population increase, from roughly 7,500 colonists in 1763 to 50,000 in 1803. A small yet burgeoning planter and proprietary class frustrated early Spanish administrators; only after Louisiana's 1768-69 *criollo* insurrection did Spanish authorities manage to implement Spanish commerce, military, judicial, and ecclesiastical power. Increased immigration and its malcontents—and the perpetual prospect of another war with Britain—necessitated the second major change in colonial rule in Louisiana: its militarization. Starting with Governor Bernardo de Gálvez's tenure in 1769 and lasting near through the end of Esteban Miró's administration in 1791, Spanish officials established and armed outposts across Louisiana to protect Euro-American commerce, settlers, and political interests. At the same time, Spanish officials encouraged settlers to pursue local production—agriculture, mining, and other permanent, resource-oriented industries—that supported imperial autonomy and interterritorial commerce. Especially during and after the American Revolution (1776-1783), militarization, immigration, and commercial transition all mutually reinforced one another; Spanish officials offered outpost-adjacent lands to Euro-American settlers (increasingly those from the newly founded western United States) to justify Spanish military investment and to facilitate Louisiana's transition away from international trade and toward domestic industry. Collectively, these changes established new contexts, opportunities, and attitudes regarding power, property, and commerce in Louisiana.[87]

Less clear is the degree to which the transition to Spanish rule in Louisiana impacted matters of mineral ownership and saline proprietorship. As explained in Chapter One, Spanish colonialism in the Americas depended upon the exercise of the crown's absolute sovereignty to

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[86] "Louisiana: European Explorations and the Louisiana Purchase" (Library of Congress Geography and Map Division).

[87] Gilbert C. Din, "Spain's Immigration Policy in Louisiana and the American Penetration, 1792-1803," *Southwestern Historical Quarterly* Vol. 76 (1973), 255-276. Michael T. Pasquier, "French Colonial Louisiana," *64 Parishes* (August 4, 2011), https://64parishes.org/entry/french-colonial-louisiana. "Louisiana: European Explorations and the Louisiana Purchase" (Library of Congress Geography and Map Division). Paul E. Hoffman, "A Confusion of Institutions: Spanish Law and Practice in a Francophone Colony, Louisiana, 1763-circa 1798," *Tulane European and Civil Law Forum* Vols. 31 and 32 (2017), 1-20. Ralph Lee Woodward, Jr., "Spanish Commercial Policy in Louisiana, 1763-1803," *Louisiana History: The Journal of the Louisiana Historical Association* Vol. 44, No. 2 (2003), 133-164.

claim and control access to minerals like gold, silver, lead, and salt. In theory, this legal model prevented private monopolies over mineral resources and ensured at least part of their derived revenue filled royal coffers. The French crown, too, used its absolute sovereignty to claim Louisianan territory in its entirety. But France otherwise lacked any explicitly articulated policy concerning mineral rights and properties in Louisiana; this was, in part, due to the colony's peculiar legal status as a crown-chartered territorial possession administered by private companies, namely John Law's Company of the West (later known as the Company of the Indies). It was also because Louisiana barely generated enough commerce even to sustain itself, let alone generate sizeable amounts of royal revenue. Backed by crown authority, the company distributed lands and resources to political allies and commercially reliable upstarts. Salt resources (such as the springs and lands that made up La Saline) wound up in the hands of elite French and Creole entrepreneurs, and remained so through the transition to Spanish rule.[88]

In some noteworthy instances, Spanish administrators took it upon themselves to clarify the murkiness of mineral ownership in formerly French territories. In 1796, for example, one Mr. Morrison complained to Joseph (more commonly known as "the Marquis") de Maison Rouge, a prominent local proprietor, that Governor Miró had "promised him" a "quantity of land" on Bayou Bartholomew (in present-day western Arkansas) to settle "sixteen families of Americans" at least partly—if not exclusively—employed in the establishment of a saltworks. For reasons unknown, according to Morrison's complaint, Miró's successor, Governor Carondelet, demurred on his promise; the saline Morrison claimed to discover and aimed to settle remained "in the dominion of the king." That same year, another settler in Lower Louisiana alleged that Miró had "granted him 2,000 arpents of land between the Rapid and Natchitoches" on the Red River "on the condition that he [the awardee] should [establish] a salt-work, for which, [Miro] gave him in particular the lands necessary for this establishments." But Spanish officials again declined to recognize the awardee's claim or complaint. Instead, they countered that "this gentleman, for six years" since the alleged land award, had not "fulfilled in any manner, any of the conditions" Spanish mineral law required of settlers aiming to use crown mineral holdings for gainful industry. While sparse, these examples indicate that Spanish law—and administrative enforcement—did bar some eager settlers in Spanish Louisiana from privatizing salt resources. But by and large, commercially dependable salt resources remained ensconced in a web of weakly-woven legal ties that mattered little so long as commerce remained steady.[89]

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[88] Morris S. Arnold, "The Significance of the Arkansas Colonial Experience," *Arkansas Historical Quarterly* Vol. 51 (1992), 69-82; and *Unequal Laws unto a Savage Race.* Pasquier, "French Colonial Louisiana." Walter A. Schroeder, *Opening the Ozarks*, 255-264. Carl. J. Ekberg, *Colonial Ste. Genevieve*, 158-161.

[89] Folder 3, Mss. 2438, Juan Filhiol Correspondence, Special Collections, Louisiana State University [hereafter "Special Collections, LSU"]. Folder 4, Filhiol Correspondence, Special Collections LSU. The handwriting on these documents fails to state explicitly with whom Maison Rouge communicated regarding both claims, but it was almost certainly Juan Filhiol, then commandant at Fort Miro on the Ouachita River; Miro appointed Filhiol to the position in 1783 in the hopes that Spanish military presence in the region would foster Spanish settlement and commerce. For more on Filhiol's role in the attempted colonization of the Ouachita River Valley, see Debra Polston, "Don Juan Filhiol," *Encyclopedia of Arkansas,* https://encyclopediaofarkansas.net/entries/don-juan-filhiol-3539/; and Samuel Dorris Dickinson, "Juan Filhiol at Écore à Fabri," *Arkansas Historical Quarterly* Vol. 46, No. 2 (1987), 133-155. These salt-making grants seem to have been made on lands formally granted from Spanish possession to Joseph de Maison Rouge. Maison Rouge had been exiled from France during the French Revolution and was subsequently granted land in Louisiana; his endeavor to colonize sparsely European-populated land in Lower Louisiana was among several private colonization schemes that failed. For more on Maison Rouge and the political context of private land awards in Lower Louisiana during the final two decades of Spanish rule, see Jennie O'Kelly Mitchell and Robert Dabney Calhoun, "The Marquis de Maison Rouge, the Baron de Bastrop, and Colonel Abraham

As colonial Louisiana's singular commercial saltworks, La Saline offers a particularly revealing glimpse of changes and continuities in salt's significance to international interaction through the prolonged, piecemeal Hispanicization of Louisiana. The uncommonly potent salt springs at La Saline had first been worked since roughly 750 by Middle Woodland peoples, who had been making salt in present-day eastern Missouri since at least 500. Subsequent generations of Mississippian salt-makers settled at and made salt here, and hunters, too, resorted to the area well through the post-Mississippian and early colonial period. After Quapaw hunters first introduced the place to French interlocutors in the 1680s, La Saline slowly but steadily became a critical vector for French settlement and commerce in colonial staples like salt, salted meat, flour, and lead. The salt springs at La Saline had been owned and leased by French citizens since 1744, starting with Antoine de Gruy who first became acquainted with La Saline by way of his investments in lead mining. Through the 1750s and early 60s, de Gruy, Daniel Boulin, and successive proprietors leased access to the springs themselves and the land around them to the few French families (a number which never exceeded one hundred people). Local power—rather than lofty imperial oversight—dictated the prospects and prosperity of La Saline's French settlers; rather, as historian Walter Schroeder describes it, "the making of salt was officially viewed similarly to the mining of lead through prescriptive rights." This reality of remote French colonial commerce in Upper Louisiana fostered intra-dependency amongst settlers. Soon, "the Saline Valley came to be dominated by large landholdings whose owners made it uninviting, if not impossible, for others to live there independently."[90]

While the immediate area of La Saline remained sparsely populated through much of the eighteenth century, it abutted the more prosperous Ste. Genevieve district—and invited at least a little jealousy from the opposite bank of the Mississippi. The Spanish, Captain Thomas Stirling reported to General Thomas Gage from nearby Fort Chartes in a 1765 letter, "have the advantage of the Salt Springs, and Lead Mines with which this Colony is Supplied, on their Side, none of those has yet been found here." British jealousy was well founded; the small contingency of elite settlers responsible for salt production in Spanish Louisiana leveraged their local authority to influence trans-Mississippian commerce. In August 1771, landowner, lead miner, and salt-maker François Vallé suggested to then Spanish governor Pedro Piernas that "Englishmen from the east side of the Mississippi be prohibited from extracting salt"—a suggestion that, by historian Carl Ekberg's assessment, kept "with the mercantilist doctrine espoused by eighteenth-century monarchs" and pursued by Spanish Louisianan officials. These international commercial conditions created opportunities for elite proprietors at La Saline to turn even greater profits "by selling salt to the British"—and other dependents—"rather than permitting them to extract it for themselves."[91]

Morehouse – Three Ouachita Valley Soldiers of Fortune: The Maison Rouge and the Bastrop Spanish Land Grants," *Louisiana Historical Quarterly* Vol. 20 (1937).

[90] Michael K. Trimble, Teresita Majewski, Michael J. O'Brien, and Anna L. Price, "Frontier Colonization of the Saline Creek Valley," in John A. Walthall (ed.), *French Colonial Archaeology: The Illinois Country and the Great Lakes* (Urbana, IL: University of Illinois Press, 1991), 165-188. Schroeder, *Opening the Ozarks*. Ekberg, *Colonial Ste. Genevieve*.

[91] Stirling to Gage excerpted in Denman, "History of La Saline, Missouri," 313. Stirling's jealousy regarding Spanish mineral properties west of the Mississippi were soon quieted; in the following two chapters, this dissertation explains how Anglo-American surveyors soon located, entered, and worked commercially viable salt resources in the Ohio River Valley. Vallé to Piernas excerpted in Carl J. Ekberg, *François Vallé and His World: Upper Louisiana Before Lewis and Clark* (Columbia, MO: University of Missouri Press, 2002), 203.

Personalized proprietorship at La Saline appeared to have remained the norm through the transition from French to Spanish administration in Louisiana. After the concession to La Saline "passed through several confusing ownerships," the majority of the region's saline, timber, and tillable land ended up in the hands of Henri Peyroux de la Coudrenière by 1787 when he assumed the position of commandant at Ste. Genevieve. Peyroux pursued productivity with ambition and aggression; he posted notices at Ste. Genevieve and as far as Kaskaskia requiring "anybody desiring to acquire land at the Saline, either for the purpose of building or of tilling the soil and raising cattle" had to appeal to Peyroux. As for prospective salt-makers, Peyroux offered "several years' credit" and assured potential purchasers that they "shall be permitted to draw water at the Saline, to make salt, and to cut timber for building and heating purposes on all lands which are not closed." Perhaps because the springs were worked so productively under Peyroux's ownership, Spanish officials allowed the Creole proprietor to continue leasing mineral rights and land at their own volition. Peyroux consequently retained ownership through 1803, during which production at La Saline expanded from the Grand (or Vieux) Saline to include La Petite Saline. So successful was La Saline in producing salt, fostering riverine commerce, and attracting settlement to the Ste. Genevieve district that Peyroux even made a case to Spanish officials to make La Saline a district post, subsidized by Spanish money, military power, and political support. Peyroux's plan never materialized, but his appeals to Spanish governors Miró and Carondelet reflect the region's unprecedent prosperity through the turn of the century.[92]

[92] Schroeder gives the most thorough explanation of ownership at La Saline to date; see Schroeder, *Opening the Ozarks*, 255-264. For Peyroux's advertisements, see Lawrence Kinnaird (ed.), *Spain in the Mississippi Valley, 1765-1794, Vol. III (Pt. II): Post War Decade, 1782-1791,* Annual Report of the American Historical Association (Washington, DC: United States Government Printing Office, 1946), 252.

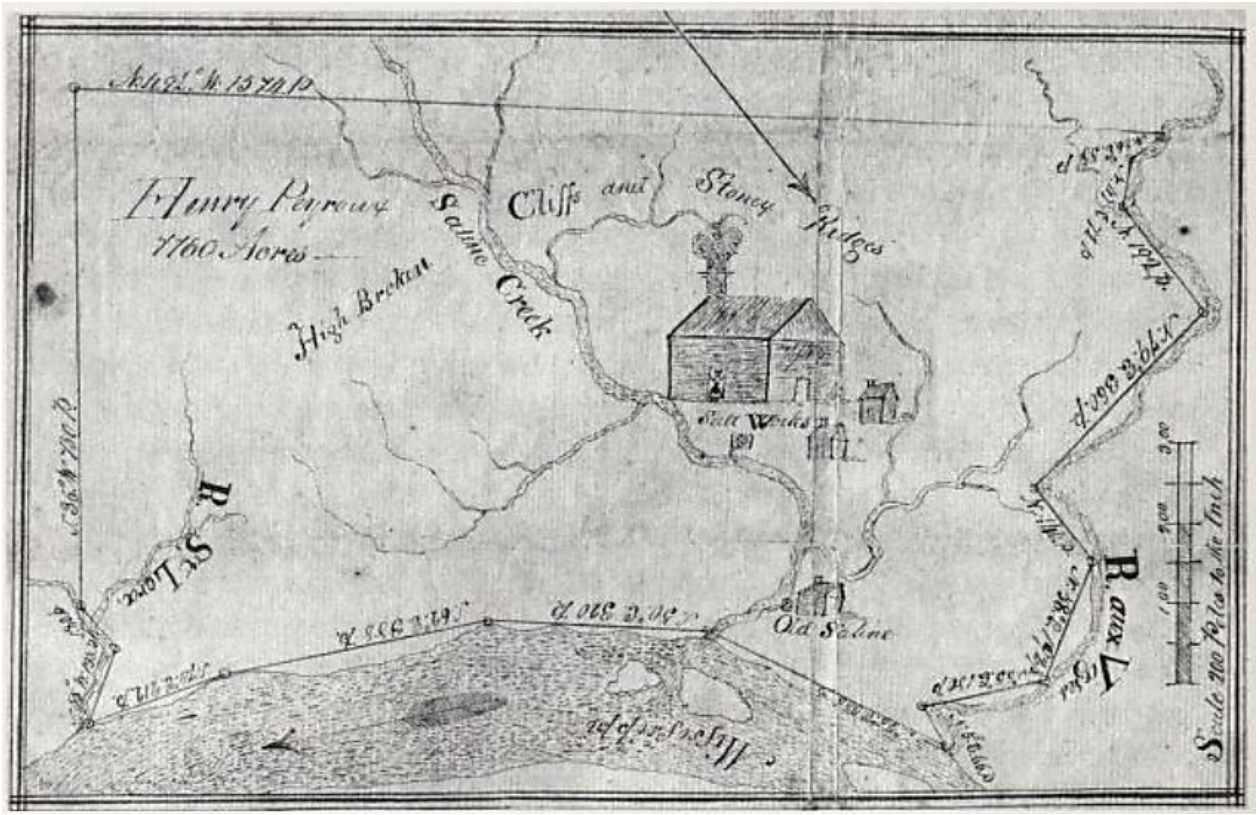


Figure 7. Henri Peyroux's concession at La Saline, 1806. In 1806, American surveyors entered the above plat illustrating Peyroux's concession, originally granted by the Spanish territorial government in 1787. By that time, salt-making operations at La Saline included at least four operational buildings and two worked springs. Original plat from *American State Papers, Public Lands [for Missouri],* Decisions of the Second Board of Land Commissioners, 1st Class, Decision No. 166, Missouri State Archives, image reproduced in Walter Schroeder, *Opening the Ozarks,* 260.

Nominally situated within Spanish territorial holdings and increasingly populated and proprietarily administered by Creole settlers, La Saline and the Ste. Geneveive district at-large remained situated in an international scheme still very much commanded by Indigenous polities, powers, and peoples. The greatest threat to Spanish security at La Saline came not from British military presence on the opposite bank of the Mississippi River but from increasingly powerful polities that dominated the plains and plateaus in western Spanish Louisiana. By the late 1780s, the persistence of Osage power in the region prompted Spanish officials to broker a deal with Shawnees, Delawares, and other nations living east of the Mississippi. In 1787 and 1788, several Shawnees and Delawares agreed to relocate to the Ste. Genevieve district; in exchange for Spanish annuities, land, and protection, Ohioan relocatees promised to help protect Euro-American settlers from depredations. Powerful Plains-based peoples, nonetheless, persisted in their attacks on Euro-American commerce, property, and settlement. In September 1792, François Vallé reported to Spanish officials that a party of "Loup" (likely Pawnees) came to Ste. Genevieve, "drank for three or four days" and "at the Saline they killed a yearling calf … and several pigs." Likewise, in late March 1794, French Canadian trader Pierre-Louis de Lorimier (who was closely affiliated with Shawnees at La Saline and across the Mississippi through his Shawnee wife, Charlotte Pemanpiah)

heard from a Loup (Pawnee) scout "that a band of Osages went to La Saline [i.e., the salt works] where they stole a number of horses and killed a man."[93]

Compared to Osages or Pawnees, local Native peoples presented few problems for Spanish administrators and settlers at La Saline. Quite the opposite; nearby Native communities benefited from Euro-American salt production. Delawares and Shawnees who had removed to the Ste. Genevieve district soon depended upon La Saline as a place to purchase salt and to trade, presumably in exchange for their own wares and industries. A 1796 parish census indicates that 119 "Indians"—mostly Shawnees, Delawares, and Peorias—were living in and around Ste. Genevieve and La Saline, where they enjoyed immediate access to the saltworks. By the early 1800s, a small community of Peoria and Illinois people, too, called Ste. Genevieve home. "The savages […] go here to trade at the Saline" Peyroux reported to Governor Miró in March 1788. The relationship was productive enough that by 1804, Kaskaskia merchant and Indian agent Pierre Menard assumed joint ownership of La Saline with Ste. Genevieve's influential Vallé family. Menard was well-liked among Native traders and communities, and was motivated to enter into salt production to establish "one of the cornerstones of his trade with the Shawnees and Delawares." By some scholars' analysis, this commerce with local Native peoples at La Saline helped keep the area's salt industry afloat through the 1820s; this occurred despite increased competition from newer, more cheaply operated American saltworks in Kentucky, Ohio, Indiana Territory, and Illinois Territory.[94]

Like the complex interactions among Euro-Americans and diverse Native nations peoples at La Saline, slavery was equally central to life and labor in Spanish Louisiana's singular salt-making district. Commerce in the Ste. Geneiveve district revolved around a mixed economy that included agriculture, timbering, animal husbandry, mining, and salt-making. Starting as early as the 1760s, elite French settlers such as the Vallé, Bolduc, and other families brought enslaved African people with them to perform both domestic and commercial work. Elite settlers also enslaved Indigenous people, a practice and policy that persisted unencumbered and unregulated in

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[93] Vallé to Lieutenant Governor Trudeau, September 25, 1792 excerpted in Ekberg, *Colonial Ste. Genevieve*, 100. Lorimer's journal in Lewis Houck (ed.), *The Spanish Regime in Missouri* Vol. II (Chicago, IL: R.R. Donnelley & Sons Company, 1909), 81. The Vallés migrated from Quebec to Upper Louisiana in the 1740s to capitalize upon the region's mining, agricultural, and trading opportunities, and subsequently established themselves as regional elites. The Vallé who wrote of the "Loup" attack was François Vallé's son; the original Vallé held an important place in La Saline and Ste. Genevieve's lead, agricultural, salt, and trading industries, and was among the region's wealthiest enslavers. For more on the Vallé family, see Carl J. Ekberg, *François Vallé and His World.*
In a somewhat remarkable coincidence, Lorimier (sometimes known as Peter Loramie) had previously participated in another, rather infamous interaction between Euro-American settlers and Native peoples eastward in the Ohio River Valley. In 1778, Lorimier joined Shawnee chief Blackfish on his capture of Daniel Boone and a party of Anglo-American salt-makers just beyond the small settlement of Boonesborough in present-day central Kentucky. This episode is discussed in further detail in Chapters Three and Four.

[94] For the 1796 census, see Ekberg, *Colonial Ste. Geneiveve*, 112. Denman, "History of La Saline, Missouri," 313. Archaeologists Michael Trimble, Teresita Majewski, Michael O'Brien, and Anna Price write that "despite competition from other salt-production enterprises after the 17990s, production along the Saline [River] continued unabated into the 1830s, in part because of its favorable location on a major transportation route" and because "Menard used salt as one of the cornerstones of his trade with the Shawnee and Delaware." Menard's correspondence from the late 1810s, 1820s, and early 1830s as well as ledgers kept by Menard and his associates (including the Vallés) indicate that commerce remained healthy. See Trimble et al, "Frontier Colonization of the Saline Creek Valley," 171-172.

the Illinois Country through the Spanish colonial period. Because salt-making was particularly labor-intensive and often dangerous, it proved conducive to the use of unfree labor in the region.[95]

Archival and archaeological evidence corroborates slavery's early significance to salt-making at La Saline. Some documents show that enslaved people were sometimes used as collateral among new proprietors when they sold or leased the salt springs. In 1766, when Jean La Grange sold ownership of the salines to Daniel Boulin, included in the deal were cattle, kettles, and ten enslaved workers. The saltworks changed hands the following year, when Boulin relinquished the works, "six negroes, one half interest in some negro cabins," and livestock and salt-making equipment to Jean Datchurut. Datchurut remained in control of the saltworks—and enslaved people to work it—at least through 1783, by which time he had amassed an enslaved labor force large enough to require an overseer. Datchurut employed Jean-Baptiste Lacroix to the position and kept him employed even after Lacroix killed an enslaved man named Tacoua for improperly pumping brine into the kettles. Enslaved collateral remained important to managerial turnover and production at La Saline; when proprietor Peyroux leased the salines to John McLenahan and John Lafoucade in 1795, Peyroux offered five enslaved workers in the lease agreement. Environmental evidence further affirms a sustained relationship between slavery and salt-making. Built in 1818 by Felix Vallé (who, in his father's succession, was then partner to La Saline's primary merchant, Pierre Menard), the Vallé family's house included extensive slave quarters. Though the relative population of enslaved labor at La Saline paled in comparison to plantation districts deeper in the Lower Mississippi Valley, commercial salt-making—along with nearby lead mining and flour milling—attracted and anchored the establishment of slavery in upper Spanish Louisiana in ways revelatory of a spatially and socially particular matrix of property, labor, class, and power that emerged from and encompassed colonial saltworks.[96]

As much as it underpinned the establishment of a well-provided-for class of Euro-American elites, slavery at La Saline also provoked anxiety among free Euro-American settlers. A 1783 lawsuit that involved members of local French salt-making families—including the Datchuruts, Vallés, and Bolducs—alleged that enslaved "negroes there" had been incentivized by passers-by "to steal from their masters and then run off to avoid punishment," presumably at the hands of Alexis Griffard, who was identified as the "boss" of the salt works. Besides demonstrating that salt production increasingly depended upon the racial regimentation of labor, the lawsuit also reveals degrees of resistance among enslaved laborers forced into the industry; more specifically, the barter-like commercial context in which colonial saltworks were situated allowed enslaved laborers forced into ownership and labor opportunities to "steal" and "run off," even if it was to avoid punishment (still another revelatory detail of the intensity of both production and the

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[95] For more on elite French families who brought enslaved African-descended people to Ste. Genevieve and La Saline, see Ekberg, *Colonial Ste. Genevieve*, 431-433.

[96] Louis Bolduc, who moved to Ste. Genevieve in the early 1760s, was involved in salt production and commerce at La Saline through the 1790s. Bolduc's involvement with local salt-making corresponds with his gradual socioeconomic rise and embrace of enslaved labor; by 1791, Bolduc enslaved nineteen people and had become one of the industry's most recognizable names; see Carl J. Ekberg, "Louis Bolduc," *Missouri Encyclopedia*, https://missouriencyclopedia.org/people/bolduc-louis. For La Grange's sale to Boulin, see Denman, "History of La Saline, Missouri," 312. For Boulin's sale to Datchurut, see Houck, *History of Missouri*, 342. For Lacroix's murder of Tacoua, see Ekberg, *Colonial Ste. Geneveive*, 220. For Peyroux's lease to McLenahan and Lafoucade, see Denman, "History of La Saline, Missouri," 315-316. For more on the landscape of enslaved life and labor among French families in the broader Ste. Geneiveve region, see Erin N. Whitson, "Landscapes of Forgetting and the Materiality of Enslavement: Using Class, Ethnicity, and Gender to Search for the Invisible on a Postcolonial French House Lot in the Illinois Country," in Elizabeth M. Scott (ed.), *Archaeological Perspectives on the French in the New World* (Gainesville, FL: University Press of Florida, 2017), 112-135.

enforcement of racialized power at La Saline). Likewise, when Peyroux wrote to Miró in 1788, he complained of "foreigners who go there secretly to steal skins and to corrupt the slaves, buying from them for almost nothing the salt which they [the slaves] steal from their masters." Anxieties over class and race continued to shape life around the saltworks. A 1796 lawsuit, for instance, ascribed blame—and a hefty fine—to a party of Englishmen living and working at La Saline who had "debauched" one of François Vallé's enslaved male worker, Sem, by "providing him with whiskey, and employing him to play the violin." Native peoples further complicated social interactions among free, enslaved, European, African, and Indigenous people clustered around La Saline; in August 1800, a "little chef of the Peorias" caught a runaway enslaved woman owned by a man living at La Petite Saline (the newest of the two saltworks in operation at the time). When the chief located the owner, he demanded three blankets and a shirt in exchange for the maroon woman's life.[97]

By the 1790s, salt production at La Saline had attracted and anchored the import of enslaved labor and the immigration of a greater number of Anglo-American settlers. Through and after the American Revolution, Spanish officials had encouraged and invited western Anglo-American settlers to settle lands and join industries situated on Spain's side of the Mississippi River Valley. Ste. Consequently, by 1797, American salt-makers at La Saline outnumbered their French, Canadian, and Creole counterparts in the industry. While individual Americans joined salt production at La Saline, the United States government soon seized upon salt resources in the western Mississippi River Valley—and spelled La Saline's slow decline. The 1803 Treaty of Fort Wayne ceded possession of the Great Salt Spring (also known as the Illinois Saline) near the Wabash-Mississippi confluence to the United States; the federal government, entitling itself in exclusivity to salt resources located in federal territories, subsequently opened a commercial saltworks. Though initially hampered by industry- and territorially-specific peculiarities pertaining to the saltworks' leasing, the provisioning of capital and equipment, and the regulation of commerce, production at the Illinois Saline soon outpaced and outpriced production at La Saline; while salt from Ste. Genevieve fetched $4 to $5 per bushel, American salt made further north sold for 75 cents. And within months, La Saline, too, became United States property, yet another territorial transition that spelled a new chapter of salt's history in the Mississippi River Valley.[98]

Though more marginal to colonial commerce than it had been in decades prior, salt production in Spanish Louisiana remained an important litmus of shifting economic, social, political, and legal landscapes in the eighteenth-century Mississippi River Valley. Spanish efforts to grow settler populations, prioritize and protect domestic agricultural production, and bolster its martial and political power may seem to render local salt resources irrelevant to imperial interests. But local salt resources still influenced international commerce, community life, and socioecological transformations unlike other resources or industries. Nowhere better illustrated the mineral's particular place and significance within various transitory contexts than La Saline. As Spanish Louisiana's sole commercial saltworks, La Saline developed despite broader political and

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[97] or Alex Griffard's status as "boss" or overseer, see Houck, *History of Missouri*, 346-347; and Denman, "History of La Saline, Missouri," 313-315. Peyroux to Governor Miro, March 8, 1788, in Kinnaird (ed.), *Spain in the Mississippi Valley, 1765-1794, Vol. III (Pt. II)*, 246. For the 1796 lawsuit involving Sem, see Ekberg, *Colonial Ste. Geneveive*, 210. For the 1800 capture of the maroon woman by the Peoria chief, see Ekberg, *Colonial Ste. Geneiveve*, 236.

[98] For the multinational makeup of settlers and free laborers at La Saline, see Trimble et al, "Frontier Colonization of the Saline Creek Valley." For the impact of the United States' establishment of a federally-owned saltworks at the Great Salt Spring (or Illinois Saline) just north of La Saline, see Schroeder, *Opening the Ozarks,* 264. For price estimates, see Denman, "History of La Saline, Missouri," 318.

economic changes that nominally transformed the mineral's legal accessibility and reduced salt's value to changing colonial commerce. Enslaved labor, settler immigration, and the multidirectional resettlement of Indigenous peoples and reconfiguration of Native powers all shaped La Saline's development through the conclusion of the Spanish regime. More than a peculiar commercial outcropping on the western bank of the Mississippi River, La Saline functioned as a vector of transregional, international, and socioecological change in the late eighteenth century—as much as it had in the late seventeenth century, when Henri Joutel's Quapaw guides first introduced it to European eyes, and as it had done for centuries of Indigenous salt-makers in the Mississippi River Valley.

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Salt resources determined the *longue durée* of international coalescence and commerce in the Mississippi River Valley. For at least a thousand years prior to European arrival, salt facilitated the consolidation and subsistence of settled communities and anchored autonomy, commerce, and production patterns through successive epochs of geopolitical, technological, and socioecological transformation that, in time, distinguished the peoples and polities of the Mississippi River Valley apart from other regions of the continental interior—and, eventually, apart from each other. Through the early European exploratory and French colonial period, salt underpinned colonial survival, Indigenous subsistence, and transregional economies rooted in a shared dependency upon salt and animal products. Following the transition to Spanish rule over the region, the mineral's value invited and informed the assertion of territorial and mineral rights, increased commerce and settlement, and the formation of locally distinctive socioeconomic contexts constituted by free, enslaved, elite, dependent, settler, and native peoples and positionalities. Salt's place within Indigenous, colonial, and hybrid worlds was in many ways unique to Louisiana, its peoples, and its political, ecological, and economic situation. Yet still further eastward beyond the Mississippi River Valley, salt's deep and dynamic significance bore equally upon other, often more aggressive efforts to claim, conquer, and commercialize North America's invisible necessity.

Chapter III | Lick

> *If you want to eat anything that I eat … go down just a little way East (These buffalo have a place where they get salt from salt licks,) to those salt licks … Take your clothes off, roll four times, and you'll change into a buffalo.*
>
> - Buffalo Woman's instructions to a starving Shawnee hunter[99]

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If you passed through Fort Pitt in the summer of 1762, you might have seen a mammoth—or at least parts of it. That year, two Shawnee men hauled a mammoth tooth and tusk fragment some 580 miles from a salt lick south of the central Ohio River to Fort Pitt, a British trading and military outpost at the Forks of the Ohio. When the Shawnees arrived, English naturalist John Wright asked them to explain how they found the bones. "The place where they ley is about 3 miles from the Ohio, salt & moist," the Shawnees told Wright, by way of an interpreter. But the bones—and even words—failed to do justice to the creature's true size. When Wright asked "if they had seen those long bones they Call'd horns, they Answered they had" and the Shawnees pointed to the door and "Showd them to be 10 or 12 feet long." The beasts would have dwarfed Fort Pitt itself; "pointing from the Window to a Stable in Sight," the Shawnees showed Wright that "the Creature when Alive must have been the Size of a Small house." It was an apt comparison; the megafauna's graveyard looked to the Shawnees as if the land had been razed for settlement. "By having been much trod & Licked," the land "was something lower then the adjacent land … and so level" and tethered on several sides by "many roads … larger & more beaten by Buffalas and other Creatures, that had made them go to it, than any Roads they saw in this Part of the Country."[100]

The two Shawnee men were not the first to follow the buffalo roads to Big Bone Lick, and they would not be the last. The roads, the skeletons, and the trampled topsoil told that Big Bone Lick had long been central to life in the Ohio River Valley. Archaic megafauna, buffalo, elk, and deer travelled to the lick and other salt resources to consume mineral-rich mud. By hoof, horn, tongue, and nose, mammals licked and dug for salt to sustain themselves. In moving to and from salt licks, megafauna and their more familiar descendants forged trails and roads that assured access to salt for future generations—for mammals and for the hunters who followed them. Because salt licks attracted mammals, they eventually attracted people. By interacting with salt licks and by interacting with each other at salt licks, human and non-human actors imbued these places with value. And by the time the two Shawnee men dredged up the evidence of massive mammalian life and demise at Big Bone Lick, human and non-human actors shared a history of subsistence through salt several thousand years old.

The Shawnees' paleontological display at Fort Pitt did more than unearth that deep past. It also brought the Ohio River Valley's salt licks more squarely into the purview of Euro-American colonists, ever attracted and attentive to the region's resource abundance. Euro-American naturalists and travelers would develop a particular interest in Big Bone Lick, thanks to the site's

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[99] "Origin of the Buffalo Feast," interview with Frank Daugherty, June 28, 1934, Folder 287, Box 32, Erminie Wheeler-Voegelin Papers, Ayers Modern MS, Newberry Library, Chicago, IL.

[100] Stanley Hedeen, *Big Bone Lick: The Cradle of American Paleontology* (Lexington, KY: University Press of Kentucky, 2008), 20-21.

uncommon abundance of megafaunal remains. But speculators and surveyors, military officers, imperial officials, and other key agents of British and American settler colonialism would develop their own distanced dependency on salt licks west of the Appalachians. In their efforts to locate, claim, and commercialize salt licks across the Ohio River Valley, Euro-Americans encountered environmental factors both organic and manual. Euro-Americans seeking to secure access to salt were equally beholden to Indigenous knowledge, presence, and precedence relative to salt resources across overlapping homelands and hunting grounds. As they expropriated these precedents to serve their own aims, settlers still found their efforts to establish exclusive control over salt licks confined and challenged by Indigenous peoples who refused the destruction of lifeways anchored to licks and other resources. As was the case elsewhere in the continental interior, colonization marked neither the start nor the end of the significance of salt in the Ohio River Valley. Rather, salt resources remained couched in deeper Indigenous and environmental contexts shaped international, interspecies, and interspatial interaction through the end of the eighteenth century.

The deep history of salt licks has captured the awe and attention of geoarchaeologists, paleontologists, geographers, and historians ever since. Big Bone Lick became the so-called "the cradle of American paleontology" as early as the 1800s, fostering a century of paleontological, geological, and archaeological excavation of the lick's prehistoric mammalian history. But the significance of salt licks to ancient and modern life appears at the earth's surface in places besides Big Bone and in forms besides big bones. A 1967 dissertation and subsequent publications by geographer John Jakle first argued that salt licks anchored and oriented successive stages of mammalian and human movement through the Ohio River Valley. Jakle's thesis expanded upon earlier twentieth-century scholarship that argued for salt's significance to American expansion into the Ohio River Valley by explaining how mammalian mobility facilitated settler incursions into western Pennsylvania, Ohio, West Virginia, and especially Kentucky. Contemporary scholarship explains how the ancient histories beneath and within salt licks eventually shaped settler salt use. While pathbreaking, these existing studies of salt do not do justice to the depth of the mineral's history. By siloing Indigenous pasts and ignoring the persistence of Indigenous presence, most studies of salt's significance to commerce, coalescence, and contestation have reified the inevitability of settler colonialism west of the central Appalachians. They ultimately fail to explain how Euro-American control over salt resources in the Ohio River Valley actually materialized.[101]

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[101] Hedeen's *Big Bone Lick* is the most comprehensive, up-to-date synthesis of the site's significance to the foundation of American paleontology as well as a vast historical literature dating to the mid-eighteenth century. John A. Jakle, "Salt and the Initial Settlement of the Ohio Valley," PhD Dissertation, Department of Geography, Indiana University (1967); "Salt-Derived Place Names in the Ohio Valley," *Names: A Journal of Onomastics* Vol. 16, No. 1 (1968), 1-5; "Salt on the Ohio Valley Frontier, 1770-1820," *Annals of the Association of American Geographers* Vol. 59, No. 4 (1969), 687-709; and "The American Bison and the Human Occupance of the Ohio Valley," *Proceedings of the American Philosophical Society* Vol. 112, No. 4 (1968), 299-305. Salt licks have long captured the interest of Kentucky historians in particular. Dependent upon settler narratives of Kentucky's early history (which laud the commercialization of local salt resources as a positively productive process that industrialized and "settled" the Ohio River Valley), this scholarship has either erased Native peoples entirely or has cast them as savage-like and inhuman relative to settlers. As I argue throughout this dissertation, the erasure and deflection of Indigenous pasts and presence relative to salt resources throughout North America constitutes what Kevin Bruyneel terms "settler memory." According to Bruyneel, "settler memory has this undermining effect by rendering Indigenous peoples and settler colonialism invisible or barely visible as active contemporary forces;" see Bruyneel, *Settler Memory: The Disavowal of Indigeneity and the Politics of Race in the United States* (Chapel Hill, NC: University of North Carolina, 2021), 2-3. This is particularly true of the historiography of salt in the Ohio River Valley, a place that settler historians—with some noteworthy exceptions—have siloed as an all-man's-land and as hunting grounds with

But Indigenous peoples knew and told their own deep histories of the salt licks that shaped life across shared homelands. And while these histories were as ancient as the bones at Big Bone Lick themselves, Indigenous pasts, precedence, and presence remained dynamic factors that continued to influence the place and power of salt licks through the start of American settler colonization. This chapter thus takes Indigenous peoples' connections to salt licks more seriously to challenge the colonial teleology of salt's significance to human history in North America. It does so by recontextualizing mammalian, Indigenous, and settler histories as pasts in perpetual contestation and coalescence. This chapter ultimately recasts the Ohio River Valley—often misconstrued as little more than "hunting grounds" and marginalized as a space of "absence"—as a deeply historic place of creation, place-making, and, to echo Susan Sleeper-Smith, Indigenous prosperity. As Elizabeth Mancke argues, "whatever imperial strategists … might claim" relative to the lands and resources that enriched the Ohio River Valley, "the Ohio Country was an Indigenous convergence zone under Indigenous control" through the late eighteenth century. To expand Macke's analysis, this chapter shows how salt licks—especially those south of the Ohio River, a region historians tend to separate from the broader region by virtue of its early settler history—functioned as particularly critical zones of multinational and multispecies convergence. To look closely at their significance explains how the pre-colonial history of the Ohio River Valley shaped the eventual colonization of Indigenous lands, hunting grounds, and salt resources.[102]

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little historic value. This ultimately renders, to echo Bruyneel, "Indigenous peoples and settler colonialism invisible" both contemporarily and historically. This chapter and Chapter Four necessarily depend upon this historiography for archival and contextual information relative to settler interests, albeit with hesitation and with explicit critique.

[102] For a timely and most recent critique of regional scholarship's erasure of Indigenous pasts and presence, see Jacob F. Lee, "What is a Hunting Ground? Reflections on Indigenous Kentucky," Register of the Kentucky Historical Society Vol. 121, No. 4 (2023), 305-319. Eric Hinderaker and Peter Mancall, for example, write that the Ohio Country—particularly lands south of the Ohio River—"was defined not by the *presence* of any shared quality or value so much as by the *absence* of certain social characteristics that were common elsewhere" in colonial eastern North America; see Hinderaker and Mancall, *At the Edge of Empire: The Backcountry in British North America* (Baltimore, MD: Johns Hopkins University Press, 2003), 170. While this may be true from the perspective of British or French officials, this assessment flatly ignores the many ways that primarily small nations—Shawnees, Delawares, Miamis, and others—depended upon the lands and resources south of the Ohio River and reproduced those dependencies in spite of expansionist pressure from all directions. Mancke's research was prompted by "the concerns of many students" of hers who "found the scholarship on the Ohio Country unsatisfactory" (24), and thus provides a springboard for more scholarship on the Ohio River Valley's many Indigenous pasts; see Elizabeth Mancke, "The Ohio Country and Indigenous Geopolitics in Early Modern North America, circa 1500-1760," *Ohio Valley History* Vol. 18, No. 1 (2018), 7-26. Susan Sleeper-Smith further demonstrates how the Ohio River Valley remained a cradle of agrarian Indigenous independence, autonomy, and prosperity through the end of the American Revolution and into the early 1790s; see Sleeper-Smith, *Indigenous Prosperity and American Conquest: Indian Women of the Ohio River Valley, 1690-1792* (Chapel Hill, NC: University of North Carolina Press, 2018). Geographer Timothy Anderson and historian Brian Schoen's interdisciplinary collaboration on multiple waves of settlement in the region promises more productive avenues for analysis; see Timothy G. Anderson and Brian Schoen (eds.), *Settling Ohio: First Peoples and Beyond* (Athens, OH: Ohio University Press, 2023). While urgent in the study of the region, Mancke and Sleeper-Smith's work still focuses on the northern Ohio River Valley. But interdisciplinary archival research—and a sizeable amplitude of sources containing the voices of historic Indigenous peoples themselves—demonstrates that Mancke's argument for Indigenous control and convergence and Sleeper-Smith's argument for Indigenous prosperity extends south of the Ohio River, albeit in distinctive ways. While multinational villages did remain concentrated north of the Ohio River, the frequent movements of Indigenous men—as commercial and subsistence hunters, as diplomats, as traders, and as combatants—south of the river indicate an extension of their nations' or villages' power and prosperity; see A. Gwynn Henderson, "Dispelling the Myth: Seventeenth- and Eighteenth-Century Indian Life in Kentucky," *Register of the Kentucky Historical Society* Vol. 90, No. 1 (1992), 1-25; and *Kentuckians Before Boone* (Lexington, KY: University Press of Kentucky, 1990). This chapter integrates more archaeologically-oriented work with colonial archives and ethnographic and

Hundreds of well-worn salt licks abound across the Ohio River Valley. While not all evince thousands of years of history as obviously and as easily as Big Bone Lick, all of these resources have storied pasts that collectively reveal the centrality of salt to human and more-than-human life. An excavation of the region's salt licks and springs demonstrates how interconnected geologic, faunal, and human histories informed the many ways that people came to know and use salt resources. While archaeological, archival, and oral evidence and explanations of salt's origin, potency, and power throughout the Ohio River Valley vary widely, they collectively underscore perpetually salient truths of salt's spatial significance, its temporal depth, and the mineral's magnetism. From mammalian arrivals and Indigenous origins through the early nineteenth century, salt licks served as sites of sustenance, slaughter, and, eventually, settler colonization. Euro-Americans claimed to make novel discoveries when they encountered salt licks suited for commercial hunting and salt production. But their presence was dwarfed by timeless origins, pre-trodden earth, and ten-inch teeth.

Ordovician Outcroppings

Before there were salt licks, there was an ocean. Shawnees, one of several nations native to the Ohio River Valley, knew as much. Long ago, Go-cum-tha, the Shawnee's Grandmother, came out of a great salt sea holding the tail of Ne-she-pe-she, a giant panther. Wash-et-che, the Grandmother's husband, soon followed, "carried to the shore by a very big Wa-be-the (Swan or Goose)." Their terrestrial tranquility did not last long. Watch-e-mene-toc, a bad spirit, used the great salt water to flood Go-cum-tha and Wash-et-che's home until everything "was swallowed up." But Mish-e-me-ne-toc, the Good Spirit, did not let Go-cum-tha and Wash-et-che drown; the Good Spirit saved them—and "many animals and birds," too. Go-cum-tha and Wash-et-che enjoyed "plenty of hunting in the new me-to-quegh-ke (Forest)" salvaged by Mish-e-me-ne-toc. Referring to themselves as the Water People, Shawnees—the descendants of Go-cum-tha and Wash-et-che—did not lose everything to the great salt water. Instead, they made their home upon the old sea floor.[103]

In 1829, George Bluejacket recorded his version of how ancestral Shawnees emerged from a body of salt water *te-pe-wa-ko-te* (hundreds of years or seasons) ago. At the time, contemporary geologists had only begun to seriously consider the possibility that the earth itself was more than a few thousand years old. But Bluejacket's telling pointed to a fundamental geological truth: that ancient saltwater seas first brought life to the Ohio River Valley. During the Ordovician Period (roughly 485 to 443 million years ago [MYA]), the majority of what would become North America was covered by shallow saltwater seas; the Ohio River Valley constituted the continental shelf of the supercontinent Laurentia and bounded in the Iapetus Ocean. Warm seawaters created ideal conditions for shell-bearing organisms—brachiopods, nautiloids, and trilobites—that lived, died, and decomposed in these conditions. Decaying organisms released minerals into the subaquatic soil that fossilized them. The Ohio River Valley remained swallowed by saltwater through the end

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ethnohistorical materials to rectify the paucity of NAIS-aligned scholarship on the Ohio River Valley. For NAIS methods, see Alyssa Mt. Pleasant, Caroline Wigginton, and Kelly Wisecup, "Materials and Methods in Native American and Indigenous Studies: Completing the Turn," *The William and Mary Quarterly* Vol. 75, No. 2 (2018), 207-236; and Jean M. O'Brien, "Historical Sources and Methods in Indigenous Studies: Touching the Past, Looking to the Future," in Chris Andersen and Jean M. O'Brien (eds.), *Sources and Methods in Indigenous Studies* (New York, NY: Routledge, 2017), 12-20.

[103] George Bluejacket, "A Story of the Shawanoes," Wapaughkonnetta, Ohio, October 29, 1829 (transcribed and edited by John Allen Rayner, March 1886), Eastern Shawnee Tribe of Oklahoma Digital Collection, https://ohiomemory.org/digital/collection/p16007coll27/id/6252.

of the Silurian Period (443 to 419 MYA) and into the Devonian (419 to 359 MYA), and aquatic life continued to thrive and evolve, imbuing the seafloor with chemical and fossilized traces.[104] Disruption abounded through the Devonian. In the still-submerged Ohio River Valley, reduced water flow prompted oxygen depletion at the sea floor. Consequently, carbonate sediments and dissolved solids—including sodium chloride (NaCl), or common salt—settled into the seafloor. At the same time, accelerated tectonic activity reorganized oceans, created new continents, re-landscaped landmasses, and ultimately pushed the sea floor closer to the water's surface. As the sea floor rose, carbonic sediment and precipitated solids like sodium chloride settled in layers. Sedimentation continued through the Mississippian (359 to 318 MYA) and Pennsylvanian (318 to 290 MYA) epochs, creating deep layers of salt- and mineral-rich earth and turning the Ohio River Valley turned from an ever-shallowing seabed into a swampland increasingly populated by terrestrial flora. Another 150 million years—until the Cretaceous Period (140 to 65 MYA)—and several tectonic uplifts later, the Ohio River Valley completed its metamorphosis into a land of plenty. Beneath it lies layers of four hundred-million-year-old salt.[105]

Salt's journey toward the surface continued long after the advent of the contemporary Cenozoic era. Sodium chloride—the salt compound most commonly found and consumed by animals (including humans)—is an evaporite mineral and a solute; it becomes a solid when water evaporates, and it dissolves when water (or another solvent) is introduced. Ordovician-age seawater that became trapped under later Cambrian rock and sediment eventually dried out, leaving behind evaporated salts. Over time, trace salts moved into the small intra-sedimentary spaces in the clastic rock that constitutes the majority of the Ohio River Valley. Some of this salted sediment crept toward surface exposure; these formed "hard" licks where animals licked the rocks themselves. But in the Ohio River Valley, comparatively softer licks—ones made of dried or wet mineral-rich mud as well as salinized groundwater—appear more frequently. These licks form when and where groundwater and geologic activity coalesce. Subsurface (tectonic) and terrestrial (glacial) forces split rock, disrupt sediment, and create other openings. As naturally rising and falling groundwater levels filled in micro-sedimentary space as well as larger inter-stratum cracks and crevices, subterranean salts dissolved and affixed themselves to hydrogen dioxide molecules, forced upward by hydrologic force. Trapped for hundreds of millions of years, salt reappears at earth's surface in the form of brackish seeps that transform surface sediment into a mineral-rich supplement.[106]

Salt-rich earth attracted animals first. Previously explained in Chapters One and Two, sodium chloride allows animals to retain hydrating fluids, process essential nutrients and minerals, and carry out microcellular processes critical to circulatory, nervous, and muscular function. Starting in the Pleistocene, megafauna—namely ancestral bison, deer and elk, mastodons and

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[104] Bluejacket, "A Story of the Shawanoes." Eric J. Wallace, "Making Salt From an Ancient Ocean Trapped Below the Appalachians," *Atlas Obscura* (January 8, 2018), https://www.atlasobscura.com/articles/salt-ancient-iapetus-ocean-appalachia-virginia. John R. Ege, "Maps Showing Distribution, Thickness, and Depth of Salt Deposits of the United States," United States Department of the Interior Geological Survey, Open-File Report 85-28 (1985). Daniel L. Carey, "Kentucky Landscapes Through Geologic Time," *Kentucky Geological Survey* (University of Kentucky, 2011), https://kgs.uky.edu/kgsweb/olops/pub/kgs/mc200_12.pdf.

[105] Carey, "Kentucky Landscapes Through Geologic Time."

[106] Charles Hartley, "The Land Beneath Bullitt County," *Bullitt County History* (Bullitt County Genealogical Society, 2011), https://bullittcountyhistory.org/bchistory/theland.html. "A Salt Lick Puts Kentucky on the Map," Kentucky Geological Survey (University of Kentucky), https://www.uky.edu/KGS/education/did-big-bone-lick-map.php. Michael C. Hansen, "The Scioto Saline – Ohio's Early Salt Industry," *GeoFacts* No. 7 (Ohio Department of Natural Resources, Division of Geological Survey, 1995).

mammoths, black bears, saber-toothed felines, and other large terrestrial mammals—migrated toward Big Bone Lick and nearby resources. These licks take multiple forms across the Ohio River Valley, but the most attractive and potent ones sit atop saltwater springs. Conducted to the surface by cracks and fluctuating groundwater levels, deeply buried brine saturates compacted earth, thus improving its mineral qualities and its edibility. This allows for animals—namely mammals, but also birds and possibly large, high-energy-expending insects like bees, butterflies, moths, and flies—to consume multiple minerals at once without overwhelming their bodies with excess sodium. Elsewhere, high salinity groundwater and brine seeps appear more directly. Exposed springs, where saltwater accumulates with sustained frequency, create pools of brackish water unfit for direct consumption. Some brine seeps also pollute creeks, runs, and rivers, turning them into salty streams.[107]

Animals seeking salt transformed the earth at and around salt licks, producing visibly legible evidence of their presence. Compacted soil, bored rock, and an abrupt absence of plant matter were hallmark indications of salt's presence and mammalian consumption of it. Sometime in 1779 or 1780, Virginia hunter Simon Kenton travelled to present-day central Kentucky to hunt and trade. Like many early settler hunters, Kenton followed existent migratory corridors and hunter traces through the region. One of these traces led him to what Kenton "would have called a stomping place" where the movement of game had trod the earth flat. Similarly, when John Helm travelled to the Falls of the Ohio (present-day Louisville, Kentucky) to execute surveys in March of 1780, he noticed a "flat lick" that "appeared to be much used by Game," indicated by a bored-in creek bed. At May's Lick in present-day northern Kentucky, a million hooves compacted the rich topsoil into futility—so much so that "no vegetable whatever grows near the Lick," Thomas Ashe reported in 1806. Bison and deer even left impressions on riverbanks, which were "hollowed out in a semilunar manner from the action of beasts rubbing against them," and stones, where several "concavities"—one "four inches deep […] and seven inches wide"—were made after "having been licked and worn by the action of the tongue." Further down the Licking River Valley (which earned its English language name from a high concentration of salt and mineral licks), Blue Licks impressed Ashe all the more, where "the indications of rolling in the mire, attrition of banks, and indentions in rocks, from licking the surface" were "more numerous" than those found at May's Lick.[108]

If concave creek beds and trampled earth indicated signs of how mammals lived and subsisted at salt licks, bones demonstrated proof of their demise. Around 1735, French officer Jean Bernard Bossu alleged that his Canadian soldiers, at the time dispatched to fight Chickasaws in present-day Kentucky and Tennessee, were the first to "[discover] the skeletons of seven elephants." Bossu believed the beasts "must have wandered off on dry land and through the forests to this new continent" and eventually to Big Bone Lick on the Ohio River, where the mud sucked them deeper into the earth and eventually to their death. Four years later, in 1739, another French force departed from Montreal, led by Charles de Longueuil and consisted of a majority of Native warriors and a handful of Canadian militiamen. Escorted south across the Ohio River by a Shawnee

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[107] Jakle, "The American Bison and the Human Occupance of the Ohio Valley." See also Charles A. Lundquist and William W. Varnedoe Jr., "Salt Ingestion Caves," *International Journal of Speleology* Vol. 3, No. 1 (2006), 13-18; and Richard R. Knight and M.R. Mudge, "Characteristics of Some Natural Licks in the Sun River Area, Montana," *Journal of Wildlife Management* Vol. 31, No. 2 (1967), 293-299. The distinctive ecological and economic significance of saltwater streams and riverways is discussed in more detail in Chapter Four.

[108] Deposition of Simon Kenton, 1811,SC 992, Special Collections, KHS. Deposition of John Helm, 1823, Mss. CH, FHS. Thomas Ashe, *Travels in America Performed in 1806,* Vol. 2 (London, UK: Richard Phillips and John Abraham, 1808), 135-139.

attachment, the expedition stopped at Big Bone, where Longueuil allegedly stuck a French flag into the mud and removed a femur, a tusk, and three massive molars that wound up in the court of Louis XV. The bones perplexed Europeans for decades and became objects of further excavation and analysis. While many believed them to have been rogue elephants, others postulated that the bones once constituted the bodies of rhinoceroses or hippopotamuses. But local French and British traders, who obtained information about the bones from Indigenous clientele and neighbors rather than from European naturalists, knew them to be "enormous quadruped, called by the Savages the father of oxen."[109]

Indigenous explanations for the origins of remains at Big Bone Lick and other salt licks across the Ohio River Valley acknowledged a longer evolutionary history local to the North American interior. And Native peoples' explanations as to the precise origins of the awesome osteological outcroppings varied just as much as those proposed by Europeans. The "two Sencible Shawanese Indians" who brought mammoth remains to Fort Pitt in 1762 told James Wright that they had found "the remains of 5 Entire Sceletons, with their heads All Pointing towards Each other, And near together, supposed to have fallen at the same time;" according to the Shawnees, the five megafauna had "been Killd by lightning," and that "God Kiled these Mighty Creatures, [so] that they should not hurt the Present race of Indians." British trader George Morgan, who visited Big Bone in 1766, heard a different explanation from a Wyandot elder. "Whilst I was yet a boy I passed this road several times," the elder told Morgan, "and the wise old chiefs … gave me the tradition, handed down to us, respecting these bones." Megafauna, the Wyandot man relayed, were a punishment sent by the Great Spirit:

> The foolish young people, at length forgetting his [the Great Spirit's] rules, became exceedingly ill-tempered and wicked. In consequence of this, the Great Spirit created the buffalo, the bones of which you now see before us; these made war upon the human species alone, and destroyed all but a few, who repented and promised the Great Spirit to live according to his laws, if he would restrain the devouring enemy; whereupon he sent thunder and lightning, and destroyed the whole race, in this spot, two excepted, a male and a female, which he shut up in yonder mountain, ready to let loose again.[110]

Thomas Jefferson relayed a similar narrative from a Delaware warrior at a council held in the late 1770s. "Tremendous animals came to the Big-bone licks," the Delaware orator explained, "and began a universal destruction of the bear, deer, elks, buffaloes, and other animals, which had been created for the use of the Indians." Again, the great beasts were felled by the fury of an angry god: "the Great Man above … was so enraged that he seized his lightning, descended on the earth … and hurled his bolts among them till the whole were slaughtered." Only "the big bull" survived the Great Man's bolts, "shook them off as they fell," and escaped north across the Ohio River.[111]

Indigenous histories of megafaunal origins and extinctions explain much about the significance of salt licks. They most obviously allude to a deep history of mammalian dependency

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[109] Hedeen, *Big Bone Lick*, 31-44. Adrienne Mayor, *Fossil Legends of the First Americans* (Princeton, NJ: Princeton University Press, 2005).
[110] Hedeen, *Big Bone Lick*, 25.
[111] Hedeen, *Big Bone Lick*, 26-27.

upon naturally occurring salt resources. They also explain how places like Big Bone Lick became historically potent places that provided ossified evidence of grotesquely large beasts, Great Spirits, and grand ancestors. Though their details differ, all of these narratives illustrate how salt licks served as sites where people and multiple mammalian species clashed and coalesced. By including angry gods and outsized men, Indigenous histories of places like Big Bone Lick explain an equally significant dimension to the pull, place, and power of salt licks: their human history. For wherever salt-loving animals went, people followed.

Traces of Dependency

In 2007, archaeologists at Big Bone Lick excavated a foot bone that belonged to a 12,000-year-old mastodon. Several phalanges were preserved in the lick's Quaternary sediment, but this one was unique; this foot appeared to have been manually cut with a stone implement. "The width of the cut," archaeologists Kenneth Tankersley and Michael Waters deduced, "is comparable in size to a chert flake edge, and the curvature and location are consistent with a pattern of butchering." The curious cut dredges up more questions than it does answers. Does it signify the start of hunting at Big Bone? Or does it represent an instance of ancient archaeology gone awry? Archaeologists debate the exact timing and intention of that cut mark, but its existence underscores something significant: that salt licks invited mammals and humans to interact with one another. Whenever it was made (and whoever made it), the cut mark inflicted upon the mastodon's foot might have been the one that set thousands of years of interspecies interaction in motion. Mammals and humans alike first travelled to salt licks to fulfill fundamentally oppositional subsistence needs. And the more frequently large game and hunters resorted to shared salt licks, the more they transformed the environmental and geopolitical future of the Ohio River Valley.[112]

Roads were the initial and primary signifier of where salt—and large game dependent upon it—could be found. Sometimes called traces or trails, pathways forged by migratory mammals and followed by hunters were more akin to roads. Visiting Big Bone Lick in 1765, British trader George Croghan commented on the "large road which the Buffaloes have beaten, spacious enough for two wagons to go abreast and leading straight into the Lick." Apparently unbeknownst to Croghan, four roads converged at Big Bone, each up to fifteen feet in width. The most important road crossing through Big Bone was Alanant-o-wamiowee (the Great Buffalo Path), which originated somewhere in present-day Illinois and ushered millions of migratory bison toward present-day Ohio, Kentucky, and Tennessee. The path spanned 225 miles across northern Kentucky, connecting major salt resources including French Lick, Big Bone Lick, Drennon's Lick, the Blue Licks, and May's Lick. And while ancient, such roads remained in use by sizeable herds of bison, deer, and elk well through the Ohio River Valley's early colonial period. "Amazing herds of Buffalo," John Filson observed in 1784, coalesced at salt resources like Noblick; "their size and number, fill the traveller with amazement and terror, especially when he beholds the prodigious roads they have made from all quarters, as if leading to some populous city; the vast space of land around these springs desolated as if by a ravaging enemy, and hills reduced to plains."[113]

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[112] For the analysis of megafaunal remains, see Kenneth B. Tankersley, Michael R. Waters, and Thomas W. Stafford, "Clovis and the American Mastodon at Big Bone Lick, Kentucky," *American Antiquity* Vol. 74, No. 3 (2009), 558-567.

[113] William E. Myer, "Indian Trails of the Southeast" in J. Walter Fewkes, John R. Swanton, and Myer, *Forty-Second Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1924-1925* (Washington, DC: United States Government Printing Office, 1928). John Filson and Paul Royster (ed.), *The Discovery, Settlement and Present State of Kentucke,* Electronic Texts In American Studies, Libraries at University of Nebraska-Lincoln., 1784, https://digitalcommons.unl.edu/etas/3/.

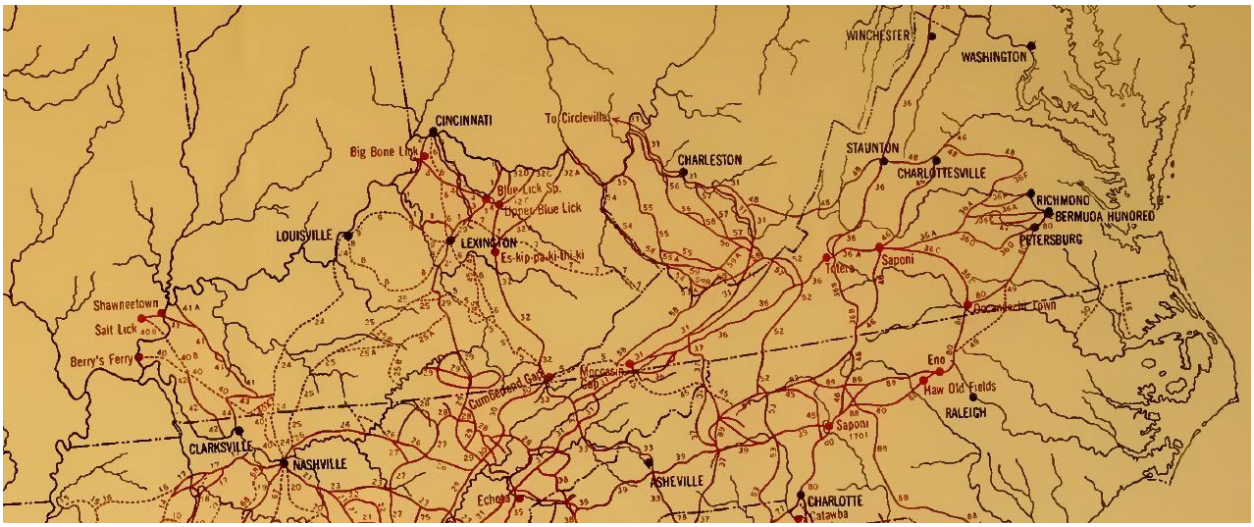


Figure 8. A reconstructed map of trails, traces, and roads used by Indigenous peoples and, eventually, Euro-Americans in the eighteenth and early nineteenth centuries. Near present-day Cincinnati, Ohio lies the Alanant-o-wamiowee, which connected several major mineral licks—including Big Bone Lick, Upper Blue Lick, and French Lick (not pictured) in present-day southern Indiana. The dotted line leading southwestward from Louisville to the Salt River (unmarked by name, but still visible) was the buffalo trace used by settlers to transport people and materials from the Falls of the Ohio to Bullitt's Lick, the first commercial settler saltworks in present-day Kentucky. Map by William E. Myer, from Myer, "Indian Trails of the Southeast," in J. Walter Fewkes, John R. Swanton, and William E. Myer, *Forty-Second Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* (Washington, DC: United States Government Printing Office, 1928), 749.

Paths like these were common across the Ohio River Valley because life-sustaining licks were common across the Ohio River Valley. Like stars, mineral licks and saline springs attracted and oriented hunters for millennia; by the eighteenth century, the result was an intricate web of trails, traces, and roads that facilitated and directed human movement. Extensive ethnographic work indicates that Big Bone Lick, though impressive in its spatial and historical scope, was far from unique. Reconstructed maps of Indigenous roadways through northern Kentucky show frequently used paths starting and ending at places like Es-kip-pa-ki-thi-ki and Upper and Lower Blue Licks, all sites of major salt springs and licks. Though these roadways have either fallen into disuse or have been covered by modern infrastructure (like highways) or property, they long constituted what archaeologist James Snead calls "landscapes of movement," wherein intentional mobility—be it on the part of mammals or humans—transforms trails from spaces of movement into places of engagement. "Movement in context," Snead suggests, might "inform us about that context." This approach recontextualizes the Ohio River Valley, often interpreted as a vacant quarter that hosted fleeting hunters and flimsy territorial claims, as a place of informed interaction and Indigenous mobility. When hunters departed from permanent villages during the late summer and fall months to hunt, they did not wander into a wilderness; they took these roads to licks and springs, where they knew large game mammals would coalesce in large numbers, and where they could rely upon a stable supply of salt to simultaneously sustain systems of mammalian and human subsistence. And if the landscape at Big Bone is any indication of licks elsewhere, deer, elk, and bison would be slow to escape through patches of mud, making them easier targets. Hunters even took to the trees to improve their shot and security. While passing through the Alleghenies in eastern present-day Ohio on his way to Fort Wayne, American Quaker and liaison to Miamis

Gerard Hopkins "observed seats erected in the branches of the threes by the hunters, twenty feet in height, being concealed stations for the purpose of shooting deer at the Salt Licks." Together, hunters, mammals, and their interaction at and with salt licks made saline spaces into places of sustenance.[114]

In moving to and from salt licks, migratory animals forged salt-centric geographies that produced new opportunities for movement and new points of access to vital resources. Though the approximate date of when hunters first stalked megafauna at salt licks in the Ohio River Valley remains indeterminate, archaeological recoveries from across the region demonstrate successive engagement: mammals resorted to licks to replenish their bodies' depleted sodium and mineral stores, hunters followed, and salt-makers came in their shared wake. The process was gradual; the earliest evidence of hunting at salt licks dates to the late Lithic (roughly 9,000 to 10,000 BCE) and archaeologically impressionable salt-making began sometime in in the Woodland period (roughly 3,000 years prior to the present). Woodland peoples embraced manual salt production at salt licks and springs, in part, because of dietary changes caused by geopolitical realignment; as sedentary villages gradually pivoted away from a reliance on hunting and toward sedentary agriculture, people needed to add salt to naturally low-sodium vegetables and legumes. But the physical acts of hunting and salt-making did not remain entirely exclusive. Especially in the eighteenth century, when Shawnees, Delawares, Miamis, and other peoples resettled the Ohio River Valley, diverse diets and economies encompassed a range of resources—including salt—that collectively underpinned Indigenous prosperity. Particularly potent salt licks sustained multiple Indigenous subsistence practices simultaneously.[115]

By the eighteenth century, salt licks—and the mobile infrastructure that emerged around them—were critical preconditions for increasingly commercial and competitive hunting in the Ohio River Valley. During the first half of the seventeenth century, Haudenosaunee warriors and

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[114] For a comprehensive study of trails and traces between the central Appalachians and the central Mississippi River valley, see William E. Myer, "Indian Trails of the Southeast" in Fewkes, Swanton, and Myer, *Forty-Second Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution.* James E. Snead, "Trails of Tradition: Movement, Meaning, and Place," in Snead, Clark L. Erickson, and Andrew Darling (eds.), *Landscapes of Movement: Trails, Paths, and Roads in Anthropological Perspective* (Philadelphia, PA: University of Pennsylvania Museum of Archaeology and Anthropology, 2009), 42-60. Gerard T. Hopkins, *A Mission to the Indians from the Indian Committee of Baltimore Yearly Meeting to Fort Wayne, in 1804* (Philadelphia, PA: T. Ellwood Zell, 1862), 10-11.

[115] Evidence just beyond the Ohio River Valley further extends the potential timeframe of human-animal interaction at salt licks in eastern North America. Archaeological recoveries at Bledsoe's Lick, in present-day northern central Tennessee, people began hunting at the lick roughly 12,000 years ago. Hunting and seasonal residence near the lick continued somewhat consistently through the Archaic (8000 – 1000 BCE) and Woodland (1000 BCE – 1000 BC) periods. Mississippian peoples later settled more permanently near the lick during the thirteenth, fourteenth, and fifteenth centuries; Bledsoe's Lick thus also corroborates arguments made in the following chapter about how salt resources shaped the establishment, emplacement, and consolidation of village polities during the long Mississippian period. Chickasaws, Choctaws, and Cherokees continued to use the lick as a hunting ground well through the end of the eighteenth century, even as settlers from Virginia and the Carolinas endeavored (and failed) to establish saltworks to boil the spring water. The deep history of Bledsoe's Lick remains in recovery thanks to an ongoing archaeological project hosted by Middle Tennessee State University. For more, see "Bledsoe's Lick Archaeological Project Background," Department of Sociology and Anthropology, Middle Tennessee State University, https://www.mtsu.edu/soc/anthropology/bledsoe/background.php; Paul N. Eubanks, Kevin E. Smith, Hannah Guidry, and Larry McKeen, "Prehistoric Use of Salt and Mineral Springs in North-Central Tennessee," and Eubanks and Smith, "More than Just Salt: Architectural and Archaeological Surveys of Mineral Spring Sites of Tennessee," both in Eubanks and Ashley A. Dumas (eds.), *Salt in Eastern North America and the Caribbean: History and Archaeology* (Tuscaloosa, AL: University of Alabama Press, 2021), 37-48 and 49-60. In Chapter Four I explain the significance of precolonial Indigenous salt-making in greater detail.

hunters (encouraged and emboldened by increased Iroquoian political power and commercial connections) forced thousands of ancestral Shawnees, Miamis, Delawares, and other peoples Indigenous to abandon their homes and villages along the Ohio River and its tributaries. They returned starting in the early 1700s, gradually coalescing in multinational, river-bound villages that provided greater security as well as more secure access to resources—and roadways that allowed easy access to them. By midcentury, locally native nations—as well as thousands of eastern refugees who moved to the Ohio River Valley to escape British settler colonialism and the residual damage it inflicted upon nearby Native nations like Yamasees, Cherokees, and Haudenosaunees—resided, worked, and traded in sprawling towns like Lower Shawneetown, Piqua, and Chillicothe, where Indigenous and European hunters and traders conducted business in an expanding hide and fur trade. Shawnees, Miamis, Delawares, and other Ohioan hunters benefited from close proximity to hunting grounds south of the Ohio River. But the commercialization of bison, elk, deer, and small mammal products invited competition—this time from the south. Like Haudenosaunee hunters had done a century prior, Cherokees and Chickasaws responded to opportunities afforded by reformed British trade policy and openings in transatlantic commerce by expanding their hunting practices and claims to game-rich grazing grounds and licks nearly to the southern banks of the Ohio River. Because salt licks attracted reliable game populations, they became increasingly coveted and contested sites among local and more distant Indigenous polities who sought to command greater economic and political leverage in response to British colonization on the Atlantic coast.[116]

Shawnee hunters mobilized their knowledge about the place of salt resources to (literally) navigate this increasingly competitive geopolitical climate. In late July 1755, over a year into the Seven Years' War, a party of Shawnee warriors attacked white settlers at Draper's Meadow, a sparsely populated tract near the New River in far western Virginia. The Shawnee men killed five of the settlers, including the tract's claimant and Virginia militia officer Colonel James Patton. Three years earlier, Patton himself represented Virginia at the Treaty of Logstown in 1752, where he and other representatives from Virginia and the Ohio Company established tenuous verification of boundaries set forth in the 1744 Treaty of Lancaster. While Haudenosaunees agreed to these boundaries, which opened swaths of Shawnee hunting territories and travel corridors to British speculators and land companies, Shawnees promised to continue to defy them. In the waning days of negotiations at Logstown, Scarouady, an Oneida liaison for Shawnees, refused to accept the Ohio River as a border, warning Patton and his cohort that he and his Shawnees "intend[ed] to keep [their] country clear of settlements."[117] Besides being bounded in by rivers and creeks,

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[116] For Indigenous returns to the Ohio River Valley, see Anderson and Schoen, *Settling Ohio*; and Elizabeth Mancke, "The Ohio Country and Indigenous Geopolitics in Ealy Modern North America, circa 15001760." For the impact of British trade reform and the shifting focus of transatlantic fur and hide trading on hunting in the southern Ohio Country, see Hinderaker and. Mancall, *At the Edge of Empire: The Backcountry in British North America*, 163-170. For more on how the commercialization of hunting transformed Indigenous labor and politics (particularly along gendered lines), see Sleeper-Smith, *Indigenous Prosperity and American Conquest;* and Eric Hinderaker, *Elusive Empires: Constructing Colonialism in the Ohio Valley, 1673-1800* (New York, NY: Cambridge University Press, 1997), 67-68 and 75-77. For the gradual commercialization of hunting in Kentucky in particular, see Andrea L. Smalley, ""They Steal Our Deer and Land": Contested Hunting Grounds in the Trans-Appalachian West," *Register of the Kentucky Historical Society* Vol. 114, Nos. 3 and 4 (2016), 303-339; and Richard W. Jefferies, *Holocene Hunters of the Lower Ohio River Valley* (Tuscaloosa, AL: University of Alabama Press, 2008).

[117] Three documents detail the movements of the 1755 Shawnee captors: excerpts from the *New York Mercury* (published in print on January 26, 1765), the narrative of Colonel John Ingles (c. 1824), and the memoirs of Letitia Preston Floyd (correspondence with Benjamin Rush Floyd, February 22, 1843). The excerpts from the *Mercury* and the narrative of John Ingles were both edited and republished by James Duvall in 2008 for the Boone County Public

Draper's Meadow sat some fifty miles east of the Great Warpath spanning the length of the Appalachians and under twenty five miles south of where the New River (or South) Trail and Paint Creek Trail fork off from the Warpath. These trails were in regular use in 1755; even the settlers at Draper's Meadow said as much. John Ingles, whose mother, Mary Ingles, was taken captive by the Shawnees, later described that prior to the July 1755 attack, "there had been several parties of the northern Indians […] the Shawnees, [who] passed by where my Grandfather lived, on their way to the south, and would commit depredations on the Catawba Indians." Though Ingles focused on "their heathen thirst for bloodshed and plunder," Shawnees, Cherokees, and other Native men long utilized the central New River region as a corridor to travel, trade, fight, and hunt.[118]

Whatever their incentives, the Shawnees had no intention of attacking more settlements. They took goods (including firearms) and captives, and immediately retreated down the New River to the Kanawha River Valley. When they arrived at "a little salt spring in the bank of the great Kanawha," the party stopped, "rested for a day or two there, and with what kettles they had with them, boiled and made some salt." Why they stopped to make salt and what they did with it remains unclear. But they seem to have gone out of their way—"much impeded by the thickness of the forests and under growth"—to get to the spring. The spring seems to function as a point from which the party oriented themselves; the journey from Draper's Meadow to the Kanawha spring had been "much impeded," yet the party's movements from the spring northward seem more straightforward. From the spring on the Kanawha, the party and their captives proceeded uninhibited down the river to where it flowed into the Ohio. A month after their departure from Draper's Meadow, the Shawnees and their captives arrived at Lower Shawneetown on the central Ohio River. While there, an Anglo-American woman named Mary Ingles, who had been taken from Draper's Meadow, and an older Dutch woman were assigned to "some Indian Hunters […] to attend them as Servants, to dress their victuals, and stretch the Skins they might procure." The hunters were headed for Big Bone Lick and "took [his] mother, and several other of the prisoners, to make salt."[119]

The hunters clearly understood that in the late summer and fall months, when rainwater levels were lowest, the salinity content of the soils and springs at Big Bone were highest. This was also when game would consolidate in the largest numbers. The hunters made a second noteworthy decision by bringing the captives and kettles along for their hunt. Not only did they plan to hunt large mammals like deer, elk, and bison; the party also planned to (and, according to Ingles herself, did) make salt. Perhaps the hunters intended to stay at Big Bone for a while, and exploited the captive women's labor to have an additional commodity handy. Or maybe their tastes had changed; Indigenous hunters usually jerked meats like venison or bison without adding salt, but they may

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Library. All three of these documents focus largely on Mary Ingles escape from Big Bone Lick in the fall of 1755 and her return to western Virginia over a month later. For more on Colonel James Patton's role in land speculation in western Virginia and negotiations at Lancaster (1744) and Logstown (1752), see Brenda Lynne Payne Rose, "A Brief Biological Sketch of Colonel James Patton" published online by the Colonel James Patton Chapter of the Daughters of the American Revolution (Waynesborough, VA), https://coloneljamespattonchapterdar.weebly.com/chapter-history.html. For more on the 1752 Treaty of Logstown, see "The Treaty of Logstown, 1752" via *Early Recognized Treaties with American Indian Nations* (originally printed in *Virginia Magazine of History and Biography* Vol. 13 (1906), 154–174), http://treatiesportal.unl.edu/earlytreaties/treaty.00004.html.

[118] For "there had been several parties…" and "their heathen thirst…" see James Duvall (trans. and ed.), *The Narrative of John Ingles, c. 1824* (Burlington, KY: Boone County Public Library, 2008), 4.

[119] For "a little salt spring…" and "much impeded by…" see "The Narrative of John Ingles," 6. For "some Indian hunters…" see excerpts from *New York Mercury* January 26, 1756, trans. and ed. By James Duvall (Burlington, KY: Boone County Public Library, 2008). For "took my [his] mother…" see "The Narrative of John Ingles," 8.

have developed an appreciation for salt-curing or a taste for salted meat introduced by French and British colonists. Like the Shawnee men's stop at the spring on the Kanawha, what the hunters at Big Bone intended to do with the salt Ingles and the other captives made is left undescribed. Whatever their reasons, that they took care to haul kettles and captive labor to the lick for that purpose shows salt's significance to hunters—directionally, as sites from which hunters stationed themselves and, productively, as places where salt was made and possibly even used to preserve meat.[120]

Following the end of the Seven Years' War in 1763, Anglo-American settlers made more frequent incursions into the Ohio River Valley. Still in use, the traces of dependency that tied salt licks to Indigenous settlements, migratory pathways, and hunting grounds dictated settler movements. Salt-centric geographies facilitated Daniel Boone's highly mythologized 1767 expedition across Virginia's Appalachian frontier. Departing from "the headwaters of the west fork of Big Sandy" in present-day eastern Kentucky for the southern banks of the Ohio River, Boone, William Hill, and their companions

> Pursued their journey along [the Ohio River], until … probably striking a buffalo path … they came to the salt spring … Here they were caught in a severe snow storm, which compelled them to camp, and they at length concluded to remain all winter. The salt spring, which issues from the foot of a rocky bluff … proved valuable … it was the means of enticing buffaloes and other animals there in great number … and all Boone and Hill had to do, next to husbanding their ammunition, was … rise, kill, and eat.[121]

On subsequent expeditions through the late 1770s, Boone continued to rely upon salt licks to find his way and keep himself and settler parties whom he escorted alive. Other Europeans reported receiving directions directly from Native men acquainted with salt licks and adjacent hunting grounds. In 1766, British Captain Harry Gordon journaled about visiting Big Bone Lick:

> We encamped opposite the great lick and next day I went with a Party of Indians and Batteau-men to view this much-talked-of Place. The beaten roads from all Quarters to it easily conducted Us: they resemble those to an Inland village where cattle go to and fro a large Common.[122]

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[120] Preservation by way of drying or "jerking" or slow-drying meats—especially venison and buffalo—appears to have been a method preferred consistently by Indigenous peoples who relied on these proteins as primary dietary staples. For more on the role of red meat proteins in eastern North American Indigenous diets, see Fewkes, Swanton, and William Myer, *Forty-Second Annual Report of the Bureau of American Ethnology,* and Swanton, *The Indians of the Southeastern United States*, Bulletin 137, Bureau of American Ethnology, Smithsonian Institution, (Washington, DC: United States Government Printing Office, 1946).

[121] Quote from Colonel Nathan Boone, excerpted from Willard R. Jillson, *Tales of the Dark and Bloody Ground: A Group of Fifteen Original Papers on the Early History of Kentuck*y (Louisville, KY: C.T. Dearing, 1930), 23, in Jakle, "Salt and the Initial Settlement of the Ohio Valley," 97.

[122] Captain Harry Gordon, "Journal of 1766," in Willard R. Jillson, *Big Bone Lick* (Louisville, KY: Standard Printing Company, 1936), 19.

Direct guidance could be critical. When Moravian and Indian agent John Heckewelder visited the Wabash River Valley in 1792, he travelled along "a great many buffalo trails" that "lead out" from French Lick, a major lick on the Alanant-o-wamiowee. Their "guides not being with [them]," Heckwelder's party "had the misfortune to take such a one instead of the right one." Without these precedents, Euro-American hunters, traders, and travelers would have found themselves lost in a true wilderness. But Indigenous hunters and the game they followed to salt licks provided pathways to sustenance and, often, survival.[123]

British surveyors, too, relied upon guidance from Indigenous peoples to find salt resources. In the spring and summer of 1773, Virginian Thomas Bullitt led a survey party to the central Ohio River Valley to enter surveys south of the Ohio River for Virginia's Governor Dunmore. Haudenosaunee and Cherokee leaders had nominally ceded the lands for which Bullitt embarked to British control in the 1768 treaties of Fort Stanwix and Hard Labour, respectively. Haudenosaunee and Cherokee negotiators claimed to control the hunting grounds south of the Ohio River, and the fates of the people who used them most frequently; Shawnees, Delawares, Miamis, and other local peoples (some of whom consequently referred to Haudenosaunees as "Slaves of the White people" because of their actions) were expected to stay north of the river while British speculators set about carving *Kanta-ke* into thousand-acre properties. On his way west, Bullitt first stopped at the Delaware and Shawnee town of Chillicothe on the upper Scioto River, where he conducted some diplomatic (yet ironically and ultimately deceptive) damage control:

> Here he [Bullitt] made a friendly gesture to the Indians, whom he knew to be dissatisfied with the unfair treatment they had received at Fort Stanwix … Bullitt, in an eloquent speech, emphasized the fact that there was land enough for both whites and Indians.[124]

In his own journal, Bullitt claimed to have expressed remorse for the siloing of Delaware and Shawnee political interests, lamenting how they "did not get any of the money or blankets for the land I and my people are going to settle." Their intentions, Bullitt assured them, were honorable: "my people only want the country to settle and cultivate … [and] will have no objection to your hunting and trapping there." Bullitt's party then proceeded southwestward to Big Bone Lick. From there, they planned to travel south to survey and enter lands containing purportedly potent salt licks and springs. Upon their arrival at Big Bone, Bullitt's party was disappointed to find that surveyor James Drennon had beaten them by a day. "While the surveyors were at Big Bone," Drennon allegedly "bribed a Delaware Indian into describing and directing him to a salt lick to the south"—which later became known as Drennon's Lick. Through 1774, at least four more survey parties travelled down the Ohio with instructions to survey and apprise salt licks, adjacent hunting grounds, and any potentially farmable land. Instead, the surveyors' movements through Shawnee, Delaware, and Miami hunting grounds instigated a full-on war in Dunmore's name.[125]

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[123] "Narrative of John Heckewaelder's Journey to the Wabash in 1792," *Pennsylvania Magazine of History and Biography* Vol. 12 (1888), 174.

[124] Thomas D. Clark, *A History of Kentucky* (Lexington, KY: John Bradford Press, 1950), 34.

[125] For "Slaves of the White people," see Eric Hinderaker and Peter C. Mancall, *At the Edge of Empire*, 149. As Mancall and Hinderaker put it, the cessions made at Fort Stanwix allowed Haudenosaunees "to protect their own interests […] while—at least in the eyes of many Shawnees—they gave away too much of what the Ohio Indians needed" (147). In conjunction with the Treaty of Hard Labour (1768) and Treaty of Lochaber (1770), which British officials negotiated contemporaneously with Cherokees, the dual-pronged cession of present-day Kentucky "brought

In exploiting Indigenous knowledge and mammalian infrastructures to their own ends, settler ambitions blurred the boundary between merely surviving in predominantly Indigenous-controlled and occupied places and commanding those places in ways that serviced colonial interests. Through the 1770s and 1780s, greater numbers of settlers exploited ancient traces of dependency to emplace exclusive claims to land and resources. Both elite and middling settler men who moved into the Ohio River Valley to survey and settle its lands used mammalian and Indigenous precedence to produce private properties in places where continual mobility multispecies co-dependency had long prevailed. Regionally local Indigenous hunters knew salt licks attracted competition from their Cherokee, Chickasaw, and Haudenosaunee counterparts.

But through the 1770s, with the collapse of Britain's attempt to stymie white expansion and speculation in the Ohio River Valley, settlers who sought out salt licks started to look as if they planned to stay. While the promise of rich resources pulled settlers to the Ohio River Valley, seismic shifts in settler politics—namely the birth of a new, more aggressive successor to the British Empire—pushed colonizers to embrace exclusivity over adaptation. Euro-American settlement at and use of salt licks did not introduce competition over salt resources to the Ohio Country; it did, however, transform the urgency of that competition. Settlers turned salt licks from sites of seasonal, shared use to claimable, defendable property. Settlers believed the privatization of land would insulate them from recourse. Instead, it invited resistance from Indigenous men who saw their primary means of mobility, access to resources, and economic power stolen away. As Shawnees, Miamis, Delawares, and other Ohioan peoples responded to the suffocation of their subsistence, settlers further dug their heels—and their claims—into the mud at salt licks themselves.

(Un)settling Salt Licks

The thunder shook the earth, so much so that Englishman Nicholas Cresswell wondered if those "traditionary accounts by the Indians" were true. Cresswell and a party of British surveyors were traveling down the Ohio River in 1775 when they stopped at Big Bone Lick to rest and recuperate. The place abounded with provisions. The travelers "saw some buffalos but killed none," opting instead for handfuls of mulberries ("very sweet and pleasant … but bad for the teeth") and venison. The trees, Cresswell noted, were adorned with "several Indian paintings." And the mud, of course, yielded its own impressive display. The party excavated, with relative ease, a ten-pound jaw tooth, an 18-inch "Tusk of hard and good ivory," "Ribs 9 inches broad," and "Thigh bones 10 inches in diameter." Later that day came the thunder and the rain. It was "the loudest Thunder and heaviest rain" Cresswell had "ever saw"—weather reminiscent of stories told through and beyond the Ohio River Valley of lightning storms that killed giant beasts.[126]

These were old stories. Indigenous narratives—several of which were relayed to and recorded by Euro-Americans between 1762 and 1800—explaining when and why the massive

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a vast new territory into play, whetting the appetites of speculators who had been eyeing the Ohio country for decades" and "produced animosity among the western Indians" who became increasingly resistant to British overtures and orders (148). For more on Shawnee responses to the affront that was the Stanwix cession, see Hinderaker, *Elusive Empires*, 161-170. For the excerpts of Bullitt's speech that Bullitt wrote in his journal, see Henry A. Ford, *History of the Ohio Falls Cities and Their Counties* Vol. 1 (Cleveland, OH: L.A. Williams & Co., 1882), 157-163, via "Thomas Bullitt and the Bullitt Family," *Bullitt County History*, https://bullittcountyhistory.org/bchistory/thomasbullitt2.html. For Drennon's bribery of the Delaware guide, see Clark, *A History of Kentucky*, 35-37.

[126] Hedeen, *Big Bone Lick*, 29-30. Cresswell referred to the lick as "Elephant Boone Lick"; see Lincoln MacVeagh (ed.) *The Journal of Nicholas Cresswell, 1774-1777* (New York, NY: The Dial Press, 1924).

buffalo and other great beasts ceased their migrations to the Ohio River Valley varied considerably and travelled widely. Modern interpretations of these narratives have framed them as mythological explanations for the extinction of archaic megafauna. But they might be read more productively; not merely myths, Indigenous histories of upheaval and their parables of punishment took on new meaning for contemporary Miamis, Shawnees, Delawares, Haudenosaunees, and other Indigenous peoples who registered the colonization of salt licks as a source of fundamental disruption to their lives—and responded accordingly.

In the latter decades of the eighteenth century, Indigenous peoples in the Ohio River Valley witnessed another great transformation—one in which white people (rather than white buffalo or angry gods) threatened an organic order to human and more-than-human subsistence. Since their initial incursions into the Ohio River Valley, Euro-Americans had relied upon salt-centric game trails—first to find game, then to establish trusted travel ways, and eventually to emplace territorial claims. In the long aftermath of the Seven Years' War and as the American Revolution spilled over the Appalachians, settlers seized upon salt licks with greater frequency and in the interest of establishing permanent industries. Through the 1790s, wagon wheels replaced buffalo hooves, cattle replaced game, and metal equipment replaced mineral-rich mud pits. Though they came armed with legal deeds rather than lightning, salt-seeking settlers inflicted considerable damage to Indigenous and more-than-human lifeways that congealed and coalesced at salt licks.

Following the Seven Years' War and France's piecemeal departure from the Ohio River Valley, British speculators and surveyors set about incorporating land awards. Thousands of Euro-American veteran officers received grants to multi-thousand-acre tracts along the Ohio, Scioto, and Mahoning rivers and smaller riverways, creeks, and runs that fed into them. Many military grants privileged Euro-American veterans with potentially mineral-rich lands. In addition to acreage suited toward agriculture, these grants targeted aquatically accessible lands that might contain lead, limestone, copper, coal, saltpeter, and salt. A 1773 grant, for instance, divided several thousand acres along Great Salt Lick Creek in northeastern Kentucky into awards for 129 officers who had served the British Crown during the Seven Years' War. Especially south of the Ohio River, where salt licks and roadways leading to them abounded, the presence of salt shaped the potential value of land awards. British survey parties as well as small settler populations seeking subsistence eagerly sought out salt licks that might adequately support colonial commerce and settlement. But Native men deeply dependent upon the salt licks, hunting grounds, and trailways that tethered these resources to one another stymied their efforts. Grantee William Christian, who received a major land reward for his service as a captain in the Anglo-Cherokee War in 1758-1761, had to dispatch two survey parties to enter his military award in Jefferson County; in the summer of 1773, Christian's first survey party had nearly arrived at "the Salt Spring and Buffalo Lick" just north of the Salt River when Shawnee warriors forced their retreat. Despite Indigenous resistance, settlers invested eagerly in newly entered lands with salt springs. In July 1775, Richard Henderson was on a guarded expedition on behalf of the Transylvania Company when his party ran out of salt to cure and keep meat: "provisions very scare; no salt to enable us to save meat at any distance from us."[127]

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[127] This rush to speculate, survey, and enter lands west of the Appalachians constituted a core part of what Hinderaker refers to as "aggressive opportunism"—a paradigm of British (and soon after American) colonization that privileged individual empowerment over imperial or diplomatic order; see Hinderaker, *Elusive Empires*, 175. Thomas Smith, Great Salt Lick Creek military land list, 1773, Special Collections, Kentucky Historical Society, Frankfort, KY [hereafter "KHS"]. Henry A. Ford, "Thomas Bullitt and the Bullitt Family," from *History of the Ohio Falls Cities and Their Counties, Vol. 1*, 157-163. William Christian, August 23, 1783, Mss. A B937c, Folder 423, William Christian – land papers, 1766-1786, Bullitt Family Papers – Oxmoor Collection, Filson Historical Society,

Even where settlers managed to establish themselves with some permanence, Indigenous power limited early settlers' ability to work local salt licks. In 1777, Daniel Boone attempted and failed to establish a saltworks at Blue Licks near Boonesborough in the central Licking River Valley to provision the settlement's few families and nearby garrisons. Boone soon found that the brine he and his men drudged up at Blue Licks was hardly strong enough to justify their labor. But he believed he could bend nature to his will; the more pressing issue, according to Boone, were frustrations caused by still-mobile Native men. "Bountiful Nature hath plentifully furnished this country with salt springs," Boone wrote to Virginian officials in the fall of 1777, but "the incursions of the different nations of Indians this year past prevented [them] from making what quantities would be necessary" to sustain the settlement. By the following January, the provisioning situation at Boonesborough had grown so dire that Boone and some thirty men embarked for the Blue Licks on the Licking River to make salt. But Blackfish, a Shawnee war leader, had tracked the party to the licks, took them captive without firing shot, and made them drag their kettles over a hundred miles northward, first to Lower Shawneetown and then to Chillicothe, where Boone and the salt-makers remained captives for several months. Boonesborough struggled through the summer of 1778 as settlers, without reliable access to salt or preserved provisions, found themselves resorting to seasonal subsistence strategies to survive.[128]

Anxieties over inadequate backcountry provisioning constituted another impetus of speculation upon salt resources. Military activity in the Ohio River Valley during the American Revolutionary War further functioned as a litmus test for the viability of local salt production suited for colonial aims. Inland salt making was shaped largely by the war itself; successful British blockades along the Atlantic seaboard drove up the price of imported salt and salt provisions. This method of provisional attrition proved especially dire for military outposts and colonial enclaves deeper in the continental interior, where topological and geographical factors further exacerbated rising costs of shipping weighty salt products and provisions. Salt was used in martial contexts for the seasoning and preservation of food, specifically meat. To avoid wasting meat, large quantities of salt were necessary for the butchering of cattle. During the war, Americans at Fort Pitt struggled to provision local and distant garrisons. George Morgan, writing from Fort Pitt in late July of 1777, advised David Shepard to "herd the cattle until they are needed for the expedition, when salt will be sent," presumably, for the meat's preservation. Fort Pitt had still failed to secure enough salt through the end of September:

> We have now about 500 Head of horned cattle in the Neighborhood of [Pittsburgh] which are daily growing poorer & cannot be killed for want of salt, of which we cannot get a Bushel as we have neither

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Louisville, KY [hereafter "BOC, FHS"]. Richard Henderson, "Journal of an Expedition to Cantucky in 1775" in Lewis Collins (rev. and ed.) and Richard Collins, *Collins' Historical Sketches of Kentucky: History of Kentucky Vol. 2* (Covington, KY: Collins & Co., 1874), 501.

[128] John Mack Faragher, *Daniel Boone: The Life and Legend of an American Pioneer* (New York, NY: Henry Holt and Company, 1992), 159-162. The capture and subsequent captivity of Boone and the salt-makers at the hands of Blackfish has long been a hallmark of settler memory and mythology in Kentucky, wherein settler historians have positioned Boone and the salt-makers as tragic yet ultimately hardy victims of Indigenous jealously and violence; for instance, see W.H. Bogart, *Daniel Boone and the Hunters of Kentucky* (Philadelphia, PA: J.B. Lippincott and Co., 1881).

> Specie nor continental Money & our Merchants will not touch state money. The greatest part I think will die this winter.[129]

Stationed at Fort Randolph near the Kanawha River, Captain Matthew Arbuckle wrote to Edward Hand, then commanding general at Fort Pitt, that as of November 7, 1777 the fort was "totally out of salt three days ago," adding too that their "beeves are daily losing." Low salt supplies meant not only low protein provisions, but money wasted on rotted meat. The expansion of colonial cattle and provisioning industries posed a dual threat to mammalian sustenance and dependent hunting economies that shaped salt licks for several thousand years. Colonial militaries required mass quantities of salt to preserve cattle, while cattle required salt licks to sustain themselves—just like other large mammals. And armies tended to spook game, further deterring wild mammals from resorting to increasingly crowded licks. By the early 1780s, cattle droves "repair[ed]" to salt licks in large numbers capable of "reduc[ing] high hills rather to valleys than plains." In the eyes of Native men who still depended on salt licks as hunting grounds, these four-legged newcomers likely looked less like someone's private property and more like fair game.[130]

While destructive, poorly provisioned militias and hungry cattle posed a fleeting threat to salt licks and their longtime dependents. As Boone's experience at the Lower Blue Licks shows, most salt licks proved too weak or too wild for capital-poor settlers to erect reliable saltworks. But even weak licks were nonetheless useful to Euro-American aims in colonizing the Ohio River Valley in more irreversibly damaging ways. Through the 1780s, Anglo-American surveyors in the Ohio River Valley relied heavily upon the presence of salt to stake out fixed property claims. And more so than licks themselves, buffalo and hunter traces proved most critical to the emplacement and demarcation of settler surveys. This was especially true in the Licking River Valley, which proceeded southward from the Ohio River at Big Bone Lick into the heart of Kentucky's bluegrass region. British trader-turned-surveyor Simon Kenton first "became acquainted with the … roads then travelled by Buffalo and Indians" in 1775 to make "an entry … of 985 acres" near Lower Blue Licks. Upriver from the Lower Blue Licks, multiple settlers made conflicting entries encompassing the potent saltwater found at May's Lick. While some settlers found themselves in competition with one another over claims to salt licks, settlers elsewhere used evidence of usage to stake out claims. In 1784, awardee Robert Vaughan entered a 2,500-acre tract south of the Green River, property bounded in by an island populated by oak trees with "ancient marks" in one corner and "a noted Buffalo Road leading from the long bottom on Bacon Creek to a lick on sd. island opposite to … sd. trees" in another. Salt might have been invisible in the eyes of surveyors, but its presence was made obvious through hoof-trodden traces, compacted earth, and sometimes sad-looking soil.[131]

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[129] Letter from Joseph Reed, September 28, 1777, in "Notes and Queries," *Pennsylvania Magazine of History and Biography* Vol. 11 (1887), 502.

[130] For the impact of British naval strategy on American salt imports, see Jakle, "Salt and the Initial Settlement of the Ohio Valley." George Morgan to David Shepard, July 29, 1777, in Reuben Gold Thwaites and Louise Phelps Kellogg (eds.) *Frontier Defense on the Upper Ohio, 1777-1778*, Draper Series Vol. 3, Library of the Wisconsin Historical Society (Madison, WI: Wisconsin Historical Society, 1912), 33. Captain Matthew Arbuckle to General Edward Hand, November 7, 1777, in Thwaites and Kellogg (eds.), *Frontier Defense on the Upper Ohio*, 149. Filson, *The Discovery, Settlement and Present State of Kentucke.*

[131] Deposition of Simon Kenton, KHS. Survey for Robert Vaughan, Mss. C K, Kentucky Lands, Surveys and Plats, FHS.



Figure 9. Plat of overlapping entries and surveys made near May's Lick, November 29, 1810. This map was produced for and used in a lawsuit between Robert Morrison, Edwin Ford, and other claimants over conflicting claims to May's Lick and lands in the Licking River Valley. Buffalo traces (marked by yellow lines) leading between Lower Blue Licks (in the lower lefthand corner) and May's Lick (in the document's upper righthand quadrant) were used by chain runners as reference points, survey corners, and measures of distance. Source: Mss. C K, Kentucky Lands Plats and Surveys, Filson Historical Society, Louisville, KY.

Salt's spatial signifiers constituted more than convenient "discoveries" or curious outcroppings of archaic life; rather, they facilitated the privatization and valuation of lands and resources with which recently arrived settlers were hardly acquainted. This was particularly true of the northern Salt River Valley, where the concentration of high salinity salt licks and springs incentivized the establishment of the first commercial settler saltworks west of the Appalachians. Unsurprisingly, the earliest surveys and entries made between the Ohio and Salt rivers targeted the strongest salt licks and springs; lands at and adjacent to Bullitt's Lick, Drennon's Lick, Mann's Lick, and Long Lick—all of which became commercial saltworks following the American Revolution—were surveyed and entered by 1780.[132]

[132] As mentioned earlier, Bullitt's Lick was first surveyed in 1774 but the survey remained unentered and the deed unrecognized until November 1779, when William Christian finally managed to formally enter his claims. Christian was among a small yet powerful handful of Virginian and Pennsylvanian landowners who secured original colonial title to salt licks and springs, but Christian's ownership of Bullitt's Lick was an anomaly. Other commercialized licks either consisted of overlapping claims that confounded settlers' ability to rent out land, water, and timber for salt-making, or they consisted of small claims that granted ownership to licks, springs, brine seeps, timber, buffalo roads,

Collectively, land and legal documents illustrate how settlers depended upon the past movements of mammals and hunters to and through salt-rich places to turn those places into property. Without these precedents, colonial claims and settler movements were unmoored. The documents demonstrate that while early surveyors still relied mostly on the tried-and-true method of tree marking, traces provided directions in ways that fixed resources could not; migratory herds and the hunters who followed them created pathways through otherwise unnavigable forests and swamps, bypasses around knobs and impassable hills, and crossings through rivers and creeks. Unlike wagon roads or foot trails, buffalo traces led "from one lick to another" and were "much beat and cut deep" through rugged terrain. As one settler deponent later put it, "it was common observation in the early times that the buffaloe knew how to find the best way" to travel from lick to lick. Initially, Americans in Kentucky recognized that roads were commonly used and therefore unclaimable features of the landscape. But as their population and property in the region increased, settlers soon saw traces as more than signposts; ensuing property disputes prompted titleholders to claim portions of roads themselves as parts of their surveys and properties.[133]

The colonization of traces that led to salt licks and springs culminated in the colonization of licks themselves. A large buffalo path that forked southwestward from the Alant-o-waiwomee at the Falls of the Ohio (present-day Louisville) led toward a major licking ground and spring complex just north of the Salt River. After two failed attempts to survey it, William Christian opened a saltworks in 1779. That summer and fall, settlers shipped kettles, axes, pipes, carts, oxen, and other salt-making wares down from the Ohio River by way of the buffalo trace, further transforming its colonial utility and inviting the establishment of stations and camps run by Euro-American men. [134] The establishment of the saltworks and its attraction of settler capital and labor also depended upon defense. While the furnaces at Bullitt's Lick were under construction, settlers erected Brashear's Station (also known as Salt River Garrison) at a buffalo ford on Floyd's Fork, immediately north of Salt River; the purpose of the garrison was to house settlers and, initially, defend the saltworks from Cherokees, who tended to cross the Salt River from the south, and Shawnees, who travelled into central Kentucky by buffalo road or sometimes by way of the Salt River. By mid-November 1779, the works were in full operation, much to the awe of American colonel William Fleming:

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or other resources to multiple titleholders. At Long Lick, for instance, which lie south of Bullitt's Lick by way of a buffalo road, was surveyed and claimed by ten different parties, most of whom all entered their claims in November 1780. At Mann's Lick, which lie north of Bullitt's Lick also by way of a buffalo road, was also entered in 1780 by John Todd as a military warrant; soon after, nine other parties made conflicting entries to salt- and timber-rich lands at the lick. For more, see Robert E. McDowell, "Bullitt's Lick: The Related Saltworks and Settlements," *The Filson Club History Quarterly* Vol. 30, No. 3 (1956), via Bullitt County History, https://www.bullittcountyhistory.com/bchistory/mcdowellbullittslick.html.

[133] Deposition of Jacob Shively, February 8, 1817, Vol. 12, Mss. M138a – 138c, Robert E. McDowell Research Collection, Filson Historical Society, Louisville, KY [hereafter "McDowell research Collection, FHS"]. Deposition of Charles Floyd, May 14, 1817, Vol. 12, McDowell Research Collection, FHS.

[134] In later court cases, several settlers attested to the trace's centrality to the early settler salt industry; it remained the primary overland route from Bullitt's Lick to the Ohio River until 1783. For example, see deposition of James Quertermous Sr., February 21, 1809, Vol. 11, McDowell Research Collection, FHS. James McCawley Sr. and James Welch Sr. also described the old buffalo trace as the sole means of travelling directly and securely from Louisville and the Ohio River to Bullitt's Lick; see ibid. Because of its significance to settler mobility and industry (and because of the ease with which settlers could locate it), the trace itself was heavily contested among settlers who claimed surveys and preemption rights to lands that bordered or overlapped it; see Vols. 11 and 12, McDowell Research Collection, FHS.

> Bullitt's Creek as it is cald is perhaps the best Salt Springs in the country ... They have a trough that holds very near 1000 gals. which they empty thrice in the 24 hours. They have 25 kettles belonging to the commonwealth which they keep constantly boiling and filling them up as the water waistes—from the trough first into kettles which they call fresh water kettles and then into others. After this management for 24 hours they put the brine into a cooler and let it stand till cold or near it and draw off the clear brine into the last boilers under which they keep a brisk fire till they observe it begin to grain when they slacken the fire and keep them at a simmering boil till it grains. They then put it to drain ... 3000 gals. of water boiled down yields from three to 4 and 4 1/2 bushels. The dryer the weather, the better for making salt.[135]

If Fleming's ratios are correct, Bullitt's Lick was blessed by high salinity levels, which made it ideal for both military and civilian use. Through 1780, the saltworks attracted more settlers and garrisons—including Mud Garrison, situated between Brashear's Station and Bullitt's Lick. It also encouraged greater speculation on the value of nearby licks; between 1780 and 1782, nine settlers filed entries and preemption claims to lands at Long Lick, which in 1785 became host to Kentucky's second commercial saltworks. Bullitt's Lick became a self-sustaining node of Euro-American colonization, at once inviting and anchoring commercial salt-making, white settlement, increasingly competitive land speculation, and greater military presence.[136]

Indigenous peoples resisted the privatization of salt licks. Through the end of the American Revolution, Native men disrupted, deterred, and discombobulated Anglo-American surveyors and, in their immediate wake, early salt-makers. Oftentimes, the mere presence of Indigenous men deterred settlers from using traces that often offered the only point of access to salt licks. While returning to Bullitt's Lick from the Falls of the Ohio in the late summer of 1779, James Lee, Squire Boone, and William Moore overnighted midway along the buffalo trace. Though the road was familiar to them, the men kept their distance, and "encamped 300 yards" away, "being afraid to camp at the spring on the trace on account of the Indians." "An alarm of Indians" along the same trace put salt-making operations at Bullitt's Lick on pause in April 1780 as dozens of workers, guards, and civilian settlers from the saltworks itself and nearby Mud Garrison were dispatched to locate the threat. In March 1781, William Keith and John Mucklihon "intended to enter 500 acres" near Long Lick in Nelson County when they were "prevented from entering said land on account of the Indians being troublesome."[137]

Native men also took more active stances against surveyors and speculators. Sometime between 1779 and 1780, James Bently and John Philips travelled to a place called Indian Licks (also known as "Shawnee Liks") to manage improvements "when they were deterd from proceeding by apprehension of the Indians and returned." Other surveyors were less fortunate; in July 1781, Richard May was surveying a salt lick and adjoining creek near the central Ohio River

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[135] From "Colonel William Fleming's Journal from November 10-25, 1779," republished and transcribed by Bullitt County History and Bullitt County Genealogical Society, https://www.bullittcountyhistory.com/bchistory/flemingjournal.html.

[136] McDowell, "Bullitt's Lick: The Related Saltworks and Settlements."

[137] Deposition of Squire Boone, August 23, 1811, Vol. 11, McDowell Research Collection, FHS. Deposition of James Pursell, August 23, 1811, Vol. 11, McDowell Research Collection, FHS. Deposition of William Keith, March 12, 1808, Vol. 13, McDowell Research Collection, FHS.

when he was attacked and killed "by the Indians," who also took May's survey notes and saddle bags. A similar fate befell Colonel John Floyd in April 1783, when a Shawnee party killed him and two other settlers travelling southward from the Falls of the Ohio to Bullitt's Lick. Even when physical absent, Native peoples left impressions upon the landscape that confounded surveyors. Surveyor Spencer Collings was "very careful in taking notice of trees" while entering lands along Roger's Trace (formerly recognized as a buffalo road) with an aim "to find out whether it was Indians or white people" who made illicit engravings across surveyed lands.[138]

The presence and power of Native men even prompted problems for settlers that persisted well past passing encounters. In 1784, brothers Paul and Jacob Froman hired Thomas Whitledge to survey their tract on Salt River. The brothers eventually established a saltworks known as Froman's Lick, but its future, when Whitledge surveyed the land, was tenuous; Whitledge and the survey party spent one day running chains and "agreed to go back the next morning," only to be "prevented" by "four Indians." The Froman tract rested solely on Whitledge's partly complete notes, and later precipitated a multi-year legal dispute over the boundaries and place of Froman's salt wells. As these examples indicate, Native power and presence forced prospective landholders to pursue privatization schemes with militaristic purpose. "There is at present the greatest opportunity of making a profit by purchasing this country," speculator John May wrote to Samuel Beall in April 1780; northern Kentucky, May promised Beall, "is conveniently suited to navigation & salt." Promises of protection assured Beall and other potential investors the security they needed to purchase into the region's salt resources. "Salt is worth from 500 to 600 dollars per bushel," May told Beall that September, "and if [you] make the purchase [and] intend [to] carry on the work to any extent there will be a garrison for the protection of the place."[139]

From its start, settler colonialism suffocated subsistence networks long shared by large game and Indigenous nations from across the Ohio River Valley. At licks themselves, early saltworks like Bullitt's Lick caused irreversible ecological damage upon salt-rich earth that long attracted game and oriented their movements. Settlers called to testify in cases concerning properties with salt licks frequently attested that buffalo and game stopped migrating toward licks-turned-saltworks; rapid timbering, brine pumping, boiling, and other subindustries rendered potent licks unusable and inaccessible to mammals. Beyond the licks, the bidirectional boom of settlement and industrial salt-making transformed traces from paths toward subsistence into corridors of colonization. The more settler salt-makers utilized salt-centric pathways to move people and product, the more the paths themselves became objects of survey, speculation, and privatization. Collectively, licks functioned as the heart of mammalian subsistence and Indigenous mobility south of the Ohio River, and traces served as the arteries that sustained those dependencies. The piecemeal privatization and eventual industrialization of salt resources constituted clots that clogged subsistence systems that transcended the Ohio River. Settler colonialism made the co-optation of salt licks a zero-sum game; the crystallization of a self-sustained settler salt industry depended upon the dissolution of mammalian pathways to subsistence and the prosperity Indigenous men and their communities sourced from those pathways.

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[138] Deposition of John Bently, May 25, 1805, Vol. 3, McDowell Research Collection, FHS. Deposition of Martin Hardin, March 26, 1800, Vol. 3, McDowell Research Collection, FHS. Deposition of Spencer Collins, August 13, 1805, Vol. 13, FHS McDowell Research Collection, FHS.

[139] Deposition of Thomas Whitledge, January 1, 1808, Vol. 5, McDowell Research Collection, FHS. John May to Samuel Beall, April 29, 1780, Mss. A B365, Folder 1, Beall-Booth Family Papers, FHS, Louisville, KY. John May to Samuel Beall, September 5, 1780, Mss. A B365, Folder 1, Beall-Booth Family Papers, FHS.

Surveys of roads and salt licks and the early saltworks that cropped up in their place nominally provided settlers with steadier footing atop salt-rich soil. But Indigenous peoples with deep ties to those lands would continue to destabilize the establishment of a commercial salt industry and the settler society which it sustained. As the following chapter demonstrates, settler colonization of salt resources and resistance to it were equally agentive processes, more so than past historians have recognized. This recognizes the conditionality of settler industries in rapidly colonized regions and, even more specific to the Ohio River Valley, explains why settlers saw their salt-making endeavors frustrated for far longer than they hoped. Two decades after initial surveys, settler salt-makers like Thomas Carneal, who moved to Big Bone Lick late in 1794 to establish a saltworks and a settlement for white families, found their futures in salt-making ambiguous at best and non-existent at worst. "The place where I have my people [is] much exposed to the encroachments of the Indians," Carneal complained to Kentucky governor Isaac Shelby in March of 1795; "if there is no guard in that quarter," Carneal warned Shelby, "the whole will brake." When he and the surveyors stopped at Big Bone Lick twenty years prior, Nicholas Cresswell heard that the bones at Big Bone Lick had been white buffalo who "killed themselves by drinking salt water." Overzealous and intent on commanding exclusive control over salt-rich earth and water, the white buffalo self-exhausted their stay in the Ohio River Valley. This story known and told by Native peoples would soon prove salient in the following two decades.[140]

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Salt licks in the Ohio River Valley preserved, provided, and promised prosperity. Human relationships with salt resources ran deep and evolved often, a context that has, until now, seldom received attention. But this context is crucial to understanding not only how Indigenous and Euro-American peoples interacted with salt resources in the Ohio River Valley, but how these interactions informed other colonial, ecological, and international contingencies. The deep history of salt licks across the Ohio River Valley was more than "pre"-history; their many pasts—made and remade through multiple modes of movement, interaction, and subsistence—directly dictated future dependencies. Settlers used these precedents to stake their own claims to the full, exclusive share of salt's future. At face, the privatization of nodes and networks anchored to salt licks seems to have cleaved saline spaces in two. As past studies argue, mammalian and Indigenous dependency upon salt licks south of the Ohio River constituted important but ultimately unsustainable precedents for settler movement and resource use. By this logic, settlers were bound to find salt licks and expropriate them for their own ends—thereby dooming Indigenous peoples and large game alike to retreat and eventually disappear. But this bifurcation is mostly settler fiction. The colonization of salt licks was in many ways incomplete, complicated by ecological realities, confounded by settlers' lack of familiarity, and contested by Native peoples with deep dependencies upon, knowledges about, and connections to salt resources. Surveys and early settler salt-making endeavors marked a starting point—not of salt's history in the region writ large (as existent narratives suggest), but of another chapter in salt's significance, one centered upon the onset of a new kind of colonialism.

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[140] Thomas Carneal to Isaac Shelby, March 7, 1795, Mss. A S544, Folder 3, Isaac Shelby Papers, FHS. Cresswell in Hedeen, *Big Bone Lick*, 29.

Chapter IV | Brine

> *I sometimes hunted. Sometimes I took a rout after the Indians. I sometimes made salt at Bullitt's Lick.*
>
> - deposition of Kentucky settler Samuel Miller, May 28, 1817[141]

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The location of the Mahoning Salt Spring nearly cost Micheykapeecci her life. It was the winter of 1778 when the Munsee Delaware elder departed with her relatives for a sugar camp between the Mahoning River and Fort Pitt. Delayed by bad weather, the Delawares arrived at the camp in time to be attacked by a band of American soldiers who murdered Micheykapeecci's adult son, two women, and a child. A bullet grazed Micheykapeecci's little finger as she attempted to flee. The soldiers forced her to inform them of the location of a Munsee Delaware encampment reported nearby. Hoping to save her life and that of a companion's, she directed them to the Mahoning Salt Spring. But the Americans refused to let her go; they took her—and another Delaware woman captured at the sugar camp—to the salt spring, where both were again forced to witness the murder of their kin. After killing three women salt-makers (and kidnapping another) and a young boy, the Americans took the prisoners to Fort Pitt. The post commander, General Edward Hand, quickly released them and purportedly apologized for his men's "Savage Conduct." But he otherwise gave no explanation or excuse for the attack. Hand also declined to return the women's salt- and sugar-making kettles. Albeit alive, Micheykapeecci only departed with the memory of her relatives' murders.[142]

Violence continued to plague the Mahoning Salt Spring. In the later months of 1785, a party of American traders travelled from Pittsburgh to the spring with a load of "Indian goods" and salt-making equipment. When the traders arrived, American soldiers from nearby Fort McIntosh

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[141] Deposition of Samuel Miller, May 28, 1817, Vol. 12, McDowell Research Collection, FHS.

[142] Referred to by some members of the campaign and later historians derogatorily as the "Squaw Campaign," Edward Hand's 1778 campaign into the Ohio Country was the Continental Army's failed attempt to locate and eradicate British-allied Seneca and Cayuga forces. Senecas and Cayugas – who Americans believed had been directly armed and provisioned by the British – had travelled into the eastern Ohio Country to prevent American incursions into the region and to recruit Lenape, Shawnee, and others whose allegiances in the early years of the American Revolution were often divided across regional and/or political lines. For more on Hand's campaign, see Douglas Hurt, *The Ohio Frontier: Crucible of the Old Northwest, 1720-1830* (Bloomington, IN: Indiana University Press, 1996). Various accounts authored by some of the campaign's participants appear in Reuben Gold Thwaites and Louise Phelps Kellogg (eds.), *Frontier Defense on the Upper Ohio, 1777-1778*; see specifically "Recollections of Samuel Murphy," in Thwaites and Kellogg, *Frontier Defense on the Upper Ohio,* 216-221. Rob Harper identifies the "old squaw" (also referred to in contemporary accounts as "the mother of Pipe") as Micheykapeecci; see Rob Harper, *Unsettling the West: Violence and State Building in the Ohio Valley* (Philadelphia, PA: Univ. of Pennsylvania Press, 2018), 100. The Americans' murder of Micheykapeecci's son was an especially egregious error, as he was quickly identified as a relative– either brother or cousin – of Captain Pipe (also known as Konieschquanoheel within Lenape communities and as Hopocan amongst non-Lenapes). Captain Pipe served as a liaison between British, American, Lenape, and other Ohioan polities. Inconsistency across accounts make it difficult to discern whether Micheykapeecci was Pipe's mother or aunt, and, accordingly, whether Micheykapeecci's son was Pipe's (likely younger) brother or cousin; the "old squaw" mentioned in archival accounts published in Thwaites and Kellogg may have been Pipe's mother, making Micheykapeecci his aunt and Micheykappeeci's murdered son Pipe's brother. For more on Pipe, see William I. Barnholth, *Hopocan (Capt. Pipe) the Delaware Chieftain* (Akron, OH: Summit County Historical Society, 1966); Hurt, *The Ohio Frontier*; and Michael N. McConnell, *A Country Between.*

advised them to turn around; the "Indian title" to the salt spring "had not been extinguished," and the soldiers could not guarantee the traders' protection. Everyone followed the advice except for trader John Kribs, who risked remaining at the spring to keep an eye on the salt-making equipment through the winter. But his effort was short-lived—and so was Kribs. The following summer, trader James Hillman was travelling toward Cleveland when he met a Native man who told Hillman that Kribs had been found dead at the salt spring. Nemahahe, whose name, according to Hillman, meant "Great Wolf," killed Kribs, but the informant could not tell Hillman how or why. Hillman and his party immediately redirected their course to investigate. Real wolves got there first. "We found him very much eaten by wolves," Hillman recalled, so "we went back to our horses […] we then buried Kribs."[143]

Indian title to the Mahoning Salt Spring was soon after extinguished, and yet conflict American settlers and Indigenous peoples kept the place perilous. In 1802, again for reasons unknown, two American settlers from the Western Reserve near Youngstown, Ohio came to the salt spring and murdered two Native men, known to the Americans as Captain (or "Spotted") George and Captain John. Settlers near Youngstown and Warren panicked and prepared to flee the anticipated retaliation of George and John's Delaware and Haudenosaunee relatives. As had been the case several years prior, James Hillman again found himself stepping into the role of investigator. Familiar with Delawares, Senecas, and other Native peoples who continued to reside along the Mahoning, Hillman requested a meeting with Delaware principal chief Onondiagua George. Another Seneca leader, Captain Peters, soon joined the pair, and deliberations among the three men carried on for multiple days. The Delaware, the Seneca, and the American eventually reached an agreement over Spotted George and Captain John's deaths; their murderers would be tried in Youngstown and the settlers could stay in northeastern Ohio without fear of retaliation from their Native neighbors.[144]

The multiple murders committed at the Mahoning Salt Spring survive only as fragments in the colonial archive. Discussions among Native peoples and American interlocutors, explanations for the explosion of these fatal episodes, and any restitutions made (and unmade) remain missing. But these fragments offer glimpses of salt's place and purpose to settlers and Native peoples alike in a region rapidly transformed by war and the ensuing rush of settler migration and territorial incorporation. The 1778 attack on Micheykapeecci and the Delaware salt-makers indicate that Native salt production, a regional industry that had endured for at least 1,500 by then, continued amidst increasingly dangerous wartime conditions. John Kribs' decision to risk squatting at the salt spring led to his death sometime in 1786—a reflection of the precariousness of American salt-makers who attempted to physically co-opt salt resources situated deep within lands still protected by "Indian title." And the multinational diplomatic debates that unfolded after the 1802 murders of Spotted George and Captain John illustrate how American settlers and Native peoples continued to clash with one another at salt resources long after the United States' so-called conquest and incorporation of the Northwest Territory. Together, these seemingly sporadic interactions and episodes of violence at the Mahoning Salt Spring help narrate a critical chapter of Indigenous survivance, settler colonization, and socioecological transformation in the Ohio River Valley.

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[143] Hillman excerpted in Charles Whittlesey, *Early History of Cleveland, Ohio, Including Original Papers and Other Matter Relating to the Adjacent Country, with Biographical Notices of the Pioneers and Surveyors* (Cleveland, OH: Fairbanks, Benedict & Co. Printers, 1867), 365-366.

[144] J.N. Fradenburgh, *History of the Erie Conference, Vol. 1* (Oil City, PA: Derrick Publishing Company, 1907), 35-39. The murder of "Spotted George" is also mentioned, in briefer detail, in Whittlesey, *Early History of Cleveland, Ohio,* 383.

Following the American Revolution, settlers poured into the Ohio River Valley by the tens and hundreds of thousands. As discussed in Chapter Three, the region's salt resources had, in colonial contexts, served British colonial ambitions as indicators of prospective property value. During the Revolution, these resources also sustained small colonial enclaves that sometimes succeeded in establishing industrial saltworks that provisioned backcountry militia movements. In the 1780s, settlers rushed to industrialize these resources to meet exponentially increasing local demands for provisions. Workable salt resources soon became critical to transregional and even international commerce. Salt and salted food products made in Kentucky were exported throughout the Mississippi River Valley, where they were consumed in parts of Tennessee (another target of American colonizers), Spanish Louisiana, and possibly as widely as the Caribbean. Americans in Kentucky, Ohio, Indiana, and Illinois depended upon salt resources to sustain their own immediate settlements as well as profits sourced from near and distant colonial markets. In doing so, settlers in the Ohio River Valley cemented salt's place centrally within the United States' early colonial project. [145]

This chapter explains how the rise of this commercial settler salt industry went hand-in-hand with the sometimes chaotic and sometimes coordinated dispossession of Indigenous peoples. To establish a commercial salt industry suited toward permanent settlement, Americans had to clear the land—not only of trees or other natural obstructions, but of people and evidence of their ongoing subsistence. Despite both historical and historiographic assertions that Americans pioneered (or, to use Jean O'Brien's term, "firsted" themselves into) the history salt-making in the Ohio River Valley, the region's salt resources evince extensive evidence of pre-settler salt production. And much like the more-than-human precedents that determined Euro-American discovery of salt resources discussed in the previous chapter, Indigenous salt production directly and indirectly dictated the direction of commercial salt-making among American settlers. Most critically, Indigenous familiarity with and use of historic salt resources created conditions for continued mobility, power, and, as Susan Sleeper-Smith describes it, prosperity among Native peoples. Unsurprisingly, Indigenous precedence, presents, and presence—which can collectively be categorized as various modes and manifestations of what Gerald Vizenor terms "survivance"—relative to salt resources problematized their settler colonization. This chapter thus also affirms and expands upon Patrick Wolfe's theorization of settler colonialism's inherent intention to "destroy and replace" by demonstrating how Indigenous persistence—sometimes prematurely read and written as resistance to established settler power and paradigms—incentivized settler aggression, anger, and action and, ultimately, established lasting structures for dispossession and destruction.[146]

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[145] Christina Snyder estimates that the population of Kentucky increased from 200 sparsely distributed Euro-American settlers in 1776, at the opening of the American Revolution, to a staggering 324,000 by 1800; see Christina Snyder, *Great Crossings: Indians, Settlers, and Slaves in the Age of Jackson* (New York, NY: Oxford University Press, 2017), 43. Demographic growth in the Northwest Territory, because of its fractious history, is harder to trace; U.S. Census Bureau research estimates that the population of present-day southern Michigan (Wayne County) and Ohio increased by almost 473 percent in eight years—from 7,920 residents in 1792 and 45,365 in 1800; see Richard L. Forstall (ed.), *Population of the States and Counties of the United States: 1790–1990* (U.S. Department of Commerce, Bureau of the Census, 1996), 47–49.

[146] Archival and historiographic narratives of salt-making in the Ohio River Valley exemplify what Jean O'Brien calls "firsting," in which Euro-Americans fashion themselves as historical catalysts. Most critically, firsting often occurs through the co-optation of specifically local places and pasts; see Jean M. O'Brien, *Firsting and Lasting: Writing Indians out of Existence in New England* (Minneapolis, MN: University of Minnesota Press, 2010).Vizenor originally theorized survivance as "an active sense of presence, the continuance of native stories, not a mere reaction;" see Gerald Vizenor, *Manifest Manners: Narratives of Postindian Survivance* (Lincoln, NE: University of

In Kentucky, settlers themselves took up these destructive tasks to secure their futures to commercial salt production. They did so to protect the property, people, and profits of settler saltworks. This was because salt's impact on settler commerce transcended seemingly trivial saltworks; commercial saltworks attracted and sustained white communities, allowed for the expansion of slavery, and the multiplication of adjacent industries (particularly, like in nearby Louisiana, meat preservation and salted food products). All of these factors not only amplified salt's value to early settlers but encouraged them to take active, aggressive stances against Native peoples whose presence and power threatened settler interests in salt-making. The settler colonization of salt resources—made distinctive by settler intentions to destroy and replace Indigenous peoples and their extant connections to those resources—was an inherently violent process. Rob Harper, Eric Hinderaker, and other scholars have shown how settlers in Kentucky and Ohio demanded and depended upon resources provided by the state to wage what they perceived to be defensive wars against Indigenous peoples. They organized and joined voluntary expeditions that targeted Native communities immediately north of the Ohio River, cultivating a culture of plunder and retaliatory violence that at once functioned to establish settler security and alienate Indigenous peoples from familiar lands and resources.[147]

Though seemingly distant, the burgeoning settler state was centrally implicated settler seizure of salt resources elsewhere in the Ohio River Valley. As Michael Blaakman explains, post-Revolutionary property awards—particularly military bounties—created preemptive rights to Indigenous lands. This process, which rested upon "a shared faith that Native people would later be swindled out of their land," ultimately "aimed to trump Native power by couching in the future tense what white Americans could not accomplish in the present." This was especially true south of the Ohio River, where settlers—while sometimes successful—still struggled not only to claim salt resources as their own private property but to keep Native people from using those resources. This coincided with often conflicting territorial claims amongst settlers themselves that, as Gregory Ablavsky argues, eventually encouraged governmental intervention. The settler state thus pursued different, more direct mechanisms of dispossession north of the Ohio River. To generate revenue and mitigate conflicts over mineral property that had erupted elsewhere in the early west, federal officials attempted to manage the dual operation of Indigenous dispossession and the commercialization of salt resources by establishing restrictions around workable licks, springs, and salines. The management of salt resources, settler behavior, private and federal properties, and Indigenous peoples and their territorial and political power all reinforced one another, creating critical legal precedents for the governance of salt resources and underpinning what Michael Witgen terms a "political economy of plunder" that originated in the Northwest Territory. The

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Nebraska Press, 1999). This term and theorization encompasses a broader range of historical actions that scholarship sometimes categorizes as Indigenous "resistance" to colonization. This chapter intentionally foregoes the use of resistance as a descriptive and analytical tool in order to decentralize settler colonization and destabilize the assumption that the arrival of settler populations, settler seizure of salt resources, and other manifestations of settler presence immediately and irreversibly replaced Indigenous pasts, presence, and power relative to salt resources in the region. Patrick Wolfe, "Settler Colonialism and the Elimination of the Native." For an assessment of more recent theoretical shifts to demonstrate the structural (rather than strictly historical or temporal) formation of settler colonialism, see J. Kēhaulani Kauanui, "'A Structure, Not an Event': Settler Colonialism and Enduring Indigeneity," *Lateral* Vol. 5, No. 1 (2016).

[147] Rob Harper, *Unsettling the West.* Susan Sleeper-Smith, *Indigenous Prosperity and American Conquest.*

following three chapters further illustrate how these processes and precedents informed salt-centered settler colonial trajectories elsewhere across the North American interior.[148]

Because settlers came to stay, this new phase of colonization in Kentucky, Ohio, and other salt-rich regions in the trans-Appalachian west introduced unprecedented ecological and anthropical damage to lands, resources, and people all-too-familiar with external disruption. As Susan Sleeper-Smith argues, early American expansion into the Ohio River Valley eclipsed earlier colonial schemes in uniquely destructive ways. Indeed, settler salt-making, the import of industrial commerce, permanent white settlement, and the multiple means by which Americans sought to remove and replace Native peoples prevented most Shawnee, Miami, Delaware, and other Ohioan peoples from accessing familiar lands and resources—both immediately and in the long term. But this chapter also illustrates how and explains why American settler colonialism in the Ohio River Valley remained an imperfect project, sometimes failing to realize projections of settler sovereignty, power, and permanency onto deeply historic places. Settler seizure of salt resources—and Indigenous peoples' responses—exposes multiple truths about the feats and failures of American settler colonialism in its nascent stages. Looking at how and where settler salt-making succeeded—and, equally important, how and where it floundered—complicates neat narratives that naturalize Indigenous disappearance and the materialization of settler power in the early American west.

Access to, use of, and knowledge about workable salt resources across the Ohio River Valley could be a matter of life and death. Witnesses like Micheykapeecci, James Hillman, and Onondiagua George knew as much. Through the early American colonial period in the Ohio River Valley, the perpetual quest to locate and work local salt resources brought Native peoples and American colonizers into increased contact; conflict ensued, interests coalesced, and critical conversations emerged over the stakes of salt's place in increasingly exclusive Indigenous and American worlds. Americans used workable salt resources to anchor their expectations for profit and settler hegemony—futures predicated upon the removal of Indigenous peoples. But Native peoples, through a range of responses, made the settler colonization of salt resources a challenging, often incomplete feat.

The Evolution & Evidence of Indigenous Salt Production

Besides their knowledge and use of salt licks as hunting grounds, Native peoples in the Ohio River Valley possess a deep history of salt production. As discussed in Chapter Three, past generations of Ohioan peoples found salt several thousand years prior to European arrival in North America, primarily by following large game. Several salt licks across the Ohio River Valley yield brine seeps and springs where saltwater appeared organically at the earth's surface. Many of these places were well-suited for manual production. Like salt-centric hunting patterns, the precise beginning of Indigenous salt production in the Ohio River Valley remains elusive in the archaeological record. This is partly because salt itself dissolves so easily, leaving little residue on pottery, metal, and other manufacturing materials. When archaeologists study deeper human histories of salt production in North America and elsewhere, they use industrial remnants—pans and pottery, augets and molds, furnaces and firepits. They also rely on contextual evidence (be it

[148] Michael A. Blaakman, *Speculation Nation: Land Mana in the Revolutionary American Republic* (Philadelphia, PA: University of Pennsylvania Press, 2023). Gregory Ablavsky, *Federal Ground: Governing Property and Violence in the First U.S. Territories* (New York, NY: Oxford University Press, 2021). Michael Witgen, *Seeing Red: Indigenous Land, American Expansion, and the Political Economy of Plunder in North America* (Chapel Hill, NC: UNC Press, 2023).

dietary, hydrological, or zoological) to locate, identify, and explain where, how, and sometimes even why past generations of Native peoples made salt.

More legible changes in dietary patterns point toward when and why people first began boiling brine for salt. Somewhat paradoxically, the regional transition from animal- to plant-dominant diets helps explain why ancient peoples started making salt. Since roughly 1800 BCE, North American peoples engineered and expanded practices in sedentary agriculture. This transcontinental process introduced typically meat- and forage-dependent peoples to revolutionary crops. Once maize had made its way to the Mississippi River Valley from its home in central Mexico by 200 BCE, eastern peoples' diets gradually shifted away from foraged foods and animal products and toward corn, beans, and squash. These foods are all nutritionally dense but sodium poor, in contrast to most animal products (particularly red meat). To satiate their bodies' sodium needs, people seasoned these vegetables with salt when it was available and, sometimes, with lye or plant ash (which contains essential salts). Those who consumed more vegetables than meat needed to add sodium to their diet, in other words, and so had incentive to locate and produce salt.[149]

The ease or difficulty of this task depended significantly on location. People living east of the Appalachians or southward toward the Gulf of Mexico might have sourced sea salt from coastal salt beds that evaporated in the sun. But for the residents of the Ohio River Valley, salt had to be made. Salt licks and springs across interior homelands yield saltwater considerably less salty than seawater, which prompted people to engineer salt-making technologies that could transform relatively weak brine into crystalline, consumable salt. Though archaeologically scant, salt production localities between the Mississippi River and the Appalachians reveal that sometime between 1000 and 1400 CE, people started producing salt year-round at French Lick in central Tennessee. Their settlements and saltworks are reflected in the remains of Late Woodland bowls and early Mississippian pans. Further north in present-day southern Illinois, at the Great Salt Spring (also known as the Grand Saline), pans and bowls made and used earlier during the Late Woodland period indicate that ancestral Ohioans made salt at the saline as early as 750 CE. That date makes Grand Saline the second oldest saltworks in eastern North America.[150]

Salt production became more archaeologically legible as Ohioan peoples reconfigured and reconsolidated into new polities. Through the Middle and Late Woodland Period (roughly 800 BCE to 1000 CE), peoples that archaeologists associate with the Adena and Hopewell cultures settled across the alluvial plains of the Ohio River Valley. They established their place and permanency by constructing elaborate earthen mounds, several of which—such as those found in the lower Scioto River Valley in present-day southern central Ohio—were built near workable salt resources. Hopewell peoples were also expansive traders who introduced peoples from the upper Great Lakes, continental northeast, and trans-Mississippian west to the riches of the Ohio River Valley—resources that included furs, pottery, and possibly, salt. This was certainly the case for their successors, who left more concrete evidence of their salt-making. Peoples living in the lower

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[149] The precise timing and spatial diffusion of domestic agriculture—particularly maize cultivation—east of the Mississippi River remains debated among archaeologists. Scholarly consensus acknowledges that sometime around 900 CE, maize had wholly replaced other domesticated and foraged plant products as a primary dietary staple among eastern peoples. For a recent overview of the Eastern Agricultural Complex, see Gayle J. Fritz, *Feeding Cahokia: Early Agriculture in the North American Heartland* (Tuscaloosa, AL: University of Alabama Press, 2019). For a recent reassessment of the timing of maize cultivation east of the Mississippi River, see Mary L. Simon, "Evaluating the Evidence for Middle Woodland Maize from the Holding Site," *American Antiquity* Vol. 82, No. 1 (2017), 140-150.

[150] Paul N. Eubanks and Ian W. Brown, "Certain Trends in Eastern Woodlands Salt Production Technology."

Scioto River Valley during the fifteenth, sixteenth, and seventeenth centuries had access to a wealth of resources—both locally sourced and imported from distant producers—that underpinned a relatively diverse economy. Charred pans and sherds dated to the late Fort Ancient period (1300-1600 CE) suggest that salt extraction from brine water was part of that economic diversity. Though the distribution of evidence of salt-making is sporadic, archaeologists have used these limited indications to suggest that salt-making at the Hardin site, located at the present-day Ohio-Kentucky border just south of Cincinnati, exceeded village demands. The recovery of small clay molds used to hold pre-measured quantities of substances like salt at Hardin further indicates that late Fort Ancient residents at lower Scioto settlements might have made salt in measured quantities to trade. Archaeologists have advanced similar arguments about materials recovered from the nearby Bentley site, also located in the lower Scioto River valley. One has proposed that Bentley residents may have traded fine salt for Mississippian and Floridian shell gorgets (polished or carved shell ornaments)—a testament to the quality of Ohioan salt and the significance of salt's material value.[151]

Salt-making was no simple task. The process began above ground, with pottery production. Starting in the 700s and through the 1600s, Native peoples across the Ohio and Mississippi river valleys engineered ceramicware suitable to salt production, particularly large, heat-resistant bowls and saltpans. Salt-makers then gathered brine water from nearby springs, licks, or seeps. In places where springs and licks lacked hydration and salt adhered to soil or mud, water would be added and then drained from the sediment. After collecting brine using deer or buffalo bladders, skin canteens, or pots, salt-makers added the brine to the saltpan. The vessels sat atop sunken furnaces at a constant simmer until all of the water evaporated. Evaporation rates depended upon the salinity content of the water; lower salinity levels required longer-burning fires, whereas saltier water demanded less time and fuel. Regardless of salinity, evaporation required consistent heat so that the salt would crystallize properly, making for safely edible—and, presumably, flavorful—crystals. What happened with the salt once it approached crystallization and dehydration depended upon its intended use. Salt produced in larger quantities (for larger communities or for exchange and export) might be purified and measured out for easier storage and transportation. Once the water evaporated from the pans and kettles, these vessels were set aside to cool. Using flat wooden tools or perhaps bones, salt-makers scraped the crystalized salt from the bottom of the vessel. Some salt-makers seemed to have used small conical molds to create pre-measured salt cakes ready for easy export and exchange.[152]

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[151] Darlene Applegate, "Woodland Period" in David Pollack (ed.) *The Archaeology of Kentucky: An Update* Vol. 2 (Kentucky Heritage Council, 2008), 109-603. Phillip R. Shriver, "Lower Shawnee Town on the Eve of the French and Indian War," *Ohio Archaeologist* Vol. 40 No. 3 (1990), 16-21. Archaeologists George Horton and Terry Stocker have recently argued that the Portsmouth Earthworks complex, which encompasses the Scioto-Ohio influence on both sides of the modern Ohio-Kentucky state border, also retained international cultural significance; see Horton and Stocker, "The Woman Who Fell from the Sky and the Portsmouth, Ohio Hopewell Earthworks," *Journal of Ohio Archaeology* Vol. 6 (2019), 1-15. Lee H. Hanson Jr., *The Hardin Village Site* (Lexington KY: The University of Kentucky Press, 1966). David Pollack, "Mississippi Period" and A. Gwynn Henderson, "Fort Ancient Period" in Pollack (ed.) *The Archaeology of Kentucky: An Update, Vol.2*, 605-1053; for sporadic distribution of pans at Fort Ancient sites, see specifically pages 799-800 and 859. For arguments about salt trading from Hardin, see Ian W. Brown, *The Role of Salt in Eastern North American Prehistory*. Brown clarifies that augets and briquetage are not necessarily exclusive to salt production and trade, and thus should be interpreted cautiously and precisely contextualized; Brown, for his part, compares augets and briquetage found at Hardin to other Mississippian assemblages.

[152] For the use of augets and other ceramic molds to produced pre-measured blocks of salt, see Brown, *The Role of Salt in Eastern North American Prehistory*.

Literal remnants of these deeper histories of salt production would later crop up at workable salt resources across the broader Ohio River Valley. After "following a buffalo trail" to a salt spring in Clay County, Kentucky in 1798, James Collins opened Goose Creek Salt Works at the confluence of Collins Fork and Goose Creek. As he sank wells and felled timber in the surrounding area, Collins reportedly found "a large Indian burying ground near the salt spring," connected "by a flight of stone steps" to "a huge heap of earthen and muscle-shell pots and a great mass of charcoal." If Collins' rudimentary assessment of the remains were accurate, the pottery and spent fuel might have been the work of Mississippian peoples who lived in Kentucky between 800 and 1600 and whose salt-making wares often consisted of their hallmark shell-tempered pottery. Thomas Ashe found something similar in the summer of 1806 while travelling down the Big Sandy River, which flows southward from the central Ohio River to form the border between present-day Kentucky and West Virginia. Several miles south of the river's mouth, Ashe found "a very fine salt-spring," which he believed would

> Have remained for ever in oblivion, had it not been for the incidental circumstance of a hunter stumbling over a piece of earthen ware sticking in the ground of its vicinity. The piece evincing the remains of an Indian salt-pan, the hunter examined the nearest spring, and found it to be of the quality […] just described. It has been since explored, and an ancient furnace, and many pieces of antique pottery have been brought to light.[153]

The condition of the "earthen ware" led Ashe to conclude "that the Indians possessed the art of making potter's ware in a higher perfection than is attempted at the present day." Native peoples, he determined, "not only manufactured it to resist fire in ordinary culinary purposes, but to make it endure the violence of a furnace; a perpetual ebullition, and the corrosion of mineral salts." Evidence of Native occupancy nearby saltworks remained intact elsewhere well after settlers commercialized much of the Ohio River Valley's salt resources. When French travel writer Victor Collot toured the region in the early 1820s (during which he visited multiple saltworks, both active and dormant, across the Ohio and Mississippi River valleys), he made his way to the Great Salt Spring in southern Illinois. There, Collot and his companions "found several small mounds regularly ranged in a circular form: these were ancient Indian tombs." Euro-American salt-makers saw that they were pursuing an already ancient industry.[154]

Indigenous salt-making was an old industry when Europeans entered the Ohio River Valley, but it was hardly bygone. When Europeans first began invading and gathering information about the Ohio River Valley in the seventeenth century, Indigenous peoples were, unsurprisingly, still engaged in salt production. In September of 1671, Virginians Thomas Batts, Thomas Woods, and Robert Fallows, guided by an Apomatack man named Peracuta, traveled through the central Appalachians. When the expedition reached the New River, they encountered "Mehetan Indians"

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[153] Thomas Ashe, *Travels in America performed in 1806, Vol. 2*, 88-89.

[154] For Collins' saltworks, see Lewis Collins and Richard H. Collins (ed.), *Collins' Historical Sketches of Kentucky, Vol. 2*,141. For Mississippian production of shell-tempered pottery and its relationship to broader salt production practices, see Ashley A. Dumas, "A Millenium of Salt Production in Southwest Alabama," in Dumas and Eubanks, *Salt in Eastern North America and the Caribbean.* See also Brown and Eubanks, "Certain Trends in Eastern Woodlands Salt Production Technology." John Muller, "Mississippian Specialization and Salt." For Collot's observations, see Victor Collot, *A Journey in North America, containing a survey of the countries watered by the Mississippi, Ohio, Missouri, and other affluing rivers*, (Paris, FR: Arthur Bertrand, 1826), 241.

who informed them that "a great company of Indians" (later identified as Shawnees) "lived upon the great Water" (the Mississippi River) "from whence came [an] abundance of salt." If the Native informants spoke truly, then Shawnees must have earned a reputation as purveyors of salt that extended as far east as the Appalachians. Besides gathering information about the location of salt resources from Native peoples, Europeans sometimes tried—and failed—to make salt at Indigenous salt production sites. Such was the case at the Great Salt Spring in present-day southern Illinois, where, in 1665, French expeditioners appointed three men to stay and make salt from the local salt wells. But by the fall of that year, two of the men had been killed by Native men and the third had allegedly run away. Through the eighteenth century, Europeans who travelled and traded through the region noted Indigenous salt production among other land-based Indigenous industries like agriculture, hunting and trapping, foraging, fishing, and sugar-making. In January of 1751, British trader Christopher Gist was bound for Lower Shawneetown, a large multinational village situated at the confluence of the Scioto and Ohio rivers, when he noted local salt-making along Salt Lick Creek:

> The Creek being very high and full of Ice, we could not ford it, and were obliged to go down it on the S E Side 4 M to the Salt Lick Creek – about 1 M up this Creek on the S side is a very Large Salt Lick the streams that run into this lick are very Salt[y], & tho clear leave a Blueish sediment; The Indians and Traders make salt for their horses of this Water, by boiling it; it has a first blueish colour, and somewhat bitter taste, but upon being dissolved in fair Water and boiled a second time it becomes pretty tolerable pure salt.[155]

Not only were the residents and traders in the lower Scioto River Valley exploiting local salt springs frequently enough for Gist to notice; they also knew how to purify it for human consumption, and they even made it for their horses. In addition to sustaining domesticated animals, processed salt was also used to season food, supplement trading stores, and possibly soften, deodorize, and seal hides for market. Because of its diverse utility, salt was an important commodity across multiple Indigenous economies and industries, especially at international hubs like Lower Shawneetown.[156]

Salt springs elsewhere impressed Europeans even more. In the spring of 1773, missionary John Heckewelder and Moravian Indians travelled up the Muskingum River in present-day southeastern Ohio to Salt Creek, a small tributary waterway home to a "famous salt spring;" Heckewelder and his Moravian companions "saw quite a few contraptions there for boiling salt." Besides observations of Indigenous production made by European interlocutors, a plurality of Indigenous placenames also indicates continued use of and settlement at salt resources. In the late

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[155] Christopher Gist and William McCullough Darlington (ed.), *Christopher Gist's Journals with Historical, Geographical, and Ethnological Notes and Biographies of his Contemporaries* (Pittsburgh, PA: J.R. Weldin & Co., 1893), 42-43.

[156] For the Batts and Fallam expedition from Virginia, see "The Expedition of Batts and Fallam: A Journey from Virginia to beyond the Appalachian Mountains, in September, 1671," in Lewis Preston Summers, *Annals of Southwest Virginia, 1769-1800* (Abingdon, VA: 1929), 1-7. For more on descriptions of Shawnees and their location in 1671, Box 37, Research Materials and Writings, Shawnee – Notes – Various, 1600-1816, Erminie Wheeler-Voegelin Papers, Ayers Modern Manuscript Collection, Newberry Library, Chicago, IL (hereafter "EWV Papers"). For French efforts to make salt at the Great Salt Spring in 1665, see Box 37, Research Materials and Writings, Shawnee – Notes – Various, 1600-1816, EWV Papers.

1750s, Delawares had settled Kseeskheoong—"Place of Salt" or "Salt Licks" in English—along the central Mahoning River in present-day northeastern Ohio. Occupied by Shawnees in the 1760s and Senecas and Mingos in the 1770s, Secaium Town, situated west of where the Olentangy River meets the Scioto near present-day Columbus, Ohio, was known to English speakers as "Salt Lick Town."[157]

Euro-Americans taken captive by Native peoples in the Ohio River Valley learned about and reported upon salt's place through direct experience. Sometime between 1735 and 1736, Cherokees travelling through western Virginia's Blue Ridge Mountains captured German settler John Salling. The Cherokees took Salling first to villages in Tennessee and then northward "to the salt licks of Kentucky" to hunt. While in Kentucky, Salling was again removed further westward after a raiding party from Illinois territory attacked his Cherokee captors and took him as collateral. In the summer and fall of 1755, Virginia settler Mary Ingles was captured by Shawnee men, who took her to Lower Shawneetown. From there, she traveled with a hunting party to Big Bone Lick where she and a Dutch woman used kettles to make salt for the hunters. That same year, Delawares in western Pennsylvania captured farmer James Smith during a raid. In July 1755, soon after his adoption into a Mohawk family, Smith and a Mohawk man named Solomon, some Caughnewaga Mohawk men, and "a Delaware Indian" set out from the town of Tullihas on the Muskingum River for a "buffalo lick" some "thirty or forty miles" southward toward the Scioto. Here the hunting party "killed several buffalo, and in their small brass kettles they made about half a bushel of salt." In 1766, while living among Lenapes (Delawares) in eastern Ohio, Pennsylvania settler Levi Hicks told missionary Reverend Charles Beatty of visiting several Delaware towns nearby salt resources, including Sugh-cha-ugh (Salt Lick), a town of "about twenty houses," and Mich-chi-laghpiesta (Big-Lick). Most famously, in 1778, the Shawnee leader Blackfish ambushed Daniel Boone and several American salt-makers. That winter, Boone had led a party of male settlers from Boonesborough to the nearby Blue Licks to remedy Boonesborough's salt shortage. Blackfish surprised and captured the Americans and forced them to take their kettles northward to the Ohio River, where Boone and his co-captives made salt for Blackfish and his family. Boone managed to escape several weeks later.[158]

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[157] For Heckewelder's observations, see Vol. 2, *An Ethnohistorical Report on the Indian Use and Occupancy of Royce Area 11*, Indian Claims Commission report (hereafter "Royce Area 11 Report"), EWV Papers. For Kseeskheoong, see Vol. 1, Royce Area 11 Research Report, EWV Papers. When preparing the Royce Area 11 report, Wheeler-Voegelin determined that Secaium Town was "probably a Shawnee town in 1765, but by 1774 a Mingo town." The town might have been abandoned during Dunmore's War; Wheeler-Voegelin writes that "in 1775 some Seneca hunters were encamped at the site of former Salt Lick Town." See Vol. 2, Royce Area 11 Research Report, Vol. 2, EWV Papers.

[158] For Salling's captivity, see J. Lee Davis, *Bits of History and Legends Around and About the Natural Bridge of Virginia* (1949), 15-16, and Robert F. Collins, *A History of the Daniel Boone National Forest, 1770-1970* (1975), 330-331. For sources and additional details on Ingles' captivity, see Chapter Three of this dissertation. For Smith's captivity, see "Colonel Smith's Captivity" in Samuel G. Drake *Indian Captivities* (Boston, MA: Antiquarian Bookstore and Institute, 1839), 188-189. For Levi Hicks, see Vol. 2, Royce Area 11 report, EWV Papers. Boone and the salt-makers capture has been widely written about; for a general synthesis of events, see John Mack Faragher, *Daniel Boone.*

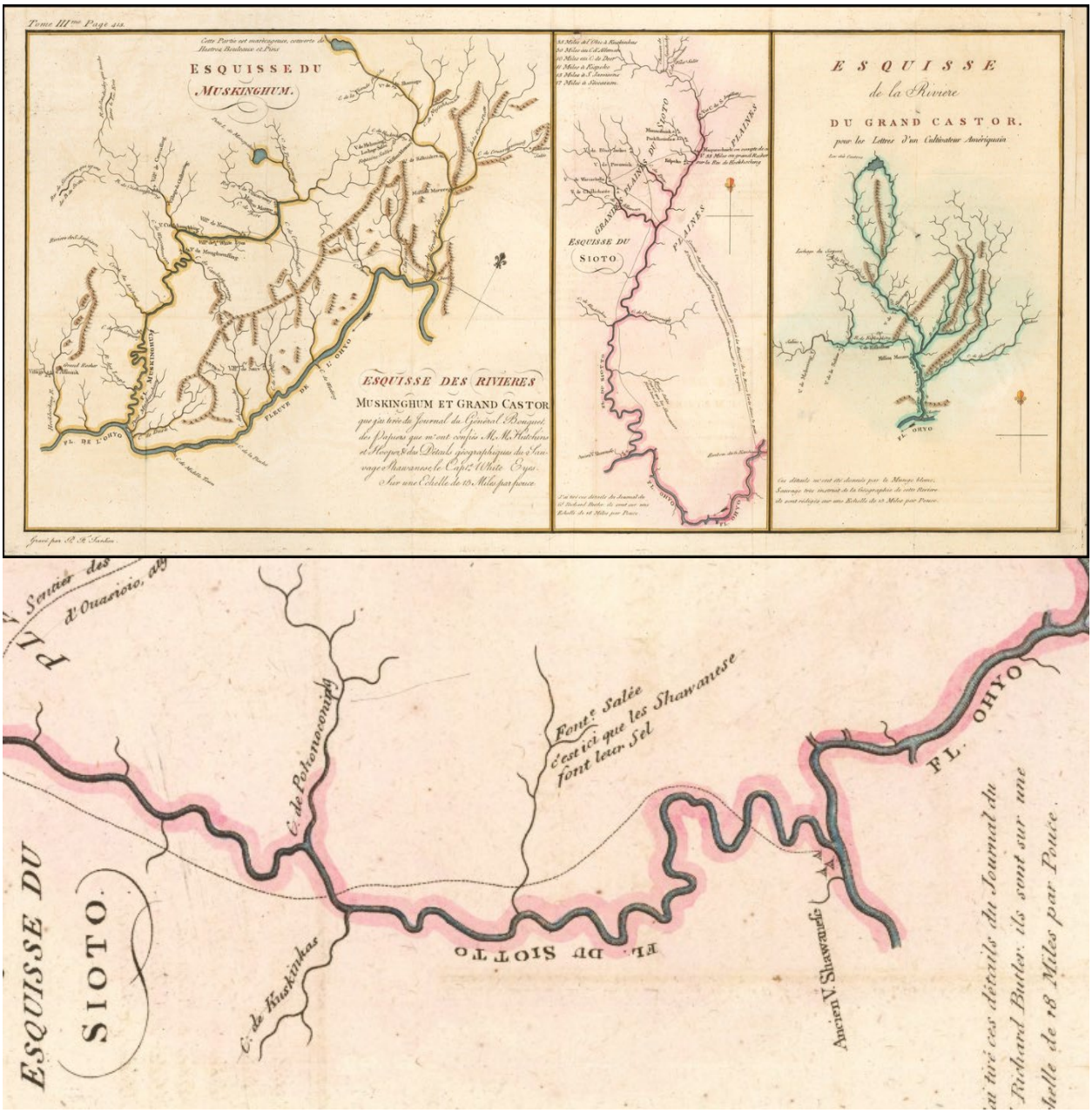


Figure 10. Map and inset of the Ohio River's northern tributaries. The inset indicates the location of a salt spring (or springs) "que les Shawanese font leur Sel" ("where the Shawnees make their salt"). Source: Pierre Tardieu, *Esquisse des rivieres Muskinghum et Grand Castor*, in J. Hector St. John de Crèvecoeur, *Letters from an American Farmer* (Paris, FR: Cuchet, 1787). Norman B. Leventhal Map & Education Center, https://collections.leventhalmap.org/search/commonwealth:9g554380q.

Maps also reflected salt's place within Indigenous worlds. In a 1734 map of French and British claims across eastern North America, mapmaker Matthaus Seutter identified "la Saline, source d'Eau Salee" just west of where the Mississippi meets the Ohio. John Patten's 1754 trader's map of the Ohio Country makes note of a "Salt Lick Creek" (later known as the Licking River) that flows southward from the central Ohio River into northern Kentucky; the river earned its name

from multiple salt licks—including the Upper and Lower Blue Licks—situated along its banks. Like Seutter's map, a 1754 British map of riverways, Native nations and villages, and European fortifications across the broader Ohio River Valley locates a "saline" immediately across from Kaskaskia on the Mississippi River. And like Patten, mapmakers Emanuel and Thomas Bowen also highlighted Saltlick Creek. On Lewis Evans' richly detailed 1755 map of the Ohio River Valley, salt springs abound along the Little Miami, Scioto, and Licking rivers and several tributary creeks. Evans' map also locates "salt" among several subterranean resources—including coal, limestone, and "elephant bones"—found alongside pathways tethering Miami, Shawnee, Piqua, Wyandot, and other nations together.[159]

Other maps provide even more detail as to who used these saline resources. On a 1755 map of British claims in eastern North America, mapmaker John Mitchell located several "licks" and "lick creeks" that "afford plenty of salt to Man & Beast in these Inland Parts" and were "The Resort of all sorts of Game, Huntsmen, Traders, & Warriors, especially by the Salt Ponds." Likewise, French cartographer Pierre Tardieu's 1787 map of the northern Ohio River Valley located a "font salee" (salt fountain or spring) along an eastern tributary of the lower Scioto River, just north of where Lower Shawneetown once sprawled; "c'est ici (here)", the map's description reads, "que les Shawanese font leur Sel (is where the Shawnees make their salt)." European maps might have ultimately functioned to affirm sweeping imperial claims to swaths of territory. But they also reveal that those spaces were not necessarily uncontrolled or underutilized. Cartographic representations of salt's place and power indicate not only where workable salt resources were located, but where and by whom they were used.[160]

By the time Americans began settling near workable salt resources in the Ohio River Valley, Native peoples had been making salt in the region for nearly a thousand years. While salt licks provided past generations of Ohioan peoples with access to game, springs and brine seeps—places where high salinity water proved strong enough to yield solid salt—allowed people to produce a biologically essential mineral. Access to these resources also enabled successive generations of Native peoples to expand their economies, refine their repertoire of environmental knowledge, and cultivate salt-making techniques and technologies—practices and products that remained in use through the start of colonization. Indigenous knowledge about, use of, and access to workable salt resources shaped how Native peoples and Euro-Americans alike settled and moved across the Ohio River Valley. Salt resources and their productive past took on new significance as settler populations sought out those resources to cement their permanency, profit, and power.

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[159] For Seutter's 1734 map, see Matthaus Seutter, "Accurata delineatio celeberrimae Regionis Ludovicianae vel Gallice Louisiane ol. Canadae et Floridae Adpellatione in Septemtrionali America Descriptae quae Hodie Nomine Fluminis Mississippi vel St. Louis" (1734), https://www.raremaps.com/gallery/detail/91037. For Patten's trader's map, see John Patten, "A trader's map of the Ohio country before 1753," Library of Congress Geography and Map Division https://lccn.loc.gov/gm71002324. For the 1754 map, see Emanuel Bowen and Thomas Bowen, "A map of the British American plantations, extending from Boston in New England to Georgia: including all the back settlements in the respective provinces as far as the Mississippi," Library of Congress Geography and Map Division (1754), https://lccn.loc.gov/2017585923. For Evans' 1755 map, see Lewis Evans, "A map of the middle British colonies in North America," Library of Congress Geography and Map Division (1755), https://lccn.loc.gov/74693076.

[160] For Mitchell's 1755 map, see John Mitchell, "A map of the British and French dominions in North America," Library of Congress Geography and Map Division (1755), https://lccn.loc.gov/74693173. The exact origins of Tardieu's map of northern Ohio tributaries remains difficult to trace. Currently for-sale copies of the map identify 1787 or 1783 as its date of origin, but anthropologist Erminie Wheeler-Voegelin suggests that Tardieu's map dates far earlier to 1776. Wheeler-Voegelin also suggests the creek (untitled on the original map) to be Beaver Creek; see Vol. 2, Royce Area 11 report, EWV Papers.

Brine & Bloody Ground

When Cherokee war chief Dragging Canoe sold his people's claims to Kentucky to the Transylvania Company at Sycamore Shoals in 1775, he allegedly coined the region's now infamous nickname. Dragging Canoe's exact words remain elusive, but most accounts have reproduced a familiar warning: "you have bought a fair land," Dragging Canoe told Richard Henderson and the purchasers, "but you will find its settlement dark and bloody." Like many colonization schemes and speculatory forays in the Ohio River Valley, the Transylvania Company failed in its effort to create a landlocked colony between the Ohio, Kentucky, and Cumberland rivers. But Dragging Canoe's words—whether they had been delivered as a well-intentioned warning or as a provocative threat—rang true long afterward, especially in the heart of Kentucky's salt industry. Following the Revolution, Americans who sought to live upon workable salt resources in Kentucky believed to have "bought a fair land" for themselves. But settling those resources—a process that, to settlers, entailed the destruction, co-optation, and replacement of Indigenous precedence and presence alike—necessitated violence. And while Dragging Canoe might have warned Henderson and the Transylvania purchasers of their own people's safety, it was settlers who wrote Kentucky's reputation in blood.

Kentucky's pre-statehood and foundational past is shrouded in settler fictions. Conventional framings of the post-Revolutionary period cast the mass influx of settlers into Kentucky as an inevitability. These older narratives argue (or at least imply) that settlers introduced stability to a region only used sporadically by marauding, mobile hunters—parties of Native men who operated independent of any recognizable community, polity, or nation. By introducing sedentary industries like salt-making, animal husbandry, and agriculture, existent narratives maintain that an ever-growing number of Americans rescued the wilderness from disuse by harnessing the power and profitability of timber, salt, water, and soil south of the Ohio River. In these tellings, the transformation of Kentucky from a so-called no-man's land into a promised land was punctured by purportedly unprovoked violence against settler families and subsistence seekers. Such explanations for the settler colonization of Kentucky leave little room for Native peoples, who are cast as a handful of savage, vanishing, or already vanquished individuals. Neither Native pasts, nor presents, nor futures figure into the early history of salt-making and the settlement of Kentucky. This glaring omission implies the establishment and expansion of Kentucky's foundational mineral industry as an inevitability and a net positive process.

But prospective salt-makers understood the precarity of their endeavors in Indian Territory from the start. During the American Revolution, while surveyors struggled to visit and enter land bounties that included salt resources, small American enclaves tried to source salt locally. At Boonesborough in the winter of 1777-78, Daniel Boone's ill-fated attempt to make salt at the Blue Licks ended in his capture and the kidnapping of several other male settlers at the hands of Shawnees. Further north of Boonesborough, Harrodsburg was equally exposed. "I thought of ordering a fort on some of our lands," Kentucky militia colonel John Bowman wrote to Isaac Hite in January 1778, "but men being scarce and three forts to guard prevented me." What's more, Bowman's superiors believed the protection of salt resources to be of paramount importance; that winter, Bowman had been "ordered by the government to erect a stockade fort on the banks of the Ohio near sum salt spring to aford protection to such persons as may be employed in making salt." Bowman might have been referring either to Big Bone Lick or May's Lick, both situated immediately south of the Ohio River. The militia might offer salt-makers with protection, but the

government struggled to provide settlers with equipment sufficient to make salt. They "have only ordered one waggon lode of pans to be sent their," Bowman told Hite, "which is to[o] little."[161]

Through the end of the American Revolution in 1783, settlers who moved west past the Appalachians sought workable salt resources to survive and to sustain themselves. Chapter Three demonstrated how British and eventually American surveyors exploited salt's availability across the Ohio River Valley to emplace territorial claims, enclose land surveys, and ascribe those newly produced properties with resource value. At the same time, early settlers who moved into the Ohio Country between the Seven Years' War and the American Revolution depended upon local salt resources simply to survive. Salt itself wasn't necessarily expensive; it sold at 50 cents per bushel in 1779 and 83 cents per bushel in 1782 on the Atlantic seaboard. But salt sold on the seaboard needed to travel several hundred miles to reach western settlers, spaces across which shipments could be subject to spillage, theft, and other obstacles. As one late-nineteenth century Kentucky historian put it, "it was almost easier to fight Indians, than to bring salt over the mountains on pack-horses from the seaboard." Early settlements also lacked mercantile enclaves at which shipments of salt could be delivered within reasonable regularity. Through the 1780s and 90s however, as settlers migrated westward in greater numbers, workable salt resources took on a new commercial significance—for well-endowed property owners, for individuals seeking work or subsistence, and for the burgeoning settler state. These beneficiaries and agents of the early American settler colonial project in the Ohio River Valley all hoped to benefit from salt's commodification.[162]

South of the Ohio River, the rampant land speculation of the 1770s and 80s created a new class of propertied settlers who hoped to cash in on western territory and resources. But competition was tight. Weather, wartime, and traveling Indigenous parties all disrupted surveys. As a result, many workable salt resources in Kentucky were carved into smaller tracts nucleated around common resources—namely salt springs, freshwater springs and rivers, and timber stands. Consequently, competition to commercialize salt resources proved to be as intense as competition over their initial speculation. At Bullitt's Lick, the first commercial settler saltworks south of the Ohio River, a single proprietor ran the entire operation. That was an anomaly. Several miles south of Bullitt's Lick, at Long Lick, multiple purchasers and awardees had made competing entries to workable salt resources. Over 4,100 acres that encompassed the lick in its entirety and surrounding timberland and creek access had been fractured into nine tracts. Two of them—a thousand-acre entry made by Parmenas Briscoe and a 250-acre entry made by Charles Broughton, both surveyed in late 1780—overlapped and encompassed springs potent enough to feed commercial furnaces. By 1785, Broughton had beat Briscoe to building a saltworks. But Broughton's endeavor at Long Lick was short-lived; by 1787, poor profits and lack of labor forced him to sell the works to purchasers Henry Crist and Solomon Spears, who received the formal patent to the lick and adjoined works. Broughton found greater luck at nearby Dry Lick, where he retained ownership of a 500-acre tract that included a commercial capacity salt spring. Similar competition unfolded further north, at Mann's Lick, where overlapping military warrants prevented the formal establishment and recognition of a legal saltwork operation until 1788.[163]

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[161] For Bowman, see John Bowman to Isaac Hite, January 10, 1778, Folder 241, Mss. A B668e, Clark-Hite-Shiell Papers, Bodley Family Papers, FHS.

[162] Salt prices from "Prices: Food Preparations" in Caroll D. Wright, *Comparative Wages, Prices, and Cost of Living* (Boston, MA: Wright & Potter Printing Co., State Printers, 1889), 115. For requests from Van Matre and Campbell for salt, see Thwaites and Kellogg, *Frontier Defense on the Upper Ohio,* 39, 111. For "it was almost easier…" see W.H. Bogart, *Daniel Boone and the Hunters of Kentucky,*176-177.

[163] Robert Emmett McDowell, "Bullitt's Lick: The Related Saltworks and Settlement."

Individual families had their own reasons to move toward saltworks. One primary pull was protection. Given salt's strategic importance, investors expected some safety. Indeed, once proprietors erected saltworks at Bullitt's Lick, Long Lick, Dry Lick, and Mann's Lick, garrisons and stations soon followed. Within a year of opening operations at Bullitt's Lick in 1779, settlers erected two slapdash forts—one eastward along the Salt River, at Brashear's Station, and another directly south from the works, at Mud Garrison. Like many settler "improvements" made at and near salt-rich lands in Kentucky, early stations and garrisons were often built at existing river crossings and roadways forged and used by migratory mammals and Indigenous travelers and hunters. The expansion of Bullitt's Lick's furnaces and the erection of protective garrisons incentivized salt-makers and proprietors to move their families to the central Salt River Valley, soon transforming the region into a hub of settler commerce and community. Within a year of its founding in 1781, Brashear's Station became too cramped for the number of families seeking residency. Many subsequently moved downriver to Dowdall's Station.

From there, settler Jacob Myers built a ferry across the Salt River sometime between the summers of 1780 and 1781. This infrastructure allowed salt and other bulky staples to be transported across the river, to and from Louisville, and wherever else in the immediate region settlers and rudimentary garrisons needed supplies. The ferry also enabled settler colonizers travelling west by way of the Wilderness Road to follow buffalo traces that proceeded northwest from the Salt River to Louisville and, eventually, Indiana and Illinois. As Kentucky historian John Kleber described it, commerce generated by salt production and settlement at Bullitt's Lick transformed the Wilderness Road into the primary "inland intermodal distribution system" in the early American west. As generators of commerce, attractions for white migrants, and justifications for the establishment of fortifications, early saltworks fostered the development of settler communities deeply dependent upon salt resources in ways beyond mere dietary sustenance. They also anchored and incentivized the expansion of American imperialism through the western Ohio River Valley and beyond well prior to the turn of the century.[164]

Even at the highly productive Bullitt's Lick, provisioning remained a perpetual problem through the mid-1780s thanks to ongoing Native resistance. The winter of 1783-84 had been hard at Bullitt's Lick; feed supply for horses and oxen ran low, forcing new manager Robert Daniel to purchase several dozen heads come April. Daniel hoped to keep the new stock alive, and told William Christian that he "had a very good prospect of raiseing corn this summer." But it remained, Daniel told Christian, "rather uncertain whether the Indians mean to be at peace or not […] If nothing extraordinary happens it will be in my power if we can procure pans and kettles sufficient to make salt to supply the whole country." Daniel's hopes were dashed. Through the summer and fall of 1784, Shawnee, Miami, and Delaware raiders from the north and Chickamauga parties from the south frustrated efforts to convey salt-making equipment through the Ohio River Valley. Anne and William Christian wrote to relatives and business associates of chronic food shortages, horse thefts, and lack of equipment—and Bullitt's Lick was far from the only establishment to feel the effects of Native power in action. "No doubt you have before now heard of the Mischief done by the Indians on the Road," Samuel McDowell wrote to Andrew Reid, manager at May's Lick, in November 1784; the attackers had stolen horses, a common (and effective) act of disruption along Kentucky's traces and roads through the 1780s. But horse theft wasn't the largest of McDowell's concerns; "a Report Prevales," he told Reid, "that the Indians Over the Ohio have Leagued against us and are for war which if true is bad news for us." McDowell's inclinations were right. "The

[164] McDowell, "Bullitt's Lick: The Related Saltworks and Settlement." For Kleber on the Wilderness Road, see John Kleber, *Encyclopedia of Louisville* (Lexington, KY: University Press of Kentucky, 2000), 145.

Indians have killed several people Near this place," Frederick Edwards wrote from Louisville to his business associate William Christian in May 1785, "and have taken a number of Horses."[165]

When roads proved perilous, settler salt-makers resorted to water courses to convey heavy exports and salt-making equipment. But waterways could also be treacherous. "All the boats that have com down the river this ten days past," Edwards informed Christian, "have been attacked by them." And in December 1786, trader James Wilkinson tasked Nathaniel Massie to transport two hundred bushels of salt to the Falls of the Ohio for export to the Mississippi. "Be cautious in your movements," Wilkinson warned Massie, "guard against the savages, coming and going, and discharge your men the moment you get to the port." In 1788, Henry Crist, then a seasoned manager and major figure in Kentucky's salt industry, was shipping dozens of new kettles from Louisville to Bullitt's Lick when Shawnee men attacked his party and their equipment-laden flatboats. When Crist and his party managed to make it to shore, their assailants seized the flatboats and equipment while the settlers escaped. Crist, who had been shot in the foot, crawled within a half mile of Bullitt's Lick, where an enslaved man on guard duty found him.[166]

Whether by river or by road, attacks on settler persons and property produced a security crisis among Kentuckians that nearly extended to the Cumberland River. Writing from Danville in December 1787, Harry Innes tried "to make some estimation of the Persons killed & taken & the Horses which have been stolen from this District since September 1783 to the present period." "Without exaggeration," Innes claimed to count 300 people killed, 50 prisoners taken, and a remarkable 20,000 horses stolen. Since Innes had last written his correspondent three weeks prior, "four more people had been killed and another 65 Horses taken." The loss of so many horses in such a short period of time constituted a significant setback for salt-making enterprises across the region. Every saltwork depended upon horses to quickly move men and more effectively transport heavy equipment—kettles, pumps, and market-ready products—between remote production sites and hubs like Danville, Louisville, and Harrodsburg. Commercial salt production suffered from property theft, and the industry could have provided the capital necessary to defend settlers and their property. Arthur Campbell suggested that a salt tax might help "to pay for provisions" for the Kentucky militia, namely "to procure waggons and boats [to] carry them and the artillery stores along." "By pledging the whole of the duty on salt for one year," Campbell argued, the tax would fulfill "the purpose of defending the western frontier"—a boon that would therefore "make the tax a popular one."[167]

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[165] For Daniel's correspondence with Christian, see Robert Daniel to William Christian, April 16, 1784, Folder 412, BOC, FHS. For McDowell's correspondence with Reid, see Samuel McDowell to Andrew Reid, November 6, 1784, Folder 1, Mss. 91 J1:3:8, McDowell Family Correspondence, KHS. For Edward's correspondence with Christian, see Frederick Edwards to William Christian, May 7, 1785, Folder 413, BOC, FHS.

[166] For Edward's correspondence with Christian, see Frederick Edwards to William Christian, May 7, 1785, Folder 413, BOC, FHS. For Wilkinson's warning to Massie, see Wilkinson in Lewis Collins (rev. and ed.) and Richard Collins, *Collins' Historical Sketches of Kentucky: History pf Kentucky Vol. 2*, 370. The attack on Henry Crist and several other salt-makers has been re-recorded by several generations of Kentucky historians; see McDowell, "Bullitt's Lick: The Related Saltworks and Settlement"; Clark, "Salt, a Factor in the Settlement in Kentucky"; and Sanders, "The Salt Wells of Bullitt Co. Ky."

[167] For Innes' estimates, see Harry Innes to John Brown, December 7, 1787, SC 621, KHS. For Campbell's suggestion of levying a salt tax, see Arthur Campbell to unknown, May 10, 1789, Folder 4, Mss. A .C187, Arthur Campbell Papers, FHS.

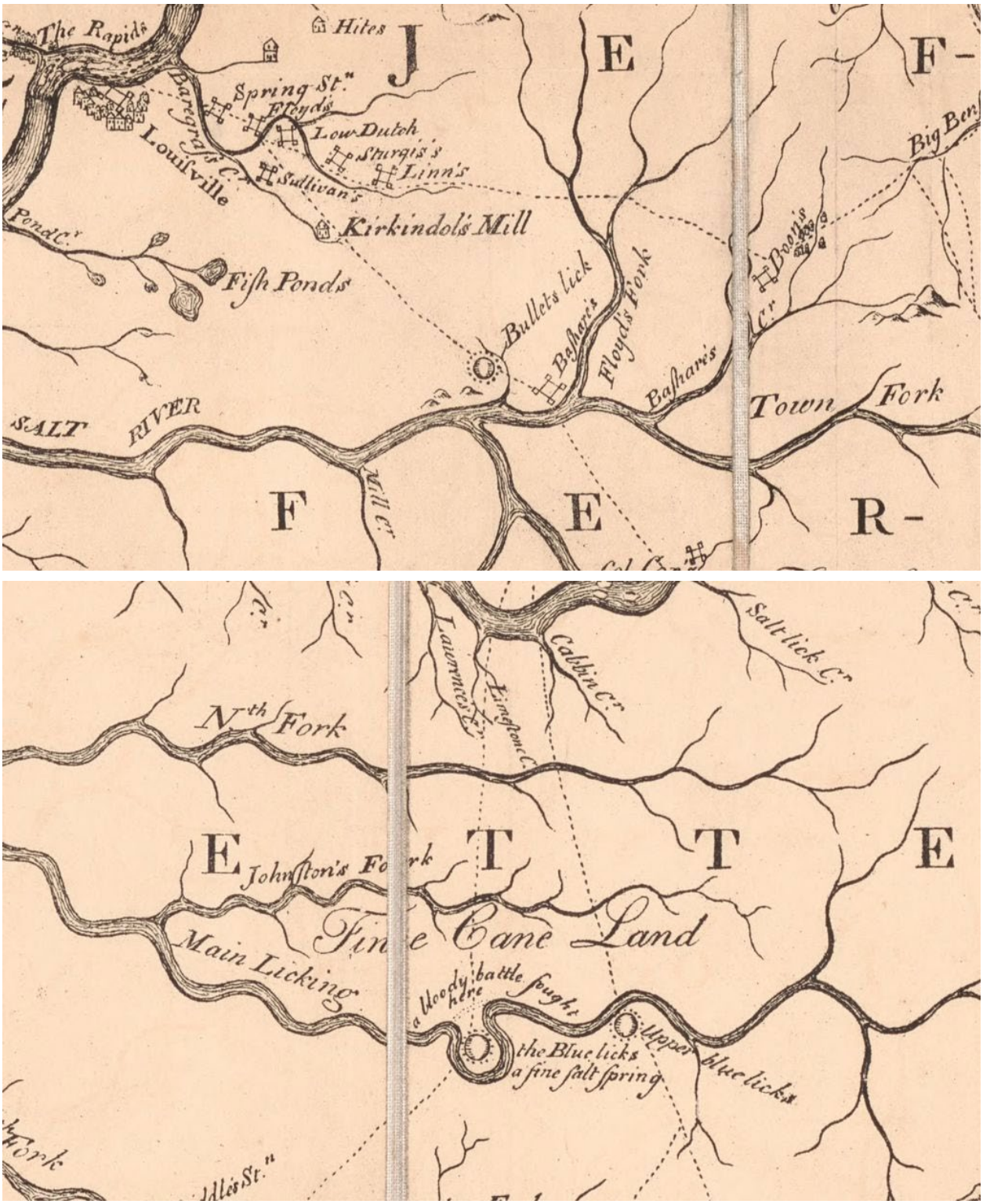


Figure 11. Inset of the Salt River Valley (top) and central Licking River Valley (bottom) in Kentucky from John Filson's 1784 map of Kentucky. The top inset indicates the location of Bullitt's Lick relative to several garrisons and settlements. The bottom inset shows the location of the 1782 Battle of Blue Licks as well as the location of nearby workable salt resources. Source: John Filson, *A map of Kentucky* (London, UK: J. Stockdale, 1793). Library of Congress Geography and Map Division, http://hdl.loc.gov/loc.gmd/g3950.ct007124.

Native attacks on the salt industry and surrounding settler communities prompted Kentuckians to seek greater protection. The death of William Christian was an especially troublesome touchstone in the souring of relations across the Ohio River. In April 1786, Christian had led a party of volunteers just north of the Ohio River to strike Shawnee and Miami camps they held responsible for attacking settlers and stealing property between Louisville and Bullitt's Lick. Christian was killed by Native men during the Kentuckian's excursion. The loss of the commercial salt industry's pre-eminent figure prompted Christian's associates as well as leaders in local politics and salt-making to mobilize state power in the service of revenge. Immediately following Christian's death, Samuel McDowell wrote to Virginia governor Patrick Henry, Christian's brother-in-law, that "the Indians have been very troublesome this Spring and of late have Invaded the County of Jefferson and are now almost every day committing depredations there." McDowell asked Henry for permission to call volunteers up for a retaliatory expedition: "we have no way to Prevent the Indians from Invading us but by carrying a body of men into their country, which I believe we cannot attempt unless your Excellency and the Hon'ble Council will authorize us to do so." Echoing McDowell's sentiments, Bullitt's Lick business associate John May implored the governor to consider the ramification of Christian's death for his family and his property. "Since Col. Christian's Death," May wrote on April 19, "the Indians have been at his Plontation and taken away his horses"—both a hindrance to operations at the saltworks and yet another blow to Christian's widow, Anne. Other settlers in the area used more popular political methods to encourage governmental sanction and intervention. Following Christian's death, dozens of settlers in Nelson, Lincoln, and Fayette counties petitioned to the Commonwealth of Virginia for endorsement in exacting revenge against Christian's assailants.[168]

Major military and political figures shared settlers' concerns. By George Rogers Clark's estimate, the confederation of Shawnee, Miami, Delaware, and other combatants living immediately north of the Ohio River totaled 1,500 "fighting men." Clark argued that "by a sufficient force marching into the heart of their country, and acting with vigour might soon effect the desired purpose" of "making them desperate"—an offensive that might break the confederacy of combatants and destabilized their home communities so that "the business of the United States on the Frontiers might go on." John Cleves Symes expressed similar anxieties about Shawnees in particular to the President of Congress, Arthur St. Clair, in May 1787, warning St. Clair that "many of the Indians cross the Ohio […] at and near the mouth of the Kentucky river and in a direct line from the Shawanese towns." Treaties negotiated at Fort McIntosh in 1785 and Fort Harmar in 1789 sought to affix the Ohio River as a permanent border to keep Native peoples apart from settlers. But many Native peoples refused the rigidification of regional boundaries, and continued to travel south of the river well through the final decade of the eighteenth century.[169]

The establishment of commercial saltworks across northern and central Kentucky co-opted sites of sustenance that had long enabled and incentivized Native peoples to live and move across the Ohio River Valley. Native peoples—Shawnees, Miamis, Delawares, and others—whose

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[168] For McDowell's appeal, see Samuel McDowell to Governor Henry of Virginia, April 18, 1786, Folder 414, BOC, FHS. For May's appeal, see John May to Gov. Henry, April 19, 1786, Folder 414, BOC, FHS. For the petition, see Citizens of Jefferson County, Mss. C C, FHS.

[169] For Clark's correspondence with Lee, see George Rogers Clark to Richard Henry Lee, June 8, 1786, Folder 1, Mss. C C, George Rogers Clark Papers, FHS. For Symes appeal to St. Clair, see John Cleves Symes to President of Congress, May 3, 1787, Mss. C S, John Cleves Symes Papers, FHS. Andrew Cayton has argued that "the economic structures of the Ohio Valley tended toward seeing the river as an artery while its residents were constructing it as a border"; see Andrew R. L. Cayton, "Artery and Border: The Ambiguous Development of the Ohio Valley in the Early Republic," *Ohio Valley History* Vol. 1, No. 1 (2001), 19-26 (quote from p. 19).

interests went largely unrecognized in distantly determined treaty negotiations, territorial cessions, and land agreements responded defensively. Titles to resource-rich property might have assured prospective salt-makers and dependent settlers that their improvements upon the land could proceed with some protection. But the persistence of Native power and mobility south of the Ohio River made it difficult to do so. Whether intentionally directed toward settler salt making or not, Indigenous power and presence cultivated a climate of perpetual concern for the salt industry's immediate and distant future. To secure their own property and prosperity at the expense of Native peoples, settlers and their communities at and around saltworks needed state power and resources. Civilians and commercial producers depended upon and endorsed military retaliation for acts of Indigenous resistance, as well as preemptive offensive campaigns. Nonetheless, the region's Native people managed again and again to destabilize Kentucky's salt industry and the dreams of settlers. Rarely do past studies of the industry's flourishing and floundering mention the persistence of Indigenous peoples or power south of the Ohio River. But without them, any explanation of how Kentucky's salt industry succeeded—and, perhaps most importantly, how it nearly failed—is incomplete.

Commercializing Salt Resources

Bred first in destruction and dispossession, Kentucky's commercial salt industry and broader settler colonization was born in replacement and repossession. The emerging regional geography of settlement grew out from an ancient saline geography that had been shaping human placemaking in the Ohio Country for millennia. The tandem development of a commercial salt industry and its dependent populations exacerbated demands from settlers for protection against Native peoples who refused to relinquish access to the pathways and places that had, less than a generation prior, provided them with provisions and prosperity. Most significantly, saltworks provided the spatial anchor and the economic impetus for the creation of a permanent settler society in the Ohio River Valley—one deeply dependent upon the region's salt resources. Salt was central to their futures in the region, so settlers struggled mightily not only to seize salt resources but to secure them. As had been the case immediately following the American Revolution, salt's centrality to white settlement in the early American west prompted settlers to actively invest in the multilaterally violent colonization of the Ohio River Valley. In doing so, the settler salt industry and its dependents incidentally invited retaliation from Native peoples. They continued to confound the consolidation and commercialization of settler salt-making as it inflicted exponential violence to the region's most critical resources and to the people who relied on them.

When colonizing and commercializing workable salt resources, settlers rapidly transformed local landscapes. The earliest commercial saltworks used basic cooking kettles that held anywhere from ten to twenty gallons of surface-sourced brine. At places like Drennon's Lick and Bullitt's Lick, saltwater was drawn from springs and brine seeps that percolated the deforested licks. At a place called Anderson Spring, saltwater allegedly "issue[d] from the top of a Rock, on which is a Bason … over one edge of which [the water] falls eleven feet." Once collected in kettles, the saltwater was boiled over open flame fires to slowly evaporate and crystalize. This rudimentary salt-making process required only "twenty or thirty men," but had low productivity. It yielded "only a few bushels of salt a month," notwithstanding the input of a near wasteful amount of fuel, time, and energy. In order to produce enough salt for the booming settler population, producers had to invest in productive capacity and recruit more labor. And salt-making demanded labor for more than simply the manufacture of salt; as early as 1783, Bullitt's Lick needed at least "twelve

waggoners [,] twelve woodcutters [,] & twelve kettle tenders, besides hands to raise bread and meat and forage for the horses and oxen" who hauled equipment and fuel.[170]

But salt-makers soon encountered another obstacle: organic outcroppings of saltwater quickly proved insufficient to sustain commercial production. By the late 1780s, proprietors had to begin drilling wells, some—like those at Bullitt's Lick and Long Lick—penetrating anywhere from twenty to 300 feet into the earth. Iron pipes then conveyed brine from the wells into brass and yellow copper kettles, which were set in rows of ten to twelve atop trench furnaces sank several feet into the earth. Furnace tenders fired the kettles constantly to facilitate the separation and solidification of the salt crystals. The amount of brine required to yield one bushel of salt varied by place. By one estimate, it took 800 to 1,000 gallons of brackish water to produce a single bushel sold for a lofty two to three dollars in Lexington. At weaker sources like the Blue Licks on the Licking River, eight sixteen-gallon kettles produced a more meager three pecks (roughly 45 to 60 pounds) per day.[171]

The fueling of commercial salt furnaces nearly constituted its own industry. Salt-making placed unprecedented demands upon local forests. Vast numbers of trees were felled quickly to fuel the ceaseless furnaces. When French traveler Andre Michaux visited May's Lick in 1802, he remarked to local workers that "these sorts of furnaces have no claim to economy, as they consume a prodigious quantity of wood." The salt-makers "answered that they did not know of any better process." When nearby timber supplies ran out, it could be cheaper to move furnaces closer to new sources of fuel rather than to hire more men to move mass amounts of lumber to the existing works. Salt makers also attempted to resolve resource depletion by expanding their source; through the 1790s, salt-makers pressed settlers who owned property adjacent to saltwater sources to allow for the extension of brine pumps and pipes (often made from large trees, and thus another impetus for timber use) through their land, enabling existing saltworks to draw brine from more distant sources. As had been the case with claiming salt resources, the exponential expenses required to operate saltworks provoked competition among settlers that played out through purchase, litigation, and even physical violence. Landowner Benjamin Stansberry once testified that axe-armed salt-makers from Bullitt's Lick arrived on his 500-acre timbered property with an aim to take wood for furnace fuel. When Stansberry tried to stop them, the salt-makers broke his arm, and continued to harass him whenever he visited Bullitt's Lick to sell and deliver timber.[172]

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[170] For the description of Anderson Spring, see Myra Sanders, "The Salt Wells of Bullitt Co. Ky.," paper read before the Filson Club, April 4, 1921, Mss. BI F489b 124, FHS. For description of labor at Bullitt's Lick in 1783, see Mary Daniel to brother, November 21, 1783, Folder 412, Mss. A B937c, BOC, FHS.

[171] For description of 300-foot wells, see Bernheim Forest Society manuscript, Mss. C B, FHS. Writing in 1802, Andre Michaux stated that at May's Lick in northern Kentucky, "the wells which afford the saline water are about twenty feet deep," and that salt-makers "use[d] brass cauldrons for the evaporation, which contain about twenty-five gallons […] they place ten or twelve of these in a row, over a trench four feet deep, and of a width proportionate to their diameter, so that their sides rest on the banks of the trench, while the spaces between the cauldrons are imperfectly stopped by a few handfuls of clay; see Michaux, "Travels to the West of the Alleghany Mountains in the States of Ohio, Kentucky, and Tennessea, and back to Charleston, by the Upper Carolines … Undertaking in the year 1802 – September 24, 1802 to March 1, 1803," in Reuben Gold Thwaites (ed.) *Early Western Travels, 1748-1846, Vol. 3* (Cleveland, OH: The Arthur H. Clark Company, 1904), 55. For the use of yellow copper kettles, see Sanders, "The Salt Wells of Bullitt Co. Ky.," FHS. For the rate of salt in Lexington and boiling rate estimates, see Folder 5, Mss. A M 398, Kathryn Harrod Mason Research Collection, FHS. For boiling rates at Blue Licks, see Robert Daniel to William Christian, April 16, 1784, Folder 412, BOC, FHS.

[172] For the wasting of timber at May's Lick, see Michaux, "Travels to the West of the Alleghany Mountains," 54-56. For Stansberry's encounter with the salt-makers, see McDowell, "Bullitt's Lick: The Saltworks and Related Settlements."

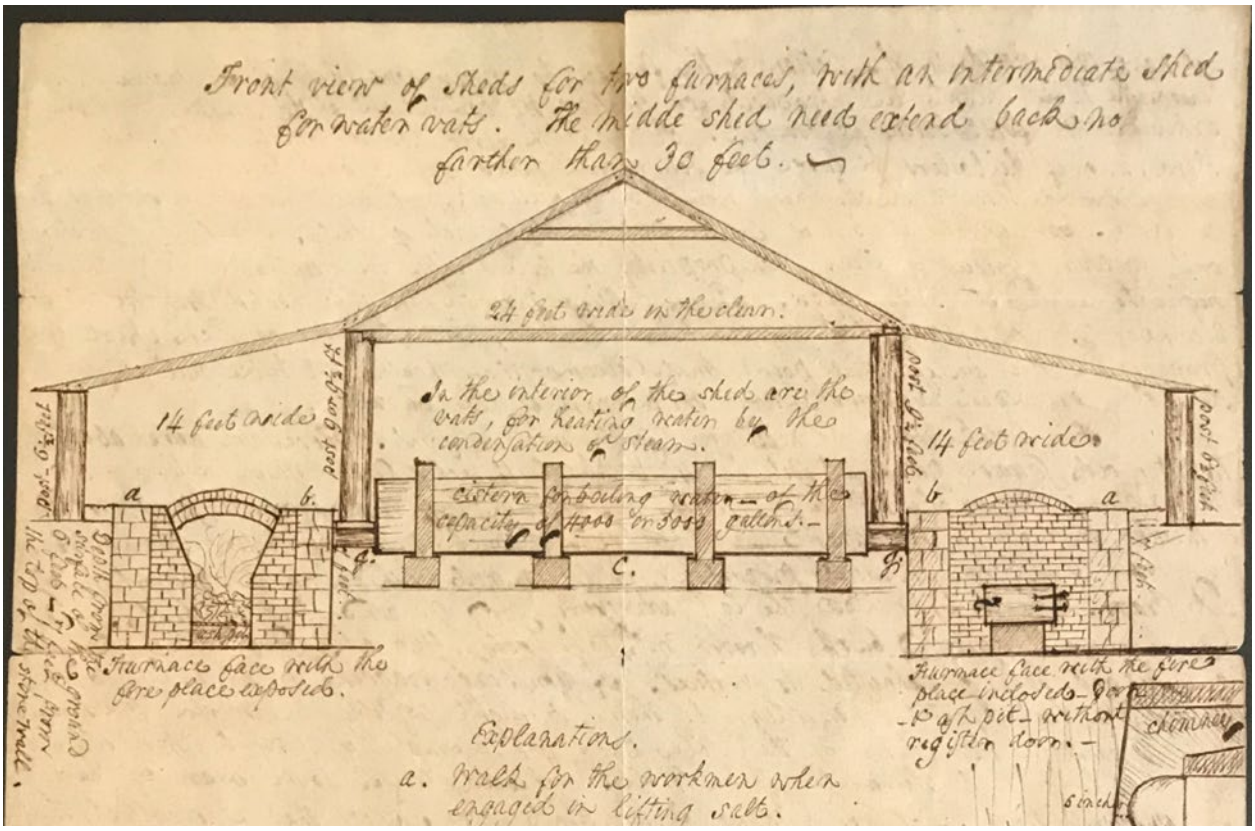


Figure 12. Diagram of de-oxidizing furnaces intended for construction at Mann's Lick and Bullitt's Lick in Kentucky, June 1814. Inspiration for the furnaces were drawn from early saltworks in the Kanawha River Valley in present-day West Virginia. Source: Folder 1, David Ward Correspondence, Mss. A S742f, Speed Family Papers, Filson Historical Society, Louisville, KY.

Commercial salt production even underpinned rapid economic and ecological transformation beyond saltworks and adjacent timber stands. As explained in Chapter Two, salt production and livestock rearing were mutually reinforcing industries in eighteenth-century colonial contexts like Louisiana. The same was true of Kentucky, where hog and cattle rearing boomed and bloomed in conjunction with early industries in salt production, agriculture, and liquor production. After places like Bullitt's Lick, May's Lick, Long Lick, and other major saltworks began turning sustainable profits, livestock rearing and meat preservation boomed in Kentucky. Ranchers and livestock provisioners often fed poor-quality salt to cattle and horses to maintain their health. Salt was equally important when livestock was slaughtered and stored for consumption. "The quantity" of salted meats "exported, in the first six months of the year 1802," Michaux reported from Kentucky, "is stated to have been two hundred and seventy-two thousand weight of smoked pork or bacon, and two thousand four hundred and eighty-five barrels of pickled pork."[173]

[173] Like salt production and livestock rearing, agriculture, animal husbandry, and liquor production were mutually reinforcing industries central to the commerce of early Kentucky. Wheat and corn production underpinned liquor (namely whiskey and sour mash) production; this, in turn, produced immense quantities of grain waste, which farmers and ranchers fed to hogs and cattle. For the rise of Kentucky's livestock industry, see Paul Henlen, *Cattle*

From digging to fueling to export, commercial salt production required high quantities of physical labor and management alike. Proprietors who wished to turn workable salt resources into working saltworks needed plenty of people (almost always men) to work the land and turn brine into sellable salt. Leasing constituted a primary method of acquiring sufficient labor. As the size and capacity of commercial saltworks expanded, titleholders and landowners generated more stable profits by selling off small parcels with single resources (usually a spring or lick, and sometimes a timber stand or river access) or by leasing out said tracts. Lessees often resided on site for months and sometimes years at a time, and worked for titleholders by recruiting labor overseeing production, and managing equipment. Some well-endowed proprietors also leased equipment like kettles, axes, and wagons. In principle, the leasing of workable salt resources and the equipment needed to work them created greater opportunities for capital investment in generally high-cost and often precarious commerce in salt production.

But the leasing system helped inscribe inequality into an emerging regional settler economy that many still hoped would be characterized by white egalitarianism and opportunity. Besides labor-intensive, salt-making was also expensive. Proprietors found themselves purchasing more and more timbered land for fuel, while lessees invested much of their finite capital in importing salt-making equipment like kettles and other metalware. To maintain profitability, proprietors and lessees kept wages low. And they did so by paying laborers in salt rather than specie or credit. Nominally, proprietors and lessees advertised "GOOD WAGES … for three Waggons and Teams" in the *Kentucky Gazette*. In reality, because most hired laborers were paid primarily with salt (or sometimes whiskey), poor labor compensation prevailed from the start in Kentucky's salt industry. "If you could only furnish one wench," Mary Daniel wrote to her brother in Virginia from Bullitt's Lick in November 1783, "it would be a great help." Mary further advised her brother that "it would be much more to your profit to send half a dozen hands than to hire at the rate they hire men here [.] [T]he people that live here gives every hireling they can get two bushels of Salt a week." This payment system deepened free laborers' dependency upon proprietors and lessees while consolidating profits in the hands of those who owned (rather than worked) salt resources. As Honor Sachs explains, white men toiling at salt works "may have labored in the earth, but it was not for themselves … They would still rely on their employers for sustenance."[174]

Most salt, however, was made by enslaved Black men. Enslaved laborers constituted a critical bulk of the workforce at Bullitt's Lick, Long Lick, Mann's Lick, Drennon's Lick, and other early saltworks. Initially, Euro-Americans who travelled to Kentucky to survey and enter workable salt resources recommended against bringing enslaved peoples into Native-controlled territories. "I fear this will be a bad place to bring slaves to," surveyor John May opined to prospective purchaser Samuel Beall in December 1780. May was describing Mann's Lick, which he feared was "so near Indians that they [enslaved people] will frequently find their way to them." Nonetheless, elite white families like the Christians soon brought enslaved laborers to Kentucky to alleviate labor shortages and generate revenue. After her husband, William, died in 1786, Anne Christian assumed management of Bullitt's Lick—and several people enslaved to Christian. In the interest of maintaining profitability, Anne depended upon the family's enslaved laborers both to

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Kingdom in the Ohio Valley, 1783-1860 (Lexington, KY: University Press of Kentucky, 1959). For estimates of salt meat exports in 1802, see Michaux, "Travels to the West of the Alleghany Mountains," 78.

[174] For a fuller explanation of the leasing system and labor inequities amongst Americans at saltworks in Kentucky, see Honor Sachs, *Home Rule: Households, Manhood, and National Expansion on the Eighteenth-Century Kentucky Frontier* (New Haven, CT: Yale University Press, 2019). For the *Gazette* excerpt, see Honor Sachs, *Home Rule*, 54. For hiring rates, see Mary Daniel to brother, November 21, 1783, Folder 412, BOC, FHS. Honor Sachs, *Home Rule*, 55.

operate Bullitt's Lick and to generate revenue through labor in other industries. In correspondence with relatives and business associates, Anne spoke frequently of hiring out "our Negroes" to other employers and employing "Estate Negroes" to work furnaces, chop timber, and barrel salt at Bullitt's Lick. Anne even took to local papers to advertise "a number of negroes consisting of men, women, boys and girls" for hire from her husband's estate." The leasing of enslaved labor reflected in Anne Christian's business strategy extended well beyond the furnaces and forests of Kentucky saltworks. "The owners of these springs reside commonly in the old part of Virginia or Maryland," Lincoln County resident Thomas Perkins observed in February 1785, "and carry on the business of salt-making by negroes and ignorant people under the direction of an overseer as ignorant as themselves."[175]

Slavery thrived at early western saltworks, in part, because the works themselves often preceded the migration of sufficient populations of laborers. Where labor was scarce, enslavers seized the opportunity to lease out enslaved people—both men and women—to perform the arduous work of salt production What's more, saltworks north of the Ohio River—works claimed as property of the federal government and leased to select settler salt makers—created legal loopholes for enslavers to bring enslaved laborers with them to the otherwise slavery-free Northwest Territory. Historians John Edmund Stealey, Honor Sachs, and Thomas Bahde have researched how early nineteenth-century salt production in western Virginia, Kentucky, and Illinois (then part of the Northwest Territory), respectively, invited the expansion of enslaved labor and slave leasing. But past studies of salt-making and the expansion of slavery west of the Appalachians have neglected to explore the structural intersections of slavery's expansion and settler colonialism. The settler salt industry largely preceded the creation and consolidation of other labor-intensive industries in the region, such as iron production, coal mining, and agriculture, and it did so upon lands and resources recently (or sometimes even in the process of being) dispossessed from Indigenous peoples. The expansion of slavery, Indigenous dispossession, and the intersections and resources at which these processes convened and collided shaped the spatial trajectory and structural formation of American settler colonialism.[176]

Despite (or, rather, because of) the expansion of settler-managed and slave-operated saltworks, Native mobility continued to frustrate commercial salt-making through the 1790s. From the southern banks of the Ohio River to as far south as Tennessee, settlers complained to state and territorial officials of their inability to safely access salt. In early 1792, settlers in present-day northern Tennessee petitioned territorial military officials for protection; "the recent Murders & ravages" of Native men had "Shut up" the navigation of the Cumberland and Salt rivers, leaving settlers "deprived of the very Necessary Article Salt; that article haveing already raised in its price one fifth part more than the Common price." Even settlers living near garrisons felt vulnerable. In May 1793, over 75 settlers living in the heavily-guarded Salt River Valley repeated a request to Kentucky governor Isaac Shelby for "a guard of men to be stationed at the mouth of Salt River."

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[175] For May's anxieties about enslaved people running away to Native settlements, see John May to Samuel Beall, December 9, 1780, Folder 1, Mss. A B365, Beall-Booth Family Papers, FHS. For Anne Christian's correspondence regarding the management of enslaved peoples within the family's estate and for direct quotes, see Anne Christian to Elizabeth Christian, January 2, 1788, and Anne Christian to unknown, April 24, 1788, Folders 393 and 394, BOC, FHS. For Anne's advertisement for leased labor, see Sachs, *Home Rule,* 65. For Perkins, see Perkins excerpted in McDowell, "Bullitt's Lick: The Related Saltworks and Settlements."

[176] John Edmund Stealey, III, "Slavery and the Western Virginia Salt Industry," *Journal of Negro History* Vol. 59, No. 2 (1974). Honor Sachs, *Home Rule*. Thomas Bahde, ""I Would Not Have a White Upon the Premises": The Ohio Valley Salt Industry and Slave Hiring in Illinois, 1780-1825," *Ohio Valley History* Vol. 15 , No. 2 (2015), 49-69.

The protection of salt was of paramount concern; "unless the different salt works have a party of these men [guards] to protect them," warned the petitioners, "we shall lose one of the most essential benefits which we have been induced to hope for from this guard." Salt resources like Big Bone Lick remained appealing to settlers, but their exposure to attack still deterred Americans from production. In early 1795, Thomas Carneal informed the Governor that he wanted "to establish a settlement at the big bone lick for the purpose of making salt, an article much wanted, but the place is exposed I cannot think of removing my property there unless I can be indulged with a guard."[177]

Workable salt resources had attracted settlers seeking security and prospective salt-makers pursuing profits. But the expansion of the industry only encouraged further attention and attacks from Native men, who, despite settler anticipations, refused to abandon the southern Ohio River Valley. "The Indians [have] made a beginning on the fronteer of this county," Samuel Wells wrote to Shelby in early February 1795, "I think it will be necessary for this county to have protection," as northern and central Kentucky—by then the heart of the state's salt industry—was "very much Exposed to the Enemy [and] the two Salt Licks beeing on the fronteer of the county makes it have a much larger cawl for protection." "The Salt Licks," Wells opined, "are of a publick good to the state in general […] the state ought to give protection to them." As Wells described it, workable salt resources were a double-edged sword for the settler state. They were both necessary to the settler project and points of tremendous vulnerability to that project[178].

Others shared Wells' disposition. After Revolutionary War veteran Joshua Archer was killed at Mann's Lick that same month, Robert Breckenridge implored Shelby that "protection be afforded to the inhabitants at and in the vicinity of Bullitts & Manns Licks" to "render them secure in their persons and property." Less than a month later, the governor received yet another request, this time from Henry Lee, who reported that "two men were Hunting near the mouth of Scioto, & were attacked by the Indians." Lee recommended that Shelby "order out Spies" for the security of residents living at Salt Lick just south of the Ohio-Scioto confluence; "Salt Lick is a place I conceive worthy of attention & it is very much ex[posed]," Lee warned, "was it to brake, this part of the State would certainly suffer greatly for the article of salt." Conditions grew so dire that it drove salt-makers away from the industry entirely. "Alarmed at the frequent Rumours of Indians & the exposed situation of the Place," Turner Richardson wrote to Shelby from Drennon's Lick in June 1795," the men I had hired are leaving me & extravagant Prices are not sufficient to keep them."[179]

Parasitic in its nature, the settler salt industry south of the Ohio River exacted and exacerbated many costs of colonization. Commercial salt-making provided Kentucky's burgeoning settler populations—and, eventually, more distant markets—with necessary commodities at a steep price. From the start, commercial salt production encouraged competition

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[177] For the 1792 petition, see Petition of Tennessee County residents to James Robertson, February 1, 1792, in Clarence Edwin Carter (ed.), *The Territorial Papers of the United States, Vol. 4: The Territory South of the River Ohio, 1790-1796* (Washington, DC: United States Government Printing Office, 1936), 117. For the 1793 petition, see "Edward Thomas Letter" via *Bullitt County History,* https://bullittcountyhistory.org/bchistory/thomasletter.html. For Carneal's complaints to Shelby, see Thomas Carneal to Isaac Shelby, January 21, 1795, Folder 3, Isaac Shelby Papers, FHS.

[178] For Wells' correspondence with Shelby, see Samuel Wells to Isaac Shelby, February 5, 1795, Folder 3, Isaac Shelby Papers, FHS.

[179] For Breckenridge's warnings, see Robert Breckenridge to Isaac Shelby, February 7, 1795, Folder 3, Isaac Shelby Papers, FHS. For Lee's correspondence with Shelby, see Henry Lee to Isaac Shelby, March 5, 1795, Folder 3, Isaac Shelby Papers, FHS. For Richardson, see Turner Richardson to Isaac Shelby, June 4, 1795, Folder 3, Isaac Shelby Papers, FHS.

among first-generation proprietors with overlapping claims to workable salt resources. The subsequent erection and expansion of commercial saltworks produced immediate environmental degradation, primarily through rapid deforestation. Salt-making also exacted considerable human costs; chronically low wages, paid as commodities like salt and whiskey, and debt-based labor forced free white workers into subsistence through dependency. Conditions were obviously worse for unfree salt-makers, who were systematically denied rights to negotiate the terms or length of their labor and were subjected to violence, racism, and uncertainty. Moreover, interpersonal violence committed at and beyond commercial saltworks shaped a range of relations—among Native peoples and settlers, between diverse peoples and surrounding environments (both built and natural), and between settlers and the emerging settler state. The calamitous creation and contestation of Kentucky's commercial salt industry demonstrated—to Native peoples, to individual settlers, and to U.S. officials—that the commercialization of workable salt resources elsewhere in the Ohio River Valley would be inextricable from broader issues and aims of American colonization.

Salt Resources & the Settler State in the Northwest Territory

While thousands of settlers staked their futures upon saltworks south of the Ohio River, and hundreds of thousands more depended upon the output of those saltworks, the nascent federal state fixed its sights upon lands and resources on the other side of the river. Here, the United States took a more active stance in the joint projects of seizing and commercializing salt resources. In Kentucky, salt-making, agriculture, livestock rearing, and other industries precipitated a veritable rush of migration that, paradoxically, provided the United States government with problems as much as it did possibilities. While the aggressive and seemingly ceaseless influx of settlers precipitated conflict with Native peoples across the southern Ohio River Valley, white settlement justified its own defense and incentivized the militarization of burgeoning white communities and industrial hubs. The speed of settler colonization in Kentucky was also enabled by the legal peculiarities of the region's fractured legal past. After Britain ceded its American possessions to the United States, Virginia assumed responsibility for the administration of lands granted to former British citizens—namely veterans from the Seven Years' War and Dunmore's War. The legality of such grants rested shakily on the conglomeration of concessions made in the treaties of Hard Labour and Fort Stanwix, and their survey, settlement, and incorporation remained contingent upon the cooperation of Native peoples living, hunting, trading, and travelling south of the Ohio River. But following independence, Virginia made no effort to negotiate with Shawnees, Miamis, Delawares, or other local Ohioan peoples; instead, state officials insistent upon incorporating new lands and resources rushed the patent process along.[180]

North of the Ohio River, the United States government endeavored to expand federal territory by more formally (though no less aggressively) annexing Indigenous lands. Immediately following U.S. independence, while settlers and land grantees went about colonizing independently surveyed salt resources in trans-Appalachian Virginia, the federal government sponsored territorial surveys targeting resource-rich lands west of the Pennsylvania border. The Land Ordinance of 1785, which provided the legal foundation for the sale and settlement of lands

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[180] "Treaty of Hard Labor with Cherokees," *Envisaging the West: Thomas Jefferson and the Roots of Lewis and Clark* (Center for Digital Research in the Humanities, University of Nebraska-Lincoln), http://jeffersonswest.unl.edu/archive/view_doc.php?id=jef.00089. "1768 Boundary Line Treaty of Fort Stanwix," Cumberland Gap National Historic Park, Fort Stanwix National Monument (National Parks Service), https://www.nps.gov/articles/000/1768-boundary-line-treaty-of-fort-stanwix.htm.

northwest of the Ohio River and established the federal Public Land Survey System, explicitly instructed surveyors to mark "all mines, salt springs, salt licks and mill seats" found across the Northwest Territory. Spearheaded by surveyor Thomas Hutchins, federally-sponsored surveys of the Northwest Territory located workable salt resources near the Muskingum, Scioto, Miami, and Wabash rivers—almost all of which had been worked by past generations of Native peoples and several of which likely remained used by nearby villages and towns.[181]

But through the 1790s, Miamis, Shawnees, Delawares, and other northern Ohioan peoples delayed federal efforts to colonize the Northwest Territory and formalize American claims to the region's salt resources. Conflict consumed the Ohio River Valley as early as 1785, when the settler population of Kentucky boomed from a few hundred settlers during the American Revolution to over 50,000. Initially, the Kentucky militia took violence into its own hands and coordinated several campaigns targeting Native towns north of the Ohio River. By 1790, after several failed campaigns to quash the growing Northwest Confederacy, the United States Army formally intervened. But it, too, suffered near catastrophic defeats in 1790 and 1791. While the U.S. Army struggled to stymy Native martial power, American negotiators sought to recruit Native leaders increasingly opposed to and discouraged by the war into negotiations that might end it. Through 1794, the political fibers of the Northwest Confederacy frayed as Haudenosaunee, Shawnee, Miami, Delaware, and other national, factional, and community leaders became increasingly split over the potential perils and payoffs of the United States' proposals to manage non-Native settlement north of the Ohio. The 1795 Treaty of Greenville ended the war and formalized and expanded several major territorial cessions previously made in the 1783 Treaty of Paris (which excluded Native negotiators), the 1785 Treaty of Fort McIntosh, and the 1789 Treaty of Fort Harmar. Most critically, the treaty—and the war itself—put an end to organized Native martial resistance to American imperialism for a generation and, therefore, granted greater legal stability to the federal government's land reapportionment effort.[182]

Only after the war—and the mitigation of Native resistance—could Congress pursue its effort to establish federal control over Ohio's salt resources. In May 1796, it passed a land act that "reserved, for the future disposal of the United States" a salt spring complex "lying upon a creek which empties into the Sciota River, on the east side," as well as workable springs bordering the Muskingum River. The following month, in June 1796, Congress passed additional legislation regulating the apportionment of lands in the United States Military District, and again reiterated the federal government's automatic and exclusive entitlement to the district's salt resources—including a major workable spring in central Ohio. By 1800, Congress was leasing out three salt reservations—the Scioto Salt Reservation, the Muskingum Salt Reservation (which was actually two separate tracts), and the Delaware Salt Reservation. Initially, the leasing system generated territorial and federal revenue in otherwise industry-poor regions of the Northwest Territory. But like in Kentucky, settler ambitions in commercial salt-making proved wasteful of adjacent resources (particularly timber), jeopardizing the longevity of commercial salt-making and causing

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[181] For the 1785 ordinance, see the Land Ordinance of 1785, May 20, 1785, in Carter (ed.), *Territorial Papers of the United States* Vol. 2, 13. When gathering evidence for multiple Indian Claims Commission cases relating to lands in Ohio and Indiana, Erminie Wheeler-Voegelin located several sources indicating sustained Indigenous settlement at and nearby salt resources across the northern Ohio River Valley; see Vols. 1 and 2, Royce Area 11 report, EWV Papers; Box 2, Royce Area 50 report, EWV Papers; Box 30, Royce Areas 56, 71-74 reports, EWV Papers; Box 8, Royce Areas 268 and 269 reports and Docket 347 report, EWV Papers.

[182] Colin G. Calloway, *The Victory with No Name: the Native American Defeat of the First American Army* (Oxford, UK: Oxford University Press, 2015). Wiley Sword, *President Washington's Indian War: The Struggle for the Old Northwest, 1790–1795* (Norman, OK: University of Oklahoma Press, 1985).

concern among governmental officials. In February 1800, William Henry Harrison was concluding his tenure as the Northwest Territory's congressional delegate when he reported to Congress that several salt springs and licks across the territory were "now in the occupancy of a number of persons who are engaged in the making of salt to a very considerable extent" upon "the property of the United States." Private salt production at workable salt resources was "daily diminishing their value," he cautioned, mainly because of the "destructive waste of the timber." Through the passage of Ohio statehood in 1803, Congress consequently administered brief leases to a select few producers.[183]

Further west, American efforts to dispossess Native peoples of commercially viable salt resources in shared homelands were only beginning. And nowhere did the complexities of confederated Indigenous politics frustrate U.S. imperialism more than the far western Ohio River Valley, where a major historic saline precipitated a years-long dispute among several Native nations, individual settlers, federal legislators, and territorial officials. The Great Salt Spring sat directly west of the confluence of the Illinois and Ohio Rivers, just across from the mouth of the Wabash. It consisted of several salt licks and springs, which yielded uncommonly rich brine and sprawled out across a floodplain of the lower Saline River. Also called Illinois Saline and the Grand Saline, the Great Salt Spring became increasingly important to longtime local peoples—Piankashaws, Peorias, Kaskaskias, and other western Ohioan and Illinoian peoples—as well as Delawares, Miamis, Shawnees, and other eastern Ohioan peoples forced westward following the Treaty of Greenville. Moreover, because of the potency of its brine, the resource also became a target of American territorial expansion beyond the Ohio River Valley and into the Mississippi River Valley.[184]

Like other workable salt resources, the Great Salt Spring evinced its own deep history of human use. People first settled at the springs during the Early Woodland period (1000 BCE – 200 CE) and began making salt there on a seasonal basis (typically during autumn months, when weather was most temperate and game most abundant) during the Late Woodland period (300 – 900 CE). Through the 1400s, successive generations of Mississippian salt-makers expanded the rate and scope of salt production at the Great Salt Spring, transforming the saline into a specialized site used seemingly exclusively for salt production. Mississippian salt producers across the broader Mississippi River Valley engineered the production of larger, more easily produced saltpans as well as a diversification of brine heating methods. Regional industrial specialization allowed Mississippian salt-makers to provide for their own immediate communities not only by making an increasingly critical food product but by establishing expansive exchange networks wherein they sold salt for more distantly produced products. Following initial French incursions in the 1600s, Native peoples continued to work at the Great Salt Spring and other salt production sites in the vicinity of the Mississippi-Ohio confluence. Excavations from a saline in nearby Jackson County,

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[183] For the May 1796 act and for the creation of the three salt reservations in Ohio, see William E. Peters, *Ohio Lands and their Subdivisions* (Athens, OH: W.E. Peters, 1918), 303-311. For a synthesis of the survey and incorporation of lands in Ohio, see George W. Knepper, *The Official Ohio Lands Book* (Columbus, OH: Auditor of State, 2002). For Harrison's complaint about wasteful producers in Ohio, see William H. Harrison, report to the United States House of Representatives, February 19, 1800, dc050, Microfilm Reel 1, William Henry Harrison Papers and Documents, 1791-1864, Digital Collections, Indiana Historical Society.

[184] For an introduction of the importance of the Great Salt Spring to Native nations who occupied the southern Wabash and western Ohio river valleys in the late eighteenth and early nineteenth century, see Jacob W. Myers, "History of the Gallatin County Salines," *Journal of the Illinois State Historical Society* No. 14 (1921-1922). Phone interview with Heather Carey (Heritage Program Manager and Tribal Liaison, Shawnee National Forest, United States Forest Service), July 27, 2023.

Illinois, for instance, yielded fragments of transitionary phase salt pans produced and put to use between 900 and 1000 CE; while their wares might have changed over time, Native peoples continued producing salt at the Jackson County saline as late as the 1830s, when the Kaskaskia were forced to cede reservation lands encompassing the saline to the United States in 1834. Even through the Seven Years' War, when France ceded its territorial claims to Illinois to Britain, southern Illini peoples continued to control access to the springs. In1773, Piankashaw, Kaskaskia, and Peoria leaders orchestrated a contract with English agent William Smith; Smith and his cohorts were allowed to produce salt at the springs in exchange for a (literal) laundry list of goods—a whopping

> five shillings, 260 strouds [of cloth], 250 blankets, 350 shirts, 150 pair of stroud and half thick stockings, 150 stroud breech clothes, 500 pounds of gunpowder, 4000 pounds of lead, 30 pounds of vermillion, 2000 gun flints, 200 pounds of brass kettles, one gross of knives, 200 pounds of tobacco, 3 dozen gilt looking glasses, one gross of gun worms, two gross of awls, one gross of fire steels, 16 dozen of gartering, 10,000 pounds of flour, [500] bushels of corn, 12 horses, 12 horned cattle, 20 bushels of salt, and 20 guns.[185]

Native peoples in southern Illinois were evidently well-versed in negotiating with outsiders for access to the Great Salt Spring. And they also understood the resource's particularly high value. For over a thousand years, the potent salines that speckled the southern Illinois landscape shaped industrial development, international engagement, and Indigenous economic autonomy alike.[186]

By 1800, yet another nation—the United States—had joined the international fray in Illinois. As had been the case in Kentucky, the establishment of private saltworks motivated the state to act upon matters pertaining to the management of and manufacture of salt. South of the Ohio River, on lands not previously territorialized, state authority was mobilized primarily to curtail the persistent threat of Indigenous power. But in the federally claimed Northwest Territory, it was incumbent upon the federal government quickly to extend state sovereignty and establish authority over individual settlers and still-independent Native peoples alike. Because the 1796 Land Act stipulated the United States' exclusive entitlement to salt resources, federal officials saw the management of the territory's workable salt resources as a matter of enforcing state

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[185] Excerpted in Heather Carey, "Native American Use of the Salt Springs in Gallatin County," PowerPoint presentation delivered July 2023.

[186] Carey, "Native American Use of the Salt Springs in Gallatin County," PowerPoint presentation delivered July 2023. The Center for Archaeological Investigations at Southern Illinois University, which manages several materials excavated from the Great Salt Spring and the nearby Jackson County saline, date initial human settlement at the Great Salt Spring to 800 CE—roughly during the Late or Terminal Woodland phase; see "Shawnee National Forest Collections Rehabilitation," Center for Archaeological Investigations, https://cai.siu.edu/curation/shawnee.php. For Late Woodland and Mississippian technological development across the broader Mississippi River Valley, see Ian Brown, *Salt and the North American Indian*. Archaeologist Jon Muller, who conducted excavations at the Great Salt Spring in the early 1980s, maintained that the site evinced characteristics of site specialization—meaning that Mississippian peoples used the site specifically and intentionally for salt production; see Jon Muller, "Mississippian Specialization and Salt." For more on dating occupancy and production at the Grand Saline, see Jon Muller, *Archaeology of the Lower Ohio River Valley* (Walnut Creek, CA: Left Coast Press, 2009); Mackenzie Smyth Caldwell Rohm, "A Terminal Middle Woodland Ceramic Complex from Southern Illinois," PhD thesis, Southern Illinois University Carbondale, 2008; and Howard D. Winters, *An Archaeological Survey of the Wabash Valley in Illinois* (Springfield, IL: Illinois State Museum Society, 1963). Email correspondence with Dr. Mark Wagner (Center for Archaeological Investigation, Southern Illinois University), July 17, 2023.

sovereignty. The legislation—and its enforcement—most obviously violated the sovereignty and ongoing subsistence practices of Delaware, Shawnee, Miami, and other nations who still lived in the territory. Yet it was settlers themselves who proved most obstinate in flaunting federal regulations. In January and February of 1802, a delegation of Delaware and Shawnee chiefs met with then Secretary of War Henry Knox to "complain loudly of the white peoples hunting and killing game on their lands" and to "request that measures may be taken by the Government to aid them in leasing a salt spring on their lands near the mouth of the Wabash."[187]

The task of leasing the Great Salt Spring fell to Indiana territorial governor William Henry Harrison, who quickly proved poorly equipped to negotiate among the several nations who depended upon the saline for sustenance. Harrison believed that allowing the dependent nations to manage the spring and its leasing rights "would probably produce a disagreement among the Indians themselves." Far better, Harrison suggested to Secretary of War Henry Knox in March 1802, to "extinguish the title altogether," as "the United States could well afford to give each of the tribes a sum equal to one year's annuity for the spring and 10,000 acres around it." Harrison also argued that proper management of the springs might "indemnify the public for the expense of the purchase, and produce a sufficiency of salt at a moderate price for the present inhabitants and those who are to follow." To Harrison, it was the responsibility of the federal government to manage the Great Salt Spring (and other workable salt resources) in ways that simultaneously sustained white settlers, quieted their complaints about federal or Indigenous authority, and diffused the costs of dispossession.[188]

In September 1802, Harrison set his plan in motion. On September 17, leaders from six nations met with him at Vincennes and agreed to "make over to the United States the privilege of making salt forever at the salt lick on the Saline river." But the September cession would be heavily contested, especially among Delawares and Miamis, whose leaders went so far as Washington, DC to "complain loudly" to Secretary of War Henry Dearborn "of the unfair means used for obtaining the assent of some of the Chiefs of the proposed boundaries." The Delawares' and Miamis' protest, Dearborn relayed to Harrison, arose from the fact that "the loan of the Salt Spring was only for one year"—not in perpetuity.[189] But Harrison remained committed to securing title to the spring, not simply a lease, and refused to adjust the terms of the cession. Instead, he resorted to intimidation. He called another council in April 1803 to introduce a new proposal, and only Potawatomi chiefs showed up; Delaware, Shawnee, Miami, and Kickapoo leaders continued protesting the process and precision of the boundaries around the spring, as well as the federal government's apparent commitment to securing title to it. To get them to show up, Harrison threatened to withhold already overdue federal annuities from their nations. Finally on June 2, 1803, the chiefs met with Harrison at Fort Wayne, but their objection to the expedited seizure of the Grand Saline was not quite over. All but three of the Shawnee leaders in attendance "behaved with so much insolence, that the Governor was obliged to tell them that they were undutiful and rebellious children, and that he would withdraw his protection from them until they had learnt to behave themselves with more propriety." The chiefs "immediately left the council house." 1,011 people from eight different nations had attended the treaty council called to determine the fate of

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[187] For the Delaware and Miami chiefs' complaints to Knox, see Carter (ed.), *The Territorial Papers of the United States* Vol. 7, 49-57 and 85-87.

[188] For Harrison's correspondence with Knox, see Carter (ed.), *The Territorial Papers of the United States* Vol. 7, 49-57 and 85-87. See also Douglas C. Murtie, *Negotiations for the Illinois Salt Springs, 1802-1803* (Bulletin of the Chicago Historical Society, 1937), pfZ124.AM23 No. 344, Bancroft Library, Berkeley, CA.

[189] For Dearborn's correspondence with Harrison, see Henry Dearborn to William H. Harrison, February 21, 1803, in Murtie, *Negotiations for the Illinois Salt Spring, 1802-1803*, Bancroft Library.

the Grand Saline; only fifteen people, representative of five of the eight nations, signed the final treaty that ceded the saline, in perpetuity, to the United States in exchange for an annual salt annuity. Once formally dispossessed from Native peoples, the Great Salt Spring soon became yet another source of settler sustenance through commerce, an outlet for the selective expansion of slavery, and a touchstone for settler memory and mythology.[190]



Figure 13. Jean Baptiste de Richardville, or Pinšiwa, of the Miami Nation. Richardville was among several Miami chiefs involved in the contested 1803 Treaty of Fort Wayne that ceded possession of the Great Salt Spring from several Native nations to the United States. This particular portrait was painted while Richardville was attending negotiations at Fort Wayne in the summer of 1803. Following the Fort Wayne cession, Richardville negotiated several other agreements between the Miami and the federal government through his death in 1841. Source: James Otto Lewis, "Miami Chief Richardville" (1827), E89. L67 1836, Indiana Historical Society.

[190] For Dearborn's correspondence with Harrison, see Dearborn to William H. Harrison, February 21, 1803, in Murtie, *Negotiations for the Illinois Salt Spring, 1802-1803*, Bancroft Library. For Knox and Harrison's correspondence about Grand Saline and white encroachment in Indiana Territory, see Carter (ed.), *The Territorial Papers of the United States* Vol. 7, 49-57 and 85-87. See also Box 3, Royce Area 56 report, EWV Papers.

On the one hand, the 1803 Treaty of Fort Wayne encapsulates how the emplacement of settler claims to salt resources and the dispossession of Indigenous peoples mutually reinforced one another. The treaty facilitated the dispossession of the Great Salt Spring, reifying the exclusivity of American sovereignty and control over salt resources at the direct expense of Native peoples. Yet the cession of the Great Salt Spring and the stipulations surrounding its management might also be read as an example of Indigenous diplomatic, political, and economic resilience. The Shawnee, Miami, Potawatomi, and other signatories managed to secure access to an essential, locally sourced annuity *and* retain their ability to distribute it to their own people. What's more, federal title might have replaced Native claims to salt resources like the Great Salt Spring, but Indigenous pasts and presence proved irremovable. Through the 1830s, "large fragments of earthenware [were] continually found near the saltworks" at the Great Salt Spring, "formerly possessed by the Indians, who valued it highly." Settler drilling brought up more than brine. It also unearthed proof of the plurality of pasts that shaped the place of salt in the Ohio River Valley.[191]

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Through the nineteenth century, Native peoples and American settlers in the Ohio River Valley sought to control workable salt resources with increased exclusivity. Manual salt production had long sustained human settlement and subsistence across the region; productive precedents established by past generations of Native peoples shaped Indigenous and colonial economies and ecologies alike as well as increased international interaction. The promise of salt resources attracted more settlers to the Ohio River Valley, precipitating often fatal conflict between Native peoples trying to retain access to familiar resources and settlers committed to commercializing those resources, initially for subsistence but soon for profit. Across the entirety of the region, Native peoples challenged and curtailed the colonization of salt resources in ways that, eventually, invited intervention by the settler state. Ultimately, American management of workable salt resources was fundamentally wedded to the project of dispossession. To fully understand origins and legacy of the Ohio River Valley's salt industry, it is critical to understand how Indigenous peoples—their pasts, their presence, and their persistence in spite of settler colonization—shaped that history through the turn of the century.

American efforts to dispossess and repossess salt resources away from Native peoples soon spilled beyond the Ohio River Valley. Not long after the cession of the Great Salt Spring in 1803, new territories—and more prospectively productive salt-rich regions—beckoned American explorers, settlers, and officials through the Mississippi River Valley. As the project and structure of settler colonization seeped westward, so too did the legal, political, and economic precedents and stimuli for the seizure of salt resources; the deeply contested colonization and commercialization of salt resources in the United States' trans-Appalachian west enabled and incentivized similar efforts in the trans-Mississippian west. And here, too, a plurality of Native pasts and polities troubled American efforts to control the future of salt resources and their many dependencies.

[191] Quote from Myers, "History of the Gallatin County Salines."

Chapter V | Spring

> *The salines cause much trouble among the red tribes. Each one claims it had the rights to them.*
>
> - Victor Tixier's observations while living with Osages, 1840[192]

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Sat across from a man several decades his junior, Heckaton pondered his afterlife aloud. "I myself am old," he admitted to Robert Crittenden, and "I wish to deposite my bones" on Quapaw lands—among "all of my nation, friends and relatives." It was late fall of 1824, and Heckaton had agreed to meet with Crittenden, the first secretary of Arkansas Territory, to discuss (or rather dispute) a treaty that would cede Quapaws' remaining lands in western Arkansas Territory to the United States. A skilled and seasoned negotiator, Heckaton had years of experience on his counterpart in Crittenden. But the aging chief's wish to rest in his people's homelands was waning. "To leave my natal soil," Heckaton told Crittenden, "and go among red men who are aliens to our race, is throwing us like outcasts upon the world." Heckaton's patience for American hypocrisy had also soured. "In the treaty we made with our father at St. Louis," Heckaton reminded Crittenden, "we gave from Little Rock to the Canadian, including the Warm Springs, and reserving the Salt Springs. He in that respect has deceived us. None has been reserved. The land you wish to send us to now, is inhabited by many tribes; and to go there this winter, is terrifying to us." When Heckaton paused, Crittenden countered. "In the place I wish you to go to, you would have villages of your own, and the Caddoes will defend you," the American told the Quapaw, "where you now live, the whites will be continually cheating you, and will make you continually intoxicated, and render you useless and effeminate." Crittenden then chose appeal over aggression; "I will not coerce you," he told the reluctant Heckaton "but, as your friend and father, I would advise you to it, for your own great good and benefit."[193]

As primary chief of the Quapaws, Heckaton had heard Americans' "advice" to relinquish land and remove his people many times before, and he would hear it many times again. But by late 1824, when he met with Robert Crittenden to clarify the terms of the Treaty of 1824 (which ultimately, upon its signing that November, permanently expelled Quapaws from what remained of their ancestral lands in Arkansas), such suggestions sounded more so like orders. Since the United States' purchase of the Louisiana Territory in 1803, Heckaton and other Quapaw leaders had managed to mitigate their loss of land and geopolitical leverage; while ceding territories that abutted the Mississippi River, Quapaws clung to the resource-rich lands in western Arkansas in the face of slow but steady settler encroachment and political pressure from the settler state. But by the 1820s, Quapaws faced unprecedented pressure to leave Arkansas in perpetuity. Since the creation of Arkansas Territory in 1819, a steady influx of settlers had moved west of the Mississippi searching for lands rich in resources such as tillable soil, timber, and saltwater suited to salt

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[192] Victor Tixier, John F. McDermott (ed.), and Albert J. Salvan (trans.), *Tixier's Travels on the Osage Prairies* (Norman, OK: University of Oklahoma Press, 1940).

[193] "Indian Speech," *The Arkansas Gazette*, November 30, 1824, Quapaw Lands and Cessions, Vertical Files, Arkansas State Archives, Little Rock, AR [hereafter "VF, ASA"]. For more on Heckaton and Quapaw removal from Arkansas, see Ann M. Early, "Heckaton," *Encyclopedia of Arkansas*, https://encyclopediaofarkansas.net/entries/heckaton-556/.

production. Pressure to remove indefinitely came, too, from federal officials (like Crittenden) engaged in a dizzyingly deceptive scheme of dispossession that often entailed incompatible and ultimately empty promises of security. So in 1824, Heckaton relinquished what remained of Quapaw lands and resources in Arkansas and, the following year, led his people to unfamiliar territories populated by unfamiliar people. And despite Crittenden's assurances, Quapaws were rejected by Caddoes whose political and territorial autonomy, too, had been sapped by American encroachment. Quapaws removed twice more before settling on less-than-select lands in Indian Territory in the late 1830s. Despite complaints to Crittenden of his old age, Heckaton remained primary chief through his death in 1842—not only outliving Crittenden himself, but also seeing his people's resettlement in Indian Territory through to the end. When Heckaton passed in Oklahoma, so too did his wishes to rest among relatives in Quapaw homelands.[194]

Besides precipitating a painful and prolonged saga of removals for Quapaws, territorial cessions made during the 1810s and 1820s in Arkansas Territory prompted the repossession and repurposing of salt resources. Quapaws had clung to their lands between the Arkansas and Ouachita rivers for a reason; the region abounded with freshwater, forage-rich forests, and salt springs, all of which contributed to Quapaws' (and other Native peoples') diversified patterns of production, settlement, and subsistence. Salt resources—like those initially reserved for but ultimately removed from Quapaw use in 1824—provided generations Native men with ready access to game, Native women with access to a niche industry, and their communities (both local and distant) with a necessary nutritional supplement and universally desired commodity. Since the late 17th century, these resources had invited interest from colonial actors who, too, required salt to survive. But starting in the early 19th century, Euro-American colonization proved more aggressive than past colonial schemes and systems. Americans arrived in places like Arkansas Territory with personal, profitable, and sometimes political interests vested in claiming and controlling salt resources. Parallel processes unfolded wherever else salt resources proved profitable to settler aims. Across Quapaw lands and beyond, salt resources functioned as singularly revealing touchstones for the remaking of economic, socioecological, and legal landscapes that constituted American settler colonization in the19th-century trans-Mississippian west.

Yet the contest for control over salt resources in the trans-Mississippian west transcended binaries typical to studies of American settler colonialism. When he negotiated with Heckaton in 1824, Crittenden (like other American officials tasked with managing territories and titles encompassed by the Louisiana Purchase) worked to remove Native peoples from Arkansas Territory not only to make room for settlers but for other Native peoples. To the settler state, the reterritorialization of the trans-Mississippian west was at once an opportunity to encourage and expand Euro-American settlement and an outlet for Native peoples forced further and further westward across the continent. This meant that lands and resources like the salt springs Heckaton reminded Crittenden had been reserved for Quapaw use were repossessed—sometimes by ambitious individual settlers, sometimes by the state, and sometimes by nations removed from east of the Mississippi. Quapaws, for their part, felt the full force of settler colonialism's multidirectional development. So, too, did Osages, Caddoes, and other peoples long indigenous to lands and resources west of the Mississippi, initially co-opted by the American settler state, and

[194] The Quapaw Nation Tribal Historic Preservation Office (THPO) offers the most recently updated history of Quapaw removal; see Everett Bandy, "O-ga-xpa Ma-zhon (Quapaw Country)," Quapaw Nation Historic Preservation Program (2022), https://www.quapawtribe.com/DocumentCenter/View/9804/Quapaw-Country. W. David Baird, "The Reduction of a People: The Quapaw Removal, 1824–1834," *Red River Valley Historical Review* Vol. 1 (1974).

subsequently given to territorial or state governments, individual settlers, or removing Native nations. The prolonged, piecemeal dispossession and repossession of salt resources in the 19th-century trans-Mississippian west provoked multilateral conflicts—among settlers and their governments, between Native communities and factions, and amidst nations with varying degrees of territorial sovereignty and geopolitical power—that were ultimately unique to salt's dynamic socioecological, legal, and economic significance.

Unlike other areas explored in this dissertation, much existing scholarship on salt's significance to the territorialization and transformation of the nineteenth-century trans-Mississippian west acknowledges the enduring centrality of a diversity of Native nations. This is largely because the region's most commercially profitable (and, consequently, most contentious) salt resources were scattered across federal Indian Territory. Cherokees, Osages, Quapaws, and other Native peoples forced to find (and, often, fight for) futures for themselves in the region wrote of, talked about, and acted upon the region's salt resources as much as—if not more so—than American officials and settlers. Why, amidst a moment of immense upheaval for Native peoples in the trans-Mississippian west, did salt matter so much? This is where past studies of salt stop short of comprehension; while existing work explains how Native nations in Indian Territory interacted with salt resources, they do not explain why those nations did so. More recent work from environmentally-minded historians such as Joseph Key and Cane West illustrates how ecological contexts—matters of land use, resource management, local subsistence, and more—determined increasingly intertwined trajectories of dispossession and repossession in the early nineteenth-century trans-Mississippian west. Often highly local trials over and transformations in territorial title and use had international—even systemic—impacts upon an ever-increasing diversity of actors, including not only a plurality of Native peoples but also agents of the settler state, territorial officials, individual settlers, and enslaved people. This diversity confounded not only the creation of Indian Territory but, as research by Alaina Roberts and David Chang shows, the consolidation and contestation of multiple sovereignties. Because salt was critical to many matters—from mere sustenance to personal profit to territorial entitlement—local salt resources quickly became and remained critical points of contention near through the end of the nineteenth century. Both immediately and in the long term, the stakes of controlling salt resources in the trans-Mississippian west were immense. This chapter thus unites these respectively rich areas of analysis to establish a greater understanding and explanation of salt's centrality to matters of sovereignty, settler colonization, and territorial transformation. In doing so, it also restores continuity and connection between previously siloed periods and places of salt's past, the history of removal, and the trans-Mississippian west writ large.[195]

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[195] For foundational work on salt in the trans-Mississippian west, see Daniel J. Littlefield, Jr., "The Salt Industry in Arkansas Territory, 1819-1839," *Arkansas Historical Quarterly* Vol. 32 No. 4 (1973), 312-336; F.P. Rose, "Primitive Salt Works," *Arkansas Historical Quarterly* Vol. 11 No. 4 (1952), 315-326; and Virginia Buxton, "Salt Springs and Salt Works in Arkansas," *Arkansas Historical Quarterly* Vol. 16, No. 4 (1957), 383-387. For salt's significance to specifically settler populations elsewhere in the early territorial west, see Loring Bullard, "Missouri Salt: The Rise and Fall of a Frontier Industry," *Missouri Historical Review* Vol. 106, Iss. 2 (2012), 91-97; and Thomas Rumney, "Salt and Settlement in Nineteenth-Century Nebraska," *Material Culture* Vol. 16 No. 1 (1984), 43-54.
Cane West, "'They Have Exercised Every Art': Ecological Rhetoric, a War of Maps, and Cherokee Sovereignty in the Arkansas Territory, 1812-1828," *Journal of the Early Republic* Vol. 40 No. 2 (2020), 297-327; and "Environmental Negotiations: Cherokee Power in the Arkansas River Valley, 1812-1828," Master's thesis, University of South Carolina, 2017. Joseph Patrick Key, "An Environmental History of the Quapaws, 1763-1803," *Arkansas Historical Quarterly* Vol. 79 No. 4 (2020), 297-316; and "Indians and Ecological Conflict in Territorial Arkansas." For a more federally-oriented explanation of the environmental contexts of territorialization in Arkansas, see David A. Smith, "Preparing the Arkansas Wilderness for Settlement: Public Land Survey Administration, 1803-

Salt resources were not the sole point of contention among the plurality of peoples and polities that reconstituted the 19th-century trans-Mississippian west. These resources do, however, provide new opportunities to understand the contestation and consolidation of settler colonization, sovereignty, and survival west of the Mississippi. From the 1803 Louisiana Purchase onward, the United States imported a host of legal, political, and physical tools to try to claim, control, and commercialize salt resources in ways that supported settler sustenance and state sovereignty alike. But a plurality of Native peoples, polities, and paradigms complicated the settler colonization of salt resources in western territories. In doing so, they challenged the imposition of binary categories—settler and native, agent and object, resistance and accommodation, empowered and erased—often associated with the turbulent transformation of the trans-Mississippian west through the 19th century.

"Salt Water Which Might be Wrought for Profit": Purchasing & Prospecting Salt Resources in the Trans-Mississippian West

Resource reconnaissance was central to the United States' consolidation of its claims to the Louisiana Purchase territory. Like earlier generations of 16th-century Spanish entradas and 17th-century French explorers who traversed the western Mississippi River Valley in search of minerals, American expeditions aimed to locate Louisiana Territory's most valuable resources—timber, agricultural land, navigable rivers, mineable minerals, and more—and incorporate them into the nation's growing territorial and industrial purview. During his presidency, Thomas Jefferson dispatched four territorial expeditions between 1804 and 1807, led by Meriwether Lewis and William Clark (who travelled northwestward in search of a Pacific passage), Zebulon Pike (who traversed the Rockies), Thomas Freeman and Peter Custis (tasked with ascending the Red River), and William Dunbar and George Hunter (sent to explore broader Ouachita River Valley). In both scope and success, Lewis', Clark's, and Pike's excursions garnered greater political and subsequent historiographic attention. Freeman and Custis failed to achieve their aim of reaching the headwaters of the Red River. Dunbar and Hunter proved more successful; while sometimes "forgotten" relative to contemporary expeditions, the Ouachita and Red River expeditions produced extensive written evidence of salt's place in the trans-Mississippian West. Theirs and other early American incursions into the trans-Mississippian west produced more than a paper trail tracing salt's location; rather, they established the geographic and informational foundations fundamental to the United States' efforts to claim and control salt resources and their prospective profitability.[196]

1836," *Arkansas Historical Quarterly* Vol. 71, No. 4 (2012), 381-406. David A. Chang, *The Color of the Land: Race, Nation, and the Politics of Land Ownership in Oklahoma, 1832-1929* (Chapel Hill, NC: UNC Press, 2010). Alaina E. Roberts, *I've Been Here All the While: Black Freedom on Native Land* (Philadelphia, PA: University of Pennsylvania Press, 2021). For a recent reassessment of the temporality and teleology of Indian Removal, see Christina Snyder, "Many Removals: Re-Evaluating the Arc of Indigenous Dispossession," *Journal of the Early Republic* Vol. 41 No. 4 (2021), 623-650.

[196] Carl N. Tyson, "Freeman-Custis Expedition (1806)," *Encyclopedia of Oklahoma History and Culture* (January 15, 2010), https://www.okhistory.org/publications/enc/entry?entry=FR019. Dan L. Flores (ed.), *Jefferson and Southwest Exploration: The Freeman & Custis Accounts of the Red River Expedition of 1806* (Norman, OK: University of Oklahoma Press, 1984). Trey Berry, "Hunter-Dunbar Expedition," *Encyclopedia of Arkansas* (July 28, 2023), https://encyclopediaofarkansas.net/entries/hunter-dunbar-expedition-2205/. Trey Berry, Pam Beasley, and Jeanne Clements (eds.), *The Forgotten Expedition, 1804-1805: The Louisiana Purchase Journals of Dunbar and Hunter* (Baton Rouge, LA: Louisiana State University Press, 2014). Andrew J. Milson, *Arkansas Travelers: Geographies of Exploration and Perception, 1804-1834* (Fayetteville, AR: University of Arkansas Press, 2019).

In October 1804, an expedition led by William Dunbar—a Scottish doctor who settled in Natchez, Mississippi—and George Hunter—a Scottish chemist and fellow Louisiana settler—embarked from the Mississippi River to explore the Ouachita (sometimes called "Washita" in contemporary correspondence), Black, and Red rivers. As scientists, Dunbar and Hunter made fast and frequent notes on the characteristics of the country's soil, water, flora, fauna, and other natural features—consequently producing a singular archive of their own of salt's ubiquity across Lower Louisiana. Within the first two months of their departure, Dunbar established an interest in the many salt licks, marshy lakes, glaises, springs, and brackish rivers that attracted game (namely buffalo) and hunters alike. Dunbar, for instance, noted how "the Hunters ascend" the "Grand Bayou de la Saline […] to an extent of a hundred leagues in pursuing their game." Local knowledge and visible precedence of prior use proved critical to Dunbar and Hunter's efforts to measure the mineral wealth of the region; while camped at Grand Glaise (a famed hunting spot), an "Old Hunter named Paltz informed" the expedition "of a Saline not far;" Hunter and Dunbar eagerly "took the opportunity & went with him to the spot. We set out immediately with two men with spades and a kettle to bring back some of the water for examination." Upon their arrival, Hunter noted

> an old Indian Mount or Cemintary with a base of about 80 feet diamitor, but what was overflowed in high freshes. At the foot of this Mount, in the bottom of the Creek we saw a few stones & some black marks on the gravel where fire had been made to boil the salt water. The ground was manifestly salt, & bitter, to the taste, & the water oosing from a kind of puddle brakish.[197]

Hunter then went about testing the water's salinity, and set the men to dig"; they "dug 6 feet to come to the quicksand & water in doing which found several pieces of Indian earthen pots, probably used by them in making salt." Hunter even compared the samples to "the famous Salt Licks in Kentucky called Bulletts Lick & Mann's Lick from which so much salt is made," and declared Louisiana salt "twice as strong" as Ohioan salt springs—"about as strong as that of the sea on our coasts" and "250 gallons" of which might afford about fifty dollars-worth of salt. In drawing comparisons to commercially worked salt resources elsewhere, Hunter and Dunbar used scientific knowledge and field testing to ascribe a measure of potential profitability to salt resources in southern Louisiana. While at "considerable plane called 'prairie de Champignole,' often frequented by Buffalo," Dunbar reported that the expedition was "informed that Salines or salt-licks exist which may be rendered very productive" and suggested that "when this [Ouachita] river comes to be settled, so necessary an article as marine salt will therefore be in sufficient abundance for the consumption of a full population."[198]

Besides measuring and locating potential sites for saline commerce, Dunbar and Hunter's reports affirmed more mythical ambitions about salt's presence in the distant west. Thomas Jefferson had read about Louisiana's natural wealth from French and other European writers since the 1780s, an obsession that fueled the president's commitment to the region's acquisition and subsequent exploration. A distant salt mountain played a singularly prominent role in Jefferson and

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[197] Hunter's journal, in Berry et al, *The Forgotten Expedition*, 87-88.

[198] Hunter's journal, in Berry et al, *The Forgotten Expedition*, 88-89. For Prairie du Champignole, see Dunbar's journal, December 2, 1804, in Berry et al, *The Forgotten Expedition*, 93. For Osage use of the Salt Prairie, see Dunbar's journal, January 10, 1805, in Berry et al, *The Forgotten Expedition*, 170-171.

John Sibley's 1803 *Account of Louisiana*, which Jefferson used to convince Congress to fund his multiple expeditions. As Jefferson pitched it enthusiastically:

> There exists about 1000 miles up the Missouri, and not far from that river, a *Salt Mountain*! The existence of such a mountain might be well questioned, were it not for the testimony of several respectable and enterprising traders, who have visited it, and who have exhibited several bushels of the salt to the curiosity of the people of St. Louis … This mountain is said to be 180 miles long, and 45 in width, composed of solid rock salt, without any trees, or even shrubs on it. Salt springs are very numerous beneath the surface of the mountain, and they flow through the fissures and cavities of it.[199]

Lewis and Clark, for their part, never found such a resource when they reached the headwaters of the Missouri. But Dunbar, upon his return, informed Jefferson not only that "salt was present in many forms" but that "traders told him that mountains of pure or partial salt existed on the headwaters of the [Red] River"—likely a reference not to a singular mythological mountain but to the very real Great Salt Plain situated near the river's headwaters in the present-day Oklahoma panhandle. Still another source from a "French man named Shoto [Chouteau]" reported that the mythic "Salt Rock of immense size" could be found further northwest, "on the dividing ridge that separates the Head Waters of the Arkansas River from the head waters of the Missouri." Wherever it was, Jefferson's salt mountain seemed more real following Dunbar and Hunter's return.[200]

As the Dunbar-Hunter Expedition retreated eastward with reports affirming salt's abundance, the Freeman-Custis Expedition was pushing off from Fort Adams (near Natchez) tasked with reaching the headwaters of the Red River. Congress appropriated nearly double the funding for Freeman and Custis' exploration of the Red River, but the so-called "Great Excursion" was hampered by political and geographic obstacles from the start. In July 1806, roughly two months after the expedition began (and most of which it spent struggling past the Red River's Great Bend), Spanish troops forced the Americans' retreat at present-day Spanish Bluff in eastern Texas. Like Dunbar and Hunter, Freeman and Custis never quite made it to increasingly famed salt resources that allegedly instilled the Arkansas, Red, and smaller tributary rivers with a shared salty character. Instead, Freeman and Custis' reports of saline—or any kind of mineral—wealth was limited to passing mentions of salt's impedimentary character. While stopped at a Coashatta village near Natchitoches, Custis noted "the water of Red River […] so strongly impregnated with salt" that it was "unfit to drink" and "when the water is low [found] the Sand beaches rendered white with salt." Within two years, when Jefferson dispatched Anthony Glass to finish what Freeman and Custis had not finished, a saltworks had opened in the same place.[201]

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[199] Thomas Jefferson and John Sibley, *An Account of Louisiana: Being an Abstract of Documents in the Offices of the Departments of State and of the Treasury* (Washington, DC: Duane, printer, 1803), via Library of Congress, https://lccn.loc.gov/06002118, 12.

[200] John L. Allen, "Thomas Jefferson and the Mountain of Salt: Presidential Image of Louisiana Territory," *Historical Geography* Vol. 31 (2003), 9-22. David Dzurec, "Of Salt Mountains, Prairie Dogs, and Horned Frogs: The Evolution of Federalist Satire, 1803-1812," *Journal of the Early Republic* Vol. 35, No. 1 (2015), 79-108. For the source from "Shoto" the French trader, see Allen, "Thomas Jefferson and the Mountain of Salt," 18.

[201] Tyson, "Freeman-Custis Expedition (1806)," *Encyclopedia of Oklahoma History and Culture.* Custis in Flores, *Jefferson & Southwest Exploration,* 205. For Anthony Glass' 1808 expedition and the Natchitoches Salt Works, see Flores, *Jefferson & Southwest Exploration*, 305.



Figure 14. Full map (top) and insets (middle and bottom) of the Ouachita River Valley. The middle inset indicates the location of several saline bayous, glaises, licks, and other salt resources across the central Ouachita River Valley in present-day northern Louisiana and southern Arkansas. The bottom inset shows the location of additional salt resources further north, in present-day southwestern and west central Arkansas. The Hunter-Dunbar Expedition visited and reported upon several of these locations – including "Marais de la Saline" and "Great Saline Bayou" (both middle) and "Great Glaize" and "Bayou de Prairie de Campingole" (both bottom). Source: Nicholas King, *Map of the Washita river in Louisiana from the Hot Springs to the confluence of the Red River with the Mississippi* (London, UK: R. Phillips, 1804). Library of Congress Geography and Map Division, http://hdl.loc.gov/loc.gmd/g4002o.ct001324.

The contemporaneous militarization of nominally recommended territories added to the early American archive of salt's place in the trans-Mississippian west. After briefly serving as district commandant of Upper Louisiana in 1804, Amos Stoddard published his *Sketches, Historical and Descriptive of Louisiana*, which spoke in abundant detail of worked and workable salt resources throughout southwestern Louisiana. Besides salt resources already made familiar to American officials (such as the still-operational works at La Saline and the newly opened Natchitoches Salt Works), Stoddard wrote of dozens of salt springs, brackish rivers, and similarly salty resources found and used (often by hunters, according to Stoddard) throughout the Red, Arkansas, Ouachita, and Sabine River valleys and across the central and southern Plains more broadly. Sometimes, salt was a hindrance; "the water in some of the branches of Red river is too strongly impregnated with salt to be potable," Stoddard warned, as were "many of the small branches of the Arkansas," where "the water of many of the springs or salines are too salt for soup," so much so that "it even renders corn, when boiled in it, unfit for use." But other salt resources proved more promising to settler aims. "The country about the Washita, and Red river," Stoddard promoted, "affords many instances of salt, where a sufficient quantity of that article may be obtained to supply a crowded population." At the Natchitoches Salt Works, Stoddard reported, seven workers had sunk three wells and operated thirty impressively-sized 660-gallon kettles, a labor that produced "about two hundred and forty barrels per month;" "the salt is equal in goodness to that imported from Liverpool," Stoddard encouraged, and if "one hundred wells of equal value may be sunk […] the proprietors will soon be able to supply all the settlements about the Red river, as also those in the Mississippi territory." Though "a series of years must elapse before the country between" the salt-rich branches of the Arkansas River "and the Mississippi is settled," Stoddard seemed assured that whenever "our settlers approach the vast prairies […] they will experience one advantage not common in other new and interior countries: a fruitful supply of salt."[202]

As much as he promoted the potential profitability of southwestern Louisiana's salt resources, Stoddard also spoke to salt's significance to Indigenous power and patterns of subsistence across the Plains. Some salt resources were shared among peoples; "the Rogue or Red river," Stoddard wrote, "contains large bodies of mineral salt, as the Indians, and our hunters when in that quarter, easily collect what is necessary for their use." Stoddard also described "salt springs […] on the Arkansas and Missouri" where "no less than four tribes of Indians, who inhabit the waters of the Kansas and Platte rivers, derive their supply of salt" and at one of which "the Osages have a hunting camp." Osages evidently possessed a wealth of knowledge about and depended heavily upon salt resources across their ever-expanding territorial reach. "Near the source of one of the easterly branches of the Arkansas, and in a westerly direction from the Osage villages," Stoddard reported, "is situated what is called the *salt prairie*" that "in some places it has the appearance of fine table salt, and may be swept or gathered into heaps; in others it forms an incrustation, and resembles vast sheets of thin ice." Stoddard wrote, too, of "another extraordinary appearance of salt, denominated by some the salt mountain"—most likely the Great Salt Plain:

> The Osages are well acquainted with this place … They uniformly describe a high bluff or mountain composed of a solid mass of fossil salt, at the base of which issues a large salt spring … this, from the concurrent testimony of those Indians, appears to form one of the principal western branches of the Arkansas.[203]

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[202] Amos Stoddard, *Sketches, Historical and Descriptive of Louisiana* (Philadelphia, PA: Mathew Carey, 1812).
[203] Stoddard, *Sketches, Historical and Descriptive of Louisiana*, 403-404.

Osages who resorted to the Arkansas headwaters to source salt "first remove[d] the earth, and then break the salt into such fragments as are convenient to be carried on their horses." By Stoddard's assessment, Osages did so not only to provide for their own villages nearby, but also to trade; this slab-sourced "mineral salt taken from the country about the Arkansas," Stoddard explained, "has been seen among the Indians about nine hundred miles up the Missouri."[204]

Euro-Americans in Louisiana Territory often depended upon Osages to show them where to find salt. In 1811, Fort Osage factor George Champlin Sibley launched an expedition to treat with Pawnee and Kansa peoples and, at the suggestion of William Clark, "to visit and examine the famous salines beyond the Arkansaw." Osage guides took Sibley to their Great Salt Plain, and "was assured by" his guides "that he was the first white man that had ever visited" the place. Sibley might have been the first American to finally locate the mythic salt rock found at the headwaters of the Arkansas, but elsewhere in Osage territory, French traders and Osages had already established entire proprietary agreements with regards to salt's accessibility. As early as March 1792, Osage chief Cheveux Blanc granted a tract of land on the Lamine River in present-day central Missouri to trader Jean Pierre Chouteau "for his considerable services to the Osage nation." The tract included valuable salt springs "for which he [Chouteau] had selected" it. Following the Louisiana Purchase, Chouteau, "suspecting that Americans might not recognize the validity of an Indian grant," petitioned to Spanish governor Carlos Dehault Delassus "for a separate Spanish grant" subsequently recognized by territorial officials and reaffirmed by a later act of Congress.[205] As Chouteau's fortune in securing salt springs from his Osage allies indicates, Native peoples went beyond showing early Euro-Americans where to make salt; they sometimes invited them to do so. Such was allegedly the case at Boone's Lick in present-day central Missouri. In 1812, Missouri territorial governor Benjamin Howard "proceeded against" Americans who had been intruding on treaty-protected Sac and Fox lands "to possess themselves of the Spanish Mines" near the Missouri River. Americans—namely Nathan and Daniel Morgan Boone (sons of Kentucky settler and salt-maker Daniel Boone)—had also settled "within the Indian limits" at a place called Boone's Lick, where they opened a saltworks as early as 1805. While "certainly in violation of our treaty with the Indians," Howard problematized in a June 1812 report to the Secretary of War, "I have heard that the Indians were not dissatisfied with their intrusion, because the white people work a valuable saline, from which they in their hunting season, obtain some supplies of salt." "Upon the subject," Howard admitted, "I have not heard one word from the Indians, themselves." A similarly vague instance of invitation occurred in Arkansas Territory, when South Carolinian John Hemphill moved to the Ouachita River Valley in 1811 to make salt. When Hemphill found remnants of an abandoned saltworks, he allegedly "bargained with the Indians" for the site and, by 1812, opened his own operations with their blessing. To the frustration and confusion of American officials, Native peoples—not the federal government—seemed to command early settlers' access to salt resources nominally afforded in exclusivity to the United States.[206]

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[204] Stoddard, *Sketches, Historical and Descriptive of Louisiana*, 403-404.

[205] Zebulon Montgomery Pike, *An Account of the Expeditions to the Sources of the Mississippi, and through the Western Parts of Louisiana, to the Sources of the Arkansaw, Kans, La Platte, and Pierre Juan, Rivers* (Wisconsin Historical Society Digital Library and Archives, 2003), 30. George Champlin Sibley to William Clark, July 22, 1811, George Champlin Sibley Papers, Lindenwood College Papers, Mary Ambler Archives, Lindenwood University. "Salt Plains", M2012.008, Encyclopedia of Oklahoma History and Culture Project Files, Oklahoma Historical Society, Oklahoma City, OK [hereafter "EOHC, OHS"]. For Chouteau's agreement with the Osages, see Walter A. Schroeder, *Opening the Ozarks*, 134-135.

[206] Loring Bullard, "Missouri Salt: The Rise and Fall of a Frontier Industry," 91-97.

So long as Native peoples retained control of salt resources, settlers might do as they please with such resources—and siphon away much-needed federal revenue. In the eyes of American officials, controlling salt resources, settlers, and Native power and property were intertwined obligations. "Should the western bank of the Mississippi remain unsettled," territorial official Rufus Easton complained as early as 1805,

> the first disturbance or rupture with the Indian Tribes would either totally cut off the navigation of the river or render it too perilous to carry on that communication and intercourse so absolutely necessary between the upper and lower country to transport to market its vast produce - no benefit would be derived from the Lead mines rich sources of wealth to the country and the manufacture of salt iron and various other articles needful to a large portion of the settlements on the east side of the Mississippi.[207]

As discussed in the previous chapter, territorial and congressional laws first engineered to manage salt, settlers, and Native peoples and lands east of the Mississippi stipulated exclusive federal ownership of salt resources in newly acquired territories. After 1803, those laws were extended to apply toward mineral properties in Louisiana Territory. A March 1805 act for the adjustment of land titles explicitly prevented private entries for "any improved land or lots" that contained a "salt spring or lead mine"—a hardline prohibition subsequently affirmed by a March 1807 act of Congress. This legislative insulation had, in part, allowed the federal government to take possession of the Great Salt Spring (also known as the Illinois Saline) and open the United States Saline as early as 1803. But elsewhere, early encounters among settler salt makers and Native peoples at places like Boone's Lick, Chouteau's Osage-granted tract on the Lamine River, La Saline in Ste. Genevieve, and elsewhere threatened to restrict such assurances to paper.[208]

American officials thus moved swiftly toward grander schemes of dispossession that might resolve the multifold issue of managing settler commerce, acquiring valuable land and resources from Native peoples, and anchoring state sovereignty to salt resources. The extinguishment of Indian title was often prerequisite to federal proprietorship. "The County of Saint Charles, bounded South by Missouri River; east by the Mississippi River, North & West by Indian Lands, affords […] A number of valuable Salt Springs […] surrounded with rich and well timbered lands," surveyor William Russell rote to Louisiana Territory's principal deputy surveyor, William Rector, in April 1814. Missouri's lead- and salt-rich lands otherwise reserved from public use, Russell suggested to Rector, would "afford various advantages to Settlers […] [and] various profitable employments" that "would ensure, (in my opinion) the immediate salt of even tolerably indifferent

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[207] Communication from Rufus Easton, January 17, 1805, in Clarence Edwin Carter (ed.), *Territorial Papers of the United States Vol. 13* (Washington, DC: Government Printing Office), 83.

[208] "An Act for the Adjustment of Land Titles," March 2, 1805, in Carter (ed.), *The Territorial Papers of the United States Vol. 9*, 414. According to Walter Schroder's history of transitionary Ste. Genevieve, "Congress passed the federal Lead and Salt Leasing Act on March 3, 1807, by which the federal government reserved all lead and saline lands from sale in Upper Louisiana and set up a leasing program;" after establishing a board to review existing claims to mineral properties, Schroeder explains further, "the government decided that mines included within the land claims duly filed with the board, such as … the saltworks at La Saline, could continue in the hands of their claimants." After achieving statehood, Missouri continued leasing salt springs through 1829, when salt spring were opened for private sale; according to Schroeder, "the federal mineral leasing program continued until 1846 in other states, despite its failure in Missouri." For more, see Schroeder, *Opening the Ozarks*, 138, 192.

Lands." But until "apprehension of Indian danger vanishes," valuable salt springs remained underexploited. Russell thus suggested to Rector

> If the Lands in this Country were to be surveyed and offered for sale, it would be very interesting that the Indian Title (the Sacs) should be extinguished to a small tract of Country on the Missouri, called Boon's Lick Settlements, which, (tho now Indian Land) is perhaps as thickly settlement with Farmers as any part of the County.[209]

Even though Sacs, Foxes, and local Native peoples in central Missouri had apparently established a mutually beneficial relationship with settlers at Boone's Lick, officials like Russell believed it best to extinguish Indian title altogether, thereby streamlining the state's ability to control both settler and Indigenous politics and industry relative to valuable salt resources. Other officials echoed Russell's suggestion to extinguish Indian title elsewhere. In 1817, David Woods reported to President James Monroe of another salt plain (one "abundantly sufficient to supply all the western countries with salt for a number of years" and "most conveniently situated for transporting the Salt down the Missouri") near the Caw (or Kansas) River in present-day eastern Kansas "claimed exclusively by a small tribe of Indians called Caws living 80 leagues from the" river's mouth "and 30 leagues below the Salt plain." The Caws, Woods continued, conveniently and

> often expresed a desire to cede all the country between where they live and the mouth of the Caw River to the U.S … [T]hey appear to have no Notion of making any commercial use of their salt would for a trifling anuity cede it likewise, with as much land as would be useful in transporting it to water Carriage. By what tribe of Indians the other plain or salt mountain as it is called is claimed I can not tell nor do I know what difficulties would attend the purchase.[210]

Territorial governor William Clark, Woods went on, "thinks it highly proper that a Company be sent to those salt plains to ascertain their true situation" and that "the commandant of the Company should be authorized to open a treaty with the different tribes of Indians claiming the salt and prepare the way for the government to take possession of it."[211]

Following the Louisiana Purchase, the United States sought to make the most of salt resources in Louisiana Territory. Early American expeditions into the region added to American officials' burgeoning arsenal of scientific knowledge and legal tools necessary to claim, control, and commercialize potentially profitable salt resources. But American efforts to commandeer access to salt highlighted the limitations of governmental power. Native peoples and individual settlers had established unique political conditions around access to salt resources that limited the automatic extension of the settler state's sovereignty. American officials sought to formalize federal entitlements to salt resources by extinguishing Indian title, leasing selectively to certain settlers, and maintaining a hardline stance against both settler and Indigenous resistance to the extension and enforcement of state sovereignty. Yet the local complexities and contexts that shaped

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[209] Russell to Rector, April 20, 1814, in Carter (ed.), *Territorial Papers of the United States Vol. 14*, 752.
[210] Woods to the President, June 22, 1817, in Carter (ed.), *Territorial Papers of the United States Vol. 15*, 284-286.
[211] Russell to Rector, April 20, 1814. Woods to the President, June 22, 1817.

increasingly contentious claims to salt resources in the trans-Mississippian west constituted but one of several complications—for the settler state, for individual settlers, and for Native nations.

"Common Salt … Found in a Native State": Dispossessing & Repossessing Salt Resources in Old & New Indian Territories

The Louisiana Purchase provided the American state with expanded opportunities for land, resource, and mineral exploitation. Besides bringing new lands and resources to the attention of the American state and settlers alike, American acquisition of western land also allowed for the unprecedented acceleration of settler colonization. Salt resources were central to this process. As resources automatically claimable by the federal government (a legal paradigm engineered east of the Mississippi in the late 1790s and early 1800s), salt deposits in the trans-Mississippian west provided the settler state with anchors at which to establish state sovereignty. Once claimed and controlled by the state, salt resources generated revenue, sustained and attracted settler populations, and supported other areas of commerce. But the United States' repossession of salt resources in the trans-Mississippian west depended first upon their dispossession away from Native peoples. Whether claimed by the federal government or worked by settlers, the region's salt resources remained squarely situated within political contexts dominated by Indigenous polities, peoples, and nations and transcendent of territorial boundaries.

Settler colonization—and Native peoples' responses to it—on both sides of the Mississippi shaped how the American state, individual settlers, and Indigenous nations interacted with salt resources as well as with each other *at* and *over* those resources. As early as January 1807, for instance, American Indian Agent for the New Orleans Territory, John Sibley, was working at Natchitoches when "a dispute took place between a White Man, a Labourer by the Name of Watson and a Creek or Conchatta Indian." Watson, Sibley reported,

> discharged a Gun at the Indian and Killed him Instantly, in presence of several persons, who suffered him to load his gun again & go away without Molestation, I did not hear of it till tuesday when I sent out Warrants for his apprehention, the Men have not returned & I doubt If he is taken, I have likewise Sent for the relations of the Indian who are pretty numerous & influential.[212]

"I shall do all I can to Pacify them," Sibley assured Secretary of War Henry Dearborn, "& hope to prevent any attempt on their part to retaliate." But Sibley struggled to do so. That May, Sibley was

> informed by some friendly Chata Indians that they had reasons to believe that a travelling white Man had been murdered by a Creek or Conchetta Indian on one of the Branches of the Bayou Cossachie between Red River and the Sabine […] the Jury reported they believed from information they received the Murdered Man was of the name of ONeal, and lived in some part of the Mississippi Territory, and was travelling with a Horse Packed with goods from Oppolousas [Opelousas] to Nacogdoches, the Indian took all his things & Says he killed him by way of retaliation for the Conchetta

[212] John Sibley to Henry Dearborn, January 10, 1807, John Sibley Papers, George and Mary Easton Sibley Papers, Lindenwood University.

> that was Killed by Watson at the Salt Works last December; all the Indians of that tribe have Since disappeared.[213]

Sibley's saga reflected several realities of early American interactions with salt resources. On the one hand, aspiring settler salt-makers did succeed in securing access to commercially viable salt resources. But they did so with little security; not only had American property boundaries failed to protect O'Neal or Watson, but Sibley himself struggled to pursue proper recourse for their murders. What's more, Creeks, Choctaws, and Caddoes—not settlers or even Sibley, as a high-ranking state agent—were the primary perpetrators of the conflict and purveyors of information about it. Even settler-worked salt resources formally situated within American territories remained beholden to the knowledge, power, and simply the presence of Native peoples.

Increasingly contentious interaction among Native peoples at and over salt resources further reflected settler colonialism's ripple effect across the trans-Mississippian west. In the spring of 1807, amidst the prolonged debacle over Watson's murder at the saltworks, "Three Caddos, special messengers from the Caddo chief" visited and told Sibley

> that a party of Chactas consisting of eight persons from the great nation under a leader called Stamelachee had lately been at a camp of Nandacos at a saline on the River Sabine […] the men being out hunting and left their women to make salt and had murdered two of the women and wounded some others, without any provocation and brought the scalps of the women through the Conchetta village on their way to the great Chacta Nation.[214]

No doubt as confusing for Sibley as it was shocking, the scene reveals much about how settler colonialism—and Native peoples' responses to it—impacted salt's political, economic, and even cultural context. On the part of the Nandacos (a subdivision of the Caddo Confederacy), American presence in their immediate homelands seemed to cause little disruption to existent salt-making practices; that Caddo women had been "left" to make salt while men hunted affirms that had women retained responsibility for salt-making. The messengers further told Sibley that the Caddo chief who had sent them acknowledged "that the Nandacos were under his protection," and that the chief "expected Satisfaction would be given." In notably stark contrast to the fatal feud between Conchattas and settler salt-makers, Caddoes and Nandacos sought out Americans to resolve their conflicts with other Native peoples who impinged upon their salt production practices.

Sibley's interactions with Choctaws near Natchitoches begs a related question: what prompted Choctaws—"friendly" or otherwise—to travel to salt resources so far west from their own lands? In his study of the impacts of horse raiding on Caddoan salt production, archaeologist Paul Eubanks suggests that the Stamelachee's attack on the Nandacos' Sabine saltworks reflected the expansion of raiding parties seeking salt to sustain greater numbers of horses. Choctaws had indeed ranged and raided for horses across the Lower Mississippi River since the mid-18th century. But the attack may also reflect the shrinking—rather than the growth—of Choctaw power in the region. Less than two years prior, the 1805 Treaty of Mount Dexter transferred over 4.1 million

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[213] John Sibley to Henry Dearborn, July 3, 1807, *Southwestern Historical Quarterly* Vol. 45, No. 4 (1942), 380.
[214] Sibley excerpted in Eubanks, "The Effects of Horses and Raiding on the Salt Industry in Northwest Louisiana," 11-12. An earlier transcription of Sibley's correspondence specifically states that the Choctaw party came "from the East Side of the Mississippi;" see Sibley to Dearborn in *Southwestern Historical Quarterly,* 381.

acres of Choctaw land in present-day southern Mississippi to the United States. When he relayed the episode to Henry Dearborn, Sibley specified that the Choctaw attackers had come "from the East Side of the Mississippi;" if the Choctaws had singled out the Nandaco's Sabine saltworks to acquire salt, they might have done so because of increased competition for the resource further east. While comparatively scarcer in the southeastern Mississippi River Valley, salt resources across Choctaw lands were indeed worked and depended upon. Archaeologist Ashley Dumas offers extensive evidence of ancestral Mississippian salt production in present-day southern Alabama dating as early as 950 and lasting through the 1700s. When French-Canadian trader Charles Levasseur travelled through the upper Mobile-Tensaw Delta in 1702, he noted that a village of "Thomees have a small lake near their dwellings where they make salt." "It is very good," Levasseur complimented, and "they trade it with the other savages, and even trade it as far as the Chactas who are a seven days' journey distant by land." A later account from 1747 affirms that a community of "Chickasawhays" not only traded for salt, but made it themselves. And when French surveyor Bernard Romans traversed the Tombigbee River in 1772, he learned of "a spring so intensely salt, that the savages told us, three kettles of its water, yields one of salt."[215]

By the close of the 18th century, U.S. settler colonialism had already begun to suffocate southeastern nations and their ability to access familiar lands and resources. Since at least 1795, when Spain nominally ceded its territorial holdings in present-day Alabama and Mississippi to the United States, individual settlers and officials alike fixated upon the southeastern Mississippi River Valley's rich soils and resources. When the Mississippi Territory was established and opened for settlement in 1798, settlers (and, often, the people they enslaved) moved into the region, only slowed by the onset of the War of 1812. Until then, Choctaws and Creeks retained demographic dominance in their homelands, but competition for resources stiffened as settlers invited themselves into the international fray. In 1809, a Scottish settler name McFarland opened a saltworks at a saline beside the Tombigbee River that had been worked by Native peoples since the tenth century. Just further north, in Tennessee, British and later American settlers had seized upon salt springs as early as the 1770s. Initially, when Tennessee was still part of the state of North Carolina, the region's salt springs were reserved from public sale. But by 1789, when the North Carolina legislature determined that "several of the salt licks or springs are entirely unfit for the purpose of manufacturing salt," these resources were sold to private purchasers—some of whom turned commercially incapable mineral springs like Chalybeat Springs and Bledsoe's Lick into natural spa resorts to cure settler ailments.[216]

American aims to colonize Indigenous lands and resources east of the Mississippi only accelerated following the War of 1812. In Alabama and Mississippi, the war weakened Creek and Choctaw power and prompted a resurgence in white and enslaved settlement. Settlers overwhelmingly preferred agricultural lands rather than mineral outcroppings. Nonetheless, the privatization of salt resources materialized more formally by way of treaty-based diplomacy and land and resource cessions. "Years before" the Chickasaw Treaty of 1818 (also known as the Jackson Purchase), historian James Porter explains, settlers in Tennessee had "heard from hunters and trappers that there was a great salt mine on one of the tributaries of the Tennessee River, and

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[215] Eubanks, "The Effects of Horses and Raiding on the Salt Industry in Northwest Louisiana." Ashely A. Dumas, "A Millenium of Salt Production in Southwest Alabama," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean: History and Archaeology,* 32-33.

[216] Charles Lowery, "The Great Migratory to the Mississippi Territory, 1798-1819," *Mississippi History Now* (November 2000), https://www.mshistorynow.mdah.ms.gov/issue/the-great-migration-to-the-mississippi-territory-1798-1819. Kevin E. Smith and Paul N. Eubanks, "More Than Just Salt: Middle Tennessee's Mystical Mineral Springs," in Dumas and Eubanks (eds.), *Salt in Eastern North America and the Caribbean,* 50-52.

efforts had been made to acquire the privilege from the Indian owners of working it." When negotiations began in early 1818, Chickasaws "demanded a reservation that should embrace" the salt mine—and succeeded in securing it. Ratified in 1819, the treaty's fourth article stipulated that

> on the further and particular application of the chiefs, and for the benefit of the poor and warriors of said nation, that a tract of land, containing four miles square, to include a salt lick or springs […] and within the boundaries of the land hereby ceded, be reserved and to be laid off in a square or oblong, so as to include the best timber, at the option of their beloved chief Levi Colbert, and major James Brown, or either of them; who are hereby made trustees for the nation to lease the said salt lick, or springs.[217]

Article Four further stipulated that its new owners were "bound to lease the said reservation to some citizen or citizens of the United States, for a reasonable quantity of salt, to be paid annually to the said nation." Colbert's and Brown's retention of the spring shows how settler colonialism prompted Native peoples—as individuals and as nations—to change their relationships to resources like salt. Chickasaws could keep their salt spring, but it had to be privatized and managed by chiefs, rather than worked or shared among multiple people, families, or communities. And those resources ought to be leased to (supposedly) more industrious, capable "citizens of the United States". As a whole, the provisions reflected and reified settler colonial policy and principles that forced Native peoples to choose between so-called civilized pursuits that matched Euro-American notions of privatized and productive land and resource use and, in the eyes of white settlers, fundamentally archaic practices and paradigms of resource use and shared subsistence that, in American eyes, justified dispossession and removal.[218]

Parallel political machinations manifested in treaties that relocated removed peoples from east of the Mississippi to Indian Territory. Well before the 1830 Indian Removal Act forced most Cherokees, Choctaws, Chickasaws, Creeks, and Seminoles to move west of the Mississippi, some of these communities chose to remove. To protect themselves against the pressures of land privatization and territorial encroachment, Cherokees began moving to the White River and St. Francis River in eastern Arkansas Territory as early as the 1780s. But even voluntary relocation did not insulate these early relocatees from further removal. In 1809, Thomas Jefferson offered Arkansas Cherokees lands further west—between the Arkansas and White rivers—in exchange for lands they had only recently resettled upon. Arkansas Cherokees took up the offer, attracted by the region's comparatively richer hunting grounds and landscapes more akin to their homelands in the southeast. Most critically, the Arkansas Cherokees' removal to western Arkansas hinged upon cessions made in the 1808 Treaty of Fort Clark, wherein Osages had ceded exclusive title to the lands and granted the United States the authority to allow other tribes to use them. In a shrewdly conducted settler colonial shuffle of paper, people, and power, Jefferson's administration

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[217] "Treaty with the Chickasaws" (October 19 1818), via *The Avalon Project* (Lillian Goldman Law Library, Yale Law School), https://avalon.law.yale.edu/19th_century/nt006.asp.

[218] David A. Nichols, "US Indian Policy, 1783–1830," *Oxford Research Encyclopedia of American History* (2015), https://doi.org/10.1093/acrefore/9780199329175.013.42.

coordinated the contemporaneous dispossession of Cherokees and Osages to secure the United States' title to millions of acres in Arkansas Territory.[219]

Territorial exchanges among Osages, Cherokees, and the United States also established American agents as primary political negotiators among Native nations shoved into shared saline spaces. In 1813, William Lovely, assistant Cherokee agent in Tennessee, became lead agent to the Arkansas Cherokee, and moved with them to their newly promised reservation between the Arkansas and White rivers. Upon their arrival, the Fort Clark Treaty's assurance of shared access to hunting lands prompted conflict among Osages, Quapaws, Cherokees, and what Lovely called "the worst of White settlers." But hunting lands weren't the sole source of international dispute. The increasingly crowded region also encompassed multiple salt resources. In 1815, Lovely, in an effort to establish equanimity by way of commerce, authorized Bernard Mouille to open a saltworks at the Grand Saline at the forks of the Verdigris, Neosho (Grand), and Arkansas rivers. "Work of this kind," Lovely assured General Land Office commissioner Josiah Meigs, "is essentially necessary to the good of the Indians and others of this country, having to give $30 often for salt for barrel." But the move only enflamed tensions among Osages, Quapaws, and other local nations affronted by the Cherokees' (and Lovely's) supplantation not only of rights to shared resources but of their own sovereignty. So in 1816, after failing to mitigate disputes among emigrant and local nations and acting independent of federal authority, Lovely proposed a seven-million-acre purchase—constituted by four million acres of Osage land (ceded in 1808), and an additional three million ceded by emigrant Cherokees that would, technically, be owned by Cherokees but, practically, function as a shared buffer zone. Cherokees and Osages consented, and the seven million acres of hunting land—and, by way of Lovely's lease of the Grand Saline to Mouille, commercially viable salt deposits—in northwestern Arkansas Territory became Cherokee land, known colloquially as Lovely's Purchase.[220]

The politics surrounding the purchase area's arable lands and profitable salt resources soon invited further federal involvement. Cherokees, Osages, and settlers continued to clash—often violently, in the form of retaliatory raids, one-on-one spats, and property theft—over rights to land, salt, timber, lead, and other resources in the purchase area. By late 1817, the U.S. Army established Fort Smith within the purchase area to mitigate the conflict once and for all. But when it came to managing the region's salt resources, American military personnel only defended and deepened the federal government's disposition toward dispossession. Immediately prior to the finalization of 1818 treaty, Major Stephen Long suggested to Brigadier General Thomas Smith the total "extinguishment of the claims of the Osages, Quawpaws, and other Indians" to Lovely's Purchase, and "that the United States, should have the privilege of improving a valuable salt spring, on the Six Bulls, or Grand River … should they not be able to purchase of the Osages the tract including

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[219] Leslie Stewart-Abernathy, "Cherokee," *Encyclopedia of Arkansas*, https://encyclopediaofarkansas.net/entries/cherokee-553/. Cane West, "'They Have Exercised Every Art'."; and "Environmental Negotiators." Robert A. Myers, "Cherokee Pioneers in Arkansas: The St. Francis Years, 1785-1813," *Arkansas Historical Quarterly* Vol. 56 (Summer 1997), 127-157.

[220] For a comprehensive explanation of the origins and outcomes of Cherokee-Osage tensions, see Frankie Bauer, "Civilized Settlement & Nomadic Dominion: Inter-Tribal Treaties and Grand Councils Between the Cherokee and Osage Indians, 1817-1828," Master's thesis, Department of History, Western Carolina University, 2018. Brad Agnew, "The Cherokee Struggle for Lovely's Purchase," *American Indian Quarterly* Vol. 2, No. 4 (1976), 347-361. C.J. Miller, "Lovely County," *Encyclopedia of Arkansas*, https://encyclopediaofarkansas.net/entries/lovely-county-2940/. Littlefield, Jr., "The Salt Industry in Arkansas Territory, 1819-1836." Larry O'Dell, "Salt and Salt Works," *Encyclopedia of Oklahoma History and Culture*, https://www.okhistory.org/publications/enc/entry?entry=SA010. William Lovely to Josiah Meigs, May 29, 1815, Cherokee: Lovely's Purchase, VF, ASA.

it." Fort Smith commander William Bradford advocated the same; "the purchase lately made from the Osages," Bradford reported to Secretary of War John Calhoun in March 1818, "is extremely rich and fertile … containing some valuable salt licks, from which the country on Arkansas, White, & Black rivers, that already include a large & growing population, can be supplied with the valuable article of salt." It was imperative, Bradford told Calhoun, that the United States—not Cherokees—take control of the purchase area's salt resources so as to avoid creating "difficulty with the government in making future purchases of the Osages" for lands in western Arkansas.[221]

By September 1818, Osages, Cherokees, and the federal government reached a treaty agreement legitimating Cherokee title to the purchase area. Osages could continue to use the land for hunting; settlers, meanwhile, were ordered off purchase lands in perpetuity. Unsurprisingly, international relations regarding salt access only soured. Settlers grew resentful that Cherokees controlled the region's salt supply. Territorial officials consequently advocated for a resurvey of the purchase area—and even exploited Osages' and Cherokees' deepening enmity toward one another to do so. As Arkansas territorial governor James Miller wrote to Secretary of War John Calhoun in June 1820:

> It appears to be the wish & expectation of the Cherokees to extend their line west so as to join on the Osage line which would take in all that excellent tract of land known by the name of Loveleys purchase - The Osages are much opposed … they say that they never would have sold that land to the United States had they supposed it would be given to any other Tribe of Indians; particularly the Cherokees: but sold it with the express understanding that it should be settled with white people … If the Cherokees get the above described land as far west as the Osage boundary, they will get with it much the most rich and desirable part of this Territory, with all the Salt Springs and Lead Ore known in this part of the Territory.[222]

Cherokees, for their part, had been quick to commercialize salt resources in the purchase area. The Grand Saline, worked by Bernard Mouille since 1815, continued operating under Cherokee ownership. And in early 1820, Cherokees authorized John Flowers, a white settler who had married a Cherokee woman, to open a saltworks on the Illinois River. Despite Governor Miller's claims otherwise, Cherokees had done so in the public's broader interest; Cherokee chiefs claimed they had authorized Flowers and his partners "to work the Said Salt springs for the use of our people & the people of Arkinsaw Generally," and "accordingly they set to makeing the Necessary preparations and expended considerable Money and great labour … to furnish Salt at a reasonable prince not exceeding one dollar a bushell." But within a year, Flowers was ordered to cede the works to "persons pretending to have Governmental authority." The said "persons" were Mark and Richard Bean, brothers who had moved to western Arkansas from Tennessee in 1818 search of workable land and a profitable industry. In their later compensatory appeal for lands and revenues lost, the Beans claimed that their acquisition of Flowers' saltworks on Cherokee lands was the

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[221] Stephen H. Long to Thomas A. Smith, January 30, 1818, in Carter (ed.), *Territorial Papers of the United States, Vol. 19*, 9. William Bradford to the Secretary of War, March 28, 1818, in Carter (ed.) *Territorial Papers of the United States Vol. 19*, 58.

[222] Miller to Secretary of War, June 20, 1820, in Carter (ed.), *Territorial Papers of the United States Vol. 19*, 193-194.

result of "urgent inducements" from Fort Smith commander William Bradford, who dispatched the brothers to Cherokee lands to make salt for his garrison. Cherokee chiefs immediately protested, complaining to Secretary Calhoun of having to purchase the Beans' salt at Fort Smith at an inflated price. Cherokees had some legal leverage; the 1818 treaty—and a later executive order—mandated the removal of all settlers from Cherokee property. This was further enhanced in 1821, when President James Monroe promised Cherokees ownership and access to an additional western outlet that included salt resources that might generate revenue for the nation.[223]

But when it came to recognizing Cherokee title to commercially competitive salt resources, federal officials again demurred. Instead of upholding its treaty responsibilities, the federal government reinforced the application of saline property laws that had facilitated the dispossession and repossession of salt resources elsewhere across American territories. After Cherokees had complained "that the promises of the government in relation to intruders upon [their] lands … had not been performed," Secretary Calhoun told Cherokee leaders in October 1821:

> It is to be always understood that in removing the White Settlers from Lovely's purchase for the purpose of giving the out let promised you to the West, you acquire thereby no right to the soil but merely to an out let […] and that the government reserves to itself the right of making such disposition as it may think proper with regard to the Salt Springs upon that tract of country.[224]

Calhoun maintained that American sovereignty trumped that of the Western Cherokee—and therefore the Beans and Sanders were exempt from eviction. Cherokees nonetheless persisted in their protest, sending delegations to nearby Fort Smith and as far as Washington, DC through 1823. Settler salt-makers and their advocates in territorial and federal governments responded in turn with their own protests and petitions. The Beans and Sanders continued to appeal directly—and successfully—to military and territorial officials for permission to continue making salt in the purchase area, earning a lease renewal in 1822 and again in 1825. The partners also argued to American officials that their industry attracted and provided for settlers, and requested that white families be allowed to settle along the road connecting the saltworks to Fort Gibson and Fort Smith. The Beans and Sanders considered their endeavor not only necessary but courageous; "we occupied the Salines when the Cherokees, and Osages were at war," Mark and Richard Bean wrote to George Graham in August 1825, and had been subject to "depredations" by the Osages who stole corn, bacon, salt, and horses and "killed a number of our [Beans'] hogs & some Cattle." While Cherokee pleas fell upon deaf ears, the Beans and Sanders found greater success with their appeals; in April 1826, Congress authorized the extension of Arkansas' western settlement boundary, and in October 1827, the Arkansas territorial assembly established Lovely County. Settlers poured in, and the Beans' and Sanders' saltworks flourished from the influx.[225]

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[223] "Additional Instructions to Cherokee Delegation," March 25, 1821, in Carter (ed.), *Territorial Papers of the United States Vol. 19*, 340-342.

[224] Secretary of War to Arkansas Cherokee chiefs, October 8, 1821, in Carter (ed.), *Territorial Papers of the United States Vol. 19*, 324.

[225] As Daniel Littlefield Jr. writes, "the government refused the [Cherokees'] appeal, taking the position that … Cherokees acquired no right to the soil … officials asserted the [U.S. federal] government's right to do what it thought proper with the salt springs on the tract;" see Littlefield, "The Salt Industry in Arkansas Territory, 1819-1836," 320. For Beans' and Sanders' appeal to settle families near their saltworks, see Matthew Arbuckle to the Secretary of War, June 22, 1823, in Carter (ed.), *Territorial Papers of the United States Vol. 19*, 525. Mark and R.H.

Persistent political pressure from Cherokee leaders forced federal officials to finally confront the problems, promises, and property-rooted conflicts produced by the creation of and competition over Lovely's Purchase. In 1827 and 1828, a delegation of Western Cherokee leaders—including Black Fox, Thomas Graves, John Rogers, George Guess (Sequoyah), and other prominent Cherokees—again travelled to Washington to negotiate and sign the 1828 Treaty of Washington, which established a permanent boundary between the Western Cherokee Nation and Arkansas Territory. Besides firming territorial boundaries, the treaty again mandated the eviction of all white settlers from Cherokee lands, a stipulation that was actually enforced (and made easier by the federal government's decision to grant removed settlers 320 acres of free land in Arkansas Territory). This included the Bean Brothers, whose seizure and operation of the Illinois River saltworks had been a touchstone of governmental, public, and international dispute. The saltworks fell west of the new division line, but other formerly Cherokee-owned resources east of the division line became, like elsewhere, federal property. As compensation, the United States granted individual tracts of saline lands to select leaders. Ultimately some four thousand Cherokees resided in the outlet, formally recognized as fee simple land owned and worked in common. As for the purchase area's other original stakeholders, Osages received no entitlements to the purchase area; they were removed north of the Arkansas River, where, unlike removed settlers who were given land to live upon, they received "a good rifle, a blanket, a kettle, and 5 lbs. of tobacco."[226]

The prolonged dispute among emigrant Cherokees, Osages, territorial officials, and settlers over salt resources in Arkansas Territory and Indian Territory encapsulates salt's significance to a particularly critical moment in the settler colonization of the trans-Mississippian west. From the initial 1808 cession ceding the area known as Lovely's Purchase from Osage to American control through the 1828 resolution treaty, a plurality of actors staked their futures in control the purchase area's lands and resources—particularly its salt resources, which loomed large in the purchase area's establishment, reputation, and settlement. Besides establishing permanent territorial boundaries, the dispute reflected and reified salt's past and potential significance to the repossession, incorporation, and resettlement of new territories in the trans-Mississippian west. It also revealed how salt resources might determine the shape and scope of sovereignty, resource use, and power in emergent settler colonial contexts. Indeed, upon its resolution in 1828, Lovely's Purchased marked only the start of an unprecedentedly and revealingly tumultuous era of salt use and international interaction among sovereign entities in an increasingly crowded Indian Territory.

"A Hard Level Plain of Reddish Colored Land": The Crystallization of Saline Sovereignties

The 1828 treaty formalizing Indian Territory's easternmost boundary with Arkansas was among the last ratified before Andrew Jackson became president. Within months of assuming office in 1829, Jackson established and executed the United States' largest, most comprehensive removal project to date—one that would eventually force some 70,000 to 100,000 Native peoples representative of over three dozen nations to leave their homelands east of the Mississippi. Jackson's removal strategy culminated with the 1830 Indian Removal Act, a multidirectional

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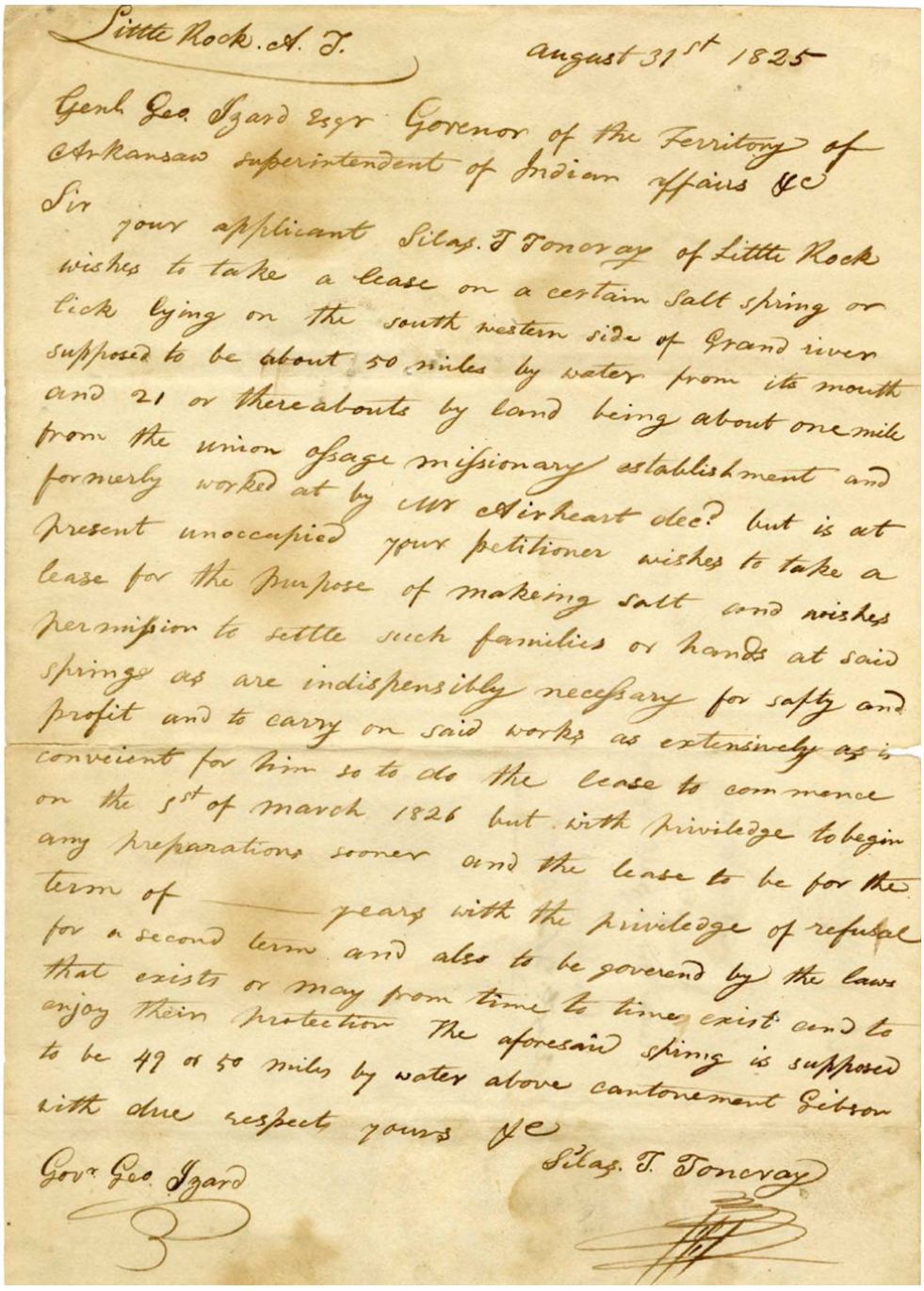
Bean to George Graham, August 6, 1825, in Carter (ed.), *Territorial Papers of the United States Vol. 20*, 104. Littlefield, "The Salt Industry in Arkansas Territory, 1819-1836," 324.

[226] The 1827-28 delegation operated within particularly perilous political contexts. As Brad Agnew writes, "the delegation had no authority to cede or exchange any Cherokee territory," as "death remained the penalty for any Cherokee who sold tribal lands;" see Agnew, "The Cherokee Struggle for Lovely's Purchase," 355. "Treaty with the Western Cherokee" (May 31, 1828), via *Tribal Treaties Database* (Oklahoma State University Libraries), https://treaties.okstate.edu/treaties/treaty-with-the-western-cherokee-1828-0288#:~:text=The%20United%20States%20agree%20to,strikes%20said%20River%2C%20and%20running.

project of dispossession that forced sovereign nations into conflict over shrunken lands and resources. More specifically, Indian removal also introduced unprecedented demands for and disputes over salt resources in the trans-Mississippian west, further complicating the legally and politically unique ties among American officials, Native nations, and salt. This process was hardly unilateral; while Native peoples' removal to and resettlement in Indian Territory—and the concurrent management of the region's salt resources—invited deeper investment on the part of the American state, many Native nations ultimately used salt resources to strengthen their territorial, political, and economic sovereignty in their new home. Even while dispossessed from the region's local Native nations, salt resources in the Removal-era west remained situated in international contexts still dominated by Indigenous polities, politics, and power.

In the decades preceding Indian removal, salt resources in Indian Territory had been dispossessed from local Native peoples and given to emigrant tribes. This was one origin of the conflicts that erupted over Lovely's Purchase, and was also true of a place called Grand Saline at the Three Forks. The springs at Grand Saline—whose constant seep yielded pools of potent brine and, in dry and hot weather, plains of rock salt—had first been dispossessed from Osages in 1808 and subsequently granted to Western Cherokees in 1816 by way of Lovely's Purchase. These were the same springs to which Cherokee agent William Lovely had granted Bernard Mouille lease rights, and which Mouille operated with Cherokee permission through the execution of Lovely's Purchase. But unlike the saltworks on the Illinois River that were, as discussed earlier, controversially co-opted by the Bean Brothers, Grand Saline attracted far less controversy through the affair; the saltworks had suffered a setback when two of Mouille's successors, David Earhart and William Childers, murdered Mouille's other successor, William Campbell in 1819. The salt springs remained vacant as Osages, Cherokees, and American officials struggled to reach territorial solutions. By early 1825, while Cherokee leaders were preoccupied with problems prompted by the Beans' and Sanders' operations along the Illinois River, Osages entered negotiations with American officials to resolve their own disputes over lands and resources in the northern half of the purchase area. Negotiations culminated in an 1825 treaty in which Osages relinquished "all their right, title, interest, and claim" to lands in Missouri and Arkansas territories; the cession extended as far south as what Osages and American negotiators recognized as the "Rock Saline"—a place more commonly known as Grand Saline at the Three Forks.[227]

[227] Agnew, "The Cherokee Struggle for Lovely's Purchase." C.J. Miller, "Lovely County," *Encyclopedia of Arkansas*. "Treaty with the Osages" (June 2, 1825), via *Tribal Treaties Database* (Oklahoma State University Libraries), https://treaties.okstate.edu/treaties/treaty-with-the-osage-1825-0217.



Little Rock. A. T. august 31st 1825

Genl Geo. Izard Esqr Govenor of the Territory of Arkansaw superintendent of Indian affairs &c

Sir

your applicant Silas. T Toncray of Little Rock wishes to take a lease on a certain Salt spring or lick lying on the south western side of Grand river supposed to be about 50 miles by water from its mouth and 21 or thereabouts by land being about one mile from the union osage mifsionary establishment and formerly worked at by Mr Airheart dec? but is at present unoccupied your petitioner wishes to take a lease for the purpose of makeing salt and wishes permifsion to settle such families or hands at said springs as are indispensibly necessary for safty and profit and to carry on said works as extensively as is conveient for him so to do the lease to commence on the 1st of march 1826 but with priviledge to begin any preparations sooner and the lease to be for the term of ——— years with the priviledge of refusal for a second term and also to be goverend by the laws that exists or may from time to time exist and to enjoy their protection The aforesaid spring is supposed to be 49 or 50 miles by water above cantonement Gibson with due respect yours &c

Silas. T. Toncray

Govr Geo. Izard

Figure 15. Letter from Arkansas settler Silas Toncray to Arkansas territorial governor George Izard. In this letter, Toncray (already a prominent citizen of the settler community in Little Rock) requests permission from Izard to work the Grand Saline. The "salt spring or lick" was close to the Union Osage Mission in present-day Mayes County, Oklahoma; in 1825, the (then temporarily defunct) saltworks at Grand Saline fell squarely within the area disputed among Western Cherokees, Osages, and Arkansas Territory. Consequently, Toncray's effort to enter into salt-making at Grand Saline went unfulfilled; following the 1825 Osage cession and subsequent 1828 resolution to the prolonged dispute over Lovely's Purchase, the Grand Saline became Cherokee property. Source: Silas T. Toncray to George Izard, August 31. 1825, L.C. Gulley Collection, Arkansas State Archives, Little Rock, AR.

Most notably, the salt-rich lands that constituted the 1825 cession's southern terminus did not, as was typical of land cessions that included saline property, end up in the hands of the federal government. Instead, the land was divided among and reserved "for the use of … half-breed" Osage families—including the Clermonts, the Mongrains, and the Chouteaus. Why the federal government broke its own precedent remains a speculation at best. But the fact that prominent Osage families—established through trading alliances that predated American presence in the region—earned title to some of the most valuable salt resources within Lovely's Purchase suggests a successful effort on the part of Osages to abandon the territorial debacle with mitigated losses. In broader context, such efforts may seem short-lived; nominally, the 1828 treaty transferred all the land surrounding the Three Forks to the Western Cherokee Nation. But that the proprietors of the lands surrounding Grand Saline were considered "half breeds" complicated the enforcement of the 1828 treaty's eviction of settlers. The Western Cherokee Nation allowed at least some to stay. Notably, the Franco-Osage Chouteau family stayed until 1830, when Auguste Chouteau sold his land that included the particularly abundant salt springs to Samuel Houston. But lacking any ties to the Western Cherokee Nation, Houston soon relinquished ownership to Cherokee citizen John Rogers in 1831 and worked the springs at Grand Saline for the first time in over a decade. Grand Saline soon became Western Cherokees' most prized and productive saline possession. By 1839, the works reached an operational acme of 115 kettles worked by "four shifts of slaves," and brine was conducted into the kettles through some 500 feet of pipes bored through tree trunks.[228]

Grand Saline stood apart in its size and commercial output, but it was hardly Western Cherokees' sole investment in saline wealth. Pursuant of the 1828 treaty, George Guess (more commonly known as Sequoyah) opened a saltworks on his own tract along Lee's Creek in present-day eastern Oklahoma. The tract had been granted to him specifically in exchange for "his relinquishing of a valuable saline;" Guess also received $500 in start-up capital "for the great benefits he has conferred upon the Cherokee people" for his invention of the Cherokee syllabary and alphabet. Another was Mackey's Saltworks, opened just outside of the first Cherokee national capital of Tah-lon-tee-skee in 1828. Cherokee citizen Samuel Mackey managed a saltworks that, at peak production, featured at east one hundred 1,500-pound kettles "arranged in batteries in two rows of hewed log buildings several hundred feet long." As early as 1833, there were at least three other saltworks in operation within the Cherokee Nation. On the eve of the Indian Removal Act and in the wake of the Lovely's Purchase dispute, Cherokees wielded considerable political and economic leverage over salt resources in Indian Territory.[229]

The few remaining workable salt resources in Indian Territory were granted directly from the United States to other removing nations. Like (though to a lesser extent than) Cherokees, Choctaws had, through multiple treaties, sporadically ceded their lands east of the Mississippi in exchange for parts of Arkansas and Indian Territory. By 1825, settler expansion into the deep south forced Choctaws to relinquish a total of over 14.8 million acres of their homelands in exchange for an assortment of annuities, promises of citizenship, and less than a million of acres of permanent reservations west of the Mississippi. Included in the Choctaw Nation's new territory were several salt springs that, when subsequently tested and worked, proved too weak to support

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[228] Larry O'Dell, "Salt and Salt Works," *Encyclopedia of Oklahoma History and Culture.* "Treaty with the Osage" (June 2, 1825). John Rogers Jr. biography, EOHC, OHS. Grant Foreman, "Salt Works in Early Oklahoma," EOHC, OHS.

[229] Treaty with the Western Cherokee (May 31, 1828). Mackey's Salt Works, EOHC, OHS. Salt Industry, M1981.105, Federal Writers' Project Collection, Oklahoma Historical Society, Oklahoma City, OK [hereafter "FWP, OHS"].

commercial production on par with Cherokee salt-making. As one study of salt's significance to Euro-American and Indigenous (re)settlement in western Arkansas put it, "the surveyors who ran the eastern line of the [Cherokee] nation in 1825 took some good salt producing springs from" newly neighboring Choctaws, an action that "resulted in endless controversy with the Indians that was not settled until after the Civil War." Choctaws were not alone in their envy; few—if any—other forcibly removed tribes received the same saline entitlements as had Cherokees or Choctaws. Creeks, Chickasaws, and Seminoles—the three other so-called "civilized" nations removed from the southeast—were forced into considerably smaller territories that included no salt resources, reflected in salt's absence from these nations' treaty agreements, legal codes and constitutions, and correspondence with U.S. officials. Local indigenous nations—Quapaws, Caddoes, and others—received even less territory and were forced to share lands and resources with other nations.[230]

Settlers, too, expressed anxieties over Cherokees' supposed salt monopoly. Soon after the Bean Brothers were ordered to abandon their works on the Illinois River in 1828, Arkansas settlers complained both publicly and directly to territorial officials of their dependency on Cherokees. "The people in the most populous part of this Territory," Arkansas surveyors Bernard Smith and Benjamin Desha reported to George Graham in October 1830, "are, at this time, dependent on the Cherokee Indians for their Salt." Attached to Smith and Desha's report were various propositions, endorsed by the signature of Secretary of War Henry Knox, "for leasing of the Government for the term of five years a new Salt Spring near the Western boundary" of Arkansas Territory. Singular leasing petitions were soon supported by broader appeals for settler autonomy over salt production in Arkansas. In November 1831, the Arkansas Territorial Assembly passed a plea to Congress to "pass a law relinquishing all the Salt Springs and salines" on public lands in Arkansas "to be leased or disposed of" to settlers. Congress was swift to respond; in April 1832, nearly a dozen federally-owned, commercially workable salt resources in western Arkansas were opened to private leasing—a practice that remained in place through Arkansas statehood in 1836. Settlers immediately seized the opportunity to make salt—and often did so within inches of tribal boundaries. In early October 1832, Bejamin Hartfield paired up with John Wilson and William Woodruff to make salt in Sevier County, and cast a successful bid (for "one hundred and five dollars more than any other bidder") for a spring "about one fourth of a mile east of the Choctaw line," directly abutting the Choctaw Nation. Greene Orr, John Word, and John Clark, too, secured a lease for springs "about two miles east of the Choctaw line" at a steep rental rate of one thousand dollars per annum.[231]

Despite the sustained push to wrestle the industrial monopoly away from Cherokees, settler salt-making in western Arkansas still paled in comparison to salt production in the Cherokee Nation. "At the Grand Saline on the River Neosho [Grand]," Cherokee agent Monfort Stokes reported to Superintendent of Indian Affairs William Armstrong in August 1837, where "they are making Eighty bushels of excellent salt per day." "But the manufacture is carried on at Considerable expense for labour, fuel, Hawling, [etc.]," Stokes opined, a suggest that "in the hands

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[230] Carolyn Keller Reeves (ed.), *The Choctaw before Removal* (Jackson, MS: University Press of Mississippi, 1985). F.P. Rose, "Primitive Salt Works," 324-325.

[231] Bernard Smith and Benjamin Desha to George Graham, October 27, 1830, in Carter (ed.), *Territorial Papers of the United States Vol. 21,* 281. Memorial to Congress by the Territorial Assembly [of Arkansas], November 5, 1831 in Carter (ed.), *Territorial Papers of the United States Vol. 21,* 423. Bond for lease, Benjamin H.G. Hartfield, John Wilson, W.E. Woodruff, October 1, 1832; bond and agreement, Greene Orr, John Word, and John Clark, October 1, 1832; bond and agreement, Henry K. Brown, John Clark, Robert Hamilton, November 23, 1832 - all in Salt Springs Papers, VF, ASA. The majority of salt springs leased for commercial production fell within the boundaries of the final territorial cession Quapaws made in 1824 before their permanent removal from Arkansas.

of a skilful Capitalist, it would be a great source of wealth." Despite Grand Saline's long centrality to both settler and Indigenous subsistence and commerce in Removal-era Arkansas and Indian Territory, Stokes believed the place might be more productively managed by (presumably Euro-American) men. Other American agents expressed similar confidence in settlers' ability—and Indigenous peoples' comparative inability—to properly work salt resources. In the summer of 1838, Ramsay Potts was living and working in the Choctaw Nation when he reported to Armstrong that "salt springs are abundant & might be made very productive if well worked. Two of them are worked at this time, one by a white man which is very productive; the other by a half breed which has not been as much so." Then living as a missionary among Choctaws, American Cyrus Byington, too, told Armstrong "it is commonly reported that there are salt springs … but for some months little or nothing has been done" with them; "I apprehend that a man of skill," Byington opined, "could make valuable improvements at these salt works." Such suggestions that salt resources allocated to Native nations were wasted and unworked capital originated from and further undergirded the settler colonial belief that Native peoples—even those of the so-called "civilized" nations—were incapable of participating in modern commerce and industrialism.[232]

Not all salt resources were parceled into exclusively owned properties and set aside for commercial production. Several removal treaties that established new national boundaries in Indian Territory shared a stipulation siloing one specific salt resource—the Great Salt Plain—as shared property. Situated on the Salt Fork of the Arkansas River, the place had been visited by Native peoples "from time immemorial," as missionary and territorial surveyor Isaac McCoy once described it to the Office of Indian Affairs. Prior to and through the arrival of Euro-Americans, the place was known more colloquially by its Osage name: Ne-skua-tonga, which roughly translated to "river" or "water" (ne), "salt" (skua), and "big" (tonga). Starting in the early 1800s, American traders and travelers wrote extensively about the place with shared awe. "About 200 leagues up the Arcansa is an interesting place called the Salt Prairie," William Dunbar recorded in his 1804-05 expedition journal, "a kind of Savannah where the salt water is continually oozing out & spreading over the surface of a plane; during the dry hot summer season, the salt may be raked up into large heaps; a natural curst a hand-breadth in thickness is formed when the dry season prevails." To others, like Amos Stoddard, it "resemble[d] vast sheets of thin ice." "This salt the Arkansaw Osages," Zebulon Pike recorded in his own 1806-07 expedition journal, "obtain by scraping it off the prairie with a turkey's wing into a wooden trencher."[233]

Upon the eve of American arrival in the trans-Mississippian west, the Great Salt Plain seems to have been situated squarely within Osages' expanding territorial domain—so much so that "the place" was, according to Dunbar, "not often approached on account of the danger from the Ozage Indians." Indeed, by the 1810s, Osages had established at least seasonal villages nearby, allowing them ready access to the Great Salt Plain's "clean white salt" as well as the herds of

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[232] Monfort Stokes to William Armstrong, August 20, 1837, in Grant Foreman (ed. and comp.), *Copies of Manuscripts in the Office of the Commissioner of Indian Affairs, Washington, DC (Cherokee)*, Volume 4 (Oklahoma Historical Society, 1930). Ramsay Potts to William Armstrong, July 26, 1838, EOHC, OHS. Cyrus Byington to Capt. William Armstrong, August 24, 1838 in Grant Foreman (ed. and comp.), *Copies of Manuscripts in the Office of the Commissioner of Indian Affairs, Washington, DC (Chickasaw, Delaware, Osage, Quapaw, Seneca, Shawnee)*, Volume 2 (Oklahoma Historical Society, 1930).

[233] Isaac McCoy to C.A. Harris, September 20, 1837, in Grant Foreman (ed. and comp.), *Copies of Manuscripts in the Office of the Commissioner of Indian Affairs, Washington, DC (Cherokee)*, Volume 4 (Oklahoma Historical Society, 1930). *Daily Oklahoman* clipping, January 12, 1921, EOHC, OHS. Journal of William Dunbar in Berry et al, *The Forgotten Expedition*, 170-171. Pike used the spelling "Newseketonga" in his writings; see "Appendix to Part II" in Pike, *An Account of the Expeditions to the Sources of the Mississippi*, 30.

buffalo it attracted. Like many other salt resources, Ne-skua-tonga served multiple subsistence practices among Osages. As Frenchman Victor Tixier once described in approaching of the place:

> A rather thick mist covered the Great Saline. The dung of the buffaloes seemed so large that we, the white people … thought they were herds of bison grazing at a distance. The Osage to whom we told this were so well acquainted with this deceiving phenomenon that even the women made fun of us.[234]

Osage men, according to Tixier, "hunted those bison which are always found near the salines" while Osage women made salt from boiling sand in "large basins full of water, dissolving the salt" before discarding the sand and collecting "pure salt from the bottom of the boiler"—an indication that Osages evidently used the Great Salt Plain as a source for salt-making during less arid seasons, when doing so required additional labor. And despite some traders' apparent apprehensions, Osages allowed Americans, Kickapoos, Comanches, and other commercial actors to visit the place "annually"—if not more frequently—to "barter peltries and horses for merchandise and powder."[235]

With the growing influx of Euro-American settlers and displaced Native peoples, the Great Salt Plain had also become an increasingly pivotal point of international interaction—both diplomatic and destructive—among Indigenous polities. After twenty Pawnees died in an attack near the Plain in the summer of 1817, Skidi Pawnees, Taovaya Wichitas, Omahas, Comanches, and Osages resolved to convene a council at the Great Salt Plain the following summer to mitigate growing tensions among themselves and with emigrant Indians. But by April 1818 the council was called off after a four-hundred-man force of Skidi Pawnees ambushed 48 Osages then residing near the Great Salt Plain, an attack that allegedly left only one Osage survivor. Indigenous peoples and polities recently removed from the east further jeopardized Osage safety and security of access to Ne-skua-tonga. In September 1821, Osage chief Gra-mo'n led his people to the Plain for a fall hunt. Afraid to leave their elders, women, and children behind, the whole village came. Osages typically travelled to the Plain by crossing the Arkansas below where it joined the Cimmaron, but

> this time the [Osage] warriors rode ahead … having learned from scouts that Skidi Pawnees, Kiowas, and Wichitas were hunting on the Great Salt Plains, taking advantage of the Osages' troubles with the Cherokees … [T]railing behind the main Osage party was a Cherokee army that included ten Delawares, twelve Creeks, twelve Choctaws, fifteen Shawnees, and several white men.[236]

By November 1, the party split into two; one hundred Cherokee and allied combatants descended upon the main Osage party just south of the Cimarron, "killing sixty-three women and children" and taking "about ninety prisoners," while the remaining two hundred "trailed the Osage warriors up the Arkansas River." The second party of Cherokees found themselves in closer combat with

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[234] Tixier in McDermott (ed.) and Salvan (trans.), *Tixier's Travels on the Osage Prairies*, 249-250.
[235] Dunbar in Berry et al, *The Forgotten Expedition*, 170-171. Tixier offers yet another spelling ("Niskureh-Tanga") for the Great Salt Plain's name (which Tixier referred to as "the Great Saline"); see Victor Tixier in McDermott (ed.) and Salvan (trans.), *Tixier's Travels on the Osage Prairies*, 248-249.
[236] "Cherokee Massacre of an Osage Hunting Party/Osage Retaliation," EOHC, OHS.

the more evenly matched Osage warriors, and returned "demoralized" to Fort Smith with only two Osage scalps. As examined earlier, Osages and Cherokees continued to clash through the delayed resolution of Lovely's Purchase in 1828. Even then, efforts to establish a broader, more lasting peace failed through 1833, when American officials, Osages, and Cherokees convened at Fort Gibson; dissatisfied with the terms of another treaty, Osages "departed three hundred strong for a summer hunt at the Salt Plains"—evidently undeterred by Cherokee or American efforts to further suffocate their ability to access familiar salt resources when they pleased.[237]

Only in 1835 did far distantly negotiated agreements stabilize international struggles over the Great Salt Plain. That year, the federal government executed its final push to force the tens of thousands of Cherokees still living in their southeastern homelands to relocate to Indian Territory. The result was the Treaty of New Echota, which forced Cherokees who had elected to remain to join those in the west, where they were promised "free and unmolested use" of "a perpetual outlet west". While well-studied, few scholars have explored and established the stakes of a provision in the treaty's second article, which stipulated

> That if the saline or salt plain on the western prairie shall fall within said limits prescribed for said outlet, the right is reserved to the United States to permit other tribes of red men to get salt on said plain in common with the Cherokees.[238]

Since the 1800s, Cherokee entitlements to salt resources had produced profound schisms among local and removed Native peoples; even though subsequent removals and treaties transferred remaining salt resources across Indian Territory to other nations, Cherokees retained particularly privileged access to the most valuable salt resources in the region. Exacerbating formal and informal disputes over allocated and unaccounted for salt resources were federal laws that dispossessed salt resources in United States territory by replacing Indigenous territorial title with exclusive federal ownership. Rather curiously, Article Two of the Treaty of New Echota broke multiple precedents by mandating that the Great Salt Plain remain accessible "in common." Cherokees, for their part, ultimately upheld their end of the bargain; despite years of bitter dispute among Cherokees and Osages in particular over salt resources, Osages continued to hunt and collect salt at the Great Salt Plain through at least the 1840s.[239]

The explicit stipulation of shared access to the Great Salt Plain was a legal and geopolitical anomaly. The decade-long influx of thousands of removed refugees—in conjunction with the voluntary migration of white settler populations—placed unprecedented demands upon most other worked and workable salt resources in the trans-Mississippian west. Native nations (namely Cherokees and Choctaws) who possessed commercially viable salt resources adjusted to the acceleration of settlement and salt consumption in Indian Territory with legal and political tools both novel and borrowed. In 1838, for example, the General Council of the Choctaw Nation passed a law prohibiting anyone from "settl[ing] or destroy[ing] timber within a half a mile of any salt works." The act echoed various iterations of United States legislation that, since the 1790s, had

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[237] Great Salt Plains, EOHC, OHS.

[238] "[Copy of New Echota] Treaty [between] the Cherokees [and the] United States, 1835" (December 29, 1835), via *Digital Public Library of America*, https://dp.la/item/4a2f05f0a6183cacafaca902833174f8.

[239] Other nations continued using the place as a meeting point. According to Stan Hoig, "the Delawares invited the Cheyennes to attend a grand council at the Salt Plains of Indian Territory" as late as 1845; see Stan Hoig, *Beyond the Frontier: Exploring Indian Country* (Norman, OK: University of Oklahoma Press, 1998), 214.

prohibited its own citizens in federal territories from settling near salt resources. The Cherokee National Council moved more aggressively in controlling access to salt resources in 1843, when Cherokees' national council nationalized all saline properties within its boundaries—a major policy shift aimed at generating national revenue. Besides establishing saline lands as leasable national property, the 1843 act further explicitly prohibited "any but a citizen of this Nation to be interested in a lease"—yet another measure against settler encroachment on Cherokee industry.[240]

The spatial, political, and legal particularities of salt resources complicated the concurrent projects of removal and resettlement. American officials struggled to juggle the management and mitigation of disputes among removed and removing Native nations, individual settlers' demands and desires, and the state's own aim to establish exclusive sovereignty over salt resources. Everyone who migrated (willingly or not) into and near Indian Territory required access to salt; the desire to control the means of that access spurred jealousy and conflict among multiple actors. Some Native nations—namely the Cherokee—seized opportunities to manage salt resources and their commercialization. In doing so, they not only squeezed both settlers and other Native nations out of the ever-expanding salt-making industry but tested and troubled the federal government's ability and efforts to establish its own spatial sovereignty through the dispossession, repossession, and management of salt resources. Such resources continued to complicate matters of sovereignty and settler colonialism through subsequent decades of broader geopolitical conflict.

"A Crust of Clean White Salt": Whiteness & Power in the Post-Territorial West

As Native nations in Indian Territory settled several internal and external disputes surrounding salt resources, a string of pivotal regional conflicts erupted that once more transformed and were transformed by salt's significance. Following the Texas Revolution and through the turn of the century, settlers, states, and Native nations fought for their respective futures in the region. Salt resources that had long shaped international relations among Indigenous polities remained important points of coalescence and conflict among an increasingly crowded cast of colonial actors who, despite their stark differences, often shared an appreciation for exclusivity in the management of lands, peoples, and resources. This prompted Native nations to tread carefully while navigating new legal, political, and socioecological landscapes that took shape around salt resources in their possession. This climate of competition demarcates a distinctive final chapter of salt's history in the trans-Mississippian west, one in which the region's settler colonization—and its attendant sociopolitical, racial, and legal scaffolds—recontextualized how an increased diversity of entities and interests interacted with salt resources upon which their futures, at least in part, depended.

Through the 1840s, most commercial salt-making in Indian Territory persisted in the Cherokee and Choctaw nations. But elsewhere, settlers kept up their efforts to eke capital from often weaker salt resources. In Arkansas and Missouri, state officials continued leasing state-owned salt resources. And after Texas declared independence from Mexico in 1836, settlers soon set their sights upon salt resources south of the Red River. Texas possessed its own particular history of colonization that, accordingly, set the state's salt resources apart from those found, dispossessed, repossessed, and commercialized in Louisiana, Arkansas, Missouri, and Indian Territory. Prior to the 1830s, salt resources in the Spanish (and, after 1821, Mexican) province

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[240] Choctaw National Council, Section 8, Session V, in *The Constitution and Laws of the Choctaw Nation* (Park Hill, Cherokee Nation: John Candy, 1840), 30. "An Act in Reference to Salines" (October 30, 1843) in Cherokee National Council (comp.), *The Laws of the Cherokee Nation, Passed During the Years 1839-1867* (St. Louis, MO: Missouri Democrat Print, 1868), 78-80.

were nominally claimed by the crown (and, later, state). But through the end of the Mexican period, Texas remained predominantly populated and politically dominated by Comanches, Apaches, Jumanos, Caddoes, and other Native peoples; the initial paucity of Euro-American settlement and security in the region prompted the Mexican government to encourage immigration from U.S. citizens who, within a decade, waged their own war of secession. When they arrived, Anglo-American settlers (especially in northern and eastern Texas) sought to capitalize on salt resources long used by Native peoples to track game and collect or make salt primarily for local consumption. Caddoes, for example, had made salt at salines alongside and further south of the Red River as early as the 1200s and as late as the 1750s. While hardly pioneering in their use of local salt resources, Anglo-American settlers did introduce greater demands for salt—especially during the Texas Revolution, during which thousands of newly arriving troops required greater and greater quantities of preserved meat products.[241]

Native peoples, too, had joined Anglo settlers in their salt-driven sprawl southward. In 1810, then Principal-Chief of the Cherokee Nation-West, Bowl (sometimes known as John Watts Bowles, or by his Cherokee name Di'wali) led several hundred Cherokees to the St. Francis River region, where they joined other relocated Cherokees. By 1820, Osage and settler pressure prompted Bowl and some 60 Cherokee families to remove again, this time from eastern Arkansas to northeastern Texas. Within a decade, Bowl's community of Tsalagiyi Nvdagi (Texas Cherokees) had grown to 800 people. In Texas, Bowl eventually managed to secure title to 2.5 million acres of land for his people, part of which sat atop one of Texas' largest, most potent salt domes. Texas Cherokees exploited surface salt springs, marshes, and plains, founding saltworks at Grand Saline in 1834 and Neches Saline in 1838. Cherokees sold salt as far as Nacogdoches, transporting their manufacture by way of a salt trading trace first forged by Caddoan salt-makers at least a century prior. Cherokee salt-making efforts in Texas were soon soured by increasingly irresolvable issues with white settlers (who wished to operate their own saltworks) as well as the state of Texas (which refused to ratify the Texas Cherokees' territorial agreement with Houston). In 1839, after armed conflict erupted between Cherokees and the Texas militia, Texas Cherokees were forced to remove north to Indian Territory; their temporary salt-rich territory in Texas was opened for permanent private settlement. Settlers repossessed and operated the works at Grand Saline as early as 1845, followed closely by those at Neches Saline by 1849.[242]

As settlers displaced Cherokees from the Texas Grand Saline, Cherokee possession of the Grand Saline at the Three Forks remained comparatively unchallenged. But even in the post-Removal Cherokee Nation, salt-making prompted and was problematized by political conflict. Since 1830, Western Cherokee John Rogers Jr. had operated the Grand Saline saltworks as a private citizen. The place proved productive under Rogers' ownership; at peak production, the saltworks featured 115 kettles operated by four shifts of enslaved workers. Beyond his enterprise in salt-

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[241] Claudia Hazelwood, "Palestine Salt Works," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/palestine-salt-works.

[242] Dorman H. Winfrey, "Chief Bowles of the Texas Cherokee," *Chronicles of Oklahoma* (Spring 1954). D.L. Utsidihi Hicks, "History of Tsalagiyi Nvdagi (Texas Cherokee)," http://www.texascherokees.org/history1.html. Diana J. Kleiner, "Jordan's Saline, TX," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/jordans-saline-tx; and "Salt Industry," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/salt-industry.Vista K. McCroskey, "Neches Saline, TX," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/neches-saline-tx. Bernard Mayfield, "Nacogdoches-Neches Saline Road," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/nacogdoches-neches-saline-road.

making, Rogers was also a major—and divisive—political leader; in 1838, a decade after having travelled with the Western Cherokee delegation to Washington to negotiate the 1828 Treaty of Washington, Rogers was elected principal chief by the Old Settler faction who opposed the new Cherokee national constitution and the proposed liquidation of the Cherokee Nation West, efforts championed by Cherokee Nation principal chief John Ross. In 1843, Rogers was dispossessed of Grand Saline by the Cherokee national government; soon after the saline nationalization law, Principal Chief Ross granted the property to his younger brother, Lewis Ross.[243]

Salt-making at Grand Saline anchored another increasingly controversial component of life and labor in the Cherokee Nation: slavery. Like many other elite Cherokees (including Lewis Ross' predecessor at Grand Saline, John Rogers), the Ross family's wealth and prosperity was supported by enslaved labor, including the family's enterprise at Grand Saline. By one rough estimate, Ross brought "several hundred slaves" to the region "specifically for employment on the farms and salt works there." He also expanded his workforce by way of purchase; Moses Lionan, born into slavery at Grand Saline in 1857, recalled how Ross "went to Bentonville, Arkansas, and paid one thousand five hundred dollars for my father and his family" and put Lionan's father "in as overseer of the salt works." Ross enslaved at least 150 other people besides Lionan, half of which "operated salt wells in the winter time, and farmed in the summer." The work, Lionan recounted, was prosperous for Ross and intensive—often perilously so—for those he enslaved:

> It took a lot of wood to keep the pots boiling and some of the slaves were kept busy cutting wood, while others were boiling the salt water down … The salt was placed in sacks and sold … Huge furnaces were made for the salt pots, and no one was allowed to come near them for fear of getting scalded or burned. No children were allowed to come near, and if we children came too close we were whipped and sent home.[244]

Punishment was a prerequisite for productivity at Grand Saline. "Ross had not been a very kind master to his slaves," Lionan repeated, having "whipped [Moses'] father and several other of his slaves." Enslaved people engaged in salt-making at Grand Saline were worked (and perhaps punished) to death; according to George Butler, another formerly enslaved resident of Grand Saline, "a large grave yard about a quarter mile south of the salt wells was a burying place for the slaves." While Butler gave no approximation of the living or deceased population of people enslaved at Grand Saline, their presence within the Cherokee Nation was palpable; by 1860, Grand Saline featured Indian Territory's second highest concentration of enslaved labor.[245]

Slave-driven salt production in Indian Territory soon became a vector for broader related conflicts—and quite literally so. By 1861, the official outbreak of the U.S. Civil War transformed Indian Territory into a touchstone of territorial fracture and sectional division over slavery's place in the trans-Mississippian west. The Confederacy (CSA) moved swiftly to incorporate Indian

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[243] Grand Saline, EOHC, OHS. John Rogers Jr. biography, EOHC, OHS. Grant Foreman, "Salt Works in Early Oklahoma," EOHC, OHS.

[244] Moses Lionan interview, July 13, 1937, Indian Pioneer Papers, Western History Collections, Oklahoma University, Norman, OK (hereafter "WHC, OU").

[245] W. Dale Weeks, *Cherokee Civil Warrior: Chief John Ross and the Struggle for Tribal Sovereignty* (Norman, OK: University of Oklahoma Press, 2023). Moses Lionan interview, WHC, OU. George A. Butler interview, Indian Pioneer Papers, WHC, OU. Michael F. Doran, "Negro Slaves of the Five Civilized Tribes," *Annals of the Association of American Geographers* Vol. 68, No. 3 (1978), 335-350.

Territory, its resources, and its governing nations into its martial strategy. Besides taking possession of Union army forts within the war's first summer, the CSA also brokered agreements with leaders from nearly a dozen Native nations that promised protection for those nation's territorial holdings in exchange for alliance and/or annexation. CSA-allied Cherokees, Choctaws, Chickasaws, and others delayed the Union from re-establishing itself until the summer of 1862, when Colonel William Weer executed a partly successful campaign to regain the Union's control of Fort Gibson; to do so, Weer's expedition passed through Grand Saline and possessed Lewis Ross' saltworks and property—including enslaved people. Though young, Lionan remembered how "when it came time to leave" some enslaved people "did not want to," being afraid that Ross "would follow them and whip them unmercifully." Union soldiers, Loinan recalled, "very nearly had to make them load up their master's things and leave" and "told the slaves they had earned everything their masters had many times over and over and told them now was the time to get it." They did, forcing Lewis Ross to quit his salt-making enterprise after nearly two decades.[246]

Confederate and Union seizure of saltworks elsewhere in the Cherokee Nation precipitated broader international disputes. A few miles eastward of Grand Saline sat West's (or Markham's) Saline, which had been under Cherokee ownership and operation since at least 1833. John West operated a saltworks there until its nationalization by the Cherokee Nation in 1843, after which the nation leased the works to Leroy Markham (a decision the West family, feeling wrongfully dispossessed of the property's potential profits, litigated as late as the 1880s). On the Illinois River, not far north of where Bean and Sanders had operated their saltworks in the 1820s, Cherokee citizen Alexander Wilson's Marble Saltworks (also known as Mackey's Saltworks) served as an early salt manufacturing and troop drilling site for Confederate forces stationed at forts Gibson and Smith. Salt-making at Mackey's Saltworks ceased in 1863, when Union forces seized and destroyed salt-making equipment to stymie Confederate provisioning. Yet the chaos of armed conflict did not deter the Cherokee Nation from leveraging tribal sovereignty relative to still vital salt resources. After Union forces recommended Fort Gibson in early 1864, Cherokee officials implored Union leaders to protect local saltworks and honor the Nation's rights to them. "Guerrilla bands [who] infest[ed] the country," acting principal chief Smith Christie wrote to Fort Gibson commander Colonel William Phillips in May 1864, had made salt production in the Nation "dangerous in the extreme;" "in view of the necessities of the Cherokee people," Christie asked Phillips, "[I] request … that a force be stationed at Markham's Saline." As for Mackey's Saltworks, which had been appropriated by Union authority, Christie reminded Phillips

> [T]hat the salines in the Cherokee Nation are national property … these salines have been leased to individual citizens for a stipulated rent, and have thus been a source of revenue for the Nation … We most cheerfully concede to the military the obvious right to seize, in time of war, and appropriate to military purposes, any property whatsoever which may be necessary for the subsistance of the Army. Yet when the parties owning such property … furnish the Army with required supplies, we hold that the military necessity which justified the seizure, exists no longer.[247]

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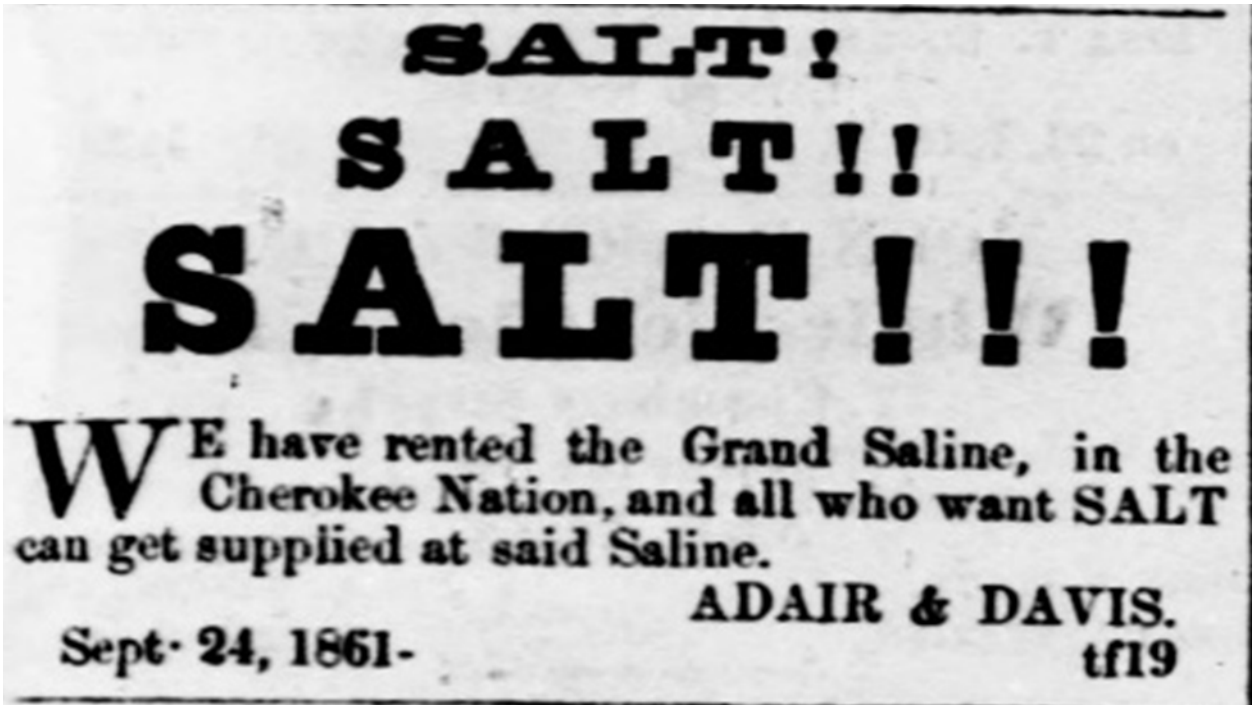
[246] Jason T. Harris, "Combat, Supply, and the Influence of Logistics During the Civil War in Indian Territory," Master's thesis, University of Central Oklahoma, 2008. Lary C. Rampp and Donald L. Rampp, *The Civil War in the Indian Territory* (Austin, TX: Presidial Press, 1975). Moses Lionan interview, WHC, OU.

[247] Smith Christie to Colonel William A. Phillips, May 3, 1864, B65 F2238, Cherokee Nation Papers, WHC, OU.

Christie thus advocated that Mackey's Saltworks

> therein be delivered to … the Cherokee Nation and that sufficient protection be afforded by the military to render that saline secure and that a continuance of that protection be guaranteed. If this be done, the authorities of the Nation will agree to furnish salt sufficient for the use of the army … at reasonable rates.[248]

And if the Union declined to relinquish its right of seizure to Mackey's Saltworks, Christie further requested that the army at least pay rent for its use—just like any other Cherokee citizen. Most critically, Christie expressed his "earnest protest against any saline … being leased to any parties whatsoever, by any authority, other than the constituted authorities of this Nation." If the Union "attempt[ed] to lease these salines in any manner, other than that above indicated," Christie warned Phillips, the action would "be regarded by the Cherokees as an infringement of their rights, and an innovation not sanctioned either by treaty or precedent."[249]


SALT!

SALT!!

SALT!!!

WE have rented the Grand Saline, in the Cherokee Nation, and all who want SALT can get supplied at said Saline.

ADAIR & DAVIS.

Sept· 24, 1861- tf19

Figure 16. Advertisement for salt in *The Van Buren Press*, October 16, 1861 (Van Buren, AR). In 1843, the Cherokee Nation passed legislation establishing and ensconcing governmental ownership of all workable saline properties within the Nation; salt resources like the Grand Saline were subsequently leased out to producers (Cherokee citizens as well as non-citizens, depending on the discretion of the National Council) who sold salt within and beyond the Nation. Commercial salt production in the Cherokee Nation remained a significant touchstone of national politics and international industry through and after the U.S. Civil War. Original source from Arkansas State Archives, digital access via Chronicling America (Library of Congress).

[248] Christie to Williams, May 3, 1864, B65 F2238, Cherokee Nation Papers, WHC, OU.
[249] Christie to Williams, May 3, 1864, Cherokee Nation Papers, WHC, OU.

Sovereign entitlements to salt resources aside, emancipation ultimately upended the economic foundations of commercial salt-making. In Indian Territory, a series of reconstruction treaties, ratified in 1866, mandated the liberation of enslaved people living and working in slaveholding nations. The reconstruction treaties also codified several new territorial cessions, including the Cherokee Nation's relinquishment of the Cherokee Strip and Outlet in northern Indian Territory; this did not impact commercial salt production hubs like Grand Saline, Mackey's Saltworks, or Markham's Saline, but it did establish the settler state's supreme sovereignty to the Great Salt Plain, long set aside from any governmental and private attempts to commercialize and privatize its mineral products. Though it ended half a century of specially stipulated shared access to a long-valued salt resource, the cession ultimately spelled success for the Cherokee Nation. As salt production lagged through the 1870s, Cherokee officials eventually—and successfully—appealed to the federal government for permission to lease salt resources in the Cherokee Outlet. An August 1882 act of Congress authorized the Cherokee Nation to lease three salt deposits and adjoining lands deemed necessary "to facilitate the manufacture of salt"; the act also allowed Cherokee authorities to collect "a royalty of not less than one dollar per ton" of salt produced.[250]

The Cherokee Nation's nominal relinquishment of the Great Salt Plain at once anticipated and reflected broader demographic, industrial, and legal shifts that reshaped salt's value in the trans-Mississippian west. Through the end of the Civil War, federal legislation—namely the 1862 Homestead Act—incentivized migration to U.S. territories. In Indian Territory, the true damage came by way of the 1887 Dawes Act, which dissolved tribal lands into single-family allotments; millions of acres of unallotted surplus lands were opened for public seizure, prompting land runs like the 1889 Oklahoma Land Run. Some settlers in Indian Territory simply seized the opportunity afforded by allotment and the resulting land runs to take salt resources for themselves; such was how sisters Laura and Charlotte White, who had "made the run into the Cheyenne country" by mid-1891, came about owning and operating Crystal Salt Works in Oklahoma's Blaine County, where they produced "large quantities of remarkably pure salt … shipped to all parts of the territory." But more broadly, the influx of settler populations coincided with infrastructural changes that ultimately decreased the value of repossessed salt resources. Stock rearing provided a belated boon in commercial salt production. The gradual expansion of rail shipping, for instance, allowed Oklahomans and Native nations alike to purchase more cheaply made salt imported from manufactories along the gulf coasts of Louisiana and Texas. Nonetheless, salt resources remained important—even if marginally so—to local commerce. A 1903 Tonic Stock Salt advertisement assured Oklahoma ranchers that provisioning horses with local salt imbued them with a variety of health benefits (such as muscle and flesh production, enhanced appetite, tick and worm prevention, and "smooth, glossy hides), and helped to "fatten" market stock "in two-thirds the ordinary time." At Gile's Thompson's salt works, one of the last operated commercially in the Cherokee Nation, salt makers "had dogs to keep the cattle away" while waiting for boiled salt to dry out. While commerce had transformed many salt resources across Indian Territory and Oklahoma, some remained sources of familial and individual subsistence—for human and non-human actors alike.

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[250] Alexandra Stern, "The Reconstruction Politics of the Allotment Era in Indian Territory," *Muster* (published by *The Journal of the Civil War Era*), June 28, 2022. "Treaty with the Cherokee" (July 19, 1866), via *Tribal Treaties Database* (Oklahoma State University), https://treaties.okstate.edu/treaties/treaty-with-the-cherokee-1866-0942. Senate Bill No. 31 (An Act Providing for leasing the Saline on the Western Plains), February 7, 1888, and Public Law No. 230 (An Act for the manufacture of salt in the Indian Territory), August 7, 1882, R21 F2150, Cherokee Nation Papers, WHC, OU.

Though they had fallen out of commercial use by the 1890s, the Cherokee saltworks near Salina, Oklahoma continued to attract Cherokee hunters who built and occupied elevated deer watches; "at night the Indians would lay on top with a light of some kind that would blind the deer," recalled one Salina resident, making it "easier [to kill] when they came up to lick the salt." Though they further slid into obsolescence, local salt resources retained their significance to matters of subsistence, sovereignty, and survival in the modern trans-Mississippian west.[251]

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Local salt resources shaped the expansion and establishment of settler colonialism in the trans-Mississippian west in unique ways. The region's salt springs, bayous, brine seeps, brackish rivers, and other saline environments had long underpinned patterns of international, intercommunal, and interspecies conflict and coalescence. These precedents first determined early exploratory and expansionist trajectories launched by the Louisiana Purchase in 1803 in formative ways. In the following decades, salt resources became even more significant as settler colonialism intensified across the continental south. Specifically, the settler state seized upon salt resources in newly acquired territories to establish and emplace legal sovereignty, control saline commerce (and the many peoples dependent upon it), and manage multilateral projects of removal and dispossession. But the persistence of Indigenous presence, power, subsistence, and sovereignty problematized American attempts to physically and legally co-opt and commander salt resources and their future utility. Remaining situated within international and geopolitical contexts consistent of a plurality of Indigenous interests and actors, salt resources troubled settler colonial interests and impositions in the trans-Mississippian west through the turn of the 20th century—and beyond.

[251] May 28, 1891, *El Reno News*, EOHC, OHS. December 27, 1903, *The Daily Oklahoman*, EOHC, OHS. For the gradual introduction of rail shipping (and the concurrent development of mineral resource extraction) in Indian Territory from Reconstruction through Oklahoma statehood, see Robert J. Voss, "Railroads and Coal: Resource Extraction in Indian Territory, 1866-1907," PhD dissertation, University of Nebraska, August 2013. J.D. Kelly interview, Indian Pioneer Papers, WHC, OU.

Chapter VI | Lake

> *Q. Could you tell us the story of the Salt Mother as she left Zuni and went south, and give us names along the way?*
> *A. Yeah, I was going to use that for the last part … for the encore. Yeah, it's got a pretty good story there, and it's true, what really happened.*
>
> - ICC deposition of Alvin Lynn Nastacio, February 23, 1980[252]

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The hearing room was hot from the Washington humidity, but Zuni governor Malcolm Bowekaty spoke cooly and with conviction. It was July 2002 and Bowekaty was testifying before Congress in defense of the Zuni Salt Lake, a cultural and natural resource prized among, prayed to, and stewarded by multiple Indigenous communities in the southwest. Known among Puebloan peoples as the home of Salt Woman, the Zuni Salt Lake was on the verge of death. Salt River Project (SRP), an Arizona-based utility provider, received state and federal authorization to open and operate an 18,000-acre coal mine in the cheaply mineable Salt Lake coal field ten miles away from the Zuni Salt Lake, a project that promised disaster for the lake's hydrological health. The mine also required the construction of a railroad that would sever salt pilgrimage trails connecting the lake to various pueblos and, even more egregious, disrupt burial sites. SRP's project began in 1983; in the following two decades, state and federal regulations on mining and construction within the deeply historic Sanctuary Zone that surrounded the Zuni Salt Lake for several thousand acres required multiple environmental impact studies, consultation with tribal leaders, and delayed disputes among federal and state offices. Zunis, for their part, had "played by the rules and played the game as far as regulations are concerned," Bowekaty told Congress that July. But the odds felt stacked, the players unsportsmanlike, and the game unfair. As Bowekaty put it, Zunis had "gone to the extreme of actually trying to be reasonable neighbors with our counterparts, both at the Salt River Project, with the State of New Mexico, and with the Federal Bureau of Indian Affairs, as well as the Department of the Interior." They even attempted a private settlement with SRP to find a solution that might allow SRP to source coal without damaging sacred Zuni space and cultural and ancestral remains. But "all those broke down." For the third time in a century, Zunis found themselves forced to seek congressional intervention to save their salt lake. And this time, Zuni leaders arrived in Washington armed with ample evidence, burgeoning public and political support, and a hundred years-worth of legal know-how.[253]

The fight for the Zuni Salt Lake took several fronts that July. While Bowekaty was in Washington, community members were picketing SRP's headquarters in Phoenix, Arizona, hosting rallies at the Pueblo, encouraging local citizens and organizations to join the Zuni Salt Lake Coalition, and publishing special editions of the *Shiwi Messenger*, the Pueblo's newspaper, that informed and implored citizens to act in defense of one of their most precious places. The

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[252] Deposition of Alvin Lynn Nastacio, *The Zuni Indians of New Mexico v. The United States of America* (No.161-79-L) [hereafter "Zuni ICC Case"], Folder 16, Box 6, Mss. 815, Ward Alan Minge Papers, CSWR, UNM.
[253] Spoken testimony of Malcolm Bowekaty, in Senate Hearing 107-519, "Native American Sacred Places," Committee on Indian Affairs, United States Senate, 107th Congress, July 17, 2002 (Washington, DC: U.S. Government Printing Office, 2002), https://www.govinfo.gov/content/pkg/CHRG-107shrg81170/html/CHRG-107shrg81170.htm.

Zuni Salt Lake Coalition (ZSLC), the central organizing agency responsible for the lake's defense, even launched a fax blitz that flooded Department of the Interior (DOI) Secretary Gale Norton's office with over 2,000 letters of protest. The battle had become multi-national, too. "Just this past weekend," Bowekaty wrote in his written Senate testimony, the Zunis' "brothers and sisters from the Hopi, Yaqui, Pueblo, Xicano, Navajo and others joined us in a 260 mile run from Hopi and Phoenix to Zuni to pay homage to her [Salt Mother]." Pueblo of Zuni sank considerable time and money into the fight, and forced SRP, the State of New Mexico (and its relevant resource and mining offices), the Bureau of Land Management (BLM), and DOI to do the same. And that July, neither side seemed willing to budge. For SRP and their allies in federal and state governments, a losing battle meant losing untapped coal capital—and perhaps a considerable degree of pride and power in pushing around dirt and people. For Pueblo of Zuni and other nations dependent upon the Zuni Salt Lake, the stakes were higher and more dire. And Zunis were no strangers to the sense of dread that accompanied only the latest of several threats against the Salt Woman's life. "We cannot risk losing Salt Woman *again*," Zuni councilman Dan Simplicio said in an earlier interview with *High Country News*. "If we lose her, we might never get her back, and we can't live without her."[254]

Compared to other sacred sites and to other salt resources across the continental interior, the Zuni Salt Lake seems to take up little physical space and significance. At its wettest, during winter months, the lake achieves a maximum depth of roughly four feet—shallow enough for most people to wade in without swimming or floating. Constituted by water produced from delicate groundwater springs and seasonal runoff, the salty water barely fills the base of the volcanic maar, where lack of a natural outlet traps the water and the salt in perpetuity; only by solar evaporation does the water disappear, and only by human hand is the salt removed. Unlike other salt resources that might attract migratory mammals, birds, insects, and other sodium-dependent creatures, the Zuni Salt Lake hosts few permanent residents; only ancient and alien-like brine shrimp, scuba diving alkali flies, and photosynthetic cyanobacteria live there. The nearest human settlement, Pueblo of Zuni, lies sixty miles away, linked to the lake by unpaved roads and dusty foot trails. Despite its desolation, the lake sustains people. Generations of local Native peoples have long sourced the lake's salt to feed their communities, supplement their food stores, and maintain their relations with and responsibilities to Ma'lokyattsik'i (Salt Woman), the War Gods, and other supernaturally powerful forces. Though small in size, the Zuni Salt Lake is immensely important to Indigenous pasts, presents, presence, and futures in the southwest.[255]

Since the start of U.S. occupation in the southwest in the 1840s, the Zuni Salt Lake has also been repeatedly and rather unceremoniously sacrificed to settler colonization. The import of settler populations, industries, institutions, and values to the southwest has diminished the Zuni Salt Lake's cultural significance. At the same time, the modernization of industrial salt production has reduced salt's historically high commercial value; to most, the lake looks little different from other now commercially defunct high, dry salt resources across the arid southwest. Despite their progressive devaluation in settler contexts, the region's salt resources remain important

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[254] For community activism against the Fence Lake Mine, see Folders 19 and 20, Box 2, Mss. 467, Sierra Club Grand Canyon Chapter, Northern Arizona University, Flagstaff, AZ [hereafter "SCGCC, NAU"]. For Bowekaty, see "Testimony of Malcolm B. Bowekaty, Governor of the Zuni Tribe, Before the United States Senate Committee on Indian Affairs," July 17, 2002, via Sacred Land Film Project, https://sacredland.org/wp-content/PDFs/Bowekaty.pdf. Emphasis added; for Simplicio, see "Salt Woman Confronts a Coal Mine," *High Country News*, October 8, 2001, Folder 19, Box 2, SCGCC, NAU.

[255] J.P. Bradbury, "Limnology of Zuni Salt Lake, New Mexico," *Geological Society of America Bulletin* Vol. 82, No. 2 (1971), 379-398.

touchstones of (de)colonization in the southwest. This is especially true of the Zuni Salt Lake. Whenever settler aims and interests have jeopardized the lake's livelihood, Native peoples have mobilized their historic and contemporary connections to defend the lake's past and present significance as a source of spiritual and physical sustenance. In the century following American annexation of northern Mexico in 1848, Zunis and other Native peoples struggled to retain and reclaim access to the lake, its salt, and its sacred properties. The legal peculiarities of mineral property ownership in Spanish-turned-Mexican-turned-American territory, in conjunction with the (re)structuring of settler governance, prevented Zunis from formally reclaiming the Zuni Salt Lake until 1978—101 years after the establishment of their reservation that excluded the lake. Soon after earning the lake's trust title, Zunis found their most prized salt resource and their sovereignty jeopardized by SRP's coal mining project. Using legal experience, political prowess, and historical evidence (re)produced in past attempts to recover their most precious source of salt, Pueblo of Zuni and several allied nations and organizations fought back. And despite disproportionate odds, the Pueblo won—and the lake survives today.

Southwestern salt resources like the Zuni Salt Lake evince unique histories of overlapping sovereignties and coalescent structures of colonization that still today remains as alive at the Salt Woman herself. This chapter explains how the prolonged legal contest over the region's salt resources attracted, anchored, and ultimately upended the settler colonization of salt resources in the southwest. It first traces the sustained significance of deeply historic salt resources to processes of international transition, settler colonization, and Indigenous survivance. This chapter then narrows in on the more modern history of the Zuni Salt Lake. It identifies the causal connections between often distinguished epochs in the lake's legal history to explain how Indigenous peoples' mobilization of settler law, public and political leverage, and historical evidence of saline subsistence and stewardship has manifested in the successful—even if prolonged—restoration of Indigenous sovereignty relative to an environmentally, culturally, and historically critical resource. That Zunis and allied nations and organizations have kept the Zuni Salt Lake alive underscores the significance of Indigenous histories of salt use and dependency—and demonstrates how those histories can support land return, the restoration of Indigenous sovereignty, and related material aims of decolonization.

Despite its importance to modern Native nations, salt remains one of the continental southwest's most understudied resources. Relative to the intersection of the region's environmental and Indigenous history, salt pales in comparison to more contemporarily critical topics like fossil fuel extraction, scientific experimentation, and urban and infrastructural expansion in the modern southwest. As scholars such as Erika Bsumek, Andrew Curley, Traci Brynne Voyles, and Andrew Needham have most recently shown, a plurality of Native peoples and political interests retain central roles in managing the region's mineral resources. None of these histories, however, acknowledge the enduring significance of salt in these contexts. This chapter demonstrates how deeper disputes over a relatively mundane mineral can contextualize, clarify, and even complicate conventional approaches to intra-Indigenous and broader international struggles for resource sovereignty, territorial title, and political power. This is owed largely to the fact that Native—particularly Puebloan—peoples have excavated the colorful strata of Indigenous, colonial, and international pasts that underlie southwestern salt resources to fight for their political, legal, and territorial sovereignty in the face of settler colonization. They have done so by using tribal knowledge as well as anthropological, archaeological, and archival evidence that often paints Native peoples as ossified objects in a petrified past. The depth of salt's significance—and Native peoples' excavation and application of that past—ultimately defies

temporal boundaries that confine and curtail existing studies of salt in the southwest. This chapter thus contributes to burgeoning studies by Maurice Crandall, Paul Conrad, and others of Indigenous survivance through the continental southwest's several centuries of colonization.[256]

This concluding chapter ultimately focuses on the culmination of several centuries of struggle over salt in the southwest. It traces trails of salt's significance, its vast temporal expanse, and its depth and dynamism toward a singularly significant salt resource and its centrality to modern matters of sovereignty, settler colonialism, and survivance. A revised history that includes the Zuni Salt Lake's most recent past contributes to this dissertation's broader critique of narratives of the deterioration and declension of Indigenous sovereignty under the pressures of settler colonization. This most recent chapter in salt's history demonstrates most clearly how settler colonialism has ultimately failed to achieve its ultimate goal of destroying, erasing, and replacing Indigenous peoples and their past and present connections to salt resources. Rather, they remain primary narrators and creators of salt's future.[257]

Mineral Sovereignty & the Making of Post-Spanish Legal Landscapes

Salt resources in the continental southwest had been places of international interaction and transition several thousand years prior to European colonization. Native peoples dependent upon salt for physical sustenance, cultural and spiritual fulfillment, and commerce created and reproduced critical connections to salt resources across often shared homelands. By the onset of Spanish colonization in the mid sixteenth century, sporadically dispersed salt flats, lakes, and deposits across the region were already deeply storied, heavily utilized places that underpinned territorial sovereignty, facilitated mobility, and, eventually, invited increased competition. Starting in the late sixteenth century, Spanish populations—namely missionaries and soldiers, but sometimes civilian populations, propertied persons, and laborers—who settled north of the Rio Grande joined Native peoples in depending upon local salt resources. Spanish dependency upon salt never wholly replaced Native power and presence; in both resistive and adaptive responses to colonization, Indigenous nations across Spain's northernmost borderland dictated colonial engagements with salt resources in ways that sometimes helped and sometimes hampered Spanish imperial aims. Through the following two centuries, salt resources in the southwest remained important to interactions among Spanish and diverse Native peoples and polities.[258]

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[256] Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis, MN: University of Minneapolis Press, 2015). Andrew Needham, *Power Lines: Phoenix and the Making of the Modern Southwest* (Princeton, NJ: Princeton University Press, 2015). Andrew Curley, *Carbon Sovereignty: Coal, Development, and Energy Transition in the Navajo Nation* (Tucson, AZ: University of Arizona Press, 2023). Erika Marie Bsumek, *The Foundations of Glen Canyon Dam: Infrastructures of Dispossession on the Colorado Plateau* (Austin, TX: University of Texas Press, 2023). Maurice S. Crandall, *These People Have Always Been a Republic: Indigenous Electorates in the U.S.-Mexico Borderlands, 1598-1912* (Chapel Hill, NC: University of North Carolina Press, 2019). Paul Conrad, *The Apache Diaspora: Four Centuries of Displacement and Survival* (Philadelphia, PA: University of Pennsylvania Press, 2021).

[257] For more recent multi-disciplinary scholarship published that has taken Pueblo of Zuni's recent battle against SRP's Fence Lake Coal Mine into account, see Elspeth Iralu, "Putting Indian Country on the Map: Indigenous Practices of Spatial Justice," *Antipode* Vol. 53, No. 5 (2021), 1485-1502; and Andrea Grugel, "Culture, Religion and Economy in the American Southwest: Zuni Pueblo and Laguna Pueblo," *GeoJournal* Vol. 77 (2010), 791-803. Patrick Wolfe, "Settler Colonialism and the Elimination of the Native."

[258] Chapter One of this dissertation explains how salt's pre-colonial history shaped the spatial trajectory, legal consolidation, and environmental context of Spanish colonization in the southwest through the mid-eighteenth century; for a summary, see Annabel LaBrecque, "Saline Survivance: The Life of Salt and the Limits of Colonization in the Southwest," *Commonplace* (July 2023), https://commonplace.online/article/saline-survivance/.

Like elsewhere across the continent, colonization did not introduce the value of salt to Native peoples already familiar with the mineral's source and significance to their lives. Spanish colonialism did, however, establish new legal parameters by which salt's worth was measured, managed, and made legible to the imperial state. As discussed in Chapter One, the Spanish crown used the king's absolute sovereignty to nominally lay claim to mineral resources in North America; this included salt resources in northern New Spain (New Mexico), which, like nearby silver deposits in northern Mexico, became the property of the Spanish state. Having nominally claimed salt resources north of the Rio Grande as royal property, the crown soon realized that the survival of Spanish subjects in the region depended upon more immediate access to salt. In 1611, for instance, Phillip III granted tax-free collection rights to Spanish settlers in Nueva Viscaya (present-day Texas and New Mexico) so they could obtain salt locally. As economist Ursula Ewald writes, "colonial mining legislation was retained out of necessity" following Mexico's independence from Spain in 1821. Mexico even retained the language from a 1789 ordinance, the last to explicitly reiterate the sovereign power's control over salt resources, including

> [N]ot only the mines of gold and silver, but also those of precious stones, copper, lead, tin, quicksilver, antimony, calmine, bismuth, rock salt and other stoney matter (fossils), be they ores or semi-minerals, bitumen, and liquids (juices) of the earth.[259]

The key difference made by the transition from Spanish to Mexican rule in the southwest was the replacement of royal sovereignty with more democratic state-based sovereignty; this meant that non-precious mineral resources—especially in remote regions where federal oversight was weak—became public property useable but not purchasable by Mexican citizens. Small settler enclaves like those at El Paso del Norte, the central Rio Grande, and elsewhere across present-day New Mexico and western Texas considered nearby salt flats and lakes to be resources held in common and freely exploitable by Mexican citizenry.[260]

Mexico's management of salt resources north of the Rio Grande was short-lived. In 1846, the United States invaded northern Mexico, instigating a two-year territorial war that upended the geopolitical, social, and legal landscape of the southwest. More specifically, the U.S.-Mexican War brought about the start of significant changes in how Native peoples and non-Native entities accessed, used, and understood the value of the region's salt resources. As had been the case in other territorial conflicts that consumed salt-rich regions, the onset of war in the southwest brought military personnel into contact with salt resources valuable and cumbersome alike. In late 1846, surveyor and civil engineer William Hemsley Emory accompanied General Stephen Watts

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[259] Excerpted from J. Rockwell, *A Compilation of Spanish and Mexican Law* (1851), 54-55 in Luther Hudson, "Salt Water is a Mineral: Ownership of a Natural Resource of Increasing Importance in Oil-Producing States," *Texas Law Review* Vol. 50, No. 3 (1972), 454.

[260] Most salt produced and consumed throughout early colonial Mexico was not mined (like gold or silver, for instance); it was mostly produced through evaporative methods, if not collected from flats that did not require the physical action of mining or digging for rock salt. Legally, however, salt was considered a mineral resource, and was thus claimed as crown property as were silver, gold, copper, iron, and lead mines. Curiously, the Real de Minas did not exercise exclusive administrative authority over salt resources. Depending on their location, the environment in which they were situated, and the variegated landscape of Indian titles that may have bordered or encompassed them, salt resources across Mexico and the continental southwest could be subject to multiple sources of authority. For the transition from Spanish imperial administration of non-precious mineral resources to Mexican management (and the legal and political complexities of salt's administration and management in pre- and post-independence Mexico), see Ewald, *The Mexican Salt Industry.*

Kearny's invasion of northern Mexico and kept detailed notes on the social, political, and environmental landscape of the wartime borderlands. Unlike eighteenth-century militaries who struggled while traveling through imperially remote, provisionally poor, and internationally perilous regions, Kearny's Army of the West was well-stocked for its expedition; salt products, still a staple, were transported by wagon and provisioned from better-connected outposts like Bent's Fort on the upper Arkansas River. Nonetheless, Emory took note of salt's significance to daily movement and interaction across the southwest.

Like Spanish entradas several centuries before him, Emory took note of seasonal salt lakes that emerged across the High Plains in the summer. Earth made "dry" and "white with a thin saline encrustation" were noteworthy, but these resources were more so perils to thirsty men and mammals rather than novel and necessary discoveries. Near an abandoned Apache camp along the Gila River, Emory and the expedition found tributary streams "slightly tainted with salt" fed by "a spring so highly charged with salt as to be altogether unpalatable." Deceptive water were cumbersome discoveries for thirsty troops and horses; on a later evening, further past the Gila, the expedition found themselves forced to camp near a pond "so salt that the horses," who had not drank freshwater in a day, "could not drink it." Salt lakes elsewhere in southern Texas were "wholly unfit for man or brute," and the expedition "studiously kept the latter from it, thinking that the use of it would but aggravate their thirst." Even in winter months, the combination of aridity and high salinity waters transformed the landscape and life surrounding salt lakes. In November, the expedition embarked for a salt lake that "the Mexican had informed [them] […] [was] too salt to use." Though willing for potable water, the Americans indeed found the lake half-reduced to a "thick soapy quagmire" and corrupted by "the stench of dead animals," which "confirmed the reports of the Mexicans and put to flight all hopes of […] being able to use the water." This did not prevent a pair of straggling soldiers from "rushing to the lake"—having been absent from the rest of the expedition's earlier disheartening discovery, they "threw themselves down and took many swallows before discovering their mistake."[261]

While a nuisance to thirsty troops and domestic mammals unfamiliar with the region's water resources, salt was still a valuable commodity item amongst Native peoples. In November 1846, Emory observed (with a tone of superiority rooted in settler expectations of uncivilized peoples) that Pima (Akimel O'odham) and Maricopa (Piipash) peoples living at the confluence of the Salt and Gila rivers enjoyed "possession of beautiful and fertile basin" where they cultivated a "great deal of land" for agriculture, kept horses, and harvested salt. The Maricopas allowed the expedition to camp nearby and even welcomed the Americans with an abundance of local products for purchase:

> On horseback […] they came into camp at full speed, unarmed, and in the most confident manner, bringing water melons, meal, pinole, and salt for trade. The salt is taken from the plains; wherever there are bottoms which have no natural drainage, the salt effloresces and is skimmed from the surface of the earth. It was brought to us both in the crystallized form, and in the form when it was first collected, mixed with earth.[262]

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[261] William Hemsley Emory, *Notes of a Military Reconnaissance, from Fort Leavenworth, in Missouri, to San Diego, in California, Including Parts of the Arkansas, De Norte, and Gila Rivers* (Washington, DC: Wendell and Van Benthuysen Printers, 1848), 22, 67, 93, 101-102.
[262] Emory, *Notes of a Military Reconnaissance,* 87.

Perhaps surprising to Emory, who expressed shock at their "peaceful and industrious" disposition, Maricopas were only the latest of several generations of southern Arizonan peoples who sourced salt for trade. Prior salt traders no doubt harvested salt from seasonal salt flats in similar ways. But archaeological evidence from the nearby Verde River Valley and, further north, the Nevada Salt Caves near present-day St. Thomas, Nevada illustrates more intensive extraction methods—including subsurface rock salt mining by Sinagua peoples in the fourteenth and fifteenth centuries.[263]

These and other examples discussed in Chapter One illustrate how Native peoples in the southwest harvested salt from a variety of places for a range of purposes both ritualistic and commercial. While Maricopas resorted to dried plains and salt flats to source salt for trade, Zuni, Navajo, and Hopi men travelled along shrine-lined trails to the Zuni Salt Lake; Hopis also made multi-day journeys into the Grand Canyon to collect rock salt and to initiate young men into adulthood. Often ritualized, these place-specific salt collecting methods that, most typically, took men into quiet canyons and salt-encrusted craters were reproduced across seasons and generations—and despite Spanish efforts to limit Native mobility and commercialize salt resources. Elsewhere, colonization produced novel conditions for Native peoples to access salt. On the high plains, Apaches and other peoples more recently empowered by equine mobility (imported by way of Spanish settlements) preferred to outsource salt collecting efforts by stealing salt from Spanish-sponsored salt caravans that grew in size and frequency through the seventeenth and eighteenth centuries. How, where, and why Native peoples sourced salt varied, dependent upon unique ecological, economic, cultural, and other factors that shaped salt's place.[264]

Euro-American law in the southwest attempted to flatten these differences and distinctions by subsuming salt resources as common mineral property. In 1848, the Treaty of Guadalupe-Hidalgo ended the U.S.-Mexican War and transferred vast swaths of territory in northern Mexico to the United States. American annexation of northern Mexican lands included several salt resources that underpinned deep local dependencies among autonomous Native nations and Hispanic populations alike. The United States' existing territorial and saline commerce law stipulated that the region's salt resources become the property of the federal government. In theory, the regulation of saline resources under American law was substantively similar to Spanish and Mexican precedence. Saline commerce laws invented in eighteenth- and nineteenth-century Ohio River Valley and soon after implemented in the broader western Mississippi River Valley stipulated that salt resources discovered within newly acquired territory automatically become property of the federal government, after which those resources might either be granted to states (as was the case in Illinois and Arkansas) or directly leased to private citizens and companies (like

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[263] Emory, *Notes of a Military Reconnaissance*, 86. For subsurface mining at Camp Verde, see MS 1520.01, "Camp Verde Salt Mine," Box 11, Case 158, general mining files, ADMMR, AHS, Tucson, Arizona; and M.R. Harrington, "Ancient Salt Mines of the Indians," *Scientific American* (August 1926), 116-117.

[264] For a firsthand Hopi account of salt gathering in the eastern Grand Canyon, see Don Talayesva and Leo Simmons (ed.), *Sun Chief: The Autobiography of a Hopi Indian* (Second Edition. New Haven, CT: Yale University Press, 2013), 165-186 and 232-267. The Spanish state recruited Puebloan peoples to collect salt from the Estancia Valley for export to northern Mexican silver refineries. For Apache disruptions along the Camino Real de Tierra Adentro that linked the upper Rio Grande and Estancia Valley salt resources to northern Mexican silver districts, see Box 7, Folder 60, Kessell Papers, CSRW, UNM. For Tewa complaints about Apache attacks, see Paul A.F. Walter, "The Cities that Died of Fear: The Story of the Saline Pueblos," (Santa Fe, New Mexico: El Palacio Press, 1931) in Box 7, Folder 47, Kessell Papers, CSRW, UNM.

in Ohio, West Virginia, Missouri, and Louisiana). the region's salt resources, at least nominally, became property of the United States government.[265]

Indeed, individual Americans brought their own ideas and aspirations for salt's commercial potential in the southwest. Immediately following the end of the U.S.-Mexican War, American settlers in far western Texas endeavored to monetize previously public access to salt resources. Late in 1848, eight Americans applied to the Texas secretary of state to lease two saline deposits between the Pecos River and the Rio Grande, including the highly valuable Lake Lucero deposits and the Salina de San Andres. The petitioners acknowledge that state ownership of salt resources might generate much needed revenue. But the longstanding practice among former Mexican citizens and Native peoples to take salt tax free, the petitioners argued, was hemorrhaging the salt itself and the profits it might otherwise generate if access, production, and distribution was consolidated. Ironically, the petitioners requested their own tax exemption from the state, "due to the fact that the salt lakes were located in the heart of Indian county and would require a substantial capital investment […] to develop and defend the operation." So long as salt resources in sparsely colonized areas remained open to anyone's use, the petitioners argued, both profit and security were at risk. Rather conveniently for the American petitioners, local residents' claims to untaxable, unrestricted access to local salt resources lacked legal legitimacy. During the war, in December 1846, American troops had seized Paso del Norte, occupied San Elizario, and allegedly destroyed the town's archives, erasing any evidence of Paseño entitlements to the Guadalupe Salt Lakes, Lace Lucero, and the Salina de San Andres.[266]

In 1850 Texas granted their request, breaking the longstanding legal tradition that afforded local residents unencumbered access to the salt deposits in western Texas. But only a few months later, in December 1850, the Texas Boundary Act redrew the Texas-New Mexico boundary—and the Lake Lucero deposits and the Salina de San Andres became part of New Mexico Territory. Texas had become a state in 1845, but New Mexico remained federal territory. Assured that their rights to salt resources would be protected by a new federal government, New Mexicans went about accessing salt resources as they always had—without expectation of taxation or prevention. Existing expectations and individual interests came to a heated head early in 1854, when residents of Dona Ana County, New Mexico departed for the Saline de San Andres to collect salt. Several months prior, the original lessees had worked with El Paso elites to establish a customs enterprise run by James Magoffin, who took responsibility for regulating access to the salt flats. Magoffin called upon El Paso County sheriff William Ford to stop the New Mexicans from accessing the

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[265] The legal basis of exclusive federal title to saline resources originated in 1785 with a land ordinance regulating the discovery, claim, and use of salt springs north of the Ohio River; see the Land Ordinance of 1785, May 20, 1785, in Clarence Edwin Carter (ed.), *Territorial Papers of the United States, Volume 2: The Territory Northwest of the River Ohio, 1787-1803* (Washington, DC: U.S. Government Printing Office, 1934), 13. The 1785 ordinance was reaffirmed and codified by a May 1796 act of Congress expressly reserving all discoverable salt springs "for the future disposal of the United States"; for the 1796 law and subsequent territorially-specific amendments made in 1800, 1803, 1804, 1805, 1806, 1811, and 1854, see John W. Noble to the Commissioner of the General Land Office, Department of the Interior, June 4, 1892, in UNM A 001, Saline Lands Controversy, 1888-1892, Elias Stover Papers, UNM. For a related 1901 amendment to the 1872 Mining Act that allowed for private citizens to establish placer claims to "salt springs, or deposits of salt in any form" on "all unoccupied public lands of the United States," see 30 USC 162, "Entry of Saline Lands," January 31, 1901, https://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title30-section162&num=0&edition=prelim#sourcecredit.

[266] J.J. Bowden, "The Magoffin Salt War," *Password: The El Paso County Historical Society* Vol. 7, No, 3 (1962), 95-121; for "due to the fact," see Bowden, 96. For the destruction of town archives at San Elizario during the U.S.-Mexican War, see Paul Cool, *Salt Warriors: Insurgency on the Rio Grande* (College Station, TX: Texas A&M University Press, 2008), 23.

salt flats. When the *salineros* (salt gatherers) resisted Ford's arrest attempt, the sheriff's posse opened fire. New Mexican officials subsequently held Magoffin responsible for instigating the conflict. More critically, the territorial legislature soon after passed an act that negated any prior private claims and subsequently granted all New Mexican residents the right to collect salt "on any occasion free from molestation or disturbance." Sometimes known as the Magoffin Salt War, the 1854 conflict over access to the Salina de San Andres and Lake Lucero deposits ultimately culminated in the reiteration of Spanish civil regulation relative to salt resources.[267]

While legal recourse reaffirmed the public's right to access salt in New Mexico Territory, the import of multiple salt-dependent industries to Texas further transformed salt's legal and economic place in the southwest. Through the 1850s and 60s, cattle production and meatpacking in Texas boomed; these sister industries both depended upon both natural and manufactured salt resources, as cattle required salt for sustenance and rock salt and brine remained primary preservation methods. Like past martial conflicts, the outbreak of the U.S. Civil War in 1861 exacerbated demands for salt and salted meat products, and Texas producers, using enslaved labor, joined those in neighboring Arkansas, Oklahoma, and Louisiana in provisioning Confederate troops. Following the Civil War, the discovery of and increased dependency upon other extractable minerals—especially oil—also reshaped salt's significance, particularly in east and north Texas where a high concentration of subsurface salt domes facilitate access to Permian fossil fuel deposits. The consolidation of salt and salt product industries in Texas was conditional upon the formal territorial dispossession of Native peoples. As the previous chapter explains, the presence of salt across the broader Red River Valley that constitutes present-day Oklahoma, eastern Texas, northwestern Louisiana, and southwestern Arkansas anchored American imperial aspirations as early as the 1810s. Through the 1820s and 1830s, the U.S. federal government sought to co-opt control of local salt resources by dispossessing Caddos, Quapaws, Osages, and other peoples across the trans-Mississippian west of salt-rich lands. Their forced relocation to Indian Territory (where Native nations removed from east of the Mississippi River precipitated conflict over particularly valuable salt resources) initially allowed some Cherokees and eventually American settlers to produce salt commercially in present-day Van Zandt, Kaufman, Fisher, and other northeastern Texas counties.[268]

As the settler salt industry took shape in Texas, salt resources in New Mexico remained mired in controversy. Following the 1854 Magoffin Salt War, territorial legislation affirmed the public's right to access salt resources in perpetuity; more specifically, the conflict's mitigative legislation also nullified existing private claims to the salines surrounding the Guadalupe Mountains, including the Lake Lucero deposits and the Salina de San Andres. The legislation did little to guarantee New Mexicans protections against still mobile Native peoples like Apaches, who, in the fall of 1875, reportedly attacked a salt train bound from nearby San Elizario and ran off several horses in the process. Rather, the reiteration of the public's right to access salt was meant to function as a bulwark against private interests. Unlike Texas, where the state often opted to lease out salt resources for private production, New Mexico remained federal territory; while the federal government had cozied to private salt producers before, it remained beholden to its own

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[267] Bowden, "The Magoffin Salt War."

[268] For Texas' cattle and meatpacking industries during and after the Civil War, see T.J. Cauley, "Early Meat Packing in Texas," *The Southwestern Political and Social Science Quarterly* Vol. 9, No. 4 (1929), 464-478. For an overview of the legal congruities in the regulation of salt (water) resources and oil in Texas, see Luther Hudson, "Salt Water is a Mineral: Ownership of a Natural Resource of Increasing Importance in Oil-Producing States," *Texas Law Review* Vol. 50, No. 3 (1972), 448-461. Diana J. Kleiner, "Salt Industry," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/salt-industry.

laws guarding the potential profitability of government-owned salt resources as well as locally specific legal cultures that, as had been the case in 1854, required careful maintenance.[269]

Nearly three decades following the United States' annexation of New Mexico, another attempt to establish and enforce a new paradigm of saline commerce erupted in fatal controversy. And like in 1854, it was the salt flats surrounding the Guadalupe Mountains in southeastern New Mexico that again invited the attention of aspiring American entrepreneurs. In early 1877, American district judge Charles Howard filed a claim to the salt flats. Like Magoffin before him, Howard attempted to enforce a collection tariff and enforced his intention by shutting down the caravan road leading from the nearby settlement of San Elizario to the salines. San Elizario residents promptly and openly defied Howard by organizing a salt collecting caravan. That September, while en route to the salt flats, two members of the caravan were arrested by Howard. The arrests precipitated a riot, and a mob held Howard captive at San Elizario; after three days, Howard earned temporary freedom only by promising to relinquish his claim to the flats and promising to leave the area. But Howard stayed, and even attempted to bring suit against a sixteen-wagon salt caravan that December. Leveraging his political connections, Howard managed to muster support from twenty Texas Rangers who escorted him back to San Elizario to file suit against the alleged trespassers. A standoff ensued at San Elizario among American and Mexican residents. By the time tensions dissipated in mid-December 1877, a dozen men had been killed and another twenty wounded. Strong political personalities and parties shaped the San Elizario Salt War, but so, too, did Paseños' "desire to keep control of their salt and their destiny."[270]

Beginning in 1848 with the end of Mexican rule in New Mexico and Texas and culminating in the 1877 San Elizario Salt War, questions of who could access salt (and how it could be accessed) became a flashpoint for deeper disagreements among American newcomers and former Mexican citizens in the southwest. Rooted in the same resource, these two conflicts illustrate how the region's shifting legal landscapes and the trials of territorial transition, at once, shaped and were shaped by salt's significance, its potential profitability, and the unique legal regulations surrounding its accessibility. The concurrent industrialization of southwestern spaces, lands, and resources also reshaped the value of local salt resources; while salt's presence invited other extractive industries, the mineral's marketable value ultimately diminished as transportation infrastructure reduced and replaced most people's dependency on previously essential places to access a primary preservative.

But not all people in the southwest saw salt resources so abstractly. Most accounts of postwar conflicts over southwestern salt resources have inadequately accounted for how Native peoples and polities impacted and were impacted by the legal and geopolitical changes that remade and reaffirmed salt's significance in an exponentially contested borderland region. As sporadic evidence from the postwar period shows, Native communities, too, depended upon salt resources to stake out their own futures in the new social, legal, and economic landscape created by American settler colonialism. At the same moment that Spanish and American legal customs concerning saline commerce clashed, coalesced, and collapsed just north of the new international border, Native peoples with even longer standing ties to local salt resources found themselves faced with

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[269] C.L. Sonnichsen, "Salt War of San Elizario," *Handbook of Texas Online* (Texas State Historical Association), https://www.tshaonline.org/handbook/entries/salt-war-of-san-elizario. For the 1875 Apache attack, see Cool, *Salt Warriors,* 93.

[270] For a comprehensive overview of the 1877 San Elizario Salt War, see Cool, *Salt Warriors*; for "desire to…", see Cool, *Salt Warroirs,* 5.

a new colonial system that aspired to curtail and control their sovereignty, autonomy, and ability to move across space and access resources.

Enclosure & Adaptation in the American Southwest

The transition from Spanish and Mexican rule to American colonization precipitated a host of hostilities concerning the management of land, people, and resources. The new colonial era was doubly complicated for Native peoples who wished to retain their sovereignty within this new legal landscape. Through the territorial period (1848-1912), the United States was determined to and increasingly capable of compartmentalizing land, people, and resources into more legible legal categories. This meant that through the early twentieth century, Native nations found themselves saddled with the responsibility to reprove their sovereignty to a government disinclined to recognize it. Native peoples also found themselves up against a harsh cultural climate that exploited their pasts, exoticized and scrutinized their existence in the present, and questioned the possibility of their futures. It was within the context of these new colonial entanglements that the Zuni Salt Lake, a seemingly marginal salt resource in the grander political scheme of the American southwest, brought its primary Puebloan dependents and several settler entities into interactions that shaped the immediate and more distant futures of sovereign Native peoples and the U.S. settler project in the southwest. The lake's turn-of-the-century history reveals salt's shifting significance to increasingly competitive assertions of sovereignty and power.

During the Spanish and Mexican era, the Pueblo of Zuni maintained legally uncontested access to sacred sites several hundred miles from their core villages at Zuni. Zunis, Hopis, and other Puebloan peoples lived most of their lives in their villages. But they travelled far to find foods, medicines, materials, and minerals that had sustained their communities for several generations. To Euro-Americans, Native mobility was a problem—an indication of Native peoples' lack of civilization, their backwardness, and their inability to modernize. By the same logic American officials in the 1820s and 30s had invented to legitimate the removal of eastern Native peoples to cramped reservations in Indian Territory, the United States endeavored to colonize its new southwestern territories by establishing control through confinement. As discussed earlier in this chapter, existing Spanish and Mexican legal precedents and parameters could—and did—complicate U.S. efforts to compartmentalize lands and resources and confine Native peoples' access to them. But in the case of the Zuni Salt Lake, the settler state's shrewd interpretation of existing legal landscapes and implementation of imported legal norms established a lasting structure of dispossession that systematically disempowered Zunis and other dependent Native communities from reclaiming salt resources.

Within the decade following the U.S.-Mexican War, American efforts to remove and restrict Native peoples produced residual effects that impacted multiple sovereign peoples at once. In 1855, New Mexico territorial governor David Meriwether made a treaty with Navajos that transferred vast swaths of grazing and hunting land used by Zunis and other western Puebloan communities to the Navajo. Meriwether's badly evidenced territorial transfer included the Zuni Salt Lake and hundreds of acres surrounding it on all sides. While the Laguna Negra Treaty was never formally ratified, it signaled to Zuni leaders—especially longtime Governor Pedro Pino, who led Zunis through the establishment of their reservation in 1877—that the word of American officials, orders, and reports ought to be taken with a grain of salt. The U.S. Civil War and the U.S. Army's various campaigns against Navajos, Apaches, and other larger, mobile nations delayed negotiations among Zunis and the United States through the 1870s. In the interim, Zunis endeavored to establish a mutually productive relationship with the United States by raising corn

and grain for American armies, corresponding regularly with Indian agents, and cooperating with often ambiguous directives from government officials as the United States gradually reordered the southwest's sociopolitical landscape in ways more conducive to settler notions of land and resource use and territorial demarcation.[271]

By word and through actual practice, Zunis demonstrated to the United States that their small community depended upon a vast expanse of lands and resources—including the particularly sacred Zuni Salt Lake. And Zunis had legal documentation to prove it. According to George M. Wheeler's 1874 geological report on the continental west (also known as the Wheeler Survey, one of four major federally funded reports that provided the basis for the reorganization and incorporation of western territories), the Zuni's "grant from the Spaniards, or rather the Mexicans" extended "south by an east and west line through the [Zuni] Salt Lake." But when President Rutherford B. Hayes established the Zuni Reservation by executive order in 1877, "the leaders protested," to the United States' Pueblo Indian Agent "that it was entirely too small, and should extend, at least, to include the Zuni Salt Lake, some thirty miles below the bottom tip of the reservation line." Zunis argued that the 1689 grant attributed to Spanish governor Cruzate that formally enclosed the Pueblo of Zuni acknowledged the minimal possible perimeter of Zuni territory. The 1877 executive order reified existing legal boundaries but adopted them as the maximum possible perimeter. The Zunis' appeal ultimately fell upon the deaf ears, and the 1877 reservation created a cage confining the pueblo from more distant resources and sacred sites. For the time being, no one prevented Zunis from still travelling off the reservation and to the lake at least once per year to conduct vital rituals and obtain salt. But on American maps, the Zuni Salt Lake looked untethered from Zuni, floating unmoored in a sea of conquerable space.[272]

Besides (or perhaps because of) the shrinking of their lands, Zunis also faced cultural erasure. Contemporary Western anthropologists, ethnographers, and archaeologists assumed self-imposed responsibility to save what Euro-American practitioners believed were passively and hopelessly vanishing Indigenous cultures. Through the 1880s, southwestern pueblos like Hopi, Zuni, and Zia attracted particular attention from settler scholars who received support from eastern educational institutions as well as the federal government to conduct ethnographic fieldwork that might preserve Native cultural practices, beliefs, and materials before they disappeared. In 1879, John Wesley Powell founded the Smithsonian's Bureau of American Ethnology and promptly sponsored an inaugural research expedition focused on the study of Rio Grande pueblos, including the Zuni. Ethnographers James Stevenson, Matilda Coxe Stevenson, and Frank Hamilton Cushing also researched at Zuni through 1881. The Stevensons and Cushing arrived at Zuni amidst a moment of particularly tense intratribal politics, as tribal leaders like Patrico and Pedro Pino fought to expand the 1877 reservation boundaries to include essential grazing and farming lands in the Nutria Valley. Through political maneuvering and personal persuasion, Cushing gained access to sacred Zuni materials, practices, and knowledge—access he abused by disobeying requests from tribal elders and knowledge keepers, forging and replicating materials, and sharing sensitive

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[271] For the Laguna Negra treaty, see E. Richard Hart, *Pedro Pino: Governor of Zuni Pueblo, 1830-1878* (Logan, UT: Utah State University Press, 2003), 37-38. For Zuni cooperation with the United States through the 1850s and 60s, see Hart, *Pedro Pino.*

[272] For Wheeler's description of Zuni land claims, see George M. Wheeler, *Report Upon United States Geographical Surveys West of the One Hundredth Meridian* Vol. 1 (Washington, DC: U.S. Government Printing Office, 1889), 61. For "the leaders protested," see E. Richard Hart, "Factors Relating to Zuni Land, 1900-1951," in *Zuni Land Claims: Hearing before the House Subcommittee on Indian Affairs*, Serial No. 94-76, 94th Congress, September 10, 1976, in Mss. 142, Box 6, MLCP, UNM; for documentary evidence of Zuni complaints about the excessively restrictive 1877 reservation boundaries, see T.F. Ealy and Pueblo Indian Agent from March 6, 1880, cited in Hart.

knowledge beyond the pueblo. Though she clashed with Cushing, Matilda Coxe Stevenson earned an equally tarnished relationship among Zunis. According to an elder, Stevenson "was disliked by many Zunis" and "took advantage of the Zuni poverty" by entering sacred spaces like kivas without permission, removed and exported religious items to Washington, and taking photographs without consent. Despite her contentious initial introduction to Zuni as part of the Powell Expedition, Stevenson returned on the BAE's part to conduct more fieldwork between 1890 and 1904—during which she joined Zuni rain priests on an annual salt gathering expedition to the Zuni Salt Lake. Stevenson also published extensive observations about the lake's cosmological origins, both sacred and practical salt collecting rituals, and photographs of the lake.[273]

While government-sponsored anthropologists "salvaged" what information they could from the Pueblo of Zuni, the University of New Mexico (UNM) moved to take possession of the lake. Soon following the university's founding in 1889, UNM's first several presidents launched and sustained a campaign to establish New Mexico's saline lands as university property. When U.S. territories became states, ownership of salt resources was sometimes transferred from federal to state government. Such was the case for New Mexico in 1898, when Congress, in anticipation of New Mexico's eventually prolonged admission to the union, transferred "certain grants of land for various purposes" from federal possession to the territory. But unlike existing saline ownership laws, the 1898 act made a special stipulation granting "all saline lands in said Territory" to UNM for the study of minerals and mining.[274]

UNM's move to claim salt resources was also couched in commercial ambitions. In correspondence with legal representatives, territorial officials, and federal decision-makers, university officials argued that ownership of New Mexico's saline lands would generate much-needed revenue for the young university through the leasing of land and access to a cheapening yet more frequently consumed mineral. At the Zuni Salt Lake, commercial foundations were already in place, made possible by federal leasing and making the lake an ideal target for the university's efforts. When UNM president Clarence Herrick visited the Zuni Salt Lake in the fall of 1899, Herrick observed that "Natives in punts gather the salt with forks of numerous tines" to "fill the box-like barges which are then drawn to shore," where "the salt is washed with the clean brine to free [it] from the earthy impurities." According to Herrick, "there was piled upon the area some 600-800 tons of salt and operations had been going on for most of the summer"—a project managed by Socorro County manufacturers Jones and Rogers. By the early 1900s, UNM did

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[273] For an overview of ethnographic and anthropological fieldwork at Zuni through the 1960s, see Triloki Nath Pandey, "Anthropologists at Zuni," *Proceedings of the American Philosophical Society* Vol. 116, No. 4 (1972), 321-337. Cushing earned notoriety for his "adoption" (exploitation) of Zuni dress, language, practices, and other cultural facets; he was also inducted to the Bow priesthood. But his time at Zuni was mired in controversy, and Zunis who disapproved of his research methods and interactions with tribal members, materials, and spaces placed him on trial during his residency there. For more on Stevenson, see Darlis A. Miller, *Matilda Coxe Stevenson: Pioneering Anthropologist* (Norman, OK: University of Oklahoma Press, 2007). While there in 1879-1881, James Stevenson also visited the Zuni Salt Lake; Matilda consolidated these observations along with later ones and published the observations as a single chapter in 1904. For Stevenson's description of the cosmological origins and significance of the Zuni Salt Lake, see Matila Coxe Stevenson, *The Zuni Indians: Their Mythology, Esoteric Fraternities, and Ceremonies* (Washington, DC: U.S. Government Printing Office, 1904), 58-60. For Stevenson's description of salt gathering at the lake and photographs of the lake, see *The Zuni Indians*, 354-361.

[274] For "certain grants…" and the language of 1898 act, see Frank W. Clancy, brief in support of appeal before the Hon. Secretary of the Interior, *United States vs. New Mexico*, in A 002, Saline Lands Controversy, 1899-1901, Clarence Herrick Papers, CSWR, UNM. For an overview of salt's role in the refinement of silver ores, see J.V. Tingley, "Salt and Silver," *Nevada Geology: Quarterly Newsletter of the Nevada Bureau of Mines and Geology* (Summer 1990).

manage to secure claim to profitable saline lands that generated considerable amounts of annual revenue. The university did not, however, secure title to the commercially operable Zuni Salt Lake.[275]



Figure 17. Men harvesting salt from the Zuni Salt Lake, c. 1910s. Source: Folder 11, Box 117, Pict. 000 299, Eldred P. Harrington Photographic Collection, Center for Southwest Research, Zimmerman Library, University of New Mexico, Albuquerque, NM.

Native peoples' continued dependency upon the lake and its salt made it difficult for the university's aspirations to materialize. "In the southwestern portion of Valencia County, there are four sections of land containing […] salt lakes which the University is anxious to have located at once, so that they can be leased and derive a revenue from," territorial governor Miguel Otero reported to U.S. Indian Agent N.S. Walpole in September 1899. "Zuni Indians have been making many threats against the taking up of these sections," Otero warned Walpole, "stating that they would kill anyone who would attempt to take up these lakes." Otero requested that Walpole "take such steps as may be necessary to prevent any trouble arising between the Indians and the authorities." Subsequently, that December, the Commissioner of Indian Affairs requested that school officials "delay […] till an opportunity can be afforded to the several Indian tribes to present their claims, to the free use of the salt." Relevant Native communities seemed to have seized the opportunity to make those claims, "based on the fact that they [the Indians] have been in the habit of procuring all of the salt they need, at the lake, for many years, and that it would be unjust to deprive them of this ancient privilege, regarded by them as a right." This was reason enough for the Territorial Land Commission to pass a resolution in 1901 "granting the Indians the right take salt for their own use as has always been the custom." The Commissioner also maintained support for Zunis and other dependent peoples and nations, and

> stated that his office would acquiesce in the approval of lists of saline lands, if any lease of such lands, when submitted for approval, shall contain the clause mentioned provided the Department is of the

[275] For UNM's commercial interests in New Mexico's salt resources, see various correspondence in UNM A 002, Saline Lands Controversy, 1899-1901, Clarence Herrick Papers, CSWR, UNM. For Herrick's description of the lake, see Clarence Herrick to Frank Clancy, December 18, 1899, in A 002, Saline Lands Controversy, 1899-1901, Clarence Herrick Papers, CSWR, UNM.

> opinion that such a provision in a lease would adequately protect the rights of the Indians.[276]

In collaboration with the General Land Office, the Office of Indian Affairs ultimately advised the governor of New Mexico "that should any lease be made of saline lands there must be a clause inserted therein providing that the Indians shall not be in any way molested or hindered in the procurement of salt for their own use." These directives from federal officials might have foreclosed the possibility of Native peoples engaging in commercial salt collecting and, ultimately, may have done little to protect the Zuni Salt Lake from overextraction. But they also provided a temporary bulwark against the university's wholesale seizure of the lake, its salt, and its surrounding acreage.[277]



Figure 18. Salt crystalized on the surface of the Zuni Salt Lake, c. 1910s. Source: Folder 11, Box 117, Pict. 000 299, Eldred P. Harrington Photographic Collection, Center for Southwest Research, Zimmerman Library, University of New Mexico, Albuquerque, NM.

Federal oversight temporarily saved the Zuni Salt Lake from seizure by UNM. Federal officials had acted because the lake's dependent Native communities prompted them to do so; despite the lake's distance from the Zuni Reservation, Zunis and Hopis in particular continued to travel to and from the lake to collect salt, reconnect with the lake, and fulfill spiritual requirements critical to their survival during an especially tumultuous period of change. But the 1898 law transferring ownership of saline lands to the Territory of New Mexico soon prevented Zunis and other dependent Native communities from securing any legally recognizable title and stewarding the lake to their own liking. In the hands of the territory, the lake fell into cycles of commercial production and managerial turnover. Commercial salt production subsequently transformed the lake's immediate landscape, its relationship to Zunis and other Native peoples, and the value of its salt. By 1902, the lake hosted a small settlement of Mexican salt harvesters who used coke forks

[276] Correspondence of the Commissioner of the General Land Office, May 9, 1902 in UNM A 003, Saline Lands Controversy, 1902-1906: Reports, William Tight Papers, CSWR, UNM.
[277] Governor Otero to N.S. Walpole, September 27, 1899, in Mss. 987, Box 1, Folder 3, New Mexico Indian Affairs Historical Documents, CSWR, UNM. For all quotations pertaining to the Commissioner of Indian Affairs, see correspondence of the Commissioner of the General Land Office, May 9, 1902 in UNM A 003, Saline Lands Controversy, 1902-1906: Reports, William Tight Papers, CSWR, UNM.

to break up and dig out the salt before pitching it into small punts. Manual salt production yielded roughly 1,000 tons of salt per year, sold at a rate of $2 to $2.50 per ton to regional ore refineries and stock yards. Starting in 1910, New Mexico Territory began leasing mineral rights to the lake to Frank Hubbell, who expanded commercial operations and, by 1930, doubled annual production. Because of this, Zunis and other Native peoples came less and less frequently and left fewer gifts at traditional shrines and offering sites. A post office replaced pre-Spanish pueblo ruins, heaps of soon-to-be-shipped salt crowded the lake's shores, and well-trodden pilgrimage trails became wagon roads. "When the White people took up ranches and land […] and the State finally got hold of it," Zuni tribal councilman Lorenzo Chavez later testified to Congress, "we couldn't even get salt. That was in 1919." To make matters worse, a 1918 act of Congress prohibited any further amendment of Indian reservations in the newly admitted states of New Mexico and Arizona except by subsequent congressional legislation. At the time, the Zuni Salt Lake seemed legally irrecoverable.[278]

Contemporaneously, settler industry intruded upon Native peoples' past and present connections to more-than-commercially valuable salt resources elsewhere besides the Zuni Salt Lake. In 1919, the long-delayed creation of Grand Canyon National Park opened the eastern Grand Canyon—where Hopis conducted an important pilgrimage required for young men's completion of the Wuwutcim, which initiates young Hopi men into adulthood—to recreational tourism and, subsequently, exploitative ethnographic study. Resulting ethnographic and archaeological research on the Hopi Salt Trail leading from the Hopi village of Oraibi into the eastern Grand Canyon yielded publications revealing the location of sacred shrines as well as sensitive rituals. Further south, near Camp Verde, Arizona, salt mining resumed in the Verde River Valley. Since 1871, Camp Verde hosted the U.S. miliary and served as a provisioning and staging center for campaigns against Apache, Yavapai, Tohono O'odham, and other southwestern peoples that lasted through the 1890s. By the 1920s, the region had chemical and mining companies. In 1925, Western Chemical Company opened a sodium sulfate mine two miles from Camp Verde, and introduced the highly productive (and ecologically disruptive) steam shovel and air drill to excavate mass quantities of salt—upwards of 100-150 tons per day. Less than a year after the opening of the operation, the company's salt workers (a workforce consistent of Apache, Mexican, and American men) found mummified remains of ancient miners, which was "badly broken up by the shovel operations, the head being completely lost," according to a May 1926 *Verde Copper News* report. The unintentional excavation of ancient salt miners and their equipment invited investigation from the American Museum of Natural History and a host of settler archaeologists, who sent human remains, tools, and other items of cultural patrimony to the University of Arizona, the Arizona State Museum, the Smithsonian, and other settler institutions. In 1949, the ancient salt miners' remains, rather than being repatriated, were "disposed of" and de-accessioned from the Arizona State Museum and the University of Arizona because they were too "gruesome" and in deteriorating condition.[279]

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[278] Frederick Crawford Robinson, "Zuni Salt Lake," Mss. 714, Box 1, Folder 8, Edith Cherry Historic Preservation Papers, UNM. For "when the White people…," see statement of Lorenzo Chavez, "Zuni Land Claims," MLCP, UNM. For the 1918 legislation restricting adjustments to Indian reservations in New Mexico and Arizona, see statement of Pete V. Domenici, "Zuni Land Claims," September 10, 1976, MLCP, UNM.

[279] After the federal government established it as a forest preserve in 1893, the Grand Canyon became a critical place at which federal agencies imagined, envisioned, and enacted new concepts of conservation often antithetical and oppositional to local Indigenous stewardship and subsistence practices; see Karl Jacoby, *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley, CA: University of California Press, 2001), 148-191. The Hopi Salt Trail was still in use for the purpose of the completion of the

Through the 1930s, Native peoples in Arizona and New Mexico seized new, sometimes necessary opportunities to utilize local salt resources. During the Great Depression, commercial mines across the southwest provided Native men with jobs. When the Arizona Chemical Company took over rock salt mining operations at Camp Verde in 1930, half of its 75-man workforce consisted of Apache men who dug tunnels and mechanically hauled halite (rock salt) at a rate of 100 tons per day. The federal government also aimed to revive Native economies hit hard by the Great Depression with the 1934 Indian Reorganization Act (IRA). As the foundation for the Indian New Deal, the IRA leveraged federal resources and authority to facilitate economic development as well as cultural revival and preservation. At Zuni, the increased involvement of the Bureau of Indian Affairs allowed the pueblo to pilot a new stock provisioning and salt hauling agreement with Zuni Salt Lake lessee I.N. Curtis (who rented access rights to the lake from the state of New Mexico) that exempted Zunis from state fees and formally restored Zunis' access to the lake's shoreline acreage. The salt hauling plan also created new jobs for Zunis, provided resources like hauling trucks to the pueblo, and supported Zuni livestock provisioning. While the Zuni Salt Lake provided the Pueblo of Zuni and possibly other Native communities with necessary commercial relief, it did not lose its deeper symbolic, spiritual, and sentimental value. In 1946, after completing several commissions at Grand Canyon National Park, Hopi artist Fred Kabotie memorialized Hopi connections to the Zuni Salt Lake with a permanent mural at the Painted Desert Inn. The painting details the trials endured and trails travelled by salt gatherers to reconnect with the Salt Woman.[280]

The Indian New Deal played a major role in transforming relations between federal and state governments and southwestern tribes as well as between Native peoples and lands and resources critical to their communities' livelihoods, economies, and cultures. Hardly a perfect fix for the damage caused by decades of allotment, territorial dispossession, and economic depression, the Indian New Deal provided Indigenous peoples across the southwest with new opportunities to reclaim their economic, cultural, and political autonomy. Most critically, the Indian New Deal

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Wuwutcim in 1912, when Don Talayesva completed the pilgrimage with war chief Talasvuyauoma and his father, Duvenimptiwa. For Talayesva's reflections upon the salt gathering expedition, see Don Talayesva and Leo Simmons (ed.), *Sun Chief: The Autobiography of a Hopi Indian* (Second Edition. New Haven, CT: Yale University Press, 2013), 165-186 and 232-267. Talayseva's account of the salt gathering expedition was first published by anthropologist Mischa Titiev in 1937; for a focused description of the expedition and its origin and significance in Hopi society, see Mischa Titiev, "A Hopi Salt Expedition," *American Anthropologist* Vol. 39, No. 2 (1937), 244-258. According to more recent, collaborative research including active participation by and consent from Hopi tribal representatives, new "research on the Hopi salt pilgrimage trail […] was sponsored by the Hopi tribe to collect information needed to secure rights to continue use of the trail and its associated shrines"—a possible suggestion that conservancy and land use regulations in the Grand Canyon still systematically deny Hopis the right to access sacred and historically significant grounds, places, and resources; see T.J. Ferguson, G. Lennis Berlin, and Leigh J. Kuwanwisiwma, "*Kukhepya*: Searching for Hopi Trails," in James E. Snead, Clark L. Erickson, and Andrew J. Darling (eds.), *Landscapes of Movement: Trails, Paths, and Roads in Anthropological Perspective* (Philadelphia, PA: Univ. of Pennsylvania Press, 2009), 33. For a comprehensive site history of Camp Verde, see Nancy Jo Chabot, "Back from the Salt Mines: Reinterpreting the Verde Salt Mine Site," Master's Thesis, Department of Anthropology, State University of New York at Binghamton, 1984. For excerpt from the *Verde Copper News*, see Chabot, "Back from the Salt Mines," 13-14.

[280] For Apache workers at Camp Verde, see "Camp Verde Salt Mine," Hudson Institute of Mineralogy, via mindat.org, https://www.mindat.org/loc-45093.html. For the salt hauling plan at Zuni and ensuing discussion among the Bureau of Indian Affairs and Zuni officials, see "Salt Plan" and correspondence between Commissioner of Indian Affairs and Henry Gaspar, in Box 4, Folder 4, Mss. 509, Sophie Aberle Papers, UNM. For background on Kabotie's commission at the Painted Desert Inn and the inn's history, see Meghan Drueding, "The Many Lives of Painted Desert Inn," *National Trust for Historic Preservation* (February 27, 2017), https://savingplaces.org/stories/the-many-lives-of-painted-desert-inn.

provided the foundation for subsequent legislation—namely the Indian Claims Act of 1946—that invited tribes to formally establish grievances against the United States and appeal for the reclamation of stolen lands and resources. For Zunis, this meant an opportunity to address nearly a century of injustice against the Salt Woman.

Entrusting the Zuni Salt Lake

"We do not know why," Zuni governor Edison Laselute admitted aloud to his congressional audience, "when President Rutherford B. Hayes established by Executive Order a very small Zuni reservation in 1877, he did not include our sacred Zuni Salt Lake." It was 1976 when Laselute and dozens of other Zuni political and spiritual leaders, like multiple generations that preceded them, sought to formally reclaim their community's claim to the Zuni Salt Lake. For nearly a century following the establishment of Zuni reservation lands, the Pueblo of Zuni tried multiple times by multiple methods, "to add those few small acres to [their] reservation." Still the Zuni Salt Lake remained just beyond Zuni's reach. The lake's original omission frustrated and confounded Laselute and other Zuni leaders. Even though it was "in desolate, defiled and degraded condition," the lake was still priceless to the Zuni people. But Laselute could more clearly see why it had been so hard for his predecessors to repair the mistake. "In those years since" the federal government's re-territorialization of Zuni lands, Laselute lamented, "the White Man has attempted to exploit the few minerals in our lake," an imbalance owed to the peculiarities of the ownership and regulation of colonized salt resources. Through the past century, the legal, economic, and political structures of U.S. settler colonialism had made it harder and harder for Zunis to reclaim their salt lake.[281]

The first opportunity that would have allowed Zunis to establish formal title to the Zuni Salt Lake turned out to be a major obstacle in the tribe's prolonged effort to do so. The 1946 Indian Claims Act established the Indian Claims Commission (ICC), a judicial arbitrator that allowed tribes five years to file a claim against the United States for monetary compensation for stolen lands and other wrongdoings. By 1951, Zunis missed the appeal window. The blame fell upon the Bureau of Indian Affairs (BIA). When the claim window opened, Zuni was governed by Leopold Eriacho, a vocal critic of the Bureau of Land Management (BLM), self-proclaimed adversary of the BIA, and staunch defender of traditional Zuni governance. Put off by Eriacho's anti-government politics, the BIA put little effort into communicating to Zuni officials their rights to file a claim; in the four and a half years following the opening of the claim window, the BIA held no meetings regarding Zunis' eligibility or interest. With the close of the claims window fast approaching, BIA officials moved to conclude its bureaucratic responsibilities. In 1951, BIA official Dewey Dismuke managed to secure the signature of Eriacho's successor, Conrad Lesarlley, on a letter stating "that the Zunis know of no present claims." Wielding the weapon of fine print legal jargon, Dismuke also convinced the governor to sign an affidavit that disavowed Eriacho's knowledge of any potential claims Zuni might wish to make against the United States. The contents of the letters had been communicated verbally, and no translator nor interpreter had been there to aid the governor and councilmen in understanding the documents' contents, let alone reading them for themselves. Dismuke felt "it would have been inappropriate for a government official to encourage an Indian tribe to sue the Federal government." Dismuke also believed Zunis,

[281] Statement of Edison Laselute, "Zuni Land Claims," September 10, 1976, MLCP, UNM.

being "more disorganized than any of the other Pueblos," incapable of building a worthwhile case.[282]

The closing of the ICC window in August 1951 further delayed Zuni efforts to pursue any kind of monetary or legal recourse through the federal government. What's more, the ICC debacle irritated the Pueblo's existent political factionalism; between 1955 and 1957, two opposing parties simultaneously claimed control of tribal government, further deepening divisiveness among tribal officials and its resultant stasis. This political unrest was self-reinforcing; since the passage of the IRA, Zuni government had failed to write and adopt a new tribal constitution that laid out explicit expectations for the responsibilities and function of the tribal government as well as the tribe's relationship with the federal government. Only in 1970 did Zunis adopt a new constitution. Until then, subsequent governors and tribal councils appealed to federal officials to re-open the claims window, but the BIA, Congress, and the White House declined to make an exception.

Then in 1972, after two decades of prolonged political fallout prompted by the fleeting passage of the ICC window, came an opportunity for the Pueblo of Zuni to bypass federal obstacles once and for all. Arizona utility company Tucson Gas and Electric (TGE) approached tribal officials with an aim to secure right-of-way to build power lines across Zuni lands. In exchange for the right-of-way, TGE offered Zuni $250,000—a sum large enough to purchase lease rights to the Zuni Salt Lake. According to tribal officials, Zunis intended to purchase access to the lake for religious, rather than commercial, reasons. Yet somewhat ironically, it was precisely because of the lake's commercial value that they were able to do so; unlike most other sacred sites across historic Zuni lands, the Zuni Salt Lake had a determinant price tag reflective of its value as a commercial mineral resource. With $250,000 from the deal with TGE, Zunis approached the lake's current lessees, Bryant Whiting and Milford Hall, with their own offer: $225,000 for the lake, its salt, and any existing mining equipment. Whiting and Hall, who had leased the lake since 1941 and had since allowed salt mining operations to fall to the wayside, agreed. In March 1973, Whiting and Hall sold their lease rights to the Zuni Salt Lake to the Zuni Tribe. Zunis intended to clear out old equipment, raze dilapidated industrial structures, and set about restoring the Salt Woman to a better state of health.[283]

But soon after purchasing their lake back, Zunis realized their purchase of the Zuni Salt Lake was inherently limited. Since 1796, the federal government claimed and retained title to any and all saline resources in federal territories. Exceptions to this rule were made in piecemeal fashion, the most significant having been a 1901 amendment to the 1872 Mining Act that opened "unoccupied" salt resources to "location and purchase" by private entities. But the 1901 amendment to placer mining law had little effect upon government authority over the management of salt resources; federal, territorial, and state officials fearful of the potential loss of revenue afforded by the sale of title to salt resources could depend upon the supremacy of federal sovereignty to retain governmental possession of salt resources. This was exactly what the state of New Mexico did in 1912 when the federal government's entitlement to and ownership of saline resources in New Mexico defaulted to the state. The state retained restrictions on the sale of salt resources "under any circumstances." When Zunis realized the limitations of their $225,000

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[282] Dismuke had admitted this in an interview with Richard Hart, a historian who had been hired by the Zuni to support their 1976 appeal to Congress in support of H.R. 4212/S. 877; see statement of Wayne Owens, "Zuni Land Claims," September 10, 1976, MLCP, UNM.

[283] Statement of Pete Domenici; questioning of Ted Krenzke and Ralph Reeser; "Consent to Grant of Easement for Right-of-Way and Agreement," November 2, 1972; and Robert O. Zillmer, "A Feasibility and Market Study of Zuni Salt Lake, Catron County, New Mexico," January 10, 1973, all in "Zuni Land Claims," MLCP, UNM.

investment and brought it to the attention of state officials, they found themselves up against decades of saline regulation law that, ultimately, prohibited the state of New Mexico from selling ownership of the lake to its oldest dependents. To retain title, Zunis needed to work through the federal government.[284]

Between 1973 and 1976, Zunis orchestrated an ambitious research and legislative scheme. Their goal was two-fold. First, Zunis had to convince Congress to allow the Pueblo to file a land claim legitimating their desire to reclaim lost land and resources; doing so was the only way to make the Department of the Interior (DOI) agree to a land swap with the state of New Mexico that would transfer the Zuni Salt Lake back to federal authority. A successful claim would also demonstrate the federal government's past negligence in the decades prior, not only absolving Zunis of responsibility for missing the claims window but also providing them with the political leverage necessary to make legitimate demands for restitution. Rather adeptly, Zunis identified the Zuni Salt Lake as their preferred form of "monetary" compensation stipulated by the ICA. If Zunis could achieve this self-conditional first task, their second aim was all but secure: convince the DOI to transfer the Zuni Salt Lake into tribal trust, thereby liberating it from all federal and state legal restrictions that had restrict Native peoples' access to stolen salt resources across the continent.[285] In 1976, Zuni efforts culminated in the introduction of two legislative proposals—H.R. 4212 and S. 877—that outlined their multistep proposal to formally transfer the Zuni Salt Lake to Zuni control. That September, the House Subcommittee on Indian Affairs hosted an extensive hearing that included the written and oral testimonies of four Zuni governors, multiple Zuni councilmembers, U.S. senators and congressman, tribal attorneys and research consultants, DOI and DOJ officials, and the governor of New Mexico. A wealth of written and testimonial evidence clarified the cloudiness of Zuni Salt Lake's most recent political turmoil by explaining the lake's more-than-commercial significance to Zunis, the seriousness of the BIA's negligence, and how state and federal laws that had long legitimated settler colonial seizure of valuable salt resources might be leveraged to redress the systematic injustices that had kept Zunis away from one of their most precious places. While H.R. 4212 and S. 877 passed but never left their respective congressional chambers, their contents were consolidated into Public Law 95-280, which authorized the transfer of the Zuni Salt Lake from the possession of the state of New Mexico, to the DOI, and into Zuni tribal trust. On May 15, 1978, Ma'k'yayanne—an area encompassing the Zuni Salt Lake and its immediate surrounding acreage—was added to the Zuni Reservation over a century after its establishment.[286]

Equally critically, Public Law 95-280 also included a provision allowing Zunis to finally file a land claim for monetary compensation. Rather conveniently, the long-delayed initiation of the Zunis' land claim case and the transfer of the Zuni Salt Lake into tribal trust coincided with the passage of the American Indian Religious Freedom Act (AIRFA). While it has its regulatory limitations, AIRFA expressly eliminates federal interference with the First Amendment rights of Native peoples to exercise traditional religious, cultural, and spiritual practices—including access to sacred sites. Together with the 1966 National Historic Preservation Act (NHPA), AIRFA provided Zuni with a foundation to establish the Zuni Cultural Resource Enterprise and, more broadly, initiate archaeological, historical, and anthropological research necessary to build a

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[284] Statement of Ted Krenzke; and questioning of Edison Laselute, Steve Lewis, and Wayne Owens, all in "Zuni Land Claims," MLCP, UNM.

[285] Barbara J. Mills and T.J. Ferguson, "Preservation and Research of Sacred Sites by the Zuni Indian Tribe of New Mexico," *Human Organization* Vol. 57, No. 1 (1998), 30-42.

[286] Mills and Ferguson, "Preservation and Research of Sacred Sites by the Zuni Indian Tribe of New Mexico."

winning case. Zunis sponsored research on 234 sites of historic, cultural, and spiritual significance, spanning as far east as the upper Rio Grande, as far west as the Grand Canyon, as far north as the San Juan River, and as far south as the Zuni Salt Lake. In May 1987, the Zunis' extensive land use claim "was upheld in its entirety," and the tribe won a $25 million settlement for lands, sacred sites, and resources stolen throughout the preceding century.[287]

The Zuni Salt Lake constituted the southernmost extent and therefore a central component of the Zuni's winning land claim. Because the claim aimed to establish evidence of historic *and* contemporary land use beyond the Zuni Reservation, Zunis sought to prove that their connections to the Zuni Salt Lake remained an important part of Zuni livelihood, subsistence, and sovereignty. Between 1979 and 1981, over two dozen Zuni religious and political leaders—in addition to Zuni and non-Zuni historians, archaeologists, and anthropologists—gave depositions detailing the lake's continuing significance to the Zuni people through the past century of American colonization. The depositions, given exclusively by Zuni men (because only men could join formal pilgrimages to the salt lake), revealed a range of relationships tethering Zunis to the Salt Woman. Several rain priests—the fraternal order responsible for organizing salt lake pilgrimages—gave calculated, conservative descriptions of prayer rites and other sacred practices that the Salt Woman required of her male visitors. Members of other fraternities and non-religious leaders who had joined pilgrimages in their youth as a rite of initiation recalled travelling by foot, by wagon, and, eventually, by car along the original trails first forged by the Salt Woman and War Gods. And while multiple deponents spoke of their people's special responsibility and relationship to the lake, Zunis declined to agree with American attorneys that access to the lake and its salt belonged to them exclusively. Despite over a century of attempts to commercialize and privatize the lake, the Salt Woman sustained Navajos, Hopis, and the pueblos of Acoma, Santo Domingo, and Laguna.[288] "Maybe it's going to end," reflected rain priest Mecalito Wyatsalucy in his 1980 claims deposition. Wyatsalucy was referring to the prayer- and practice-oriented pilgrimages to the Zuni Salt Lake that he had organized as a rain priest, and recalled how he "had to walk all the way" to the lake and stop at several shrines along the way. But "today because we have automobiles" Wyatsalucy said, "people go there and back without paying too much attention." Wyatsalucy's worry that Zunis' sacred connections to the lake might end was well-founded. Modern transportation, settler industries, and the privatization of grazing land surrounding the Zuni Salt Lake had indeed transformed Native peoples' relationships to the lake. But the persistence of those connections, whatever form they took, remained important to Zunis. Over a century after being formally dispossessed of the Zuni Salt Lake, Zunis maintained their responsibilities to and dependency upon the Salt Woman. They refused to allow reservation boundaries, industrial interests, and settler law to deter them from their salt lake, a persistence that ultimately enabled them to earn legal and financial restitution for a century of dispossession, negligence, and other injustices central to the machinations of U.S. settler colonialism in the southwest. Following the 1987 claims settlement,

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[287] Mills and Ferguson, "Preservation and Research of Sacred Sites by the Zuni Indian Tribe of New Mexico."

[288] For depositions from Zuni religious and political leaders recorded for *The Zuni Indians of New Mexico v. The United States of America* (U.S. Court of Claims No. 161-79L) that refer to the Zuni Salt Lake, see Mss. 815, Ward Alan Minge Papers, Box 6, Folders 15 and 16, and Box 7, Folders 1, 2, 3, 4, 5, 14, and 15, CSWR, UNM. In addition to Ward Alan Minge's papers at UNM, the Zuni Land Claims Cases Records at the University of Utah contains extensive evidentiary, testimonial, and judiciary documents pertaining to Docket 161-79L; see Boxes 1-61, ACCN 1200, Zuni Land Claims Cases Records, 1941-1991, University of Utah Libraries Special Collections, Salt Lake City, UT, https://archiveswest.orbiscascade.org/ark:80444/xv28125#overview.

it might have looked to Zunis that the long battle to secure their rights to the Zuni Salt Lake was finally at its end. But another threat loomed off the lake's eastern horizon.[289]

Saving Salt Woman

"I haven't seen any project in northern Arizona or New Mexico that the Zuni don't object to because of it being sacred ground," Arizona state representative Jake Flake complained to the *Arizona Tribune.* It was December 2001, and an increasingly contentious legal battle among the states of Arizona and New Mexico, the Salt River Project (SRP), the Pueblo of Zuni, and multiple federal offices had spilled out of state congressional chambers, away from environmental impact study sites, and beyond boilerplate governmental correspondence and into packed public hearing rooms, onto desert-dusted sidewalks outside corporate headquarters, and across local newspapers columns. After a decade of bureaucratic deference, SRP had earned federal and state endorsement to begin construction on its proposed Fence Lake Mine, an 18,000-acre strip mine, ten miles away from the Zuni Salt Lake. Zuni and other nearby tribes had expressed concern over the mining project's potential impact upon environmental and cultural resources in Catron County, New Mexico since the project's inception in 1983. Tribes pushed for more thorough environmental impact assessments, more thoughtful consultation, and more honest communication. But the mining project's proponents in state legislatures, the DOI's Office of Surface Mining (OSM) and Bureau of Land Management (BLM), and the Department of Energy (DOE) had grown impatient. In July 2001, the DOI granted SRP federal authorization to build its mine. Almost instantaneously, an alliance of tribes and environmental organizations launched "a war of litigation" that "promised, not threatened" to "hold the project upon for 20 years in federal courts" and beyond. For Zunis and other Native peoples, the Fence Lake Mine threatened sacred ground. But for proponents of the southwestern coal industry (like Representative Flake, who joined the project's vanguard in the Arizona legislature), the increasingly public and ever-prolonging campaign to kill the mine looked less noble and more nitpicky. "If it was their [Zunis] sacred ground," Flake suggested, "why didn't they buy it? I say let's move on with civilization."[290]

Apparently unbeknownst to Flake, Zunis had bought the sacred Zuni Salt Lake. They had invested a century of time, millions of dollars into research and legal expenses, and exactly $225,000 for the lake's lease rights to protect the Salt Woman from any further abuse. And it still had not been enough to keep settler exploits away. Between 1975 and 1987, while Zunis were preoccupied with the joint effort to claim title to the Zuni Salt Lake and to settle their land claims case, SRP began exploration drilling in the Salt Lake coal field. The proposed mine fell within what Zunis, Hopis, Acomas, Apaches, and Navajos considered the historic sanctuary zone surrounding the lake; it would also dig deep enough to potentially disrupt the Dakota and Atarque aquifers that hydrated the lake from below. What's more, the project included the construction of a railway that would haul coal to SRP's Coronado Generating Station in eastern Arizona—a route that traipsed through territories Zunis had only years prior proven to be historically and archaeologically significant. SRP singled out the Salt Lake coal field "as a low-cost viable alternative to all other sources of coal in the regional market" and projected that the new mine would produce a total of 81.3 million tons of coal through the following four decades, providing

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[289] Deposition of Mecalito Wyatsalucy, February 27, 1980, Box 7, Folder 2, Mss. 815, Ward Alan Minge Papers, CSWR, UNM.

[290] Joe Nullman, "Tribes Team Up to Oppose SRP Mining Project," *Arizona Tribune* December 1, 2001, Folder 19, Box 2, SCGCC, NAU. For "war of litigation," see Tom Purdon, "Tribes Unite Against Fence Lake Mine," *Gallup Independent* No. 148, Vol. 114, June 23, 2001, Box 2, Folder 19, SCGCC, NAU.

electricity to several hundred thousand Phoenix residents. While cutting utility and production costs, the Fence Lake Mine threatened the health of the irreplaceable Zuni Salt Lake, the Dakota and Atarque aquifers attached to it, hundreds of archaeological sites across the Zunis' historic use area, and the economic and political independence of tribal nations.[291]


SPECIAL FREE EDITION - HELP SAVE ZUNI SALT LAKE

The SHIWI MESSENGER

A Public Forum By, Of and For the Zuni Community

Protect Our Salt Mother and Our Sacred Zuni Salt Lake

Once it's gone, it will be gone...forever!

Help the A:shiwi stop the destruction of Zuni Salt Lake...
Say "NO!" to SRP & the proposed Fence Lake Coal Mine

PLEASE RECYCLE

Figure 19. Special edition of *The Shiwi Messenger*, Pueblo of Zuni's newspaper. This March 2002 edition focused on the fight to save the Zuni Salt Lake. Source: Box 2, Folder 19, Mss. 467, Sierra Club Grand Canyon Chapter Collection, Cline Library, Northern Arizona University, Flagstaff, AZ.

[291] George Draffan, "Profile of the Salt River Project," Center for Biological Diversity, October 4, 2001, Box 2, Folder 19, SCGCC, NAU. "Zuni Salt Lake Hydrology," Zuni Salt Lake Coalition, Box 2, Folder 19, SCGCC, NAU. "Coal mine OK'd despite environmental concerns," *The Arizona Republic*, June 1, 2002, Box 2, Folder 19, SCGCC, NAU.

SRP's first task was to prove the mine would have minimal environmental impact. Environmental impact studies (EIS) commenced as early as 1986, when SRP conducted initial exploratory drill and burn tests in the Salt Lake coal field. In 1991, the OSM and BLM authorized SRP's application for federal coal leases that allowed for mining on federal lands on the condition that subsequent EISs—required by the National Environmental Protection Act (NEPA)—indicate no serious disruptions to the Dakota Aquifer, one of the lake's primary groundwater sources. By late 1996, after completing two EISs (one for the BLM in 1990 and one for the OSM in 1996), SRP received a state mining permit from the state of New Mexico to begin operations starting in 1999. Zunis, for their part, were unsatisfied with the DOI offices' studies; they, and other Native peoples familiar with the Zuni Salt Lake's environmental delicacy, were concerned that the mine's massive demand for groundwater might starve the Salt Woman into nonexistence, a connection that went unacknowledged in federal EISs. Early in 2001, as SRP's state mining permit approached expiration, Zunis asked the Office of Indian Affairs (OIA) to authorize an independent cumulative hydrologic impact assessment (CHIA) on the mine's potential impact upon the Dakota and adjacent Atarque aquifers. Completed eleven years after the BLM's EIS and five years after the OSM's EIS (both of which were considered outdated by EPA standards), the CHIA revealed that the anticipated groundwater pumping rate—a minimum of 85 gallons and upwards of 300 gallons per minute—needed to settle the mine's coal dust was disruptive enough to dry out the Zuni Salt Lake within the mine's anticipated forty-year lifespan. The report also expressed concern over the possibility that chemical spills, coal dust, and equipment malfunctions might irreversibly pollute the aquifer. But the OIA's CHIA and subsequent pressure from Zunis, Acomas, Navajos, and Hopis to consider risk over reward did little to dissuade state mining officials. In July 2001, New Mexico's Mining and Minerals Division (MMD) renewed SRP's state permit on the condition that the company conduct a thirty-day pumping test indicating minimal impact upon the Dakota Aquifer. To add insult to injury, the MMD, unbeholden to federal law mandating consultation with impacted tribes, authorized the permit extension without asking or informing any of the impacted nations.[292]

Following the 2001 extension of the state mining permit, Zunis, Acomas, Hopis, and Navajos hoped to find greater sympathies and support for their shared concerns over the mine's environmental impact among federal officials. The mine, after all, encompassed federal, state, and private lands. And, ideally, NEPA could be leveraged to force federal compliance. SRP would also require the Environmental Protection Agency's (EPA) approval for a National Pollutant Discharge Elimination System Permit (NPDES)—a NEPA-mandated authorization that required highly impactive projects like the Fence Lake Mine to responsibly manage and mitigate potential pollutants. In the spring of 2002, soon after the extension of the state mining permit, Zuni officials—supported by the Center for Biological Diversity (CBD)—pressed officials from the OSM, BLM, OIA, EPA, and Congress to conduct a new EIS and allow for a new public comment period. In May 2002, the EPA opened the public comment period, which Zunis and the CBD seized

[292] "Record of Decision on National Pollutant Discharge Elimination System Permit NM0030244 for the Salt River Project Agricultural and Power District Fence Lake Surface Coal Mine Catron/Cibola Counties, New Mexico," United States Environmental Protection Agency Region 6, September 24, 2002, Box 2, Folder 20, SCGCC, NAU. Brian Segee to Brent Wahlquist, April 24, 2002, Box 2, Folder 20, SCGCC, NAU. "Supplemental CHIA, Fence Lake Surface Coal Mine Permit Renewal," July 11, 2001, Box 2, Folder 20, SCGCC, NAU. "Fence Lake Surface Coal Mine Permit No. 2001-04," Mining and Minerals Division, Energy, Minerals and Natural Resources Department, State of New Mexico, July 12, 2001, Box 2, Folder 20, SCGCC, NAU.

upon to articulate their case for the federal government's failure to comply with NEPA and to work in good faith with tribal and environmental stakeholders.[293]

But like before, the plea fell upon ears unwilling to hear them out. Unsurprisingly (though no less insultingly), the DOI authorized SRP's federal mining permit on May 31, 2002—the day the public comment period closed. Soon after, the EPA approved SRP's NPDES application. In its decision, the EPA declined to authorize another EIS, citing NEPA's lack of explicit instruction to do so. The EPA also disregarded the independent hydrological studies sponsored by Zuni and the OIA, basing its decision instead upon the OSM and BLM's outdated EISs and public comments received that May. The only potentially meaningful concession made by DOI and EPA was a prohibitive clause that prevented SRP from pumping from the Dakota Aquifer. Instead, SRP would need to pump from the Atarque Aquifer. But the OIA- and Zuni-sponsored hydrology reports had indicated, too, that the Atarque Aquifer was directly connected to the lake's groundwater supply, and that sustained pumping and the potential for pollution were enough to disqualify the aquifer's eligibility for exploitation by SRP. Because the lake "varies in natural depth over time from a few inches to a maximum of four feet," congressional officials later pressed upon DOI officials, "there is … little margin for error in protecting the Lake."[294]

Ignored by a pro-energy development DOI and betrayed by a barely compliant EPA, Zunis and four other impacted nations—Acoma Pueblo, the Ramah Navajo, Hopi Tribe, and Navajo Nation—pursued another avenue of action: their historic connections to the Zuni Salt Lake. From the start, SRP's endeavor was beholden to NHPA regulations that required assessments of the mine's potential impact on historic properties. In November 1993, leaders from the BLM, OSM, SRP, the Arizona and New Mexico State Historic Preservation Offices (SHPO), the Advisory Council on Historic Preservation, the Arizona State Land Department, and the pueblos of Zuni and Acoma (and eventually, in 1996, Hopi) reached a programmatic agreement establishing a "cultural resources mechanism … for consultation, dispute resolution, and consideration of unanticipated finds;" requiring OSM and BLM to uphold its NHPA responsibilities; and ensuring SRP's project proceeded with compliance. Subsequent permits from the state of New Mexico, the EPA, and the DOI required SRP to remain NHPA-compliance—especially as it began construction on the 44-mile rail corridor that would cut between the Pueblo of Zuni and the Zuni Salt Lake.[295]

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[293] "Record of Decision on National Pollutant Discharge Elimination System Permit NM0030244 for the Salt River Project Agricultural and Power District Fence Lake Surface Coal Mine Catron/Cibola Counties, New Mexico," United States Environmental Protection Agency Region 6, September 24, 2002, Box 2, Folder 20, SCGCC, NAU. Brian Segee to Brent Wahlquist, April 24, 2002, Box 2, Folder 20, SCGCC, NAU.

[294] "Mining Plan Approval Document No. NM-0034," United States Department of the Interior, May 31, 2002, Box 2, Folder 20, SCGCC, NAU. Stevan Pearce, Tom Udall, Pete Domenici, and Jeff Bingaman to Rebecca W. Watson and Aurene Martin, July 1, 2003, Box 2, Folder 19, SCGCC, NAU.

[295] Federal disregard for NEPA and for tribal interests was symptomatic of the federal government's contemporary pro-extractive climate. Immediately after taking office in 2001, President George W. Bush issued an executive order instructing federal agencies to expedite energy projects, production, and transmission. Bush, aided by Secretary of the Interior Gale Norton and BLM Director Kathleen Clarke, intended to develop "energy independence" by maximizing the commercial output of public lands and resources. Bush, DOI, and BLM did well in achieving their aims; between 1999 and 2004, the number of permits issued to energy developers like SRP increased by 500 percent, from 1,803 to 6,399, an uptick that, uncoincidentally, coincided with a comparable increase in acres opened and leased for mining, drilling, and energy development; see Charles Davis, "Regulating Oil and Gas on Federal Lands under Presidents Bush, Obama, and Trump," in Erika Allen Wolters and Brent S. Steel (eds.), *Environmental Politics and Policy of Western Public Lands* (Corvallis, OR: Oregon State University, 2020). "Programmatic Agreement among the Bureau of Land Management, the Office of Surface Mining Reclamation and Enforcement, the New Mexico State Historic Preservation Officer, the Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding the Identification, Evaluation, and Treatment of Historic

Since the project's initiation in the mid-1980s, Native stakeholders had expressed concerns that the mine and especially the rail corridor was likely to disrupt cultural resources. Zunis, Acomas, Hopis, Navajos, and Apaches reiterated these concerns during the EPA's May 2002 public comment period. Using archaeological and historical data collected during Zuni's land claims case, Native stakeholders identified seven salt gathering pilgrimage and trading trails that still tethered the Zuni Salt Lake to their communities at Zuni, Acoma, Hopi, and beyond. They also identified dozens of shrines along pilgrimage trails and the lake's shoreline—shrines, as Zunis had demonstrated in their land claims case, still sacred and essential to their connections with the Salt Woman. Besides the salt trails, the sanctuary zone encompassed some 5,000 archaeological sites, at least 500 of which had been identified as human burial sites. The deep history of Indigenous movement, subsistence, and worship across the sanctuary zone created a material mosaic mandating federal compliance with NHPA and, in the case of any potentially impacted human remains, the Native American Graves Protection and Repatriation Act (NAGPRA).[296]

To force DOI and EPA to abide by federal regulations regarding the Zuni Salt Lake's archaeological and historic significance, Zuni leaders presented their case to Congress. In July 2002, Governor Malcolm Bowekaty argued to congressional officials that federal decision-makers—namely the DOI—had "failed us [Zunis] in its obligations under existing law and trust responsibility" to protect the lake "and associated cultural resources from destruction." The main issue, Bowekaty charged, was the parameters by which the federal government assessed the value of natural and cultural resources. With regard to natural resource management, Bowekaty argued that NEPA rules had made it all too simple for the DOI to relinquish its obligations. Zunis "had to go through such great lengths and expend resources it does not have to prove … that the original hydrological studies were flawed," Bowekaty explained, suggesting that "American Indians and Alaska Natives protecting their sacred places should not have to carry the burden of proof with regard to environmental impact analysis for projects sponsored by federal agencies." Federal officials had also mismanaged cultural resources, too. Over 500 paleolithic, archaic, early Pueblo, and late Pueblo burial sites surround the Zuni Salt Lake on all sides. NHPA regulations classified most of these sites as Classification D, the lowest (and least significant) in a four-tier classification system. But for Bowekaty and his people, their ancestors could not be so abstractly (de)valued. "That is an abomination to our tribe," Bowekaty said bluntly. "Those are our history. Those archaeological sites are our history book." For Zunis, it was "impossible to rationalize the displacement of our ancestor's burials for the sake of making money."[297]

In the fall of 2002, just months after testifying to Congress for its assistance in compliance enforcement, Bowekaty and other Native stakeholders were proven right. Within weeks of the start of construction near the northwesternmost edge of the sanctuary zone, SRP's railway project unearthed seven human remains. At an avoidably steep price, the disturbances to ancestral remains turned the political tables; SRP's state and federal permits required the immediate cessation and reassessment of mining- and construction-related activites in the event of any disturbances to cultural resources, especially human remains. At the same time, Zuni Salt Lake Coalition (ZSLC), an expanding intertribal and interorganizational coalition that first formed in October 2001 in

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Properties Affected by the Fence Lake Coal Project," November 1993, and Leigh Jenkins to Charles Carroll, February 2, 1996, Box 2, Folder 19, SCGCC, NAU.

[296] "Record of Decision on National Pollutant Discharge Elimination System Permit NM0030244 for the Salt River Project Agricultural and Power District Fence Lake Surface Coal Mine Catron/Cibola Counties, New Mexico," United States Environmental Protection Agency Region 6, September 24, 2002, Box 2, Folder 20, SCGCC, NAU.

[297] Bowekaty in Senate Hearing 107-519, "Native American Sacred Places."

opposition to New Mexico's approval of SRP's state mining permit, ramped up its public campaign against SRP. Through 2003, as red tape slowed the railway's construction, ZSLC staged protests at SRP's headquarters, recruited state officials and local organizations to voice their support for the Zuni Salt Lake, and published news reports outlining the environmental, economic, and cultural stakes of the Fence Lake Mine and its now affirmably negative impact on Indigenous sovereignty, autonomy, and cultural heritage. By the summer of 2003, ZSLC's activism culminated in a public endorsement from the majority of New Mexico's congressional delegation—including congressmen Stevan Pearce and Tom Udall and senators Pete Domenici and Jeff Bingaman—that echoed Zuni, Acoma, Laguna, Hopi, and Navajo appeals to the DOI to issue a "moratorium which stays any further activity" until new environmental discoveries regarding the Atarque Aquifer and the construction-caused archaeological disturbances were properly accounted for. ZSLC's efforts also earned recognition from the National Trust for Historic Preservation, which identified the Zuni Salt Lake and the surrounding sanctuary area at risk of endangerment and exacerbating public and political opposition to the mine that threatened it.[298]



Figure 20. Twin Buttes High School student Conalyn Appa's painting protesting SRP's coal mine project. Source: Box 2, Folder 21, Mss. 467, Sierra Club Grand Canyon Chapter Collection, Cline Library, Northern Arizona University, Flagstaff, AZ.

[298] "Zuni Salt Lake," Sacred Land Film Project, November 1, 2003, https://sacredland.org/zuni-salt-lake-united-states/. Pearce, Udall, Domenici, and Bingaman to Watson and Martin, July 1, 2003, Box 2, Folder 19, SCGCC, NAU. "Application for the 11 Most Endangered Historic Places 2003 Nomination Form," National Trust for Historic Preservation, Box 2, Folder 19, SCGCC, NAU.

Then on August 4, 2003, two Zuni tribal councilmen interrupted a kiva ceremony to inform then Zuni governor Arden Quetawki of unexpected news. SRP, the councilmen told Quetawki, had pulled its state and federal mining permits and ordered the shutdown of construction at the Fence Lake Mine and its rail corridor. Officially, SRP announced that it had decided to finally abandon the mine because "it would be more economical to buy coal" elsewhere than to continue forcing through the Fence Lake Mine; according to the company's press release, SRP would source cheaper coal from a Wyoming provider. Covering its tracks with tepid explanations of the Fence Lake Mine's ultimate fiscal futility, SRP made no comment on how its railway had unearthed ancestral remains and upended the project's political momentum. Zunis, for their part, promised accountability. "Those bodies need to be reburied where SRP found them before SRP walks away completely in order to respect our ancestors," ZSLC leader and Zuni citizen Cal Seciwa assured amidst celebrations—a sentiment formally endorsed and echoed by councilman Arden Kucate and legally stipulated by NAGPRA. Until then, Zunis and their Native and non-Native allies applauded themselves for a victory twenty years in the making. "The pueblo of Zuni has very limited resources," reflected Quetawki during a celebratory interview, "but we defeated a big giant … what we've done is going to have a ripple effect."[299]

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August 2023 marks exactly two decades since SRP's "voluntary" permit revocation. At face, the collapse of SRP's project to strip the Salt Lake coal field may seem attributable to a(n) (im)perfect storm of bureaucratic overlap, legal entanglement, and a timely realignment of mineral markets and values. But the abandonment of the Fence Lake Mine was hardly an instance of happenstance. Rather, Zunis' triumph over settler priorities, political power, and paradigms of resource management and valuation was a result of over a century of persistence. While having spent much of the past 150 years of American occupation in the southwest struggling to secure access to one of their most valued historical and cultural resources, Zunis and other Native peoples refused to relinquish rightful claims to their past. In doing so, they strengthened their positions as sovereign peoples vis-à-vis the settler state, reinforced their unique responsibilities to cultural and natural resources, and saved the Zuni Salt Lake from exponentially extractive endeavors.

From the first salt gatherers who forged the first pilgrimage trails to the Salt Woman's shores to their descendants who defended their modern significance in spite of settler systems that threatened to silence them, Native peoples shaped salt's future and enduring significance in the southwest. Ultimately, the mine's contentious creation and eventual demise reveals the priorities, perils, and possibilities of settler governance—and how Native nations successfully martialed tribal sovereignty, historical evidence, and public and political support to mitigate the past, present, and potential threats posed by settler colonialism. More concretely, Native peoples' ability to successfully leverage their knowledge about and connections to salt resources has fostered real material payoffs in the form of land return, cultural and natural resource repatriation, and the successful leveraging of tribal autonomy. In the North American southwest and potentially beyond, salt resources remain central not only to the history of colonization, but to the decolonized futures.

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[299] "Zuni, Salt Lake Coalition celebrate victory," *The Independent,* August 8, 2003, Box 2, Folder 19, SCGCC, NAU. Brian Lalio, "Zuni Wins Battle to Save Zuni Salt Lake," *Shiwi Messenger* Vol. 9, Iss. 13, August 11, 2003, Box 2, Folder 19, SCGCC, NAU.

Conclusion

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As of the late summer of 2024, the Zuni Indian Tribe Water Rights Settlement Act sits in U.S. Congress. Fiscally, the legislation would create a $685-million settlement trust fund to finance the tribe's water infrastructure projects. Politically, the bill introduces regulatory measures designed to improve federal compliance with environmental law as well as tribal sovereignty. The act includes a third, more specific proposal: an explicit expansion of the Zuni Salt Lake and its surrounding sanctuary. The act would withdraw over 92,000 acres of federal land from the lake's sanctuary zone from public use, U.S. mineral law, and any form of mineral and geothermal leasing that might impact the lake and its surrounding sanctuary zone. If passed, the legislation would add another layer of protection to the Zuni Salt Lake and further solidify Zuni sovereignty relative not only to water management but saline stewardship. More plainly, it offers a reminder that salt's history, though significant, is no static nor strictly past matter. Salt's history is still being made.

While U.S. senators debate her fate, the Salt Woman sits soaking up the late summer sun. The heat heralds a familiar process; as the lake's water levels lower with the rising temperatures, a brilliant white crust appears at its surface. The simple, perpetual reproduction of that sacred substance signifies a unique cyclicality to salt's ancient place and power. In New Mexico—and elsewhere across a mostly (but not wholly) colonized continent—the cycles that cement salt's past, present, and future significance have faced considerable disruptions. Settler colonialism scourged the Salt Woman for nearly two centuries, culminating in an invasive mining plan that pushed the lake to the brink of starvation, unearthed cultural and ancestral patrimony, and threatened Zunis' unique relationship and responsibilities to the lake's stewardship. When the dispute over the Fence Lake Mine and its impact on Zuni Salt Lake reached a head in the early 2000s, the lake looked like it might be approaching its own final chapter. But its story continues—alongside steps toward stronger tribal sovereignty, toward territorial decolonization, toward decolonized futures. Salt's history remains alive, remade through ancient cycles of dissolution, disappearance, re-composition, and return. Salt naturally slinks in and out of invisibility, and yet it makes itself impossible to ignore.

Unearthing & Unsettling

What would North America be without its salt resources? It is indeed possible to write a history of North America without salt. But this dissertation exposes the limitations of that entrenched omission. It illustrates how salt has long been—and remains—central to matters of place-making, power, settler colonialism, and sovereignty across the continent. Since pre-human pasts, the continent's seemingly small salt resources informed how several generations of diverse actors interacted with local environments and, most critically, with each other within those environments. Since then, salt's value has varied significantly over time and across space, transformed by processes of settlement and resettlement, dispossession and repossession, conflict and coalescence. Though often hard to see, salt and its value never wholly dissolved. Rather the ever-expanding depth of salt's significance continued to shape how many peoples, polities, and powers used salt resources and understood their unique past, present, and potential value. This dissertation does not argue for salt's singularly transformative centrality relative to other minerals, resources, or commodities. Instead, it demonstrates the utility in unearthing the depth of salt's significance in and across North America, and how doing so unsettles the many histories hewn by and at salt resources.

Finding salt's forgotten significance is only the foundation for this dissertation. The many histories anchored to salt and its significance demand deeper temporal and more expansive spatial exploration—approaches attentive to the particularities of place and the depths of dependency, rather than conventional categories and chronologies. These approaches are especially urgent in North America, where ever-entrenching settler colonial systems of land use, resource management, and historical knowledge threaten Indigenous peoples' past and present ties to salt resources. This dissertation shows how tracing salt through time and across space allows for alternative historical approaches to the many histories, places, and peoples moored to a single mineral.

Future Research

The regional case studies featured in this dissertation are only a few of many potential place-focused examinations of salt in North America. There is no shortage of salt resources worthy of study, and, as this dissertation illustrates, even similar kinds of salt resources (i.e. licks, springs, or salt lakes and flats) evince unique histories. Hyperlocal geological, climactic, and other environmental contexts set seemingly identical salt resources apart from one another—contexts that dictated and distinguished place-particular patterns of settlement, sustenance, power, and production specific to certain kinds of salt resources. These particularities of place have long been the focus of rich archaeological work on salt use, production, and exchange across North America. But archaeology need not be the only point by which to access local salt resources and their historic significance. By integrating archaeological and archival research, this dissertation suggests how traditionally historical research can contribute to typically archaeologically-oriented studies of specific salt resources and their enduring significance across disciplinarily siloed historical periods or places. Besides expanding our understanding of salt and its many manifestations across North America, site-specific approaches might encourage historians to engage more precisely and more deeply with local ecological, social, economic, and technological contexts of mineral resource use, dependency, and production. Site-specific studies also allow for more comparative analyses between specific locales and resource categories that further explain salt's dynamic value across space and over time and, consequently, challenge temporal and spatial boundaries that sometimes fragment the continent's connected and contiguous pasts.

Future studies of salt might take a more expansive approach. This dissertation focuses specifically on—and argues for the overlooked significance of—local salt resources and their immediate use. But following European colonization, most salt consumed in North America was, initially, imported across the Atlantic and, eventually, produced by way of modern chemical production. Thus while this dissertation focuses on a single mineral and its varying significance across space and over time, it does not constitute a comprehensive study of salt as a commodity. More widely scaled, macroscopic studies might address the broader dimension of mass salt production, distribution, and consumption, particularly in seventeenth-, eighteenth-, and nineteenth-century imperial contexts. Doing so would further expand the scope of salt's significance into and across the Atlantic World, where empires produced and provisioned salt across greater aquatic, coastal, and territorial expanses. More contemporary commodity studies might address how the eventual modernization of transportation, chemical manufacture, and mining in North America during the late nineteenth and early twentieth centuries reshaped salt's value through the present, at a moment in which salt's ubiquity and universal accessibility has rendered the mineral relatively mundane in its commodity worth. A broader, more synthetic study of salt's strict commodity value would complement and provide currently lacking and long overdue context to site- and type-specific studies of salt use and production in North America.

Because of its diverse and dynamic value and utility, salt can expand and enhance our understanding of other specific themes and topics in North American historiography. This dissertation focuses specifically on settler colonialism, matters of sovereignty, and the environmental contexts in which those systems were situated. It pays particular attention to salt's unique situation in increasingly oppositional Indigenous and settler systems. Consequently, it makes several nods to related topics ripe for further research. Future studies of salt might focus, for instance, on the mineral's relationship to gender, labor, and production among salt-producing communities; in both Indigenous and colonial contexts, gendered divisions of labor, patterns of production, and sociocultural norms are central to how diverse dependents understood and interacted with places like the Zuni Salt Lake, salt resources used by Caddoan communities, and early Euro-American saltworks in Kentucky or Illinois. Other approaches may ignore humans entirely, and focus exclusively on how animals have used salt resources; from deer and bison who long forged roads to and from salt licks to migratory birds that still stop at salt flats and lakes to replenish themselves upon minerals and unique prey found in saltwater, animals and their dependencies upon salt resources provide multiple opportunities for novel interventions in the burgeoning fields of environmental history and animal studies. Still more opportunity awaits beyond organic contexts and beneath earth's surface; historians interested in the fields of mineral history or deep history might engage more directly with detailed research in geology, hydrology, and other earth sciences that explores salt's subterranean significance.

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We as humans seek salt to survive. It sustains our bodies' most basic functions. And so we often take it for granted. Many of us even avoid it, and cast it aside as an unnecessary supplement, a cheap commodity, a mineral of little material value. We ought to do the opposite. What if we actively searched for salt's significance? What if we saw salt as a powerful part of our past—and therefore still very much part of our present? What if we focused less on its invisibility, its tendency to disappear, and more on the power of its presence? Salt brings old and new histories to the surface. We should take care to stop and stoop down to touch and taste it—and to not take a grain for granted.

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William Henry Harrison Papers and Documents

Kentucky Historical Society (Frankfort, KY)
Ballard Family Correspondence

George May Letters
McDowell Family Letters
Special Collections – miscellaneous materials
Bodo Otto letter
Edward M. Taylor account book
Goose Creek Salt Works account ledger
Great Salt Lick Creek military land list
Hardin County research materials
Harry Innes letter to John Brown
Indian fortifications maps
Kentucky frontier survey maps
Simon Kenton deposition
United States Saline Company ledger

Mary Ambler Archives, Lindenwood University (St. Charles, MO)
George Champlin Sibley Papers, Lindenwood College Papers

Newberry Library (Chicago, IL)
Charles B. Johnson Papers
Erminie Wheeler-Voegelin Papers
George Croghan Letters
Oliver Wolcott Papers
Timothy Pickering Letters
William Blount Papers
William Johnson Papers

Oklahoma Historical Society (Oklahoma City, OK)
Encyclopedia of Oklahoma History and Culture Project Files
Federal Writers' Project Collection
Joseph Thoburn Collection

Southwest Arkansas Regional Archives, Arkansas State Archives (Washington, AR)
Vertical Files
Salt: Sevier County
Salt & Salt-Making

Spanish Archives of New Mexico I: New Mexico, Land Records of New Spain, 1692-1846 (digital access via Ancestry.com, courtesy of the New Mexico State Library)

Spanish Archives of New Mexico II: New Mexico, Civil Records of New Spain, 1621-1821 (digital access via Ancestry.com, courtesy of the New Mexico State Library)

Special Collections and Archives, Cline Library, Northern Arizona University (Flagstaff, AZ)
A.F. Whiting Collection
Desert Magazine Collection
Mary K. Allen Papers

Sierra Club Grand Canyon Chapter

Special Collections, Louisiana State University (Baton Rouge, LA)
Donald H. Kupfer Papers
J. Fair Hardin Collection
James S. Laroe diary
Juan Filhiol Correspondence

Special Collections, University of Utah Libraries (Salt Lake City, UT)
Zuni Land Claims Cases Records, 1941-1991

State Archives of New Mexico (Santa Fe, NM)
Lucien A. File Research Files

Western History Collections, Oklahoma University (Norman, OK)
Cherokee Nation Papers
Indian Pioneer Papers

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Interviews & Personal Communications

Email correspondence with Dr. Mark Wagner (Center for Archaeological Investigation, Southern Illinois University), July 17, 2023.

Email correspondence with Johnathan M. Rohrer (Tribal Historic Preservation Officer, Caddo Nation), April 20 – 23, 2022.

Email correspondence with Kurt E. Dongoske (Principal Investigator/Tribal Historic Preservation Officer, Zuni Cultural Resource Enterprise, Pueblo of Zuni), February 22, 2022 through May 20, 2022.

Heather Carey, “Native American Use of the Salt Springs in Gallatin County,” PowerPoint presentation delivered July 2023.

Phone interview with Heather Carey (Heritage Program Manager and Tribal Liaison, Shawnee National Forest, United States Forest Service), July 27, 2023.

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