

“...the whole river is a bustle some about their Children, Brothers and Husbands
and the rest of us about our salt.”

THE ANTEBELLUM INDUSTRIALIZATION OF THE KANAWHA VALLEY
IN THE VIRGINIA BACKCOUNTRY

A thesis presented to the faculty of the Graduate School of
Western Carolina University in partial fulfillment of the
requirements for the degree of Master of Arts in History.

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ABSTRACT

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The Kanawha River of West Virginia begins at the confluence of the New and Gauley Rivers. It runs northwest for 97 miles through south central West Virginia until it reaches the Ohio River at the town of Point Pleasant. The Great Kanawha Valley is an area long recognized for its rich resources. Although not always fully appreciated, the history of the valley is one of relentless and innovative exploitation of its bounty. The development of the Kanawha salt industry in particular, with its late eighteenth- early nineteenth century beginnings, presents itself as a valuable lens through which to examine the historical assumption of post-bellum Appalachian industrialization. An examination of the early Kanawha Valley salt industry exposes a valley near the nation's frontier which relentlessly pursued the industrial development of salt and monopolized the mineral's supply across swaths of the Great West. In doing so, valley salt-makers created innovations which are still the basis of oil and gas drilling today, severely degraded their environment, created a unique slave-labor community, and began a pattern

of relentless industrialization of the Kanawha Valley which continues to this day. This thesis intends to illuminate this early industry in the Kanawha Valley as a way of chipping away at myths of Appalachia and place Appalachian industrialization's beginnings far earlier than is commonly considered.

The introductory chapter focuses on the historiography of the Kanawha Valley, West Virginia and more importantly, Appalachia. It is important to establish why the proposed paper is important in the context of other writings, but more importantly, to help explore how the Kanawha Valley fits with past and present ideas of the Appalachian region.

Chapter one explores the Kanawha Valley as a focal point in Virginians' dreams of a commercial thoroughfare stretching from the Chesapeake Bay to the Mississippi River through Virginia. This includes discussions the formation of salt domes beneath the Kanawha River, the necessity of salt as a food preservative, and the mineral's role in early American society. The chapter then discusses Native American uses of the salt marshes in the Kanawha, European exploration of the Kanawha Valley, valley settlement, land speculation in the region, and the inception of the salt industry on the banks of the Kanawha River.

Chapter two begins with the early development of the commercial salt industry and follows that development until approximately 1815. The purpose of this is to root the Kanawha Valley salt industry in the larger context of the rise of the Ohio Valley's meat packing industry and the region's role in the international salted meat trade.

Chapter three explores the innovation which was integral to the industry, making the Kanawha Valley the site of a number of developments, techniques and inventions

which remain fundamental to the oil and gas well drilling industry to this day. This exploration of innovation marks the progress of the salt industry as well as serve as a contradiction to stereotypes of Appalachia.

Chapter four explores the nature of slavery that the Kanawha Valley salt industry relied upon. The Kanawha Valley salt-makers relied heavily on agricultural slaves leased from owners in eastern Virginia. This extremely heavy reliance on hired slaves for industrial work a mere forty miles from the freedom of Ohio suggests unique innovations may have existed in the nature of slavery. The industrial slavery of the Kanawha Valley not only suggests possible unique facets to bondage there, it also provides a new light in which to examine Appalachia, a region where slavery remains less studied than agricultural regions.

The thesis conclusion, points out the uniqueness of the Kanawha Valley. This thesis does not intend to suggest the post Civil War industrialization of Appalachia is incorrect, but that it cannot be assumed. This thesis serves to chip away at the assumption that the industrialization of the region was a post-Civil War event.

INTRODUCTION

The Kanawha River of West Virginia begins at the confluence of the New and Gauley Rivers. It runs northwest for 97 miles through south central West Virginia until it reaches the Ohio River at the town of Point Pleasant. The Great Kanawha Valley is an area long recognized for its rich resources. In 1784, George Washington wrote to then Governor Benjamin Harrison, “if the falls of the Great Kanawha can be made navigable, it will be found of equal importance to both the James and Potomac. Upon the whole, the object is, in my estimation, of vast commercial and political importance.”¹ Even in a region renowned for its natural wealth, this narrow river valley is particularly blessed with resources. Although not always fully appreciated or recognized, the history of the valley is one of relentless and innovative exploitation of its bounty. The development of the Kanawha salt industry in particular, with its late eighteenth- early nineteenth century beginnings, presents itself as a valuable lens through which to examine the historical assumption of post-bellum Appalachian industrialization.

In his book *Transforming the Appalachian Countryside: Railroads, Deforestation, and Social Change in West Virginia*, historian Ronald Lewis writes, “Appalachia is a region without formal history, beyond the physical reality of its mountains, ‘Appalachia’ is a socially constructed conceptual place, born in the fertile minds of the late-nineteenth-century local color writers...”² Lying in the heart of West Virginia, the Kanawha Valley

¹ Emery L. Kemp, *The Great Kanawha Navigation* (Pittsburgh: University of Pittsburgh Press, 2000), 6.

² Ronald L. Lewis, *Transforming the Appalachian Countryside: Railroads, Deforestation and Social Change in West Virginia* (Chapel Hill: University of North Carolina Press, 1998), 1. The writing of Mary Noialles Murfree, who used the pseudonym Charles Egbert Craddock, serves as an excellent example of local color writers’ descriptions of Appalachia and its residents. Charles

sits firmly in Appalachia. Geographically, West Virginia is the only state to lie entirely within the boundaries of Appalachia. West Virginians are often thought to epitomize what it is to be Appalachian. The “Mountain State” is saddled with a reputation for being inhabited by insular people. It is a region untrammelled by modern dentistry. Too simple, lazy, and drunken to capitalize on their region’s bounty following the Civil War, the people of the “hollers” left the natural wealth around them for outsiders to develop while they stared forlornly from dilapidated cabins or feuded.

To this day, these myths or stereotypes persist with methamphetamine replacing moonshine and double-wide trailers replacing primitive cabins. Even those who seem to revere these Appalachians often promote the idea of xenophobic lives spent in isolated poverty. The work of photographer Shelby Lee Adams serves as an example of this. Adams clearly exhibits a great deal of affection, even reverence, for his subjects, yet he inevitably portrays them in rustic, isolated settings. Trappings of modernity in his work, such as a satellite dish on the roof of a shack, only serve to emphasize the rusticity of their existence and the intrusion of the outside into a closed society.³ Anthony Harkins discusses the extraordinary tenacity of the mountaineer image in his book *Hillbilly: A Cultural History of an American Icon*.⁴ Harkins claims “the portrayal of southern mountain people as pre-modern and ignorant ‘hillbillies’ is one of the most lasting and pervasive images in American popular iconography, appearing continually throughout the twentieth century in nearly every major facet of American popular culture....”⁵ Even

Egbert Craddock, *In a “Stranger People’s” Country* (1891; repr., Lincoln: University of Nebraska Press, 2005).

³ Shelby Lee Adams, *Salt and Truth* (Richmond: Candela Books, 2011).

⁴ Anthony Harkins, *Hillbilly: A Cultural History of an American Icon* (New York: Oxford University Press, 2004).

⁵ Harkins, *Hillbilly*, 3.

within academic discussions, historians continue to deem it worthwhile to continue to refute this tenacious characterization before proceeding to their specific arguments. John Insoe cites Allen Batteau as offering, “In the Appalachian Studies industry an entire shop floor is devoted to the labor-intensive task of debunking stereotypes.”⁶

While the historiography of Appalachia may be rich, the Kanawha Valley has largely escaped historians’ attention. The valley’s shallow historiography persists despite the area’s long industrial history. The majority of writings specifically relating to the valley tend to fall into one of several categories: general regional histories, local histories, and industry-focused works. The perspectives offered by these histories vary, as one might expect from a diverse group of authors ranging from nineteenth century armchair historians to twentieth century chemical engineers.

The late nineteenth century gave rise to several general histories. A good representation of this type work is George W. Atkinson’s, *History of Kanawha County: From its Organization in 1789 until the Present Time; Embracing Accounts of Early Settlements, and the Thrilling Adventures with the Indians, Derived from History and Aged Citizens.*⁷ Perhaps the lengthiest book of this type is John P. Hale’s work, *History of*

⁶ Allen W. Batteau, *The Invention of Appalachia* (Tucson: University of Arizona Press, 1990), 7; John C. Insoe, *Race, War and Remembrance in the Appalachian South* (Lexington, University of Kentucky Press, 1998), 8. For other historian’s efforts to address the Appalachian stereotypes, see Henry Shapiro, *Appalachia on Our Mind: The Southern Mountaineers in the American Consciousness, 1870-1920* (Chapel Hill: University of North Carolina Press, 1978); Altina Waller, *Feud: Hatfields, McCoys and Social Change in Appalachia, 1860-1900* (Chapel Hill: University of North Carolina Press, 1988); John Ed Pearce, *Days of Darkness: The Feuds of Southern Kentucky* (Lexington: University of Kentucky Press, 1994); Dwight B. Billings, Gurney Norman and Katherine Ledford, *Back Talk from Appalachia: Confronting Stereotypes* (Lexington: University Press of Kentucky, 2001).

⁷ George W. Atkinson, *The History of Kanawha County: From Its Organization in 1789 Until the Present Time: Embracing Accounts of Early Settlements, and Thrilling Adventures with the Indians Derived from History and Aged Citizens; Also, Biographical Sketches of a Large Number of the Early Settlers of the Great Kanawha Valley* (n.p.:Office of the West Virginia Journal, 1876).

the Great Kanawha Valley.⁸ First published in 1891, its two volumes contain nearly 300 pages each. Books such as this tend to focus on prominent white men, industry, and major events. An element of boosterism permeates these books touting the charms of the area and the great natural advantages offered by the Kanawha Valley. Often, these histories tend toward the romantic, with narratives of Native Americans kidnapping settler women and daring adventures in the wilderness.⁹ Despite their prominent role in Kanawha Valley history, the enslaved fail to appear meaningfully in early historiography. Works of this type fostered the stereotype of the Mountain South as an exotic land apart in the midst of late nineteenth and early twentieth century progress.

As the capital of West Virginia and its largest city, Charleston has been the subject of a number of local histories. These books tend to rely heavily on photographs with accompanying comments to relay their story. Often self-laudatory works, they frequently mark the anniversary of past events. Stan Cohen's, *Kanawha County Images: A Bicentennial History 1788-1988* serves as a good example of this genre.¹⁰ Books of this genre feature many old photographs of civic architecture, old mansions, men of local civic stature, and industrial complexes accompanied by brief discussions of local historical highlights. Such studies are informative for the academic reader because they provide visual documentation of the industrial growth. Also noteworthy, is a pronounced emphasis on urban/industrial development. The photos depict the Kanawha and Elk Rivers primarily as avenues for expansive commerce. The images also effectively convey

⁸ John P. Hale, *History of the Great Kanawha Valley* (Gauley Bridge, WV: Gauley and New River Publishing Company, 1891).

⁹ Hale, *History of the Great Kanawha*; Atkinson, *The History of Kanawha County*.

¹⁰ Stan Cohen, *Kanawha County Images: A Bicentennial History 1788-1988* (Charleston, WV: Pictorial Histories Publishing Company, 1987).

the industrial rather than pastoral nature of the valley from its early days to present. The images of the narrow river valley illuminate the tight physical constraints on residential, commercial, agricultural, and industrial development dictated by the mountainous terrain.

As might be expected from an industrial region, the Kanawha Valley arises in industry-specific writings. These industry-focused works tend to fall into two categories, those written by industry outsiders, and those written by industry insiders. Mining and shipping coal has long been a focus of the region's industrial efforts. However, with the exception of cannel coal in the nineteenth century, the Kanawha Valley consumed most of its own coal and thus shipped comparatively little. The generally local consumption of Kanawha Valley coal may contribute to its lack of prominence in early coal mining studies when compared to Virginia's earliest coal fields outside of Richmond and fields in counties south of Kanawha County, such as Logan County, which figures prominently in mining and labor histories.¹¹

Another type of industry specific literature is the body of work written by the companies or trade groups for an industry. Brief works such as *The Salt Industry in the Kanawha Valley*, written for the Chlor-Alkali company, tend to be written for the general public.¹² They tout the important civic contributions of a particular industry or company in the valley. In these offerings, companies are solid corporate citizens who provide jobs,

¹¹ Rebecca Bailey, *Matewan, Before the Massacre: Politics, Coal and the Roots of Conflict in a West Virginia Mining Community* (Morgantown: West Virginia University Press, 2008); Phil Conley, *History of the West Virginia Coal Industry* (Charleston: Education Foundation Inc., 1960). For a notable exception, see V. B. Harris, *Kanawha's Black Gold and the Miners' Rebellion* (Ann Arbor, MI: Braun-Brumfield Inc., 1987).

¹² *The Salt Industry in the Kanawha Valley* (South Charleston, WV: Chlor-Alkali Division of Food Machinery and Chemical Corporation, 1960); Bill Drennen, *One Kanawha Valley Bank: A History* (Charleston, WV: n.d.); Franklin Johnston, *A Brief History of Chemistry in the Kanawha Valley* (n.p.: American Chemical Society, 1977).

security, and the prospects of a better life. These pamphlets functioned primarily as public relations tools. Photos, which are included liberally, tend to be of factories and chart the growth of industrial complexes over time. Photos of industrial complexes generally provide little or no background for context. Factories fill the entire field of the photographs. Interestingly, they seem to include few photos of people, favoring expanding buildings and machinery as signs of their worthiness and place in the community.

While not tied to a specific industry, Emory L. Kemp's work, *The Great Kanawha Navigation*, focuses on industrial progress.¹³ Kemp charts the monumental efforts required to change the Kanawha into a river safely navigable for industrial shipping requirements. The Kanawha had long been part of prominent Virginians' schemes to create an inland waterway through their state from the Atlantic Ocean to the Mississippi River. Kemp, a professor of history and civil engineering at West Virginia University, created a detailed analysis that focuses almost entirely on the actual techniques and construction of the complex system of locks. The writing is nearly unintelligible to readers without a high degree of civil engineering knowledge. Nevertheless, the book conveys the extraordinary difficulty and expense involved in later efforts to subdue the river, efforts which began at the behest of the earliest salt manufacturers.

While the importance of Kanawha Valley salt in the nation's history remains largely unrecognized today, several historians have written on the subject. Most notably, West Virginia's Shepherd University historian, John Edmund Stealey, wrote extensively

¹³ Kemp, *The Great Kanawha Navigation*.

on every imaginable aspect of salt manufacturing in the Charleston area. His books and papers provide a deep understanding of the nature of life for settlers and salt-makers in the valley. In particular, Stealey's use of the correspondence of salt firm Dickinson and Shrewsbury is enlightening. Joel Shrewsbury and William Dickinson, early settlers and partners, created the largest salt-making firm in the valley. Courts preserved their letters after they were required for a protracted lawsuit by Dickinson to dissolve the firm. As operators of a highly diversified firm, their letters touch on subjects pertinent to nearly every conceivable way to create wealth in the Kanawha Valley. Another useful facet to the body of Stealey's work is his inclusion of slaves. His paper "Slavery and the Western Virginia Salt Industry" is remarkable for its specificity as well as its attention to a group that all too often fails to appear in the history of the industries in the area. Throughout Stealey's body of work on the subject, he presents salt-makers as ingenious entrepreneurs who re-envisioned and reshaped their businesses and the valley as necessary in the pursuit of profit.¹⁴

A survey of the historiography of the Kanawha Valley and the broader Appalachian historiography raises several questions which bear closer examination. The highly industrialized nature of the Kanawha Valley contradicts Appalachian stereotypes. However, once one moves past heavily covered ground, the industrialization of the valley still presents a quandary. Despite academics' worthy efforts to prove that Appalachia is not a land apart within the nation's midst, there remains an acceptance that it once was an isolated netherworld, violently ripped open by the Civil War. Such an assumption

¹⁴ John E. Stealey, "Slavery and the Western Virginia Salt Industry," *The Journal of Negro History* 59, no. 2 (April 1974): 105-131.

underpins the excellent books of historians John Alexander Williams, Altina Waller, and Ronald Lewis among others.¹⁵

It may be argued that few better convey an understanding of what Appalachia is and what it means to be “Appalachian” than Williams does in his masterful work *Appalachia: A History*.¹⁶ Williams’ Appalachia is a varied, dynamic, and fluid environment rather than a region that moves more slowly through time. Williams is careful not to discount the economic motivations driving Appalachian history. Indeed, in his later work, *West Virginia: A History*, he presents the state’s past as a series of conflicts over control of its vast natural resources.¹⁷ Those wresting control generally appear as outsiders rather than Appalachians. Williams asserts that the antebellum leadership of western Virginia used its “control of the local political system to assert control over absentee-owned resources, which in pre-industrial times consisted primarily of wilderness land. The Civil War, the dearth of local development capital, and the work of the federal courts and local leaders who were content to serve only as middlemen, had negated much of this achievement.”¹⁸ While Williams does not suggest that local inhabitants were not economically motivated, he does stress that the history of West Virginia is one of industrially-minded outsiders seizing control from locals.

¹⁵ John Alexander Williams, *Appalachia: A History* (Chapel Hill: The University of North Carolina Press, 2002); Altina L. Waller, *Feud: Hatfields, McCoys and Social Change in Appalachia 1860-1900* (Chapel Hill: University of North Carolina Press, 1988); Lewis, *Transforming the Appalachian Countryside*. Robert Mitchell argues that while commercial motivations were present from early settlement, Appalachian development was not stopped in time, but was retarded in time. The title of his collection of essays reasserts the concept of a post-bellum industrialization of Appalachia. See Robert D. Mitchell, ed., *Appalachian Frontiers: Settlement, Society and Development in the Preindustrial Era* (Lexington: University Press of Kentucky, 1991).

¹⁶ Williams, *Appalachia: A History*.

¹⁷ John Alexander Williams, *West Virginia: A History* (Morgantown: West Virginia University Press, 2001).

¹⁸ Williams, *West Virginia*, 129.

Altina Waller's excellent book, *Feud: Hatfields, McCoys and Social Change in Appalachia, 1860-1900*, presents Appalachians as enterprising mountain people who formed allegiances along economic lines rather than family lines.¹⁹ Waller's book goes far toward undermining stereotypes of the clannish nature of southern highlanders, but it also depicts them as big fish in a small pond. While the Hatfields and McCoys appealed to state officials, they were largely ignored until the region's natural wealth attracted outside capitalists. It was then, once external authority interjected itself that the full effects of a post-bellum, outside world wrought the deadliest and most socially destructive phase of the feud.

Ronald L. Lewis' impressive work, *Transforming the Appalachian Countryside: Railroads, Deforestation, and Social Change in West Virginia, 1880-1920*, also stresses the story of local politics, economy, and culture snatched from local control and the often tragic ramifications for Appalachians.²⁰ According to Lewis, his "book examines the post-bellum transformation of Appalachia from a rural-agricultural society dependent on virgin forests to a twentieth-century society denuded of the forest and fully enmeshed in capitalism..."²¹ Lewis assumes a pre-capitalist Appalachia prior to the twentieth century. This assumption recalls Williams' suggestion that while antebellum Appalachians may have been capitalistic, they were small fish in a very small pond relative to outside enterprise.

Not all historians base their constructions of Appalachia on a strong dichotomy of inside versus outside forces. Robert Mitchell suggests that Appalachian economic

¹⁹ Waller, *Feud*.

²⁰ Lewis, *Transforming the Appalachian Countryside*.

²¹ *Ibid.*, 3.

development was not stuck in time, but experienced delayed industrialization. The subtitle of his collection of essays, *Appalachian Frontiers: Settlement, Society and Development in the Preindustrial Era*, endorses the belief in a simpler, pastoral, antebellum Appalachia.²² Some disagree, even with a somewhat less dichotomous interpretation.

Wilma Dunaway stridently rejects suggestions that Appalachia was ever insulated from the outside world. She takes fervent exception to the suggestion that there was ever a European pre-capitalist Appalachia, questioning how such a place could have sprung directly from the capitalist society that was late eighteenth century America.²³ Dunaway's discussion of the southern fur trade reveals that in many ways, southern Appalachia was not a hinterland in the view of colonizers, but a focal point for powers with imperial visions. Southern Appalachians, whether Native American or European, were active and often enthusiastic participants in a global economy who established commercial connections over great distances in their pursuit of animal hides.²⁴

Dunaway's discussion of the role of Appalachian Native Americans as willing participants in global commerce in the eighteenth century is illuminating. While highlighting early capitalist roots in Appalachia, she shifts the focus from Europeans solely and focuses on indigenous people. Dunaway sees Indians as often willing participants in mercenary empire-building. Native Americans exploited Kanawha Valley salt marshes for the game attracted to the salt licks and to extract the mineral. However,

²² Mitchell, *Appalachian Frontiers*.

²³ Wilma A. Dunaway, *The First American Frontier: Transition to Capitalism in Southern Appalachia* (Chapel Hill: University of North Carolina Press, 1996).

²⁴ Wilma A. Dunaway, "The Southern Fur Trade and the Incorporation of Southern Appalachia 1690-1763," *Review Braudel Fernand Center* 17, no. 2 (Spring, 1994): 215-242.

indigenous people do not seem to appear in the historiographic record involving the salt industry of the area. While Dunaway demonstrates the importance of indigenous people in the early European commercialization of the backcountry, the dearth of references to them in primary and secondary sources touching on the Kanawha Valley salt industry makes a worthy treatment of them in this paper untenable.

Part of the discussion of Appalachian Virginia's industrialization dating even to the John Adam's presidency must include the enslaved. Again, while historians concur that Appalachia was not homogeneously white as popular stereotypes suggest, they disagree about the nature of slavery in Appalachia.²⁵ In *Mountain Masters: Slavery and the Sectional Crisis*, John Inscoe examines antebellum western North Carolina finding a culture dictated, not by backwoods rubes, but by a "prosperous, ambitious and progressive middle class of business and professional men."²⁶ While Inscoe may not focus on individual blacks, he nonetheless provides a vision of the Mountain South which includes a significant population of enslaved blacks. Some may disagree with Inscoe's presentation of paternalistic slave owners and mutual slave-master affection, but the examination of Appalachian slavery remains a valuable and thoughtful analysis for its challenge to traditional images of a white Appalachia.

Wilma Dunaway takes a broader perspective on Appalachian slavery in her book, *Slavery in the American Mountain South*.²⁷ While some have suggested that her definition of Appalachia is so broad as to render her quantitative analysis of questionable

²⁵ For a discussion of the multi-faceted nature of American slavery, see Ira Berlin, *Many Thousands Gone: African Americans from Slavery to Freedom* (New York: Knopf, 1993).

²⁶ John C. Inscoe, *Mountain Master: Slavery and the Sectional Crisis* (Knoxville: University of Tennessee Press, 1989), 7.

²⁷ Wilma A. Dunaway, *Slavery in the American Mountain South* (Cambridge, U.K.: The Press Syndicate of the University of Cambridge, 2003).

use, it remains relevant nonetheless.²⁸ Dunaway's work is particularly useful, not only for the extensive depth of her analysis, but also for the breadth of her exploration into the varied nature of slave work. Dunaway carefully examines not only the agricultural work on small farms, but also slave labor in the service and industrial realms as well, two fields which historians have, at times, omitted from slave studies. Her conclusion is that Appalachian slavery was not gentler than slavery of the lower South, but crueler due to cramped living and working environments in the narrow, isolated valleys. These constrained environments prompted slave owners to use greater force in order to maintain their ideas of supremacy.

The Kanawha Valley, which in 1850 was home to the largest population of blacks west of the Alleghenies, also challenges assumptions of Appalachian homogeneity.²⁹ While Inscoc's summation of white slave-holding western North Carolinians may bear a resemblance to the settlers of the Kanawha Valley in many ways, the nature of slave labor appears to have been quite different there with its focus on salt production rather than agriculture. The most recent general history of the area, *Great Kanawha: An Historical Outline*, published in 1976, fails to meaningfully include slaves.³⁰ In a rare mention of their existence, author V. B. Harris offers, "The actual mining of coal was first accomplished in the Kanawha field by all hand—sometimes slaves—labor using crude mining tools."³¹ Given the date that this work was published, the scant inclusion of slaves seems odd. John Stealey, however, thoroughly addresses slavery in the Kanawha

²⁸ John Alexander Williams, review of *Slavery in the American Mountain South*, by Wilma A Dunaway, *Appalachian Journal* 31, no. 2 (winter 2004): 230-234.

²⁹ Stealey, "Slavery," 112.

³⁰ V. B. Harris, *The Great Kanawha: An Historical Outline* (Charleston, WV: Jarrett Printing Company, 1976).

³¹ *Ibid.*, 96.

salt industry, describing it as an offshoot of the Eastern Virginia slave markets, despite the vast differences between the labor involved in salt manufacturing and tobacco culture.³² Stealey suggests that Kanawha salt producers tended to rent 50 to 60 percent of their workforce from eastern Virginia owners. For this reason, Kanawha Valley slavery must be examined within the context of Virginia's tobacco industry slavery.³³ This does not, however, suggest that the slave experience was similar at opposite ends of the state. Overall, Stealey provides a vision of a valley heavily reliant on slavery, where the enslaved exercised considerable autonomy and ability to roam. The variety of tasks requiring movement between salt facilities and their suppliers up and down the river afforded slaves greater ability to come and go than did plantation life. Leased slaves' opportunities to appeal to their owners for ill-treatment or for assignment to tasks deemed outside the lease agreement also added to the slaves' power.³⁴

When taken as a whole, exploration by academics such as Stealey, Inscoc, Dunaway, Lewis, and others remind the reader that while there may be a common idea of Appalachia, the commonality exists only in the realm of myth. Appalachia defies attempts to encompass it with a single description or definition. The histories of the river plains differ starkly from those of more upland regions. The experiences of those in one valley resist comparison with others nearby. The Kanawha Valley, with its early, hired slave-reliant industrialization stands as a testament to the diversity of Appalachian

³² Stealey, "Slavery."

³³ *Ibid.*, 114.

³⁴ While set in eastern Virginia, for an excellent exploration of the nature of industrial slavery in Virginia at one iron-works see, Charles B. Dew, "David Ross and the Oxford Iron Works: A Study of Industrial Slavery in the Early Nineteenth-Century South," *The William and Mary Quarterly* 31, no. 2 (April 1974): 189-224. For a broader discussion of the nature of industrial slavery see, Robert S. Starobin, "Disciplining Industrial Slaves in the Old South," *The Journal of Negro History* LIII, no. 2 (April 1968): 111-128.

experiences. While the mountains that run through the region are real, the existence of a common people or society of that realm is an enduring fable. It is hoped that this study will reinforce this understanding and assist in breaking down stereotypical assumptions in the process. This examination of the salt industry in the Kanawha Valley can chip away at the assumption of a pre-capitalist or pre-industrial white Appalachia. In doing so, it could help to clear the path for a richer and more nuanced understanding of a region and its people.

Chapter 1: A Driving Vision for the Great Kanawha

“...being the nearest, and easiest of transportation”

The origins of the Kanawha Valley salt deposits can be traced to the Pleistocene epoch, which dates between 2.5 million years ago and 12,000 years ago. At that time, retreating glaciers blocked the flow of the massive Teay's River which, until then, had drained an area from what is now western North Carolina, northward through western Virginia, northwest through what is now West Virginia and then westward through current day Ohio, Indiana, and Illinois. Lakes were thus formed, one of which covered much of the current Kanawha Valley. As water levels dropped in the lake over the millennia, the water became super-saturated with salt, which eventually crystallized and deposited on the lake floor. Much later, water levels rose again, establishing an outlet for the lake, now known as the Kanawha River. The Kanawha's sediment then gradually layered over the salt deposits, thereby re-shaping the geologic formations of the region.³⁵

These saline deposits might not have lured animals and men to the Kanawha Valley were it not for the water that flows or migrates beneath and alongside rivers. The depth and width of this flow depends on the amount of water in the drainage and the porosity of the underlying and adjacent geologic material. Changing porosity can create an underground pool, or cause the flow to rise, spread, or contract. On occasion the pool can rise to the surface as an artesian well, or spring. In Kanawha County, the change in porosity of the underlying strata caused water that had been migrating through salt deposits to rise and form the valley's salt marshes and springs. The salt marshes in

³⁵ Michael C. Hansen. *Geofacts*. Ohio Department of Natural Resources. Division of Geological Survey, No. 10 (November 1995).

Kanawha County lie along the Kanawha River. The primary marsh extends from the mouth of Campbell's Creek roughly six miles upriver although there are smaller salt marshes in the area.³⁶

These salt marshes attracted a variety of animals, including large populations of elk, buffalo, and deer. The main salt marsh became known as the Great Buffalo Lick and was part of a buffalo trail that led from the Valley of Virginia to the Ohio Valley. In places, these animal trails leading down the steep hillsides to the riverside marshes had been so heavily trod that they remained visible throughout the nineteenth century.³⁷ This abundance of game attracted many other animals, including humans.

The extent of Native American mineral exploitation of the Kanawha salt marshes is not well documented, as much of the historical record remains anecdotal. The rare inclusion of Native Americans with regard to the salt marshes appears to carry the biases of Victorian local color writers. The earliest stories contend that in 1755, French allied Shawnee warriors attacked Blacksburg, Virginia area settlers and kidnapped Mary Ingles Draper among others. On their retreat westward to Shawnee territory, the group stopped in the Kanawha Valley, where her captors taught Mary to make salt before continuing on to the Ohio Valley.³⁸ Writing in 1876, historian George Atkinson offers that "there seems to be a general understanding among the old settlers that the Indians made salt from the water obtained from this spring and used it to cure the meat of the game which they killed

³⁶ Henry Howe, "Early Industry in Kanawha County," *Historical Collections of Virginia* (Charleston, SC: William R. Babcock, 1845), 343-347.

³⁷ John E. Stealey III, *The Antebellum Kanawha Salt Business and Western Markets* (Lexington: University of Kentucky Press, 1993), 8.

³⁸ Paul H. Price, Charles H. Hare, J. B. McCue, Homer A Hoskins, *Salt Brines of West Virginia Volume III of West Virginia Geological Survey* (Morgantown: State of West Virginia, 1937), 5.

in great quantities by keeping their hunters stationed in the vicinity of the lick.”³⁹

Similarly, nineteenth century historian Henry Howe writes, “Remains of rude pottery are found in abundance in the neighborhood, respective which there is but little doubt that they are the remains of vessels... for the transportation of salt water.”⁴⁰ Howe contends that Indians filled the “idle hours” while reducing brine by creating, “*The Pictured or Calico Rock* on which the natives sculptured many rude figures of animals, birds &c.”⁴¹ The pictograph-covered boulder continued to serve salt-makers’ purposes as white settlers later broke Calico Rock into pieces and incorporated it into the chimneys of their early salt-works furnaces.⁴² Initial white incursions in the region were not led by hunters, salt-makers, or even farmers however, but by surveyors and land speculators. The initial white control of the region by these investors strongly influenced the nature of the valley’s economic and social growth in the coming century.

One such investor in the frontier land, Thomas Bullitt of Prince William County, served under then Colonel George Washington on the expedition which ended with the Battle of Great Meadows in 1754. This marked only the beginning of a partnership between Bullitt and Washington. Following the Seven Years War, Bullitt led an armed party west at the behest of Virginia’s governor, Lord Dunmore. The Virginia governor charged Bullitt’s party with controlling the Indian menace and surveying Virginia’s backcountry. As payment for his lengthy services to the crown, Bullitt received a grant for 1,240 acres in that frontier. Bullitt chose the confluence of the Elk and Kanawha

³⁹ Atkinson, *History of Kanawha County*, 187.

⁴⁰ Henry Howe, *Historical Collections of Virginia*, 345-346.

⁴¹ *Ibid.*, 346.

⁴² Atkinson, *History of Kanawha County*, 187.

Rivers, the site currently at the heart of Charleston, as the focus of his newly acquired western holdings.⁴³

Bullitt was not the only Virginian to accept Kanawha Valley land as payment for battling Native Americans. Colonel John Dickinson, a native of Bath County, Virginia, traveled through the Kanawha Valley en route to the Battle of Point Pleasant. A year later, Dickinson patented 502 acres at the confluence of the Kanawha River and Campbell's Creek, six miles above Bullitt's land grant. Dickinson's acreage encompassed all of the Great Buffalo Lick.⁴⁴

One of the largest land holders in the area was George Washington, who owned over 30,000 acres on the Kanawha and Ohio Rivers. In 1775, Washington surveyed extensively in the region, parlaying his knowledge of the choice land parcels into ownership of vast portions of western Virginia. On his land roughly three miles above the salt lick, Washington, with an eye to the future, set apart the Burning Spring, one of the great natural curiosities of the region, for public use.⁴⁵ This spring foreshadowed the intimate connection between salt-making and natural gas, which men would innovatively exploit in the decades to follow. In his *Notes on the State of Virginia*, Thomas Jefferson described the natural wonder as "a hole in the earth of the capacity of thirty or forty gallons, from which issues a bituminous vapour in so strong a 'current' as to give the sand about its orifice the motion which it has in a boiling spring. On presenting a lighted candle or torch within 18 inches of the hole, it flames up in a column of 18 inches in

⁴³ Inman Horner, "Cuthbert Bullitt. Letter of Inman Horner to Hugh Blair Grigsby," *William and Mary College Quarterly Historical Magazine* II, no. 2 (April 1922): 89-91; "Kanawha County History" www.polsci.wvu.edu/wv/kanawha/kanhistory.html, 5.

⁴⁴ Stealey, *Antebellum*, 11.

⁴⁵ Atkinson, *History of Kanawha County*, 234.

diameter and five feet high.” Jefferson goes on to comment that “the smell is like burning pit coal.”⁴⁶ Jefferson’s olfactory assessment would soon come to be applied to the Kanawha Valley as a whole.

In the opening years of the new republic, these large landholders from eastern Virginia saw their Kanawha holdings as central to visions of an empire of commerce. Jefferson, while not active as a private land speculator, (though his commitment to the Louisiana Purchase perhaps marks him as the largest land speculator in American history), made note of the Kanawha in the future of the commonwealth. Jefferson wrote, “The Great Kanawha is a river of considerable note for the fertility of its lands, and still more as leading to the headwaters of the James River.”⁴⁷ Early Virginian leaders envisioned their commonwealth as the intellectual, social and economic leader of the burgeoning nation. Central to their plans for economic preeminence was a commercial thoroughfare stretching from the Chesapeake Sound to the Mississippi. Many wagered that with the investment of concerted effort, the Kanawha River would become an important section of that thoroughfare.⁴⁸

Washington, among others, sought to increase the wherewithal of his nation, state and personal fortune through the active promotion of a transnational route for commerce and migration. In 1784, Washington set out on a journey to “see the condition of my Lands which were nearest, and settled, and to dispose of those which were more remote,

⁴⁶ Thomas Jefferson, *Notes on the State of Virginia*, (East Rutherford, N.J.: Viking Penguin Books, 1998), 38.

⁴⁷ *Ibid.*, 15.

⁴⁸ Kent Druyvesteyn “With Great Vision: That James River and Kanawha Canal,” *Virginia Cavalcade* 21, no. 3 (January 1972): 22-23.

and unsettled,” the latter category included his Kanawha and Ohio Valley properties.⁴⁹ While Washington may have been directly concerned with his private profit, his journey through the Kanawha Valley was also prompted by a higher purpose—nation building. Washington wrote to prominent Charleston, South Carolina lawyer Jacob Read of his fear that the western territories might settle “in the hands, either of the Spaniards or British. if [sic] either of these happen, there is a line of separation [sic] at once drawn between the Eastern and Western Country. The consequences of which may be fatal.” After this dire prediction, Washington went on to offer, “it is by the cement of interest only, we can be held together. If then the trade of that Country should flow through the Mississippi or St. Lawrence. If the Inhabitants thereof should form commercial connexions [sic], which lead, we know, to intercourse of other kinds, they would in a few years be as unconnected with us, indeed more so, than we are with South America; and wd. soon be alienated from us.”⁵⁰ He continued that the only solution to the dissolution of the East from the West was to:

extend the inland navigation of the Eastern waters, communicate them as near as possible (by excellent Roads) with those which run to the westward. open these to the Ohio, and such others as extend from the Ohio towards Lake Erie; and we shall not only draw the produce of the western Settlers, but the Fur and peltry trade of the lakes also, to our Ports (being the nearest, and easiest of transportation) to the amazing encrease of our Exports, while we bind those people to us by a chain which never can be broken.⁵¹

Washington regarded this matter was one of “vast commercial and political importance.”⁵²

⁴⁹ George Washington to Jacob Read, November 3, 1784, *Writings of George Washington*, ed. John C. Fitzpatrick (Washington: Government Printing Office 1936), 485.

⁵⁰ George Washington to Jacob Read, November 3, 1784, *Writings of George Washington*, 488.

⁵¹ *Ibid.*, 488-489.

⁵² Druyvesteyn “With Great Vision,” 22-23.

Upon his return, Washington wrote to Virginia Governor Benjamin Harrison, advocating the creation of an easy avenue for commerce through the state via rivers, canals and if necessary, turnpikes.⁵³ After Washington appeared before the Virginia Assembly in November 1785, the governing body approved “An act for clearing and improvement of the navigation of the James River.”⁵⁴ In doing so, the assembly enabled the creation of the James River Company and placed Washington at its helm. While the assembly charged Washington with improving navigation only along the James River, Washington’s letter to Harrison indicates a far larger vision for commercial waterways in Virginia.

Washington was not the only member of the James River Company who foresaw the company’s mission as extending to the Ohio River. George Clendenin, a frontier politician, surveyor, justice of the peace, and extensive landowner in Greenbrier County, strongly supported the completion of westward transportation infrastructure as the key to his own and his state’s economic success. Clendenin used his past as a veteran of Lord Dunmore’s campaign as well as his experience in the state militia during the American Revolution to establish himself as a local leader in Greenbrier County. While representing his region in the Virginia Assembly, Clendenin and compatriot Andrew Donnally were placed in charge of monitoring the county subscriptions to the James River Company. The pair aggressively pursued the extension of the James River Company’s original mandate which did not include work past rendering the James River navigable. Clendenin and others argued not only for the commercial importance of the

⁵³ Ibid., 23.

⁵⁴ *The Central Water Line from the Ohio River to the Virginia Capes, Connecting the Kanawha and James Rivers, Affording the Shortest Outlet of Navigation from the Mississippi Basin to the Atlantic* (Richmond VA: Gary, Clemmitt and Jones Printers, 1869), 51.

improvements, but for their necessity in binding the frontier people together under the leadership of the eastern Virginia power structure as well.⁵⁵ Sectionalism, arising in part from frontier isolation and the perception that eastern leadership offered little for western residents, spawned grumblings and unrest along the frontier. The North Carolina Regulator movement, Shay's Rebellion, and efforts to create the State of Franklin may well have served as reminders that eastern leaders should not ignore western interests.

In 1785, the Virginia General Assembly charged company leadership with finding the best route for a road running "from the highest navigable part of the James River, to the nearest part of the waters running into the Ohio..."⁵⁶ Clendenin and five others bore the responsibility for notifying residents of Greenbrier, Rockbridge, Botetourt and Augusta counties that the assembly was accepting bids for a major undertaking. The plan was to create a wagon road 30 feet wide from Lewisburg to the Falls of the Kanawha, roughly 25 miles upriver from the Great Buffalo Lick and just over 60 miles from the Ohio River at Point Pleasant.

Clendenin was probably motivated to some degree by concern for his constituents' convenience, health, and economic well-being, but the success of the James River Company's efforts very much precipitated his own personal gain. Clendenin held over 21,000 acres of Greenbrier country individually and he held another 9,000 acres with partners. Most of this land lay in river bottoms or other relatively level land.⁵⁷ The construction of a road connecting Greenbrier County to the east increased land values in

⁵⁵ Stealey, "Clendenin," 282-283.

⁵⁶ William Waller Hening, *The Statutes at Large, Being a Collection of All the Laws of Virginia from the First Session of the Legislature in the year 1619*, (Richmond, VA: Franklin Press, 1823), 12:72-73.

⁵⁷ Stealey, "Clendenin," 281.

the region steeply. Virginia lawyer and judge Archibald Stuart wrote to his friend Thomas Jefferson, “The Commissioners for the James River Company have made a favorable report” he begins. “They are of Opinion that the river may be rendered navigable One hundred miles beyond the Great Mountain to the mouth of Dunlap’s Creek and that a good wagon Road may be had from thence to Meadow Creek which Runs into the Kanawha below the great falls and that the portage by land will be about sixty miles.” Stuart goes on to assess that “In consequence of these Prospects Lands on the River and those adjacent have risen fifty percent in their Value.”⁵⁸ Clendenin’s land acquisitions were not restricted to Greenbrier County. In 1787, Clendenin purchased for five shillings, 1,030 acres at the confluence of the Elk River and the Kanawha River from Cuthbert Bullitt the original land grant holder.⁵⁹ Clendenin was not buying the property sight unseen; he had made camp there during his service in Dunmore’s war.⁶⁰ He was well aware of the value of the land where the two rivers met just 40 somewhat navigable miles from the Ohio River.

The Virginia Land Acts of 1779 set the stage for speculators to gain control of vast tracts of the western Virginia wilderness. The Virginia Assembly had several goals in mind when it passed “An Act for Establishing a Land Office and ascertaining the terms and manner of granting waste and unappropriated lands.”⁶¹ Legislators sought to promote settlement, ascertain the validity of early titles to land, secure territory within the boundaries of Virginia rather than other states, and raise revenue for Virginia’s empty

⁵⁸ Archibald Stuart to Thomas Jefferson, October 17, 1785, in *The Papers of Thomas Jefferson*, ed. Julian P Boyd, (Princeton: Princeton University Press 1953), 7:645.

⁵⁹ Stealey, “Clendenin,” 282.

⁶⁰ Reuben Gold Thwaites and Louise P. Kellogg eds. *Documentary History of Lord Dunmore’s War, 177, 185, 190, 213, 237, 282*, cited in Stealey, “Clendenin,” 282.

⁶¹ Hening, *Statutes at Large*, 12:35-65.

coffers. The act established the Land Office to administer the program. One of the most influential aspects of the act allowed for any person to lay claim to as much “waste or unappropriated land” as they wished for a fee of 40 pounds for every 100 acres.⁶² A series of subsequent legislative actions supported the speculative efforts by allowing payment for the lands to be made in treasury warrants, allowing payments for the land to be borrowed, and even allowing them to be deferred for up to a year. These terms favored those with extra cash and those with access to credit. They were tailor made for those in power.

It appears that with his Kanawha Valley purchase, Clendenin put a great deal of his considerable energy into ensuring that he benefited handsomely from his Kanawha lands. This required using his influence with other state leaders to tout the potential of the region. In December of 1787, Clendenin wrote to Virginia Governor Edmund Randolph, “I think Nature has formed this place for one of the richest Settlements that has ever Yet been made on any part of Our western territory; the River Kanawha affording such great quantities of the first rate Low grounds (with an excellent Salt Lick), to which is added almost every kind of fish and wild fowls that are to be found on any part of the Continent [sic]...”⁶³ Clendenin envisioned the valley not as an isolated town surrounded by farms, but as an important commercial hub in an inland Virginia empire. Clendenin predicted that a steady stream of people heading west to the Ohio and Mississippi Valleys would choose to travel through Virginia rather than Pennsylvania on their way to the Ohio River. His town, where the Elk River flowed into the Kanawha would grow rich as

⁶² Hening, *Statutes at Large*, 12:35-65.

⁶³ George Clendenin to Governor Edmund Randolph, December 31, 1787, Box EP-52, Executive Papers of Governor Edmund Randolph, Virginia State Library, cited in, Stealey, “Clendenin,” 283.

settlers provisioned for the trip west and as goods flowed through the valley to meet the needs of the burgeoning communities of the Ohio Valley. In the process, he and other early speculators in the valley's best land would grow wealthy.

In the spring of 1788, Clendenin set about securing his investments with a protective fort on his Kanawha lands.⁶⁴ Increasing his land values required the security of Kanawha Valley settlers, and equally important, of those travelling through the valley to Fort Pitt and eventually the Ohio Valley. The "numerous herds of Wild Game in the valley attracted a Set of Barberous [sic] Savages who make it a Hunting Ground and do Kill and plunder our Citizens at will."⁶⁵ Clendenin argued that mounted militia would be useless for protection in the region's thick forests; instead he formed a company of mobile rangers and six scouts.⁶⁶ At the same time the Greenbrier County Court, of which Clendenin was a member, appointed George Clendenin, his brother William, Andrew Donnally, and William Arbuckle to locate the best route from Greenbrier County to the place where the Elk River fed into the Kanawha River (coincidentally, this was the center of Clendenin's holdings). The route proved daunting. The nearly impassable path wove over Gauley Mountain and along narrow trails clinging to the side of the steep gorges surrounding the turbulent New and upper Kanawha Rivers. Whether it occurred to Clendenin and his party that the treacherousness of the trail they blazed for the proposed road might hinder the extraordinary growth they envisioned for their Kanawha investment remains unknown.

⁶⁴ *The Salt Industry in the Kanawha Valley* (South Charleston, WV: Chlor Alkalai Division of Food Machinery and Chemical Corporation, 1960), 3.

⁶⁵ George Clendenin to Governor Edmund Randolph, December 31, 1787, Box EP-52, Executive Papers of Governor Edmund Randolph, Virginia State Library, cited in, Stealey, "Clendenin," 283.

⁶⁶ Stealey, "Clendenin," 283.

Upon arrival, the party built a stockade at the confluence of the two rivers which came to be called Fort Lee. Clendenin then appears to have redoubled his efforts in pursuing funding for the development of his investment. Within a year of arriving in the valley, citing the impracticality of Greenbrier County's Lewisburg as the administrative seat for the newly settled valley, Clendenin and his supporters arranged for the creation of Kanawha County from sections of Greenbrier and Montgomery Counties. He then sited his new county's seat squarely on his property at the mouth of the Elk River.⁶⁷ Clendenin also secured positions as magistrates in the new county for his brothers.⁶⁸ He peppered the governor and Virginia legislators with letters touting the valley's extraordinary potential in Virginia's future. The large land holdings in the region by eastern gentry no doubt played some part in Clendenin's success in securing state assistance. Clendenin's frequent missives highlighting his fort's crucial role in holding Indians at bay also may have played a role in the assembly's willingness to foster development of the region. As the frontier legislator and businessman sought and received state support for his vision, Clendenin rapidly increased his investment in Kanawha Valley land. By 1795, Clendenin held an interest in 27,560 acres of land in Kanawha County.⁶⁹ As he had done in Greenbrier County, and as others land speculators tended to do, Clendenin focused on what they considered the most valuable property, the river bottom land and gentle terrain with the best access to navigable water.

Despite an exceptional bounty of natural resources, some saw challenges to future economic success on the Kanawha. In his *Notes on the State of Virginia*, Thomas

⁶⁷ Stealey, "Clendenin," 292.

⁶⁸ Ibid.

⁶⁹ Ibid., 290.

Jefferson wrote, “The Great Kanawha is a river of considerable note for all the fertility of its lands and still more as leading towards the headwaters of the James River.”⁷⁰ Not only were the arable river bottoms promising, but the vast coal beds of the region awaited exploitation as soon as the transportation improvements that Clendenin and his compatriots sought were implemented. In October 1790, the *Virginia Gazette* advertised the sale of 10,000 acres on Kanawha Valley land “within easy distance of an inexhaustible quantity of coal.”⁷¹ The brine marshes attracted valuable game, but Virginians considered the brine too weak to justify the establishment of commercial salt-works. This was especially true after England resumed exporting salt to her former colonies from Liverpool after the Revolution. Despite all these resources, Jefferson predicted that it was “doubtful whether its great and numerous rapids will admit navigation, but at an expanse which will require ages as to render its inhabitants equal.”⁷²

It may not have required the “ages” that Jefferson predicted for Kanawhans to be “rendered equal,” but the rapid growth that Washington, Clendenin, Lewis, and others hoped and labored for did not arrive as quickly as some wished. Land values in the valley failed to rise as rapidly as many investors hoped. Several factors contributed to the valley’s early failure to become highly populated even as some areas farther from eastern centers flourished. Jefferson was correct to a degree. Despite the vision of Virginia’s leaders for a commercial thoroughfare from the Chesapeake to the Mississippi, the Kanawha, and New Rivers remained steadfastly challenging to navigate eastward. The route that Clendenin’s party surveyed from Greenbrier County to the valley was far too

⁷⁰ Jefferson, *Notes*, 11.

⁷¹ Phil Conley, “Early Coal Development in the Kanawha Valley” *West Virginia History* VIII, no. 2 (January 1947): 208-209.

⁷² Jefferson, *Notes*, 15.

treacherous for easy use. The daunting trail presented serious challenges to immigrants and those hoping to ship large quantities of coal to the metal-works of eastern Virginia.⁷³

A second reason for the retarded development of the valley arose from the appeal of the Ohio Valley. The Ohio River Valley offered larger quantities of arable land even closer to the Ohio River than the Kanawha Valley. Settlers found it easier to cross Pennsylvania, bypassing western Virginia entirely. In the Ohio Valley, they hoped to find parcels of land on better terms from the government than was offered by land speculators.

A third factor originated with the speculators themselves. While they may have sought tenants or buyers for their investments, they would not accept just any terms. George Washington directed his business agent, George Clendenin, not to rent to long-term tenants because it might prevent him from selling or renting on better terms if the price were to rise. He was also prohibited from making any rental agreements during Indian scares for fear that such news would drive prices downward. Washington sought primarily to pay the taxes on the land. However, few if any chose to invest the tremendous energy required to settle the wild country on the property of an owner who would offer only a short-term commitment.⁷⁴ In many ways, while Clendenin and other powerful speculators accomplished a great deal toward the development of the Kanawha Valley, they themselves proved to be significant barriers to Kanawha settlement.

Clendenin, Washington, and their fellow early speculators made few leases on their Kanawha Valley properties. Washington sold his holdings there in 1791. In 1794, Clendenin created the town of Charleston. He sold 15 one acre lots for five shillings each.

⁷³ John E. Stealey III, "Virginia's Mercantile-Manufacturing Frontier: Dickinson & Shrewsbury and the Great Kanawha Salt Industry," *The Virginia Magazine of History and Biography* 101, no. 4 (October 1993):515.

⁷⁴ Stealey, "Clendenin," 291.

He transferred nearly half the original 1,030 acre tract to his brothers. He then sold the balance of that parcel at the mouth of the Elk River to Joseph Ruffner of the Shenandoah Valley and moved on to the Ohio River in hopes of quicker rewards.⁷⁵ The valley's connections with the East were too difficult to maintain. Nevertheless, power brokers in eastern Virginia felt they held the key to opening the valley. They were correct, but it was not the key they expected.

Generous land laws, sponsored by legislators desperate to raise funds, spurred interest in regions west of the Kanawha. In 1779, one writer commented on the popular reaction to Virginia's land laws, it seemed that "half of Virginia intended to go to Kentucky."⁷⁶ While historians no longer tend to subscribe to Frederick Jackson Turner's frontier thesis, the Kanawha Valley, in many ways falls into line with his description. Turner suggests that the buffalo created trails as they migrated between salt licks. Other animals and Native Americans followed the buffalo. White settlers followed in turn. The buffalo trail running from the Kanawha salt licks to the Ohio Valley was broad and well worn. The development of the valley relied on salt and access to the Ohio Valley. The Kanawha Valley flourished on the need for salt in the Great West. In suggesting that settlement patterns followed salt sources, Turner reminded his audience of what eighteenth and nineteenth century Americans would have found laughably obvious; life was impossible without substantial quantities of affordable salt.

Settlers had multiple needs for the mineral other than its most basic function, maintaining chemical and electrical balances within the body. Poultices and medicines

⁷⁵ Ibid., 292.

⁷⁶ C. H. Laub, "Revolutionary Virginia and the Crown Lands 1775-1783," *William and Mary Quarterly* 11, no. 4 (October 1931): 309.

often included it. Salt transformed soap from a liquid into a solid, thus eliminating the need for soap barrels. Salt softened and de-haired hides for the production of leather and so was necessary to the international hides trade. The mineral was essential in raising livestock. While pigs' foraged diets generally supplied their bodies' salt needs, cattle required supplemental salt in their diet in order to survive.⁷⁷ Perhaps the mineral's most important use, however, was as a food preservative.

Prior to refrigeration, the mineral was the crucial element in preserving meats and vegetables. This applied to all livestock and their milk as well as game and fish. The type of salt employed for preserving a specific food was important as well. Various salts were deemed to have specific qualities, making them more suitable for some uses than others. Recipes often specified the type and consistency of salt to be employed. Ideally, butter, beef, fish, and vegetables were preserved in different types of salt.⁷⁸ This preference for a variety of salts came to play a key role in the success of the Kanawha Valley industry.

Men and women settling on or near the American coastline made procuring salt from sea water one of their early concerns.⁷⁹ Some expressions of this early focus

⁷⁷ For an excellent summation of the uses of salt in frontier industry and households, see John A. Jakle, "Salt on the Ohio Valley Frontier, 1770-1820," *Annals of the Association of American Geographers* 59, no. 4 (December 1969): 687-709.

⁷⁸ Mark Kurlansky provides a seventeenth-century recipe for cured Scottish salmon which specifies the use of French sea salt, and adds that most recipes for curing fish also specified French sea salt. See Kurlansky, *Salt: A World History* (New York: Penguin Books, 2002), 183-185.

⁷⁹ When the Europeans arrived in North America, salt had long been an integral part of Native American society and was actively traded. In 1670, German explorer John Lederer wrote that the Sara (Cheraw) Indians had cakes of white salt. Historians conjecture that the Cheraw obtained the salt through trade with tribes in the area now known as western Virginia and West Virginia. Hernando DeSoto recorded Native American salt-making techniques in 1541. In this case, Indians rinsed sand from river banks in baskets and then boiled the saline water down until only salt crystals remained. Statements indicating that Native Americans did not use salt probably reflect the lack of understanding that habits of one Native American tribe may not accurately reflect those of another. They also may fail to understand the level of salt *within* foods ingested as opposed to salt added to foods. For a larger discussion see, Ian W. Brown, *Salt and the Eastern*

revolved around salt as element of profitable trade rather than as a staple for life. In the late seventeenth century, Dr. Daniel Coxe, an English physician and speculator, held title to 95,000 acres around what is currently Cape May, New Jersey. He, “settled a Towne and Established a ffishing for Whales which are numerous [sic] about Cape May both within the Bay and without all along the seas coast...” The only hindrance that he saw to his plan for a great fishing and whaling town was a lack of salt. “We have over diverse ffrenchmen skillful in making salt by the sun in pitts or pans whoe assure us there are many convenient places upon the Coast over against the places of ffishing where millions of Bushells may be made at the expence of 4 pence per Bushell.”⁸⁰ The requirement for salt in order monetize the riches of the New World was apparent regardless of the coastal settlement.

In Jamestown, Virginia, Captain John Smith also saw a bright future in the combination of salt and fishing. Smith declared, “never could the Spaniard with all his mines of Gold and Silver pay his debts, his friends and Army halfe so truly as the Hollanders still have done by this contemptible Trade of Fish.”⁸¹ Smith, like Coxe, recognized the essential connection of salt to the fishing industry: “Salt upon Salt may assuredly be made, if not at first in the ponds, yet till they be provided this may be

North American Indian. An Archeological Study (Cambridge: Harvard University Printing Office, 1980), 8. Some hunter-gatherer societies may not have needed to supplement their diets with extra salt. See, Robert P. Multhauf, *Neptune’s Gift* (Baltimore: The John Hopkins University Press, 1978), 4.

⁸⁰ Harry B Weiss and Grace M. Weiss, *The Revolutionary Saltworks of the New Jersey Coast: With Notes on the Early Methods of Making Salt in New England, New York, Delaware and Virginia* (Trenton: Past Times Press, 1959), 12-13.

⁸¹ John Smith, *The Complete Works of Captain John Smith*, ed. Philip L. Barbour (Chapel Hill: University of North Carolina Press, 1986), 409.

used...⁸² Smith suggests that salt for the fishery could be made by boiling seawater until salt evaporation ponds could be created.

Events across the Atlantic rendered salt-making efforts in the colonies inconsequential when miners discovered rock salt in England. Prior to 1693, men created most salt in England by reducing brine. This process stands in contrast to the mining of rock salt in Eastern Europe. Cheshire, near Liverpool, had long been the site of salt-works. Years of wood-fired boilers reducing brine had deforested the region. Faced with the lack of timber and the expense of transporting firewood, excavations in search of coal began, a relationship between salt, timber, and coal that would resurface in Kanawha Valley just over 100 years later.⁸³ Miners did not find coal in Cheshire, but in 1670, found rock salt. This readily available Cheshire salt hampered the early American salt production efforts just as it reduced the trade in sea salt in Britain.⁸⁴ The Cheshire salt industry grew as ships left Liverpool laden with English goods using salt as ballast. Ships then departed the American colonies filled with materials such as salted cod to feed slave populations and salted deer hides for English tanneries. In this respect, British colonialism functioned much as was intended. Americans, both those who lived near the coast and those in the backcountry, relied on English salt for their farms, businesses, and households.

As the relationship between England and her American colonies devolved into armed rebellion, Americans' reliance on English salt quickly exposed a serious threat to rebel efforts. In March of 1776, the *Pennsylvania Magazine* published "The Art of

⁸² Ibid., 415.

⁸³ Robert P. Multhauf, *Neptune's Gift: a History of Common Salt* (Baltimore: John Hopkins University Press, 1978), 58.

⁸⁴ Ibid., 59.

Making Common Salt: Particularly Adapted to the Use of the American Colonies. With an Abstract from Dr. Brownrigg's Treatise on the Art of Making Bay-Salt."⁸⁵ Along with diagrams and detailed instructions for making salt in the French manner using tidal marshes, the article suggested the reason why Americans produced little salt:

The making of salt in America has been an object of attention to many persons in Britain for a long while past, arising from the favorableness of our climate to the operation. It has been too long neglected, from a prevailing disposition in the Americans to manufacture nothing, among themselves which could be imported from abroad: But it is now reasonably to be expected, that the necessity of America will induce the inhabitants, among many other useful manufactures, to establish the essential one of making into salt the sea water that washes their shores.⁸⁶

Regardless of American's reported indisposition to producing salt domestically, the colonial assemblies and the Continental Congress immediately began serious efforts to cope with the severe shortage.

Attempts by the Continental Congress and the various colonial assemblies to ensure a supply of salt in America were multi-layered, haphazard, and disorganized. Colonies sought to stimulate production through generous loans and other financial incentives, as New York did for producers of gun powder and musket barrels. Salt-workers were often excused from military service. The incentives to produce more salt proved generally unsuccessful, perhaps due to salt-works serving as military targets.

Perhaps the most controversial measures taken during the war involved limitations on the distribution and sale of salt. Nearly every colony took steps to prohibit the essential mineral from leaving its territory. Connecticut's proclamation of May 16, 1776, provides but one example. The general assembly passed "an act that no Rum,

⁸⁵ Robert Treat Paine, "The Art of Making Common Salt: Particularly Adapted to the Use of the American Colonies. With an Abstract from Dr. Brownrigg's Treatise on the Art of Making Bay-Salt," *Pennsylvania Magazine*, (March 1776).

⁸⁶ *Ibid.*

Sugar, Molasses, Salt or other West-India Goods shall be exported out of this Colony, by Land or Water on or before the first day of November next.”⁸⁷ As with other colonies, in response to rumors of salt hoarding, Virginia’s assembly established an allotment of salt per person or per household. Households discovered to have more salt than allowed found it confiscated.⁸⁸ Merchants experienced the same circumstances and frequently discovered themselves accused of profiteering.

As stores of the commodity dwindled, prices in the colonies rose rapidly. In 1776, Virginians paid roughly one bushel of corn for a bushel of Bermuda salt. In late 1779, the price had doubled. By 1781, a bushel of salt traded for three bushels of corn.⁸⁹ Colonial governments, concerned about civil unrest arising from the lack of salt, sought to avert disorder through price controls and distribution. The measures appear to have pleased few. Disputes over the price and control of salt arose throughout the colonies.⁹⁰ In backcountry Virginia, where it was virtually impossible to obtain salt, settlers armed themselves and descended on Henrico County, convincing officials to share the mineral with their western countrymen.⁹¹

⁸⁷ Jonathon Trumbull, “By the Honorable Jonathan Trumbull, Esq governor of the English colony of Connecticut, in New-England, in America. A proclamation, for an embargo,” <http://aquabrowser.wncln.org/?hrciid=%7clibrary%2fmarc%2fwcln-iii%7cb2689406> (accessed November 30, 2010).

⁸⁸ Hening, *Statutes at Large*, 383, 533, 534.

⁸⁹ Larry G. Bowman, “The Scarcity of Salt in Virginia during the American Revolution,” *The Virginia Magazine of History and Biography* 77, no. 4 (October 1969): 471. See also Bernard Mason, “Entrepreneurial Activity in New York during the American Revolution,” *The Business History Review* 40, no. 2 (summer 1966): 198.

⁹⁰ Merchants appeared equally unhappy with the state control of salt supplies and price. Even though assemblies provided price incentives for salt production, the market price appears to have outstripped state offered prices. One such disagreement is the subject of a letter from Pennsylvania’s assembly to merchants. See, Pennsylvania Supreme Executive Council, “To the merchants and traders of Philadelphia, and particularly the importers and holders of salt,” 1779. <http://aquabrowser.wncln.org/?hrciid=%7clibrary%2fmarc%2fwcln-iii%7cb2699037> (accessed November 30, 2010); See also Bowman, “Scarcity of Salt,” 472.

⁹¹ Bowman, “Scarcity of Salt,” 464.

Individual colonies as well as the Continental Congress wrestled with the competing salt requirements of undisciplined troops and an unruly populace. In the tug-of-war over the mineral's allocation, it was often perceived that the greater need trumped individual rights. Confusion ensued as ownership of the commodity was contested. Merchants, city and town councils, colonial assemblies, the Continental Congress, quartermasters for district militias, and individuals all laid overlapping claims to the same insufficient supplies of salt. Efforts to ensure availability for the general populace as well as the military forces often failed as leaders feared the complete loss of the war without salt. This struggle between military and civilian needs for the precious commodity reemerged in the Kanawha Valley two generations later in the Civil War.

Virginia and the rest of the colonies never solved, but only alleviated their salt shortages. Virginia constantly needed more salt than it could produce.⁹² The Revolutionary War had highlighted the dangers of relying on external sources of salt. Nevertheless, following the resumption of normal trade with England, inexpensive salt once again filled the holds of ships bound for the American ports. Despite the resumption of plentiful supplies of inexpensive salt, the commodity was not well distributed across Virginia. Backcountry settlers found salt did not necessarily remain plentiful or inexpensive as they moved to more remote regions like the Ohio Valley. On the eve of the nineteenth century, Clendenin and other early speculators abandoned the Kanawha Valley, while those just arriving there found that they had better timing. With its brine springs and connection to the Ohio River, the Kanawha Valley was poised to

⁹² *Ibid.*, 472.

fulfill the ambitions of men like Clendenin as an industrial hub for the burgeoning Great West.

Chapter 2: The Undaunted Pursuit of Salt

Early speculators' dreams of Kanawha Valley fortunes dimmed near the beginning of the nineteenth century. Land prices failed to rise as settlers eschewed the route west leading to the valley in favor of the Shenandoah Gap to the south and more northerly routes across Pennsylvania. While the Kanawha Valley enjoyed a direct linkage to the Ohio River Valley via the Kanawha River, the route from eastern Virginia to the Kanawha remained treacherous. In January 1814, Joel Shrewsbury wrote to his business partner back in Bedford County Virginia that the roads to the Kanawha from the East were "uncommonly bad perhaps the worst road you knew for waggons [sic] to travel and nothing but our team being uncommonly good & our forces very strong enabled us to get along."⁹³ Clearly, Virginia leaders' hopes for a thoroughfare of commerce and migration failed to come to fruition. Some canals and roadways had been proposed and even begun, but the Kanawha Valley remained a difficult place to reach from the East. Whether due to inflated prices held aloft by speculative hopes, or dangerous terrain and topography, by 1800, over 271,000 people had bypassed western Virginia in favor of settling in the newly created state of Kentucky, the Northwest Territory, and Indiana Territory.⁹⁴ Between 1800 and 1810, the population of Kanawha County rose from 3,229 to 3,866 people, an increase of 19.7 percent.⁹⁵ Meanwhile Kentucky, bordered by the Ohio River, experienced particularly rapid growth. Between 1790 and 1800, the western regions of

⁹³ Joel Shrewsbury to William Dickinson, January 1814, Dickinson and Shrewsbury Letterbook. In possession of author.

⁹⁴ United States, Census Office, Second Census of Population, 1800.

⁹⁵ United States, Census Office, Second Census of Population, 1800; United States, Census Office, Third Census of Population, 1810.

Virginia, which eventually became Kentucky, swelled from just under 74,000 people to over 221,000.⁹⁶ By 1810, that number would nearly double.

From the Bluegrass to the Northwestern Territories, raising, slaughtering and preserving livestock, as well as farming for outside markets drove the economy.⁹⁷ American markets made up only part of the commercial network that Ohio Valley residents served. Merchants in Lexington, Kentucky benefitted from lucrative contracts with the Governor of Spanish Louisiana to supply the Spanish government with salted meat.⁹⁸ The Ohio Valley farmers and ranchers were creating tremendous quantities of provisions. In the *Kentucky Gazette* on May 18, 1795, James Morrison advertised that he had 30,000 pounds of pork “for the southern trade.”⁹⁹ In 1801, a list of commodities shipped from Louisville included 92,300 pounds of pork, 91,300 pounds of bacon, 14,860 pounds of dried beef, 2,587 pounds of butter and 8,718 pounds of biscuits (probably hardtack).¹⁰⁰

All these items required copious quantities of salt. Local newspapers often advertised large amounts of salt to be bought or sold. In April of 1788, Annie Christian advertised that she had a “large quantity of quality salt for sale in Lincoln County.”¹⁰¹ The following month John Clerk announced that he needed four or five wagons to pick up salt from Bullitt’s Lick. In exchange for hauling the salt, the wagon owners could have

⁹⁶ United States, Census Office, First Census of Population, 1790; United States, Census Office, Second Census of Population, 1800.

⁹⁷ John A. Jakle, “Salt on the Ohio Valley Frontier, 1770-1820,” *Annals of the Association of American Geographers* 59, no. 4 (December 1969): 701.

⁹⁸ T. D. Clark, “Salt, a Factor in the Settlement of Kentucky,” *Filson Club History Quarterly* 12 (1938): 44.

⁹⁹ Jakle, “Salt on the Ohio Valley,” 701.

¹⁰⁰ *Ibid.*

¹⁰¹ Clark, “Salt, a Factor,” 46.

one third of what they hauled.¹⁰² As the abattoir for the United States, Spanish Louisiana, and the Caribbean, the Ohio River Valley required vast amounts of the essential mineral.

By 1790, the major salt licks of the Bluegrass all had salt-works associated with them. At Bullitt's Lick, probably the largest and most advanced of the Ohio Valley salt-works at the time, brine flowed from shallow wells through wooden trenches to furnaces. The furnaces were long mortared slate trenches with a fire box at one end and a chimney at the other. Atop the furnaces sat up to sixty iron kettles holding twenty-two gallons of brine each. The success of the salt-works there eventually left the area devoid of timber, forcing workers to move the furnaces to a new location and pipe the brine to the more remote furnaces. A town sprang up on the site for the 800 employees who eventually worked there.¹⁰³ At times, local salt suppliers sought to control the markets in their immediate vicinities by withholding supplies when the prices dropped.

Kentucky lawmakers responded to the commercial demands for abundant salt supplies. On December 18, 1801, they created a law stating, "Whereas it is of the utmost importance to the good of this Commonwealth that the owners of saltlicks or occupiers thereof, should be able to manufacture salt with as much ease as possible and thereby have the power to sell it on good terms..."¹⁰⁴ The act allowed salt-makers eminent domain to cross over privately owned lands in order to reach the closest suitable wood for their furnaces. It also allowed him the right to cross any private lands in order to ship his product.

¹⁰² Clark, "Salt, a Factor," 46.

¹⁰³ R. E. McDowell, "Bullitt's Lick and Related Salt Works and Settlements," *Filson Club History Quarterly* 30, (1956): 256.

¹⁰⁴ Clark, "Salt, a Factor," 47.

Just upriver in the Kanawha Valley, population increases and commerce were less robust. As late as 1810, large land holders continued to hinder migration to the valley. In *The Navigator*, Zadok Cramer's guide to traveling the major waterways leading to the Ohio Valley, Cramer noted that "The banks of the river (Kanawha) the bottoms on each side are rich and extensive and tolerably settled except for those large tracts of land owned by the heirs of the late General George Washington, which are held at ten dollars per acre, a price too high it is thought for advantageous purchases."¹⁰⁵ Ten years later, in 1820, Andrew Parks and his wife Harriot agreed to pay Lawrence Augustine Washington \$600.00 each January 1 for three consecutive years beginning in 1821, followed by a payment of \$8,500.00 in 1828 in exchange for a significant land tract on the Kanawha River.¹⁰⁶ George Washington's niece and nephew Harriot and Lawrence were significant heirs to the late President's estate.

Despite the Washington family's continued faith in the financial reward to come from the Kanawha Valley, some speculators' hopes for profits faded in the face of disappointing demand and troublesome tax obligations. Still, some Virginians eyeing western counties found those large tract holders willing to sell at agreeable rates. One of the first to buy land for personal use rather than speculation was Joseph Ruffner. Following a disastrous 1794 fire on his Shenandoah Valley farm, Ruffner purchased land originally patented in 1775 by Colonel John Dickinson, a prosperous Shenandoah Valley neighbor of the Clendenin family who, like Clendenin, patented the land after his service at the Battle of Point Pleasant.

¹⁰⁵ Zadok Cramer, *The Navigator* 7th ed. (Pittsburgh: Cramer, Spear and Eichbaum, 1811), 96.

¹⁰⁶ Mortgage of Andrew Parks and Lawrence Washington. In possession of author.

The terms of the sale, structured much like the later Parks-Washington bond, illuminate the sophisticated nature of the agreement and foreshadow the role of commercial salt production in the region. On October 13, 1795, Ruffner agreed to pay £600 in exchange for the 502 acres at the mouth of Campbell's Creek, including a salt lick there.¹⁰⁷ Additionally, Ruffner agreed to three conditional bonds. In these, he committed to "exert all pains and Industry" to make salt at the spring. Each of these bonds required Ruffner to pay Dickinson, his heirs, or his executors £1,000 in salt at current values for every 10 bushel amount up to 30, which could be boiled in a 24 hour period. If Ruffner produced more than ten bushels, he need not pay more than one bond annually, and interest would not accrue on outstanding bonds.¹⁰⁸ Under such terms, the successful pursuit of salt could have created a significant liability for Ruffner. The bond in exchange for salt was not officially part of the sale agreement, which discusses only the exchange of £600 in Virginia money for the 502 acres. There is, however, little doubt that Ruffner dashed any hope of salt-based royalties for Dickinson.

Colonel Dickinson's estimation of the value of salt on the western frontier was prescient. His vision for the commercial future of the valley coincided with that of other early speculators. The importance that he placed on the role of salt in particular was informed by his own experience as a resident of the American colonial frontier. Unlike

¹⁰⁷ Deed Book A 102-103 Kanawha County Court House; Stealey, John Brantly, and M. F. Maury each state that the price Ruffner paid Dickinson for the 502 acres was 500 pounds. The deed filed at the Kanawha County Court House clearly spells out "six hundred." The cause of the discrepancy is unknown. Stealey, *Antebellum*, 9. John Edward Brantly, *History of Oil Well Drilling* (Houston: Book Division, Gulf Publishing Company, 1971), 66. M. F. Maury and William M. Fontaine, *Resources of West Virginia* (Wheeling: The Register Company, 1876), 279.

¹⁰⁸ Kanawha County Court Records, Dickinson vs. Ruffner 1793, box 5, envelope 6, West Virginia and Regional History Collection, West Virginia University, Morgantown, West Virginia; Maury and Fontaine, *Resources of West Virginia*, 274; Stealey, *Antebellum*, 9.

other speculators such as George Washington, Dickinson was personally familiar with life removed from coastal salt sources, whether domestically created or imported. The indispensable commodity raised concerns and fanned the smoldering embers of sectional tension in the backcountry regions not blessed with salt licks.

The divisive nature of salt distribution and pricing on the inland frontiers took center stage during the tariff debates of the first congress in 1789. While duties on imports to the financially troubled nation polarized federal representatives, the prospect of salt duties raised concerns great enough to precipitate predictions of civil disorder on the frontiers. South Carolina representative Aedanus Burke began his speech to the representatives by stating that he “need not remind the committee that this article is a necessary of life, nor that black cattle, sheep and horses do not thrive without it.” He continued, “likewise I know also that it is a tax particularly odious to the inhabitants of South Carolina and Georgia to whom the price is already excessively great.” The South Carolinian went on to argue that “The back parts of the state are obliged to haul all that they consume two, three or 400 miles in waggons [sic] for which they pay 7s 6d starting, add to this the first cost which is about 1s. though sometimes more and you will find the burden sustained by those remote from the sea shore sufficiently unequal.”¹⁰⁹ Thomas Scott of Pennsylvania agreed, likening salt to water and common air. He suggested that such a tariff would “prove too much” and that transporting salt from the coast was a burdensome tax already born by frontier residents.¹¹⁰ John Lawrence (Laurence) responded that frontier denizens did not use imported candles, clothes, or tea, so they

¹⁰⁹ The Congressional Register, *History of the Proceedings and Debates of the First House of Representatives of the United States of America* (New York: Harrison and Purdy), 1: 83.

¹¹⁰ *Ibid.*, 84.

avoided duties that coastal residents paid and thus should at least pay a salt duty.¹¹¹ Thomas Tucker pointed out another salt related reality of life removed from the coast. Inland cattle required more salt to thrive than their counterparts closer to the sea, as the vegetation upon which they fed contained less salt.¹¹² William L. Smith of South Carolina announced that the frontier people of his state were suspect of the new government. For this reason, a duty on salt should be avoided in hopes of pacifying up-country Carolinians. To this, the New Yorker Lawrence tartly suggested that since frontier Carolinians would not support the government either way, legislators may as well do what they pleased.¹¹³ As one of the earliest European residents settling the Shenandoah Valley, Dickinson knew the challenges and expenses involved in obtaining enough salt for his family, workers, and livestock to survive far from more plentiful coastal supplies. This also may indicate why he showed the foresight to arrange for mineral royalties in conjunction with the agreement to sell with his salt-laden Kanawha lands.

Despite the threat of sectional unrest, the federal government instituted salt tariffs in an effort to raise crucial funds while promoting domestic production. In 1789, legislators levied a \$0.06 per bushel tariff on imported salt. The following year, domestic producers were pleased to learn that the tariff had been doubled to \$0.12 per bushel. Seven years later, Congress increased the tax to \$0.20 per bushel, further rewarding American salt-makers for their industry with significant protection from English and Caribbean salt. Nevertheless, in 1790, as the import tax doubled, 2,337,920 bushels of

¹¹¹ Ibid., 83.

¹¹² The Congressional Register, *History of the Proceedings and Debates*, 84.

¹¹³ Ibid., 86.

foreign salt entered the US through official channels.¹¹⁴ It is unknown to what degree salt smuggled from the salt-producing islands of the Caribbean would have increased this number. There certainly was incentive to smuggle Caribbean island salt since many considered Caribbean salt preferable to domestic salt for many purposes, as evidenced by the higher price it commanded in the markets.¹¹⁵

White settlers of the Ohio River Valley may not have favored their legislators' efforts to support domestic salt production, but the matter was complicated. Changes in tariffs had varying effects. Naturally, it elevated the price of salt. While residents of the towns and farms that grew in unison may have disliked the increased salt prices that resulted from the federal tariffs, drops in tariffs could have a troublesome effect as well. In a specie-short frontier, salt was a commodity that most readily converted to cash and oiled the wheels of commerce. Merchants and traders purchased supplies of salt at salt-works prior to setting off on a trip much as one would stop at a bank before travelling today. At times, complicated deals required several trips to salt-works to exchange goods for salt before the final trade was actually made.¹¹⁶ The tariffs, in effect, held up the value of their frontier assets, especially relative to currency of the East.

Despite the strong demand for salt and protective tariffs, Joseph Ruffner proceeded to farm the land he acquired from Dickinson as well as 900 acres he purchased from George and William Clendenin, allegedly failing to honor his obligation to produce salt.¹¹⁷ The elder Ruffner may have failed to pursue salt-making for a variety of reasons.

¹¹⁴ Leander Bishop M.D., *History of American Manufactures 1608-1860* (Philadelphia: Edward Young and Company, 1861), 1:278-295.

¹¹⁵ United States Congress 21st Congress, 1st, Session, *Documents Relating to the Trade in and Manufacture and Uses of Salt* (Washington D. C.: Blair and Rives Printers 1839).

¹¹⁶ Jakle, "Salt on the Ohio," 701.

¹¹⁷ Maury and Fontaine, *Resources of West Virginia*, 279.

The 1801 Kanawha County tax records list six Ruffner households with only Joseph's son David Ruffner owning a slave.¹¹⁸ The 1800 census for Kanawha County is unavailable, but the 1810 census lists six slaves and 17 prime working age white males spread among seven different households.¹¹⁹ Despite inevitable changes in the number of working age adults in that ten year span, it remains evident that while the Ruffners had been prosperous in the Shenandoah Valley, they did not control vast supplies of labor. Joseph Ruffner may also have held with the common belief that the brine that bubbled to ground along the Kanawha was too weak for commercial salt production. The hefty royalties that would be due Dickinson may also have led Ruffner to consider salt production a poor use of his resources. In 1876, local chronicler J. P. Hale suggested that the "attention to clearing and improving the farm diverted Ruffner's attention for a time, from the salt project; the delay was fatal so far as he was concerned; he did not live to execute his pet scheme or realize his cherished hopes."¹²⁰ Having been a farmer and miller in the Shenandoah Valley, he likely decided that farming the rich bottom lands surrounding the Kanawha River and Campbell's Creek was a more immediate concern. The economic rewards probably seemed surer. He may also have calculated that keeping all the rewards of farming activities would prove more profitable than the less familiar work of salt-making and paying Col. Dickinson royalties.

Not all subscribed to the notion that Kanawha brines were too weak to merit anything but household exploitation. In 1797, as salt tariffs rose to \$0.20 per bushel, Ruffner leased at least part of the land he had purchased from Dickinson to Elisha

¹¹⁸ "A List of Taxable Property within the County of Kanawha," 1801. West Virginia State Archives and History.

¹¹⁹ United States. Census Office, Third Census of Population, 1810.

¹²⁰ Maury and Fontaine, *Resources of West Virginia*, 280.

Brooks.¹²¹ Little appears to be known about Brooks. He shows up on the 1801 Kanawha County tax lists as having no horses, no slaves, and as the only adult male in the household. He later is counted in the 1810 Kanawha County census with a household that included what may have been his spouse, four young children, and no slaves.¹²² By 1820, there are no Brooks households listed in the county census. Regardless of the lack of information about him in the Kanawha County public records, Brooks made his mark on the region when he embarked on commercial salt production, despite ideas about the local brine's commercial potential. Until then, local salt production had consisted of individuals digging pits or sumps near a salt lick to collect pools of brine that seeped to the surface. Settlers then scooped up the brine with buckets, boiled it in their household's iron kettle, collected the residual salt, and sold any extra to their neighbors.¹²³ Some exerted complete control over the brine seepages and monopolized the immediate area's salt supply.¹²⁴ In the first of many salt industry innovations to grow out of the valley, Brooks expanded on this model and developed a more efficient method of obtaining brine and creating salt from the riverside marshes. Brooks sank hollowed log segments into the salt marsh to a depth of approximately ten feet, where he found stronger brine than on the surface. After brine leached into the hollows, Brooks employed a sweep with a bucket to dip brine from the hollow of the logs.¹²⁵ It is unclear if Brooks developed this innovative use of hollow logs to collect cleaner brine or if he appropriated practices employed by

¹²¹ Kanawha County Court Records, Dickinson vs. Ruffner 1793, box 5, envelope 6, West Virginia and Regional History Collection, West Virginia University, Morgantown, West Virginia; Brantly, *History of Oil Well Drilling*, 66.

¹²² "A List of Taxable Property within the County of Kanawha," 1801, West Virginia State Archives and History.

¹²³ Atkinson, *History of the Kanawha County*, 225.

¹²⁴ Brantly, *History of Oil Well Drilling*, 63.

¹²⁵ Maury and Fontaine, *Resources of West Virginia*, 274-275.

Native Americans on the site. In 1837, the *American Magazine of Useful and Entertaining Knowledge* reported of the salt marshes, “at this spot, several hollow logs, or *gums*, were found sunk into the gravel at the margin of the river, and probably placed there by the Indians, as they had every mark of great antiquity.”¹²⁶ It would require rather little time for hollow logs pressed into a marsh to weather thoroughly, so the gums may not have predated Brooks’ efforts.

Regardless of the origins of the idea, Brooks created the valley’s first salt-works in the Kanawha region. Brooks built a long, stone, wood-burning oven with the fire box at one end and a chimney at the other end. Between them, he set two rows of kettles, eventually 24 in all, to reduce the brine that he had lifted from the logs using a bucket and sweep. Brooks made no efforts to clarify the brine or otherwise remove impurities in the liquid brought up from the gum. As a result, the salt contained the dried residue of impurities and minerals present in the brine. The resulting crystals were not white, but red due to the presence of carbonate of iron which turned blood red when heated.¹²⁷ The carbonate of iron also imparted a decidedly metallic taste to the salt.¹²⁸

In this manner, Brooks created 150 pounds of salt per day, which he sold locally for \$0.10 per pound.¹²⁹ At a weight of approximately 50 pounds per bushel, Brooks created salt worth \$15.00 per day from his two dozen kettles. There are no known records

¹²⁶ “Salt Manufacture on the Kenawha River,” *American Magazine of Useful and Entertaining Knowledge* 3, No. 8 (1837): 346.

¹²⁷ Atkinson, *History of the Kanawha County*, 226.

¹²⁸ Brantly, *History of Oil Well Drilling*, 63, 67. The metallic taste can be attested to by the author, who obtained samples of brine which had been stored in jars in one of the outbuildings of the J. Q. Dickinson Saltworks in Malden, West Virginia, the site of the original salt-works community. With each successive reduction of brine, the residue became less and less metallic to the taste, but even after eight reductions and coolings, the salt retained a distinctly metallic flavor.

¹²⁹ West Virginia Geological Survey, *History of the Brine Salt Springs*, 5; Maury and Fontaine, *Resources of West Virginia*, 280.

suggesting that Brooks entertained ideas of holding a local monopoly on salt. Indeed, given that he did not own the land upon which he manufactured the red salt and that salt-works soon arose five miles up and down the river, it seems unlikely that he could have realistically planned a local monopoly.

It also remains unclear whether Ruffner collected a dividend on Brooks' production. With production between two and three bushels of salt per day, Brooks' operation clearly fell well short of the production targets that Dickinson had in mind for Ruffner. Ruffner may have realized that a salt-works on the scale of the bond to which he had agreed would have been a significant undertaking that left him parting with a good deal of any profits in the form of royalties to Dickinson.

After Joseph Ruffner died in 1803, his will pressed his sons to earnestly set about salt-making within one year of his death on the property purchased from Dickinson. This enjoiner could be construed to support Hale's suggestion that the more immediate need to produce food postponed the salt-making dreams of the elder Ruffner.¹³⁰ Regardless, Joseph Ruffner specified in his will that if salt-making attempts proved profitable, the money was to be divided into six shares, one going to each of the four younger sons, two shares to be given to the eldest son, Abraham. If unprofitable, the land was to be sold and £750 of the proceeds given to Abraham.¹³¹ Younger brothers David and Joseph made some apparently desultory efforts to find strong brine and soon declared the property

¹³⁰ Hale, *History of the Great Kanawha Valley*.

¹³¹ Last Will and Testament of Joseph Ruffner Sr., February 4, 1803, Kanawha County Court Records, *Adam Dickinson, Joseph Kincaid and Samuel Shrewsbury executors of John Dickinson deceased v. David and Joseph Ruffner. executors of Joseph Ruffner, deceased.*, box 5, envelope 4, West Virginia and Regional History Collection, West Virginia University, Morgantown, West Virginia.

worthless. Nevertheless, executors would not sell the land, possibly to protect themselves from liability in the future.

In October 1805, the executors of Dickinson's estate sued Joseph Ruffner's estate alleging that he willfully failed to meet the terms of the bond that he had signed as part of the land purchase agreement with Dickinson. Ruffner's children defended their father's estate, arguing that he had expended great efforts to extract profitable brine from the property. Dickinson's executors produced a deposition from a Brooks employee stating that Brooks had actually produced between seven and nine bushels of salt every twenty-four hours, and that with a larger furnace, twenty or more bushels could have been produced daily. Furthermore, Brooks' employee claimed that the departed Ruffner had obstructed Brooks' extractive efforts in small ways with Joseph Ruffner Sr. supposedly claiming that Brooks' success would "ruin him."¹³² Presumably Ruffner feared that Dickinson would offer Brooks' success in finding brine and manufacturing salt as evidence that Ruffner intentionally failed to honor the terms of his commitment to Dickinson. In 1806, Abraham Ruffner, despite the legal wrangling, sold his portion of his father's estate to Andrew Donally Jr., including the Dickinson tract, for £750. This was exactly the amount that Joseph Ruffner Senior's will specified for Abraham if salt water was not found on the property.¹³³

The importance of the sums at stake in the original agreement is underscored by Colonel Dickinson's will which reinforces Dickinson's attainment of some degree of

¹³² Kanawha County Court Records, *Adam Dickinson, Joseph Kincaid and Samuel Shrewsbury executors of John Dickinson deceased v. David and Joseph Ruffner, executors of Joseph Ruffner, deceased.*, box 5, envelope 6, West Virginia and Regional History Collection, West Virginia University, Morgantown, West Virginia.

¹³³ Deed Book C, 130, Kanawha County Court House.

wealth in Bath County. The document, written July 3, 1797, arranges for the dispersal of household goods and other property including, “7 featherbeds, kitchen and household furniture, old waggon [sic] and 4 pair gears, 4 ploughs, horses 6, cattle 34, hogs 11, sheep 6, Negroes Harry, Bill, Tom, Peter, Bill and Jonathan.”¹³⁴ Dickinson also arranged to divide over 3,700 acres of farm and timber tracts between his wife and children. These lands did not include the various farms and fields that he specified by name rather than by acreage. Even in the estate of a man as prosperous as Dickinson, the Ruffner debt was significant enough to merit specific attention. The will articulates this as such:

Joseph Ruffner’s bond: 1) 400 pounds to Adam and John each to build a house, with their mother to have a convenient part of either of the m as she may chose to live in; 2) bond of \$1,000 pounds worth of salt [sic], 300 pounds to my sopoosed [sic] daughter Catherine Humphries and 100 pounds to her son John, to my sister Mary Davis or to her grandson John Littlepage 100 pounds, to niece Abigail McClung 100 pounds if in case her husband William makes me or by heirs any reasonable part or satisfaction for my former right of the meddow [sic] lands where he now lives, if not to daughters Nancy and Jean, balance of bond to the daughters and Adam and John; bond of 1,000 pounds worth of salt, 700 to wife and six children, balance to grandsons John, son of Samuel Shrewsbury, John son of John Shrewsbury, and John son of Joseph Kinkade.¹³⁵

Colonel Dickinson’s will offers a number of insights. Dickinson’s aspirations for Kanawha Valley salt extended beyond serving as a local salt producer or even *the* local producer. Even for a prosperous man, the payoff was large. The will also suggests that Dickinson held doubts about the likelihood that Ruffner would keep his word. Whereas bequests to his “trusty son” and his “dear and loving wife” are made from proceeds outside of the Ruffner debt, “sopoosed” children and relatives who fail to offer

¹³⁴ John Dickinson, “Will of John Dickinson of the Cow Pasture” July 23, 1797, in Jean Bruns, *Abstracts of the Wills and Inventories of Bath County Virginia, 1791-1842* (Baltimore: Genealogical Publishing Company, 2009), 148.

¹³⁵ *Ibid.*, 143.

satisfaction for the loss of use of meadows are paid only if Ruffner pays. The will also provides a clue as to why some of the Ruffner children may have finally sought salt so intently. If Ruffner's salt was to provide multiple houses and various payments in cash and salt to Dickinson heirs, the obligation Joseph Ruffner had left his children could have been troublingly significant.

After Brooks' proven success at salt-making, the sale of the Dickinson tract coincided with the emergence of the Ruffner brothers' serious pursuit of salt on their own land.¹³⁶ In their quest for the mineral, Joseph Ruffner's sons, David and Joseph, created what oil drilling expert John Brantly described in his 1971 compendium of the oil drilling industry as "one of the three most important wells drilled in America."¹³⁷ The Ruffner's efforts earned such lasting importance for multiple reasons. Earlier wells had been dug, not drilled. Their Kanawha brine well is the first known well hemisphere to have been drilled rather than dug.¹³⁸ The second reason for the extraordinary nature of their industrial achievement rests on "the 'invention' and development of well drilling tools and practices, which became almost immediately the standard used by many other well drillers in the new salt industry."¹³⁹ A mere dozen years after George Clendenin became the first white settler to move to the valley, Joseph and David Ruffner embarked on industrial developments which propelled the valley to a status even greater than the commercial dreams of the original Kanawha investors. Moreover, they began a pattern of industrialization and technological innovation which persisted until the second half of the twentieth century.

¹³⁶ Maury and Fontaine, *Resources of West Virginia*, 281.

¹³⁷ Brantly, *History of Oil Well Drilling*, 64.

¹³⁸ *Ibid.*

¹³⁹ *Ibid.*

On a parcel of land adjoining the Dickinson tract that Ruffner Sr. had purchased, the brothers finally began pursuing salt in earnest. The increased diligence in pursuit of salt arose from the economic health of the father's estate. David Ruffner's son Henry, who eventually became president of Washington College (now Washington and Lee), recalled that his family had worked "at sinking hollow sycamore trees into the mud, until we were all sick of it, but my father was deeply in debt and it was sink or nothing."¹⁴⁰ It is little wonder that Ruffner remembers the exhaustion of sinking gums, for it was arduous and unpleasant work.

A gum was a large sycamore log, which men laboriously hollowed out. Earlier in his salt-works, Brooks made use of ten-foot long sycamore logs. The Ruffners used longer logs, fifteen to eighteen feet long. Regardless of the log length, creating gums required sycamores of considerable age. Throughout the length of the log, the interior space needed to be large enough to accommodate a man and his tools, approximately three and a half to four feet in diameter. Men chipped and bored at the inside of the tree until its walls were a mere three to four inches thick. Workers beveled the ends of the gum outward to help it cut into the riverbed. Thus prepared, the gum was ready for the arduous process of sinking.¹⁴¹

Even years later, the process of sinking gums remained much as it had been when Brooks and the Ruffners made their first efforts. Ann Royall, in her 1826 book, *Royall's Sketches of History, Life and Manners in the United States*, gives a detailed explanation of the process of gum-sinking. Royall explains, "about twenty hands repair to the place

¹⁴⁰ Stealey, *Antebellum*, 11.

¹⁴¹ Maury and Fontaine, *Resources of West Virginia*, 281.

where it is to be sunk, which is at the ledge of the low water on the river.”¹⁴² Men heaved the gum into place and held it standing upright on its wide end. A series of parallel beams were crisscrossed to hold the gum upright. Workers then constructed a platform which rested on the gum. This served both as the work platform and as a weight which helped force the log into the earth. Next to the platform, a sweep of approximately fifty feet balanced on a forked post. To the sweep, workers attached a large bucket suspended from a slender pole which would reach down into the bottom of the gum. At this point the truly arduous work began.¹⁴³

According to Royall, “a man is then let down into it by windlass, and digs around the edge with an instrument suited for the purpose; when he fills his bucket with sand, gravel or earth, which he meets in succession; the bucket is immediately drawn up, emptied and let down again, and so on till the gum descends to a rock, which is uniformly at the same distance.”¹⁴⁴ If the dark and claustrophobic working environment inside the tree trunk was not troublesome enough, the cold added to the misery. Royall wrote that “no man can remain in it longer than twenty or thirty minutes, owing to the excessive cold that exists at the bottom...”¹⁴⁵ The cold was undoubtedly exacerbated by the constant flow of the Kanawha River and icy brine spring water into the hole. When diggers emerged from the gum after their brief shift, Royall reports that they were “unable to stand, and shiver as if they would shake to pieces; it can hardly be told

¹⁴² Royall, *Royall's Sketches of History*, 44.

¹⁴³ Stealey, *Antebellum*, 11.

¹⁴⁴ Royall, *Royall's Sketches of History*, 44.

¹⁴⁵ *Ibid.*

whether they are black or white, their blood being so completely chilled.”¹⁴⁶ Sinking gums was arduous work to be dreaded.

There appears to be little evidence to suggest whether blacks or whites were more likely to work beneath the river, inside the gums. The nature of the work might suggest that it was more likely relegated to slaves. Royall’s statement that she could not distinguish between the races of the diggers suggests that men of both races toiled within the gums. Tax records indicate that Brooks owned no slaves.¹⁴⁷ Census records indicate that of the seven Ruffner households in the county, one household owned a single slave.¹⁴⁸ This suggests that perhaps whites performed the cold and unpleasant work. However, as historians Charles Dew, Robert Olwell, Robert Starobin, and others have illuminated, slavery was a flexible institution, capable of being manipulated to suit the specific and immediate needs of those in control.¹⁴⁹ Slaves may well have been rented locally on a short term basis for the grueling work.

In November 1815, David Ruffner described his and Joseph’s initial search for brine after their father’s death. “We were desirous to see the effect of sinking large sycamore gums as low as we could force them. We found great difficulty in this on account of the water coming in so rapidly. When we got eighteen feet below the surface of the river, we discovered that our gums lodged on a solid smooth freestone rock- and

¹⁴⁶ Ibid.

¹⁴⁷ Kanawha County Tax Records, Kanawha County Court House.

¹⁴⁸ United States Census Office, Third Census of Population, 1810.

¹⁴⁹ Charles B Dew, “Disciplining Slave Ironworkers in the Antebellum South: Coercion, Conciliation and Accommodation,” *American Historical Review* 79, no. 2 (April 1974): 393-418; Robert Olwell, *Masters, Slaves and Subjects: The Culture of Power in the South Carolina Low Country 1740-1790* (Ithaca: Cornell University Press, 1998); Robert S. Starobin, *Industrial Slavery in the Old South* (New York: Oxford University Press, 1970).

the water was but little improved as we descended.”¹⁵⁰ The significant investment in sinking gums down until they reached solid rock did not assure men of rewards. The brothers would come to find that sinking the gum was only the beginning of the quest for stronger brine. In the dogged pursuit of salt through solid rock, the Ruffners and other Kanawhans developed tools and techniques which remain the technological base of oil and gas exploration.¹⁵¹

The initial challenge in pursuing salt through rock was presented by the subterranean fresh water that flowed into the gum because they could not seal the gap between the gum and the rock. It was impossible to determine if they were encountering saltier water as fresh water flowed in between the gaps between the gum and the rock. By cutting, trimming, wedging, and shimming around the bottom of the gum, the Ruffners managed to stop the flow of water through the gaps.¹⁵² As water seeped slowly from the rock below, David and Joseph were disappointed to find that it was fresh, not salty. After this setback, the brothers began the arduous task of sinking another gum 100 yards away, but this too yielded water of insufficient salinity.¹⁵³

On their third attempt at a site far closer to the original Brooks salt-works, the brothers finally met with some hard earned success. They sank their gum until they hit solid rock.¹⁵⁴ After sealing the gaps between the gum and the rock, the brothers determined that the liquid seeping from the rock beneath was indeed saltier. Despite the lack of precedent for piercing rock eighteen feet below a river, the brothers pressed on.

¹⁵⁰ David Ruffner, “Kenawha Salt-works,” *Niles Weekly Register* 8, American Periodical Series II, Reel 69, V7, (September 10, 1815-August 26, 1815).

¹⁵¹ Stealey, *Antebellum*, 49.

¹⁵² Maury and Fontaine, *Resources of West Virginia*, 282.

¹⁵³ *Ibid.*

¹⁵⁴ Royall, *Royall's Sketches of History*, 44.

Their predecessor, Brooks, had already created a salt-works capable of significant brine production given sufficient boiler capacity. Nevertheless, the Ruffners persisted, driven by debt, and perhaps by a larger commercial vision that required greater efficiency than that needed to supply merely the isolated Kanawha Valley community.

The Ruffner brothers appear to have had some rudimentary knowledge of stone quarrying. At the time, quarry workers were capable of gouging holes in stone several feet deep to receive explosives. The brothers deduced that they could drill deeper into the rock in a similar fashion by creating longer drill bits. They fashioned a long iron shaft with a 2.5 inch chisel bit and then attached the end of the shaft to a spring pole which supplied the upward power. Men with ropes assisted by gravity provided the downward thrusts which dug away at the stone at the bottom of the gum.¹⁵⁵

At 17 feet below the gum, they struck a fissure in the rock that prompted an encouraging increase in the salinity and flow of the brine.¹⁵⁶ Encouraged by this development, they welded longer shafts of iron to the drill shaft and continued drilling until the hole extended 28 feet below the gum where they obtained samples of even

¹⁵⁵ Royall, *Royall's Sketches of History*, 44; Maury and Fontaine, *Resources of West Virginia*, 283.

¹⁵⁶ Maury and Fontaine, *Resources of West Virginia*, 283.

stronger brine.¹⁵⁷ Finally, at a depth of 58 feet below the top of the gum, the Ruffners and their crew struck a level at which strong brine flowed freely.¹⁵⁸

Faced with retrieving brine from such a depth through a shaft only inches wide, the Kanawhans had little choice but to devise their own methods of bringing the brine to the surface. The solution they found was to create two, forty-foot long wooden half pipes, which they placed together to form a tube and wrapped the entire length tightly with twine. They fashioned a sealed plank cap for the bottom of the gum. After fitting the cap, they drilled a three inch diameter hole through it. The Ruffners then inserted the pipe they had created through the hole and down into the shaft they had so laboriously and ingeniously drilled. In order to keep fresh water from flooding into the brine at the bottom of the well, the brothers devised a method of sealing the bottom of the pipe in the base of the well. They filled a small leather bag with seeds and wrapped it around the end of the pipe. When the bag was in place, the seeds absorbed waters and swelled, sealing the gaps between the pipe and the hole they had drilled.¹⁵⁹ The brothers' inventive solution succeeded admirably. Strong cold brine flowed freely up through the tube and filled the gum. On the site of their first successful well, the Ruffner Brothers built a

¹⁵⁷ Royall wrote decades later of the use of long shafts of iron to drill, not discussing whether they were incrementally lengthened as needs arose, see Royall, *Royall's Sketches of History*, 44; Stealey suggests that rather than long iron poles, the auger was affixed to wooden poles which were protected by wooden pipes which were inserted through the hole in the cap. This difference may reflect an evolution in techniques over time, or a change in techniques due to the depth of the drilling, tools available in each case, or personal preference of the driller. Hale offers that in their original efforts, the Ruffner Brothers welded extra lengths of iron shaft to the drill as they extended the hole. See Maury and Fontaine *Resources of West Virginia*, 283. While there is probably no person who has written more extensively than Stealey on the development of the Kanawha salt industry, the wood shafts of extended length that were as thin as described seem prone to bowing and shattering, leaving the metal irretrievable and the shaft useless; Stealey, *Antebellum*, 49.

¹⁵⁸ Maury and Fontaine, *Resources of West Virginia*, 283.

¹⁵⁹ Eugene D. Thoenen, *History of the Oil and Gas Industry in West Virginia* (Charleston: Education Foundation Inc., 1964), 6.

furnace much like the furnace Brooks had earlier, only larger. On February 8, 1808, the brothers harvested their first batch of salt, and sold it for \$0.04 per pound, roughly half what Elisha Brooks had sold his salt for nearly a decade earlier.¹⁶⁰

The Ruffners achieved extraordinary accomplishments. One historian of the region observed, “Thus bored and tubed and rigged and worked, the first rock bored salt well west of the Alleghenies if not the United States. The wonder is not that it required 18 months or more to prepare, bore and complete this well for use, but rather that it was accomplished at all under the circumstances.”¹⁶¹ The remarkable depth to which David and Joseph pursued stronger brine suggests that perhaps the vision toward which they labored lay beyond the narrow Kanawha River Valley. While their motivation was clearly economic in nature, the brothers also drove forward pressed by a sense of curiosity and a zest for problem solving. Ruffner’s achievements are indicative of a broader vision of technological and economic possibilities. Their realization of these possibilities created the platform on which industrial technologies would be built for more than a century. Of more immediate importance, their work served as the foundation from which the Kanawha Valley salt-makers influenced the growth of the American Great West.

While the supply and value of salt fluctuated with the changing tariff policies of the federal government in the decades to come, the real impetus to the Ohio Valley salt economy came not from Washington D. C. but from the Kanawha Valley. While the Ruffner brothers’ advances in drilling technology and salt-making became a standard in the industry regardless of where Americans created salt from brine, the Kanawha Valley

¹⁶⁰ West Virginia Geological Survey, *History of the Brine Salt*, 7.

¹⁶¹ Brantly, *History of Oil Well Drilling*, 65.

enjoyed advantages which would, in time, allow it to dwarf and often destroy salt producers elsewhere. Its workers were generally the enslaved, offering Kanawha Valley producers labor cost advantages. The valley also had a readily available, inexpensive, and plentiful alternate supply of fuel available when men exhausted the supply of timber. Perhaps more than anything, as the Ruffners had fervently hoped, they had stronger brine. Kentucky brine generally required 1,000 gallons to make a bushel of salt. Ohio's significant Scioto Salt-works required only 500 gallons to produce a bushel. The U.S. Saline in Wabash required just 180 gallons of brine per bushel. After the Ruffner brothers' drilling achievement, they reached brine which required only 100 gallons to create a bushel of salt.¹⁶² These advantages, some detestable, others natural and fortuitous, gave the Kanawha Valley's budding industrial captains a significant advantage over their competition. However, these advantages alone did not propel these Appalachians to the forefront of the industry. The Kanawha Valley salt-makers' pattern of relentless innovation in technology, the environment, and commerce indelibly shaped their valley and the nation.

¹⁶² Jakle, "Salt on the Ohio, 1770-1820," 700.

Chapter 3: Relentless Innovation

On February 25, 1829, the *Western Virginian* announced, “By throwing bodies of salt water and coal of very good quality together upon a navigable stream leading to an almost illiquidable [sic] future market for salt, nature has provided to a certain extent, an exclusive staple...already in demand to the west.”¹⁶³ With this pronouncement, the *Western Virginian* added to the steady stream of enthusiastic assessments touting the remarkably rich opportunities offered by a valley holding extraordinary natural wealth. Newspapers trumpeted the valley’s nearly supernatural good fortune, blessed with “inexhaustible” mineral wealth, sited just upstream from urban centers with equally boundless needs for Kanawha Valley products.¹⁶⁴ While those who promoted the natural wealth of the Kanawha Valley may have gushed a bit, valley landowners did indeed control great mineral wealth on the fringes of Ohio Valley commercial and industrial centers. However, these odes to the valley’s natural bounty fail to account for the human component that forced commercial visions into reality, namely, tenacious and restless ingenuity.

The Kanawha salt industry thrived, nourished by an environment of unflagging commercial flexibility, imagination, and innovation. Salt-makers there carried forth these same qualities that the Ruffner brothers relied on when they became the first to drill through solid rock beneath the powerful river. The emerging industrialists constantly

¹⁶³ “Kanawha Salt Works,” *Western Virginian*, February 25, 1829.

¹⁶⁴ *Virginia Gazette*, October 20, 1790; Jefferson, Notes, 152; Howe, *Historical Collections of Virginia*, 345.

scanned their surroundings for opportunities. The reconnaissance of their environment stretched from broad horizons to intimate minutia. Their appraisals of and responses to threats and opportunities showed the disregard for convention which often marks the entrepreneurial spirit. However, salt-makers just as quickly resorted to extreme conservatism when they felt that it would suit their purposes best. They were, above all, opportunistic businessmen.

The early industrialists applied their commercial efforts across a wide variety of fields, seeking to influence their legislative, legal, social, technological, natural, and of course, economic environments. They took broad, inclusive, and flexible views of their assets, and more importantly, potential assets. This perspective predominated as they encountered problems and sought solutions to those problems. Economic concerns drove much of the innovation. At the same time, salt-making, as an extractive industry, unsurprisingly fostered innovations which responded to environmental challenges and opportunities. Cronon's *Nature's Metropolis* effectively conveys the ubiquity of the environment in the development of the Great West. In light of this book, one could argue that Kanawha Valley innovation arose from the environmental influences as much as economics.¹⁶⁵

Despite the challenges involved, some framework for examining Kanawha Valley innovation must be imposed in order to derive a focused impression. To this end, the examples of flexibility and ingenuity may be categorized by the origins of the challenges and opportunities that prompted the changes or innovations. Innovations and novel approaches that developed in response to challenges presented by natural resources or the

¹⁶⁵ William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton Company, 1991).

mechanics of reducing brine tended to be production-oriented. Innovations that responded to legislative and transportation related catalysts tended to involve the sales and distribution of the finished product. This correlation does not always hold true. Several areas from which catalysts arose, including competition and labor, staunchly defy this trend. Challenges originating from these areas prompted innovative developments and flexible responses in every arena. Indeed, it would have been uncharacteristic of valley salt-makers to fail to take a holistic approach to any challenge or opportunity. Like Joel Shrewsbury, who left Bedford County Virginia intent on salt-making, but equipped to engage in farming, milling, timbering, iron smithing, and tobacco brokering, Kanawha businessmen rarely viewed threats, solutions, and opportunities in narrow or compartmentalized spheres.¹⁶⁶ Exploring innovations and creative solutions that responded to events in the technical, legislative, competitive, and labor arenas provides an understanding of the context in which early Kanawha salt-makers operated, and thus illuminates the scope of their perspective.

While the process of salt production may have been simple at its core, scooping up brine from the marshes and boiling it down in iron pots, the drive for the greater efficiencies required for large-scale production necessitated tremendous technological ingenuity and flexibility. One of the earliest troubles salt-makers faced involved drilling for brine. As the Ruffners showed, reaching strong brine required considerable

¹⁶⁶ Joel Shrewsbury to William Dickinson, April 18, 1814. In possession of author; Joel Shrewsbury to William Dickinson May 17, 1814. In possession of author; Joel Shrewsbury to William Dickinson, February 14, 1815. In possession of author; Joel Shrewsbury to William Dickinson, April 22, 1817. In possession of author; Joel Shrewsbury to William Dickinson, February 3, 1818. In possession of author; Joel Shrewsbury to William Dickinson, February 2, 1814. In possession of author; Joel Shrewsbury to William Dickinson, December 29, 1813. In possession of author.

determination and risk. Patience, time, and capital often stretched thin as drillers sought strong brine flowing at a rate sufficient to support one or more furnaces.¹⁶⁷ In 1810, the Kanawha Valley produced 740,000 bushels of salt.¹⁶⁸ At an average of 100 gallons of brine per bushel, this required 74 million gallons of brine even as the industry was in its infancy.¹⁶⁹ After drillers guessed at the correct location to drill, often incorrectly, the drilling process could yield more problems than brine. A correct guess as to where brine lay might not remain correct as brine flow increased or decreased with rises and drops in river levels. Returning to drill a formerly productive well was no small task. Drillers required an array of bits which they constantly exchanged and carried to the closest smithy for reshaping and sharpening. This was laborious, but there were far more troublesome aspects to the drilling.

On June 13, 1815, Joel Shrewsbury wrote to his partner, William Dickinson, “Boring proceeds well cutting [sic] from one to two feet per day.” However, he ominously added that the person who sold them their interest in the land “had struck no water for thirty or forty feet previous his quitting the gum, his parade was to get us to buy him out at a high price.”¹⁷⁰ Shrewsbury deemed the efforts at that particular gum fruitless and moved to a different site. On September 29, he reported, “The old Englishman commenced boring last Monday as is very masterly fixed, boring from 12 to 15 inches per day.”¹⁷¹ Throughout October of 1815, Shrewsbury reassured his partner that drilling

¹⁶⁷ In 1820, Shrewsbury wrote to Dickinson “on the river all experiments fails [sic], all above the mouth of Witcher’s Creek and below Daniel Ruffner’s. Harmon has bored to 500 feet and no water that is good.” Joel Shrewsbury to William Dickinson, February 22, 1820. In possession of author.

¹⁶⁸ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 5.

¹⁶⁹ *Ibid.*, 12.

¹⁷⁰ Joel Shrewsbury to William Dickinson, September 29, 1815. In possession of author.

¹⁷¹ Joel Shrewsbury to William Dickinson, September 29, 1815. In possession of author.

was proceeding with promising signs of salt water. In November, signs seemed so promising that Shrewsbury purchased tin with which to line the well before testing the brine strength. Shrewsbury wrote, “The old man is going to make a tube and try the water, which if good shall sell the tin tube and procure a copper one.”¹⁷² Valley salt-makers who had begun excluding fresh water by making wooden tubes bound with twine had upgraded to tin tubes which were riveted together and just as quickly progressed to using copper tubing with screw joints. Tougher steel pipes with screw joints eventually followed the copper tubing.¹⁷³ Frustratingly for Shrewsbury, the tubing did not proceed well. The tubing lodged in the well and was subsequently damaged.¹⁷⁴ Once they had managed to remove the mangled tubing and refashion the metal to fit, it seems likely that Shrewsbury deemed the water not salty enough and chose to drill deeper.

On January 2, 1816, Shrewsbury reported, “River is over the gum- auger stuck.”¹⁷⁵ After months of difficult and costly efforts sinking the gum and drilling the well, the drill became lodged in the solid rock and could not be dislodged, for on April 15, 1816, Shrewsbury wrote that the “old gum is troublesome” and the “auger is stuck fast.”¹⁷⁶ Into the spring, they struggled to remove the bit from the stone far below the river. On May 20, Shrewsbury finally conceded defeat and wrote to Dickinson “we will never be able to get the sinker bit out.”¹⁷⁷ Drillers realized that removing the stones and gravel chipped off by the auger made the auger less likely to become wedged. To this end, the salt-makers created a primitive sand pump which evolved to entail copper tubing

¹⁷² Joel Shrewsbury to William Dickinson, November 1, 1815. In possession of author.

¹⁷³ Howe, *Historical Collections of Virginia*, 9.

¹⁷⁴ Joel Shrewsbury to William Dickinson, December 10, 1815. In possession of author.

¹⁷⁵ Joel Shrewsbury to William Dickinson, January 2, 1815. In possession of author.

¹⁷⁶ *Ibid.*

¹⁷⁷ Joel Shrewsbury to William Dickinson, May 20, 1816. In possession of author.

with a one-way valve at the bottom. This allowed the stone to enter the tube and not escape, clearing the hole of debris. Despite the innovations, this problem continued to plague Kanawha Valley drillers until 1831 when local resident William Morris, “Uncle Billy” invented the slip jar bit, which remains integral to drilling to this day.¹⁷⁸

The slip jar bit consisted of two interlocked lengths of steel which could slide along each other’s length without separating, allowing the bit to contract and extend its length. On the downward thrust, the bit contracted, allowing for a strong strike which pierced the rock below. On the upward thrust, the slip bit helped avoid a bane of drillers work, wedged augers. The foot or more of play that Morris engineered into the bit through the sliding motion of the two steel pieces allowed the upward motion to gain momentum and roughly jerk the bit out of the stone.¹⁷⁹ This small innovation highlights the ingenuity of early valley salt-makers. Like the transition of the man-powered spring pole to the horse powered treadmill to drive the drill, they were often evolutionary in nature, the culmination of frequent tinkering rather than radical, paradigm-shifting inventions. While improvements in the mechanics of salt-making served as the impetus for some Kanawhans’ creative innovations, environmental changes prompted what may have been the most radical developments in Kanawha salt-making.

The earliest visitors to the Kanawha Valley marveled at the unspoiled beauty surrounding the river.¹⁸⁰ However, by 1815, less than twelve years after their initial lifting of salt, David Ruffner bragged, “There are now established in operation here fifty-

¹⁷⁸ J. P. Hale, “Salt” in *Resources of West Virginia*, ed. M.F. Maury and William M. Fontaine, (Wheeling, W.V.: Register Company, 1876), 286-287.

¹⁷⁹ E. T. Crawford, “Salt-Pioneer Chemical Industry of the Kanawha Valley,” *Industrial Engineering Chemistry* (October-December 1935): 1112.

¹⁸⁰ “A Description of the Valley of the Kanawha, by a Lowlander, in a Letter to a Friend,” *Farmers’ Register*, (January 1834); “Kenawha Salt-works” *Niles Weekly Register* 8, 1815.

two furnaces (and many are erecting) containing 40-60 kettles of 36 gallons each-all of which make 2500-3000 bushells [sic] of salt per day.” Ruffner then predicted that “Firewood, in the course of time, must become scarce or difficult to get-but stone coal may be used instead of it, and of this our supply is inexhaustible.”¹⁸¹ Ruffner did not have to look far into the future. By 1819, workers had stripped the hills of trees for twenty miles up and downriver from the salt-works.¹⁸² Visitor Anne Royall described the scene around the Kanawha Valley and the salt-works, finding them “dismal looking places; the sameness of the long low sheds; smoking boilers; men, the roughest that can be seen, half-naked; hundreds of boat-men; horses and oxen, ill-used and beat by their drivers; the mournful screaming of the machinery, day and night; the bare, rugged inhospitable looking mountain from which all the timber has been cut, give it a gloomy appearance.”¹⁸³ The deforestation of the valley held serious consequences for industry there.

A variety of ancillary industries relied on timber as a primary resource. Hundreds of men worked in cooperages creating the white oak barrels into which men packed salt for shipment to the Ohio River Valley and beyond.¹⁸⁴ Others worked as boat builders, creating the flatboats that carried the essential mineral downstream. The boats were subsequently sold downstream. Boatmen then trekked, often for weeks, back upriver after selling their cargo and their crafts.¹⁸⁵ Hundreds more worked as carpenters building and

¹⁸¹ “Kenawha Salt-works” *Niles Weekly Register* v1.8, 1815.

¹⁸² Henry Howe, *Historical Collections of Virginia*, 334-335.

¹⁸³ Anne Royall, *Royall's Sketches of History*, 46.

¹⁸⁴ “West Virginia Pioneer Industry; Salt making in the Kanawha Valley: *West Virginia and Regional History Collection* 7, no.1 (spring 1991): 2.

¹⁸⁵ Conley, “Early Coal Development,” 207.

maintaining the salt-making facilities that included sheds, troughs, pipes and sluices, scaffolds, docks, and warehouses required for the growing industry.

The letters of Joel Shrewsbury to William Dickinson repeatedly highlight the supreme importance of timber.¹⁸⁶ Despite the fact that Shrewsbury left Bedford County, Virginia with the intent of farming, making salt, and opening a smithy, upon arrival he immediately put the slaves to work cutting wood for the salt furnace he anticipated operating. Shrewsbury reported to Dickinson, “I have taken our four fellows, viz Ben, Jim, David and Abram and have them employed at this time cutting [sic] up wood that is fell down on our lower place, which if we should ultimately fail to get Salt water I can sell at \$2 per cord: I task them 1 ½ cords per day each...”¹⁸⁷ Salt manufacturers often used their own workers to supply wood, but they also relied on teams of timber cutters who worked in exchange for salt, specie, credit, or bank notes.

Even as he delayed building a furnace due to post war drops in salt prices, Shrewsbury continued to accumulate land for its timber. He amassed hundreds if not thousands of cords of wood which he refused to sell in preparation for salt-making. Competitors offered him the \$2.00 per cord he had hoped for, still, he did not sell.¹⁸⁸ It was not until cords of wood were beginning to rot that Dickinson and Shrewsbury agreed to sell any of it.¹⁸⁹ Indeed, Shrewsbury indicated that ownership of a salt furnace required

¹⁸⁶ Shrewsbury wrote to Dickinson that it was much better to own a furnace than to sell the wood. A cord of wood traded for 2 ½ to 3 bushels of salt. Shrewsbury to Dickinson, May 20, 1816. In possession of author.

¹⁸⁷ Joel Shrewsbury to William Dickinson, December 20, 1814. In possession of author; Joel Shrewsbury to William Dickinson, February 14, 1814. In possession of author.

¹⁸⁸ Joel Shrewsbury was offered a contract for 2,500 cords of wood at \$2.00 per cord delivered to the riverbank by James Bassot. Dickinson refused the offer. Joel Shrewsbury to William Dickinson, February 17, 1815. In possession of author; Joel Shrewsbury to Pleasant Dickinson, March 13, 1815. In possession of author.

¹⁸⁹ Joel Shrewsbury to William Dickinson, May 20, 1816. In possession of author.

ownership of enormous quantities of wood.¹⁹⁰ Other salt-makers similarly sought control of timber and stored massive quantities of wood.

The value of timber made it the object of theft and disputes. It should be noted, even given the value of timber, there are no evident records of disputes over timber devolving into the violence with which central and southern Appalachia is popularly credited. Rather, even early in the valley's white history, salt-makers resorted to the courts to settle disputes. Shrewsbury reported that he "commenced suit ... here vs. John Newgen, John See and Jarrett See for trespassing in cutting timberwood [sic] upon the 2000 acres survey. They will pay whatever damages might be judged by disinterested men."¹⁹¹ Just as Altina Waller found it important to point out that the Hatfields and McCoys used non-violent, legal systems to work out their differences in order to dispel seemingly undying ideas of isolationist Appalachian violence, it is worth saying that the same was true in the Kanawha, even a half century earlier than Waller's subjects.¹⁹²

Leases, sales, and agreements to operate salt furnaces generally included specific arrangements for firewood. After several failed attempts, Dickinson and Shrewsbury gave up on the site they had been drilling for brine. They purchased two acres nearby from Shrewsbury's brothers and met with success on their third drilling attempt. After building a furnace, Dickinson-Shrewsbury chose to lease out their first salt furnace to several brothers named Leftwich. In the lease arrangement, Dickinson-Shrewsbury supplied the brine from their well and wood from their land. In exchange, Dickinson-Shrewsbury also

¹⁹⁰ *Ibid.*; Shrewsbury often purchased land solely or at least primarily for the timber growing on it to fuel the furnaces and cooperages. Joel Shrewsbury to William Dickinson, September 30, 1818. In possession of author.

¹⁹¹ Joel Shrewsbury to William Dickinson, October 28, 1816. In possession of author.

¹⁹² Waller, *Feud*; Joel Shrewsbury to William Dickinson, November 12, 1816. In possession of author; Joel Shrewsbury to William Dickinson, June 1815. In possession of author.

took a hefty percentage of the salt produced, 1,200 bushels of salt per month for each 50 kettle furnace.¹⁹³ In the end, Dickinson-Shrewsbury fared well in the arrangement. Shrewsbury, who had long been aware that his was the only side profiting from the agreement, seemed surprised and disgusted when the Leftwichs deserted the furnace in disarray and headed west before the lease's term had finished.¹⁹⁴ The Leftwich's lease, which carefully described provisions for fuel and brine supplies yet left furnace owners Dickinson-Shrewsbury free from the actual salt production, provides another example of flexibility of the Kanawha businessmen.

Some believed that owning the wood was not sufficient if it was not close to the river and close to the furnace. Wood cutters began cutting the timber closest to the Kanawha. Eventually, when they were compelled to cut farther afield, cutters sent wood tumbling down troughs to the salt-works.¹⁹⁵ When Shrewsbury eventually decided to move their company's drilling operation and construct a furnace, the new site lay a mile from their wood supply. Shrewsbury took pains to explain to his partner that though the distance to ship the wood seemed great, it would still be economically feasible. The proposed site was close to the cooperage and Shrewsbury argued, "I am not insensible of the cost attending to a furnace where wood is to be boated, but it is far better than to sell our wood."¹⁹⁶ The price offered was a secondary concern though. His primary reason for not selling the wood resonates with themes of land ownership and civil worth that have long held sway in America. Shrewsbury preferred not to sell his wood because "those

¹⁹³ Joel Shrewsbury to William Dickinson, December 25, 1817. In possession of author.

¹⁹⁴ Joel Shrewsbury to William Dickinson, September 28, 1818. In possession of author; Joel Shrewsbury to William Dickinson, January 2, 1819. In possession of author.

¹⁹⁵ Stealey, *Antebellum*, 126.

¹⁹⁶ Joel Shrewsbury to William Dickinson, April 15, 1816. In possession of author; Joel Shrewsbury to William Dickinson, June 6, 1816. In possession of author.

characters that generally buy wood here are renters and debts due them unsafe.”¹⁹⁷ It seems that men who owned property could be trusted, those who rented could not.

As Ruffner predicted in 1815, firewood did indeed become scarce. As he also foresaw, salt-makers turned to “stone coal” for their furnaces. Virginians had long known the value of the coal in the Kanawha Valley. On October 20, 1790, the *Virginia Gazette* announced for sale 10,000 acres of land on the Kanawha River “within an easy distance of an inexhaustible quantity of coal.”¹⁹⁸ Salt-makers had been relying on surface coal and opening small banks of the combustible for use in the salt-works’ smithies for years, however, burning it in salt furnaces was not as simple as Ruffner had suggested. Cinders from the stone coal tended to fuse together in the extreme heat and form solid masses which were nearly impossible to remove from the furnaces.

Virginians such as Harry Heth, whose family had operated coal mines and metal foundries in the Richmond Basin, and Beverly Randolph of Manchester, Virginia, a descendent from one of the first governors of the Old Dominion, formed a partnership to enter the salt business by constructing a coal-fired salt furnace in the Kanawha Valley. Virginians of the highest social ranks, Heth and Randolph hired New Englander Nathaniel Bosworth to produce his design for a coal-fired furnace in March 1815, just as the valley’s available supply of wood began to dwindle. Shrewsbury reported to Dickinson that “Their [sic] is another formidable attempt to manufacture Salt with Coal, made by Adams, Heth and Randolph... under the superintendence of a man by the name of Bozworth who is the inventor...”¹⁹⁹ Shrewsbury and other salt-makers were clearly

¹⁹⁷ Joel Shrewsbury to William Dickinson, June 6, 1816. In possession of author.

¹⁹⁸ *Virginia Gazette*, October 20, 1790.

¹⁹⁹ Joel Shrewsbury to William Dickinson, June 13, 1815. In possession of author.

watching this experiment closely. He continued, “the apparatus was very costly the boilers made of Sheet Iron in the shape of a gum about 3 feet in diameter, through which went a copper tube about 6 inches in diameter, the two boilers about 60 feet long, the steam that went thro [sic] the tubes in the boilers was to operate on two large copper pans for graining off the Salt in shape and size like a Billiard Table.” Despite the wherewithal of the backers, Shrewsbury tersely expressed other salt-makers’ predictions of failure, writing, “The plan is thought wilnot [sic] answer.”²⁰⁰ Even the smallest details of the enterprise were seemingly common knowledge, as Shrewsbury reported, “the preparations is very costly, will if completed cost \$5000. to get into operation[sic], I was informed yesterday that the man who made the machinery at fort Pitt applied for payt [sic] his bill was about \$3000. The company refused payt alledgeing[sic] if it should not answer, Bozworth must pay. The grand effort Bozworth refused payt or being bound, the maker brot [sic] suit vs them.”²⁰¹ The “formidable attempt” did not “answer” as salt-makers predicted. The entire effort devolved into rancorous legal wrangling. A disillusioned Randolph complained that salt would never be profitably made using coal. Shrewsbury’s close attention to the enterprise and his understanding of how Bosworth intended the furnace to function suggest that others’ interest in the effort was not simply the scoffing curiosity of naysayers. Shrewsbury’s understanding of the experiment’s mechanics indicates an interest in technological change even if it was compelled by environmental exhaustion.

In the end, salt-makers made the leap to coal-fired furnaces not due to ambitious and well-funded plans of the Tidewater gentry, but thanks to the practical tinkering of the

²⁰⁰ Ibid.

²⁰¹ Ibid.

Ruffners once again. Earlier attempts at using coal in grateless furnaces consisted of shoveling coal into the furnaces at the opposite ends of the furnaces from the chimneys, resulting in large, fused masses of slag that workers could not remove. David and Tobias Ruffner developed the use of grates for the coal, but it was Henry Ruffner who truly solved the problem by injecting steam beneath the grates upon which the coal burned.²⁰² The small jets of steam prevented the slag from forming an impenetrable mass. Instead, the spent coal formed into gravel-like clinkers, easily shoveled out of the furnaces.²⁰³ Over the next six years, valley salt-makers adapted their furnaces to burn coal. The transition did not occur until they had nearly deforested the valley. By then, the price of wood would have climbed to prohibitive price levels. The imminent lack of wood suggests that the switch to coal burning furnaces could not be described as a proactive move. Nevertheless, faced with few viable alternatives, Kanawhans invented the solution.

The switch to coal marked a major change in the valley environmentally, as the deforested hillsides, which had become largely valueless, proved valuable again for the ore they held. While initial efforts at coal removal consisted of men scrambling up the slopes and collecting it in baskets, workers soon developed systems of chutes or troughs to slide the coal down to the furnaces.²⁰⁴ One observer wrote that “by suitable platforms and in lined culverts, it (coal) is thrown from the mountain-side immediately to the door of the manufactory, or when more remote from the place of consumption, it is transported

²⁰² Shrewsbury wrote to Dickinson that his brother had converted their salt-works furnace to air on December 20, 1814, indicating that they had at least converted to using grates by then, if not injecting steam. Joel Shrewsbury to William Dickinson, December 21, 1814. In possession of author.

²⁰³ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 8.

²⁰⁴ Conley, “Early Coal Development,” 208-209.

with equal ease...²⁰⁵ The inclusion of provisions for access to coal in salt furnace lease and purchase agreements underscores coal's importance as timber's replacement.²⁰⁶ Had salt-makers been in charge of the geology and geography of the area, they could hardly have created a more convenient arrangement.

In response to the greater capacity of coal to reduce brine, salt-makers increased their operations' capacity to match. Furnaces which had reduced brine in between 30 and 60 pans of 35 gallon capacity grew to five or six pans of 150 to 200 gallons each.²⁰⁷ While the increase in gallon capacity was not great, the production capacity was much larger. The hotter burning coal allowed workers to boil the brine in much shallower, broader pans. Eventually the cast iron pans weighed up to 2,200 pounds each, stretched to twenty-five feet in length, six and one half feet in width, but only two to three inches in depth.²⁰⁸ With the Ruffner's development of the coal-fired salt furnace, roughly 20 years after they lifted their first batch of salt, they and other Kanawha salt-makers were producing nearly one million bushels of salt each year.²⁰⁹

Since allowing these larger furnaces to cool down and then heat back up again wasted large quantities of fuel and increased operating expenses, they operated around the clock, seven days a week, despite local statutes against work on Sunday.²¹⁰ They voraciously consumed the easily accessed surface veins of coal. As early as 1820, the easily had coal was exhausted. On August 21, 1821, the *Kanawha Spectator* announced

²⁰⁵ Henry Howe, *Historical Collections of Virginia*, 345.

²⁰⁶ William C. Brooks-Henry W. Reynolds Agreement, January 1, 1859, West Virginia Archives.

²⁰⁷ Stealey, *Antebellum*, 53.

²⁰⁸ Joel Shrewsbury to William Dickinson, July 14, 1818. In possession of author.

²⁰⁹ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 15.

²¹⁰ William C. Brooks-Henry W. Reynolds Agreement. January 1, 1859, West Virginia Archives and History; Conley, "Early Coal Development," 207-209.

under the title “Colliers Wanting,” that a Dr. Putney sought “From 10 to 20 steady industrious men who understand digging coal.” It goes on to offer that “these men may obtain high wages in Kenawha [sic] for that business, if immediate application made to Dr. Putney, or other manufacturers of salt who use coal at their furnaces.”²¹¹ This advertisement for skilled colliers suggests that the remaining coal was no longer easily accessed and its removal lay beyond the skill level of the valley’s labor force, generally leased slaves. Once excavated, the coal no longer travelled in baskets on the heads of the enslaved or even in chutes but on rail lines propelled by humans initially, then by oxen, mules, or ponies.²¹²

By 1827, 67,800 tons of coal were being mined in the Kanawha Valley, almost all burned by the salt industry or its ancillary businesses such as copper smithies and metal foundries.²¹³ In 1836, a report to the state of Virginia estimated that the Kanawha industry used double the coal output of the entire eastern portion of the state.²¹⁴ In 1830, a report to the US treasury estimated Kanawha coal usage at 63,200 net tons.²¹⁵ Ten years later, Professor William Barton Rogers reported that 90 salt furnaces along the Kanawha incinerated 200,000 tons of coal annually.²¹⁶ Much of this coal went to metal-works. It

²¹¹ *Kanawha Spectator*, August 21, 1821.

²¹² The Brooks-Reynolds salt-works rental agreement specified as included, the salt furnace and salt wells but “also the rail road cars, mules, horses, and other things whatsoever in and about said furnace...also the coal banks and coal bank tools,” William C. Brooks-Henry W. Reynolds Agreement, January 1, 1859, West Virginia Archives and History.

²¹² Conley, “Early Coal Development,” 207-209.

²¹³ Conley, “Early Coal Development,” 209.

²¹⁴ James T. Laing “The Early Development of the Coal Industry in the Western Counties of Virginia, 1800-1865,” *West Virginia History* 27, no. 2 (January 1966): 144-45.

²¹⁵ Conley, “Early Coal Development,” 210.

²¹⁶ William B. Rogers, *Report of the Geological Reconnaissance of the State of Virginia* (Philadelphia: Desilver, Thomas and Company, 1836), 362.

was estimated that after the conversion to coal, each salt furnace required eight to ten tons of cast iron, one half ton of bar iron, and as much as one ton of wrought iron.²¹⁷

The dramatic growth in salt production and the use of coal had immediate, deleterious effects on the environment. In September of 1832, less than 25 years after the Ruffner's first harvest, the *Kanawha Banner* reprinted the impressions of a New England traveler who observed, "The many factories are at short intervals on either side of the river for ten miles from Charleston. The very air for this distance is blackened and rendered unpleasant to the lungs and senses by the fumes of decomposed salt and pit coal."²¹⁸ Another chronicler offered a less repulsed view when he observed, "the chimneys of the salt manufactories pour forth at short intervals of space, their curling masses of black vapour, while swarms of laborers and others connected with the establishments are continually passing to and fro."²¹⁹ These assessments might appear more aptly applied to cities of the East than to a valley on the western fringes of Virginia.

Cities such as Lowell, Massachusetts have been viewed as the cradle of the American Industrial Revolution. Historian Paul Johnson, for example, chronicled the exploits of Sam Patch the "Great Jumper" against a backdrop of the beginning of the industrial revolution in the mid-Atlantic. As Patch jumped into cataracts in a show of power amidst the disenfranchising forces of rising industrialization in the East, the air of the Kanawha Valley was already black and foul.²²⁰

²¹⁷ Salt Industry in the Kanawha 3.

²¹⁸ *Kanawha Banner*, September 2, 1832.

²¹⁹ Howe, *Historical Collections of Virginia*, 344-345.

²²⁰ Paul Johnson, *Sam Patch, the Famous Jumper* (New York: Hill and Wang, 2003).

The adjustment to coal was but one significant, early step in Kanawhans' profitable adaptation to environmental influences. The geology of the region offered other valuable commodities. Petroleum and natural gas often form in conjunction with salt domes, with natural gas often layering on top of them. While each of these resources may have held value individually, when located together with brine and coal, the value of these four commodities increased drastically. Salt-makers considered the natural gas and petroleum as annoying, often dangerous byproducts. Well-drillers rightly thought the natural gas dangerous. Striking and releasing a layer of compressed natural gas could yield explosive results. In 1843, drillers for Dickinson and Shrewsbury hit gas of such pressure that a 500 pound auger and an estimated 1,000 pounds of pipe shot out of the hole like an arrow, followed by a 150 foot high column of water. The explosive force echoed for miles.²²¹ On another occasion, a visiting academic from New England, curious to test the flammability of the byproduct ignited the gas emitting from a Dickinson and Shrewsbury well. The resulting fireball incinerated much of Dickinson and Shrewsbury's equipment and did considerable harm to the curious visitor.²²²

Salt-makers understood the dangers posed by natural gas, but with characteristic ingenuity, they learned to turn the natural resource to a profit. They soon harnessed the propensity of natural gas to lift the brine to the holding tanks far above the river's surface. Since the drillers could not control the pressure of the gas, salt manufacturers ingeniously adjusted the height of the tubing through which the water rose from the well.

²²¹ Atkinson, *The History of Kanawha County*, 235.

²²² Col. Don Pauley, *The Good Stewards: A Family History of the John L. Dickinson Family of Kanawha County, West Virginia*. Unpublished report prepared for Marshall Evans, May 1, 2007; E. T. Crawford, "Salt-Pioneer Chemical Industry of the Kanawha Valley" *Industrial Engineering Chemistry* (October-December 1935): 1113.

Workers raised or lowered the tubing height until the height of the column of brine lifted by the natural gas matched the flow of brine required.²²³ The natural pressure alleviated the need for the horse-powered or steam-driven pumps upon which manufacturers had relied. The natural gas pressure could not be counted on, and this use of natural gas was not as common as other uses Kanawhans developed. By 1836, the Kanawha Valley salt-works operated 36 stationary steam engines, comprising half the stationary engines in the state of Virginia- more than existed in 15 other states.²²⁴

In 1842, a salt-maker named Thompkins managed to extend a well 1,000 feet below the river, far deeper than the usual 600 to 700 feet. Thompkins initially used the natural gas to illuminate his salt facility at night.²²⁵ Observers reported that a man could read a newspaper at night 30 yards from the wellhead.²²⁶ Given that the furnaces operated around the clock, this nearly free source of light was extremely valuable. Thompkins was not content to use the natural gas solely for illumination though. As a salt-maker, Thompkins would have been more aware than many of the potential value of combustible substances. Releasing the natural gas into the air must have seemed tantamount to tossing money into the sky and watching it disappear. Thompkins devised a system for natural gas to flow up from a well through tubes fitted to a large hogshead. A hole in the bottom of the hogshead allowed the brine to escape, but trapped the natural gas. Pipes conducted the natural gas to the furnace where it “mingled with the blaze of the coal fire. It so increased the heat as to make very little coal necessary...”²²⁷ Virginians Job English and

²²³ Howe, *Historical Collections of Virginia*, 356.

²²⁴ Stealey, *Antebellum*, 54.

²²⁵ Howe, *Historical Collections of Virginia*, 347.

²²⁶ Stealey, *Antebellum*, 129.

²²⁷ Howe, *Historical Collections of Virginia*, 346; Atkinson, *The History of Kanawha County*, 234.

his partner George Warth exploited natural gas to the extent that they pumped their brine from the well to the furnaces and reduced the brine to salt, relying entirely on natural gas.²²⁸

While English and Warth made use of natural gas, it was not until after Kanawha salt had faded from prominence that interest in natural gas came to the fore. The failure to exploit natural gas fully may be fairly attributed to the proximity of easily accessed coal. Moreover, while coal required digging and natural gas presented itself as a natural byproduct of drilling brine wells, the flow and supply of natural gas was somewhat uncontrollable. Even when it did flow as desired, the corrosive effects of the natural gas quickly deteriorated the primitive pipes salt-makers used to direct the flow of the gas. Were it not for inexpensive coal that salt-makers often already owned, perhaps Kanawhans would have applied their ingenuity to solving the problems inherent in harnessing natural gas's power. However, just as they did not make the change to coal until they had exhausted their timber, thoroughly exploiting natural gas was unnecessary as long as coal was inexpensive and easily obtained.

Oil, the other flammable byproduct of brine well drilling remained almost completely unvalued by Kanawhans for several generations after the reign of salt as the valley's primary export. The oil that rose from the wells initially polluted the area immediately around the wellhead. Workers learned to shunt the oil away from their work site and eventually arrived at an expedient solution to the problem of what to do with the viscous and foul smelling fluid. They piped it directly into the nearby Kanawha River. In 1876, historian George Wesley Atkinson reported that "Nearly all the Kanawha salt wells

²²⁸ Stealey, *Antebellum*, 130.

have contained more or less petroleum oil, and some of the deepest wells a considerable flow. Many persons now think, trusting to their recollections, that some of the wells afforded as much as twenty-five to fifty barrels per day.” Atkinson goes on to explain that the oil was “allowed to flow over from the top of the salt cisterns, on the river, where, from its specific gravity, it spread over a large surface, and by its beautiful iridescent hues, and its un-savory odor, could be traced for many miles down the stream.”²²⁹ The environmental degradation of the Kanawha River due to valley industrialization was so complete that even in 1876, Atkinson reported that the river had long been familiarly known as “Old Greasy.”²³⁰

The environmental destruction had indeed been occurring for a long time. In her book published in 1826, *Sketches of History life and Manners in the United States*, Anne Royall noted that above the salt-works, the Kanawha river water, “if sat in a shade or in a cellar, it is very pleasant to drink the whole seceding [sic] day.” However, she goes on to offer that she “did not stomach it so well below the salt-works, particularly as I saw several carcasses of dead horses floating on the surface of the stream.”²³¹ Observers mentioned that the beasts of burden that labored in the salt-works were often ill used. Apparently, the bodies of animals that could not survive were left for the river to carry away. Kanawhans had long been developing and adapting to changes in their environment in pursuit of less expensive salt. The salt-makers’ exhaustive approach toward the exploitation of natural resources and the environment helped them increase production drastically, even as they drove the cost of production downward. However,

²²⁹ Atkinson, *The History of Kanawha County*, 234.

²³⁰ Ibid.

²³¹ Royall, *Royall’s Sketches of History*, 42.

throughout their relentless drive for profit, the salt-makers failed to count environmental degradation as part of the cost.

The Kanawha River itself acted as an environmental impetus for innovation, offering both opportunity and challenges. Much of the innovation spurred by the river arrived from elsewhere. This grasping of solutions to environmental challenges, regardless of origin, further illustrates the macroscopic vision of the Kanawha Valley's early industrialists. Without the transportation connection to the Ohio River and the booming Great West, Kanawha Valley salt may have remained untapped. The river was troublesome though. It tended to be navigable only six months of the year. Even then, fluctuating water levels might not support shipping traffic. In September 1818, Shrewsbury complained that the river was so low that even the largest salt companies had run out of money, "not having it in their power to send off the salt, the River is Lined with boats and great quantity of Salt on the Banks."²³² While far from predictable, the river tended to allow flatboat traffic in the winter and spring.²³³ Even then, the journey was far from easy. Salt-makers sent their product downstream with trepidation. Joel Shrewsbury himself admitted, "I have much fears [sic] about the Salt sent off with Morris (tho hope he will go safe) the last accts from the Boats was very alarming, two of Vaught's Boats was seen by Mr. Scales pass the mouth of Big Sandy overtaken by Ohio Ice and boats completely surrounded with the Ice and the Ohio Blocked up clear across a few miles below." Shrewsbury continued that "Mr. Scales writes the hands was upon the Top of the Boats imploring assistance from God, that man could give none...the whole

²³² Joel Shrewsbury to William Dickinson, September 28, 1818. In possession of author.

²³³ Wayland Fuller Dunaway, *History of the James River and Kanawha Company* (New York: Columbia University, 1922), 179.

river is a bustle some about their Children, Brothers and Husbands and the rest of us about our salt.”²³⁴ Even with the addition of wing dams and other improvements to the river through the auspices of the James River and Kanawha Company as well as other transportation improvement companies, river transport remained a dangerous undertaking for salt factory owners and apparently for boatmen as well.

Those in the salt industry responded to these challenges in a variety of ways. As was not uncommon for backcountry settlers, Kanawha salt-makers vigorously sought improved transportation infrastructure. Not only did they continue lobbying Virginia government officials as Clendenin had done decades earlier, they raised private money to take on improvements themselves. In 1816, a subscription to improve a road along the Kanawha raised \$1,000.00 immediately.²³⁵ The James River Company, charged by the state assembly with improving the navigation through Virginia, served as a source of hope and annoyance. Their progress proved agonizingly slow while the improvements to the rivers never seemed to meet the demands of the local communities they were intended to serve. Indeed, in a lawsuit against the James River Company directors in 1828, a grand jury found that the “Kanawha river [sic] is in a worse state, and more difficult of navigation than when they commenced working upon it.”²³⁶ The tolls which accompanied the improvements met with outrage. The *Western Virginian* reprinted a piece first published in the *Richmond Enquirer* complaining, “The Tolls imposed on the trade of the Great Kanawha during the last Winter are very generally regarded, by the people of that quarter of the State as exorbitant and consequently unjust. Grand Juries have presented

²³⁴ Joel Shrewsbury to William Dickinson, February 15, 1820. In possession of author.

²³⁵ Joel Shrewsbury to William Dickinson, October 28, 1816. In possession of author.

²³⁶ Stealey, *Antebellum*, 74.

the Works executed on that River as a nuisance and the laws imposing the tolls as a grievance of a very serious magnitude.”²³⁷ Many resigned themselves to the idea that navigation on the Kanawha River to the Ohio River would remain substantially unchanged. Reliable and relatively safe transport routes to the East remained elusive for Kanawhans as well. The route eastward was improved, allowing for better commerce with Greenbrier County, but it was not until the railroad arrived in the valley in the 1830s that efficient transportation to the east was established.

Salt manufacturers also quickly embraced the steamboat. As wood became scarce in a valley that continued to require large quantities of it for salt’s auxiliary industries it became less and less economical to send wooden flatboats downriver and then sell the boat downriver. The steamboat allowed for more consistent travel. It also brought commodities into the valley. Goods such as grain had been perennially short in the Kanawha where the scarce, flat land was often devoted to industry.²³⁸ Salt-makers Andrew Donally and Isaac Noyes sought to capitalize on the potential commerce derived from upstream traffic in conjunction with their shipments of salt to the Ohio Valley. In 1823, barely a decade after the steamboats began plying the Mississippi River, Donally and Noyes contracted to have the steamboat *Eliza* built in Wheeling at a cost of \$35,000.00.²³⁹ By 1830, steam-powered towboats with names such as *Enterprise* worked

²³⁷ “Internal Improvement,” *Western Virginian*, January 28, 1829.

²³⁸ Joel Shrewsbury and Pleasant Dickinson often wrote to William Dickinson of the high price and scarcity of corn and wheat in the valley. The difficult route from the east made the grain of the Shenandoah Valley troublesome to transport to the Kanawha Valley. Similarly, travel upriver from the Ohio Valley was not easy or inexpensive. Shrewsbury wrote to Dickinson “Grain provision is very scarce. Corn 4/6 /bushel. I have sold \$500.00 worth of corn and oats to Messrs Steel payable 90 days, shall not spare any more. See Joel Shrewsbury to William Dickinson, December 16, 1816. In possession of author.

²³⁹ Conley, “Early Coal Development,” 210.

the Kanawha, hauling the wooden flatboats back upriver to Kanawha Salines and nearby Charleston to be reloaded with salt.²⁴⁰ Despite the marginally successful improvements to the Kanawha River and the consistency offered by the steamboat, the rivers continued to offer challenges that technology had yet to answer.

The improvements made by the James and Kanawha Company made the Kanawha more accessible, but it remained useful for commerce only half the year. Manufacturers shipped salt only in the months when the river ran high enough. In September 1818, low river levels wreaked havoc with salt production and shipping. Shrewsbury reported, “We have not had a rise in the River as yet and out water is very scarce- not more than runs one furnace, a great number of wells on the river in the same situation-some quit work and gone to boring.”²⁴¹ This resulted in periods of excess supply and depressed prices followed by months when supplies were tight and prices elevated. These fluctuations opened opportunities for salt-makers from competing regions that were unrestricted by the seasonal nature of Kanawha River navigation. Salt-makers responded by setting up storehouses for their product. They subsequently released the salt more gradually throughout the year, leveling out the peaks and troughs in supply, and consequently the price. This solution was not without disadvantages, which would haunt salt-makers in the form of resentments and accusations of hoarding by western settlers in years to follow. These resentments would surface in the competitive and political arenas, which in turn, prompted even greater flexibility and innovation by the Kanawha salt industry.²⁴²

²⁴⁰ Ibid.

²⁴¹ Joel Shrewsbury to William Dickinson, September 28, 1818. In possession of author.

²⁴² Thomas Hart Benton, *Documents Related to the Trade and Manufacturing of Salt* (Washington DC: Blair and Rivers Printers, 1839).

Separating the political and competitive arenas as sources of innovation is particularly challenging. Salt manufacturers worked assiduously in political channels for the competitive benefit of the domestic salt industry as a whole and for their region in particular. Moreover, political events far beyond the scope of Kanawha salt producers, or any other salt industry for that matter, dramatically and frequently changed the competitive environment. The Kanawha salt industry arose in a period of relatively weak competition during the War of 1812. English harbor blockades and the cessation of inexpensive Cheshire salt imports created salt shortages reminiscent of the hardships during the American Revolution only a few decades earlier. More crucial to the Kanawha salt markets, the British presence hampered distribution from the major western salt-making area, the Onondaga region of New York. Shortages in western salt supplies and the resultant elevated prices attracted Virginians to the Kanawha Salines, as the region was then known. With the end of the war, Onondaga salt once again flowed west, but by then, Kanawha Salt was firmly established in the market. Salt from the East Coast failed to compete for western markets due to transportation costs. Even with the advent of the railroads, Kanawha salt-makers could produce so inexpensively, that salt from the eastern coast remained uncompetitive. Indeed, Kanawha Valley producers saw the advent of practical rail traffic as the key to opening eastern salt markets to Kanawha salt, not as a threat that eastern salt could invade their markets.²⁴³

Other salt producing regions of the West offered some competition for Kanawha Red Salt. Kanawha producers were aware of these regions and watched their production and prices carefully. Even fledgling salt-works like the Big Sandy area on the border of

²⁴³ "Report of the Secretary of Treasury on Manufacturers," *Virginia Argus*, May 22, 1810.

Virginia and Kentucky were noticed as Kanawha producers surveyed the markets. In July 1818, Shrewsbury warned his partner, “There is much doing at this time on Big Sandy respecting Salt water and much I fear will get as good there as it is on this river. They had bored last week 170 feet—water in the gum quite Salt [sic] without Tubing and am informed that the water drawn out in the sand pump is as good as ours. They have erected furnaces and are making 30 to 40 bushels of Salt in each per day.”²⁴⁴ Later in April 1819, he wrote, “They will have it is said Twenty furnaces in blast there this summer –the water will make about 200 bushels per week to each furnace which will put in the markets from 150,000 to 200,000 bushels this season...”²⁴⁵ For months, even years, Shrewsbury informed his partner of progress on the Big Sandy in detail. Shrewsbury commented on their transportation assets, their timber supplies, their brine strength and the personal character of those working there. Shrewsbury’s scrutiny of developments on the Big Sandy underscores the broad vigilance the Kanawha industrialists maintained. Despite Shrewsbury’s detailed knowledge and concern that the Big Sandy region could produce as much as a quarter of Kanawha Valley production, the Big Sandy did not seriously threaten the Kanawha’s rise to preeminence as a western salt supplier.

Several factors unrelated to the Kanawha manufacturers contributed to the Big Sandy’s failure to compete in western salt markets despite their better access to the Ohio River. One cause was their weaker brine.²⁴⁶ Another may follow Shrewsbury’s prediction that commercial efforts there would be hindered for years by uncertain land ownership.

²⁴⁴ Joel Shrewsbury to William Dickinson, July 14, 1818. In possession of author.

²⁴⁵ Joel Shrewsbury to William Dickinson, April 7, 1819. In possession of author.

²⁴⁶ Joel Shrewsbury wrote, “accounts from Big Sandy there [sic] salt making is a losing business the water very weak.” Joel Shrewsbury to William Dickinson, October 26, 1819. In possession of author.

Shrewsbury suggested that the titles to the land in the Big Sandy region, once granted to soldiers, were resold by those same soldiers a dozen times over.²⁴⁷ Still another factor may have hindered Big Sandy salt producers' competitive efforts. Shrewsbury assessed that "much of the Rabble of the Salt makers have gone to that place."²⁴⁸ By contrast, Shrewsbury was pleased that men such as Randolph and Heth had begun operating in the Kanawha. These were trustworthy men of property. Their appearance in the Kanawha added a level of respectability to the region and to their vocation. This detail may seem a bit of insignificant nineteenth century class discrimination, but Shrewsbury's assessment may hold some merit. In a capital-intensive industry, credit-worthiness mattered. Just the process of purchasing and sinking the gum could cost thousands of dollars.²⁴⁹ Once drillers hit saltwater, the expenses of building a furnace quickly mounted. Shrewsbury listed "Negroe houses, machines house, machine driver's house, timbers hewn from around the gum, pipe logs, sheds, dwelling [sic] houses for white furnace workers, smiths shop, stables" as but a few of the support facilities and expenses attendant with a salt-works.²⁵⁰ If salt-makers could not secure credit to cover the thousands of dollars in expense involved in sinking gums and drilling for brine, their commercial efforts would have likely been doomed.

²⁴⁷ Joel Shrewsbury to William Dickinson, August 15, 1818. In possession of author.

²⁴⁸ Ibid.

²⁴⁹ Shrewsbury wrote to Dickinson that the failure to get good brine out of one of their gums had cost them not less than \$1,500.00 the purchase and sinking of a new gum was expected to cost \$2,000.00. Joel Shrewsbury to William Dickinson, March 5, 1917. In possession of author. In conjunction with his discussion of the Big Sandy Shrewsbury wrote of the "ruin of state banks", the lack of specie, and the difficulty in selling salt in an environment without specie and with tightening credit. Joel Shrewsbury to William Dickinson, October 26, 1819. In possession of author.

²⁵⁰ Joel Shrewsbury to William Dickinson, February 3, 1818. In possession of author.

The Caribbean islands offered some competition for Kanawha Salt, especially for markets to the south. Steamboats increased the reach of Caribbean salt-makers considerably. The bounty of the Ohio Valley filled the cargo holds of steamboats headed downriver. Shipping agents often found themselves at a loss as to how to fill those holds for the trip upriver. Accordingly, prices to haul cargo upstream experienced downward pressure, which helped Turks Island salt compete in the West.

As has been noted, specific types of salt had long been preferred for specific uses. Instruction for cooking and food preservation often specified the types of salt preferred. Kanawhans took advantage of this predilection by positioning their salt as the preferred salt for the preservation of meat, pork in particular. Kanawhans suggested that the minerals in the red salt allowed the salt to permeate the meat more thoroughly and thus preserve the meat better.²⁵¹ Their success in convincing the public that Kanawha salt cured meat better may have been mixed though. Meat processors often used a mixture of Kanawha salt and Turks Island salt, even though Turks Island salt generally cost more than “local” salt.²⁵² One Missouri resident reported that he had heard that an entire boatload of pork had spoiled on the trip down to New Orleans, which he attributed to the meat processor trying to save money by packing the meat entirely in Kanawha salt rather than using enough Turks Island salt.²⁵³

It is difficult to narrow causes of innovation to one specific sphere of influence. Developments often resulted from a variety of catalyzing influences. It may be safely said, however that the role of state and federal governments in commodities markets, and

²⁵¹ Erika Celeste, *Red Salt and Reynolds*, Paradise Film Institute, 2003.

²⁵² Benton, *Trade and Manufacturing of Salt*, 49.

²⁵³ *Ibid.*

perhaps even more importantly in credit markets, played an extraordinarily important role in the strategies and innovations of the Kanawha Valley salt industry. Indeed, an understanding of gymnast-like contortions and machinations that salt-makers developed to respond to, intervene in, or anticipate moves by federal and state governments should dispel notions that early Appalachians in the Kanawha felt disconnected from traditional centers of power.

On October 24, 1813, as prices for goods climbed amid wartime economic stresses, Joel Shrewsbury wrote of the Kanawha Valley, “there is no place in my opinion in the Western Country, where business can be done...to greater advantage than Kanawha, money is plentiful and goods are a ready sale at good advance, more so than any place I was ever acquainted with, and firmly believe there is no more ready money on our river of any place of the same extent in Virginia except perhaps towns.”²⁵⁴ What is noteworthy in Shrewsbury’s paean to the Kanawha Valley is not the effusive praise of the valley, but the repeated reference to money. References to money reappear consistently in Shrewsbury’s letters. This is not surprising in the correspondence of two business partners. On closer reading, it becomes evident that money had a great number of meanings and values ranging from nearly worthless to precious.

Kanawha salt-makers sat in a unique position in the business world. They operated a capital-intensive business requiring large purchases on credit. Massive pieces of iron equipment came from Pittsburgh or other urban centers to the east, other business and household goods came from the commercial centers of eastern Virginia. The funds borrowed to finance business and personal expenses initially flowed from eastern

²⁵⁴ Joel Shrewsbury to William Dickinson, October 24, 1813. In possession of author.

sources. Perhaps most importantly, the slaves that cut the timber, dug and hauled the coal, made the barrels, worked on the river, and otherwise operated as integral cogs in the salt-making machine were purchased or rented farther east in Virginia where soil exhaustion and slave reproduction created an excess supply of labor.²⁵⁵ All these expenses tended to be incurred in the notes of eastern banks which enjoyed more stable values based on the specie the bank held, the confidence in the bank's stability, and supportive state and federal monetary policies.²⁵⁶

At the same time, valley salt-makers sold their products in the Great West where banks in places like Nashville and Cincinnati held less specie in reserve to back up the value of their notes. Easterners deemed these notes far less valuable.²⁵⁷ This left Kanawha salt-makers in the unenviable position of incurring all their debts in relatively stable, high value notes and receiving payment with which to pay their debts in unstable, untrusted western currency that easterners often discounted in value heavily and, in some periods, did not accept at all. Their monetary environment consisted of not just a two-tiered currency system, but a system based on a near infinite number of discount or exchange rates which fluctuated constantly depending on the time, place, and personal perspective of the individuals involved. The only constant was that the Ruffners, Shrewsburys, and other salt-makers' customers could generally pay them with money

²⁵⁵ Fogel and Engerman's *Time on the Cross* holds a worthy discussion of Virginia and Maryland as centers from which the slave-owners of the deeper South imported the enslaved. Robert William Fogel and Stanley L Engerman, *Time on the Cross: The Economics of American Negro Slavery* (New York: W.W. Norton and Company, 1974).

²⁵⁶ It is not within the sphere of this paper to undertake a worthy explanation of the complex banking and monetary history of nineteenth century United States. For an excellent analysis, see Murray N. Rothbard, *The Panic of 1819: Reactions and Policies* (New York: Columbia University Press, 1962); Murray N. Rothbard, *A History of Money and Banking in the United States: The Colonial Era to World War II* (Auburn, Alabama: Ludwig von Mises Institute, 2002).

²⁵⁷ Ibid.

that the Kanawhans' creditors did not want. William Dickinson wrote from eastern Virginia to Shrewsbury of the dire fate he foresaw for the highly successful business they built. After failing to secure slaves for the upcoming year, he wrote, "Negroes cannot be bought hear [sic] without money that is current hear [sic]." Dickinson states that "he used all possible exertions to hire to no effect," adding that "slave owners commanded from \$70.00 to \$90.00," but would not let their slaves leave the area. Dickinson lamented that at least 70 plantation hands had sold for \$500.00 to \$600.00 each in cash at a recent sale.²⁵⁸ Dickinson summarized their plight writing, "so long as we receive in payment for salt, western notes, so long we shall be compelled to give present prices for the hire of hands, it matters not about the quantity made."²⁵⁹ Apparently, he met with similar failure in his search for free laborers, as he further complained, "workers from east will not go west for Western Currency." He reiterated that he had "no doubts Western Currency will get worse," and that "as long as we receive payment for salt in western notes all will be destroyed."²⁶⁰ Among the solutions Kanawha salt manufacturers sought for this and other problems arising from government policies, or lack thereof, include political activism on local, state, and federal levels, organized civil disobedience, and the creation of what is often described as the nation's first business cartel.²⁶¹

The Dickinson–Shrewsbury Company, as a leading salt-maker in the valley, but one that had a tendency to go it alone, offers a particularly useful perspective from which to review the ingenuity and flexibility required to respond to such challenges. This propensity to go it alone may have arisen from Dickinson's nature. Letters and lore of

²⁵⁸ William Dickinson to Joel Shrewsbury, February 24, 1820. In possession of author.

²⁵⁹ Ibid.

²⁶⁰ William Dickinson to Joel Shrewsbury, February 26, 1820. In possession of author.

²⁶¹ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 5.

William Dickinson describe a man of a demanding and contrary nature. One story tells that upon the death of his estranged partner Shrewsbury, he purchased Shrewsbury's mulatto valet. The valet was reputed to be Shrewsbury's illegitimate son, who Dickinson thought insolent. Dickinson is then said to have put upon him a heavy wooden yoke with a long projecting bar such as jumping cattle wear and set him to hoeing corn next to the public road. Dickinson is reputed to have worked the former valet there without rations until he died in sight of the Shrewsbury house in a matter of weeks in order to avenge slights by both the slave and the deceased partner.²⁶² One result of this attitude is that Dickinson and Shrewsbury often observed and commented on the combined efforts of the salt-making community to meet shared challenges, but did not hesitate to take a different path if they felt it better suited their needs.

Joel Shrewsbury and William Dickinson ranked among the most prosperous men in the valley. Their company quickly became the largest slaveholder in the valley.²⁶³ While certainly not of Virginia society's upper or even a secondary tier, they were men of considerable property and could be counted among the local gentry. So, despite their willingness to go it alone, Kanawha businessmen often included Shrewsbury in their plans and recruited him to be their official voice. Shrewsbury's recruitment as the speaker or writer for the Kanawha Salines industry may also reflect a pragmatic attempt to avoid significant postal charges, as Shrewsbury held the position of local postmaster and thus

²⁶² Ernest Ingersoll, "Tales of the Kanawha," *Philadelphia Times*, West Virginia State Archives.

²⁶³ This includes slaves held by the firm Dickinson and Shrewsbury as well as slaves owned or rented personally by the firm's proprietors. This title does not include rented slaves, which may well have boosted Dickinson and Shrewsbury's claim to controlling far more of the enslaved than any other entity or individual in the Kanawha. Dickinson and Shrewsbury Letterbook. In possession of author.

paid no postal fees.²⁶⁴ This combination renders the Dickinson-Shrewsbury company particularly valuable when examining salt-makers' efforts to contend with these larger challenges.

While local salt-makers had little trouble using their wealth and control of labor to dominate local affairs, they achieved less success at the state level, albeit not for lack of effort. Like Clendenin, they constantly sought transportation and banking improvements. State effort to control the salt industry began early in the Kanawha's reign, as eastern legislators appeared to have understood salt's necessity as a guarantee of tax income. In 1814, the Virginia General Assembly levied a 12.5 cent per bushel tax on commodities such as salt, iron, and lead, confident that the tax would be viewed by producers as a cost to be passed on to the consumer.²⁶⁵ Even before the law was instituted, salt-makers had full understanding of the discussions to the east and were working to find creative solutions. Shrewsbury wrote to Dickinson that "the salt makers are very much displeased at the tax the assembly has laid on, they are waiting with great anxiety, to see the law, if they find it is to be a lien on their salt-works, I expect a great many furnaces will lye [sic] idle, if the renters are only bound, they will rent to such hands as they can command and the law cannot."²⁶⁶ The initial effect of this law was chilling. Salt-makers delayed making commitments until they better understood the law. Shrewsbury wrote that he "was offered a continuance of the furnace until March or till we had worked her a year in steady work, but on the 10th last the tax of 12.5 cents took place on every bushel made.

²⁶⁴ Dickinson and Shrewsbury Letterbook. In possession of author; Joel Shrewsbury, *Memorial of the Manufacturers of Salt in the County of Kanawha, Virginia against the Repeal of the Duty on Foreign Salt* (Charleston: Offices of the Kanawha Banner, 1830).

²⁶⁵ *Acts Passed at a General Assembly of the Commonwealth of Virginia*, (Richmond: Thomas Ritchie, 1815), 23-30.

²⁶⁶ Joel Shrewsbury to William Dickinson, January 17, 1815. In possession of author.

That together with the scarcity of provisions induced me to settle up and quit.”²⁶⁷ Soon though, Kanawhans found that despite very specific statutes in the law which required stringent reporting and payment schedules with specific penalties for nonpayment, failure to pay would not result in any liens against the salt-makers’ property. Rather than leasing their furnaces to a third party as salt-makers initially thought they might, they simply set up dummy corporations to be legally responsible. Unsurprisingly, the tax on salt remained uncollected. After the War of 1812 ended, restrictions on salt supplies eased, even as the Kanawhans produced more. Salt-makers argued that capacity now exceeded postwar demand. Those that had failed to avoid the tax argued that not only were they being penalized unfairly; they were in no position to pay the back taxes in the depressed economic environment. In the end the state relented.²⁶⁸

Kanawhans showed equal zeal for protecting domestic salt industries through tariffs. As has been discussed, tariff discussions were exceedingly contentious affairs. In 1827, merchant marines sought a repeal of, or deduction in salt duties. Naturally, salt-makers sought to uphold tariffs on every possible level. Tariff supporters adopted a martial tone as they appealed to patriotism and the virtue of freedom in support of their cause. A writer in Charleston’s *The Western Virginian* calling up the patriotic cause and even perhaps General Washington asked, “How can a patriot slumber when the fundamental rights and interests of the people are treacherously [sic] invaded and wantonly sacrificed?” Even though “memorials and protests were despatched [sic] to Washington; and the whole artillery of paper war was directed against the opposed repeal,” the enemy had yet to “surrender the contest.” He then entreated patriots not to

²⁶⁷ Joel Shrewsbury to William Dickinson, February 14, 1825. In possession of author.

²⁶⁸ Stealey, *Antebellum*, 59.

“mutiny against a brave and faithful general.”²⁶⁹ An article in *The Banner* confidently predicted that if the tariff were repealed, foreign suppliers of salt would quickly “overwhelm our infant establishments, so as to put down competition.” America would then be powerless as the prices doubled and, “shall again be engaged in war.” The writer suggested that the enemy “will find us as it did in the past when a *barrel of flour* would not command a bushel of salt on the Eastern frontier. A nation might well be destitute of the implements of war, of attack and defence [sic], as of the sources of sustenance [sic].” The writer finished by warning “innovation-loving politicians” that the “distress experienced during the *last war* for this article should be remembered.”²⁷⁰ The rhetoric may have been extreme, but the message of the writers was not mere hyperbole.

One part of the “whole artillery of paper” fired at Washington was the *Memorial of Salt Manufacturers of Salt in the County of Kanawha Virginia Against the Repeal of the Duty on Imported Salt*.²⁷¹ In this lengthy letter, Shrewsbury cites Thomas Jefferson’s argument that independence required self sufficiency in agriculture.²⁷² Shrewsbury then argues that the essential nature of salt requires that they “now place the manufacturer by the side of the agriculturalist.” He then states that “the grand enquiry now is shall we make our own comforts or garnor [sic] them at the will of a foreign nation.”²⁷³ In the pursuit of his arguments, Shrewsbury proceeds laying out the history of salt tariffs in the past and the critical role they played in fostering domestic industry. He then carefully offers his evidence of the extent to which other industries, such as the iron industry, rely

²⁶⁹ *The Western Virginian*, April 8, 1829.

²⁷⁰ *The Banner*, September 2, 1830.

²⁷¹ Joel Shrewsbury, *Memorial of the Manufacturers*.

²⁷² *Ibid.*, 3.

²⁷³ *Ibid.*

on the salt manufacturers' economic health. Shrewsbury's thoughtful and methodical arguments to the United States Congress reveal their understanding that Kanawhans were not isolated on the fringes of the nation but at the growing country's epicenter. Decades before the Civil War, these Appalachians viewed their natural resources and their region's industrialization as key to the success of the farms and packing houses of the Ohio Valley, the foundries of Pittsburgh, and even the self-sufficiency of the nation.

Probably few things reminded Kanawha manufacturers of their centrality in United States commerce more than the lack of a unified currency. Perhaps it was the sense of doom such as Dickinson expressed when he predicted the complete ruin of his company due to disparate currencies, but some of the more interesting innovations and displays of flexibility were derived entirely or at least partially in response to the nation's currency chaos. While Dickinson and Shrewsbury formed a particularly vibrant company, their solutions designed to alleviate their financial squeeze underscore the propensity for finding creative solutions which marked Kanawha Valley businessmen.

The letters of Dickinson and Shrewsbury reveal the constant pressure to be paid in specie or at least in the notes of trusted banks from eastern urban centers. After receiving payments with which to pay debts in the East from his long suffering partner, William Dickinson wrote, "Sir, your favour of inst by William Slack came safe to hand with the money mentioned and the specia don't hold out by my Scales and Weights by about one dollar and as they have not been used much lately they may not be correct." Dickinson's statement that his scales had "not been used much lately" is likely to be offered less as a reason that his scale may be off, and more as a jab at Shrewsbury for not pushing their customers harder to pay in cold, hard cash. Dickinson then continued, "the North

Carolina, Columbia U State and Virginia notes all shall be able to pass without a discount. The Georgia, South Carolina, Pennsylvania, Jersey and New York I have put off at five to ten percent discount.”²⁷⁴ Worse still, some of the notes Shrewsbury accepted as payment held no value and would “not pass at any discount.”²⁷⁵ As if this were not confusing enough, the values of the banknotes shifted with time, location, and size of the note. Dickinson attempted to illuminate the then current discount rates for Shrewsbury. “The South Carolina and Georgia notes are as good as the North Carolina, but cannot be put off in payment hear [sic] especially when the notes are small. Those New York and Jersey notes of small banks in the back Country will not pass in the City of New York or Philadelphia unless at a considerable discount there, and they are much worse hear [sic] especially when the notes are small.”²⁷⁶ If Shrewsbury felt that he was getting a handle on this currency exchange miasma, Dickinson’s next advice that “North Carolina notes are becoming current hear [sic] except with Banks and Sheriffs” may have left him wondering if he had even a remote chance of ever being paid in full for salt or timber.²⁷⁷ It may also have left him wondering if he would ever be able to do anything that left his brother-in-law business partner satisfied. It appears that, at least on the latter question, the answer was a resounding no. Dickinson’s discussion with his partner about the fluctuating discount rates for the various regional bank notes indicates a detailed understanding of the nation’s financial exchanges. While Dickinson-Shrewsbury was a particularly vibrant Kanawha company, and thus might have a slightly different

²⁷⁴ William Dickinson to Joel Shrewsbury, February 24, 1840. In possession of author.

²⁷⁵ Ibid.

²⁷⁶ Ibid.

²⁷⁷ William Dickinson to Joel Shrewsbury, February 24, 1840. In possession of author.

experience than other salt-making firms, all Kanawha salt-makers faced this same complex problem. They needed to understand the confusing and chaotic currency exchanges on a national level.

Finances proved challenging for the capital-intensive firms from the beginning. The Ruffner brothers borrowed heavily to finance their drilling efforts leaving them in troubling financial straits. The sources of capital lay to the east. Even if banks or individuals from the Ohio Valley had been willing to loan to salt-makers, their currency lacked sway in the East. As Dickinson complained, the eastern slave-owners, upon which the Kanawha industrialists depended, would not accept western notes. Even without issues of discount rates and devaluation, salt-makers required a large amount of capital, which was often difficult to raise. Dickinson and Shrewsbury, despite good standing in the Shenandoah Valley community as merchants and tobacco brokers, experienced difficulty financing their initial Kanawha efforts even before the troubles that became known as the panic of 1819.²⁷⁸

Regardless of the causes, the sectional tension between forces arguing for easy credit and unrestrictive fiscal policy tended to arise from the West. Fiscally conservative power brokers, generally of the East, became equally concerned about the ill effects arising from plentiful currency with specie backing it. Fiscal conservatives were equally

²⁷⁸ Joel Shrewsbury wrote to William Dickinson, "I arrived here last evening where I found Mr. Flemming Saunders, he has used every exertion in his power and I am in hope that I will get \$3,000 on Friday certain from the Farmer's Bank." Flemming Saunders had fruitlessly attempted to borrow money in Bedford County. He had to travel to Lynchburg and offer his own bond to the Bank of Virginia and the Farmers Bank there in order secure loans for Dickinson-Shrewsbury. See Joel Shrewsbury to William Dickinson, September 4. 1814. In possession of author; In the end, even the efforts and credit of Flemming Saunders would not procure Dickinson and Shrewsbury the specie they desperately needed. The Farmers Bank would not release specie, only discounted paper, to be repaid in specie. See Joel Shrewsbury to William Dickinson, September 14. 1814. In possession of author.

distressed by the ease with which credit was extended to finance land purchases and speculative ventures in the West. Kanawha businessmen rankled by what they considered overly restrictive policies of the nearest two banks in Lynchburg sought the requisite state approval for a bank in the Kanawha Valley. Perennially short of funds in a seasonal business, salt-makers required a bank to loan them funds based on future sales of salt that they had already produced. Without this, they were compelled to dump their salt on the market quickly, regardless of price, in order to discharge debts.

As early as 1816, valley salt-makers organized their efforts and formally lobbied the state legislature for their own bank. As was often the case, Shrewsbury was on the committee to represent the salt-makers. Shrewsbury wrote that they “prepared a very able memorial to lay before the state legislature praying for a Branch of one of the chartered Banks or an Independent Bank whose capital to be \$256,000.00 which will be warmly attended before the house.”²⁷⁹ The Kanawhans’ efforts were not rewarded quickly though. Banking in Virginia at the time, not surprisingly, was a confusing and highly partisan business. Factional fighting between supporters of Farmers Bank and the Bank of Virginia ensured that Kanawhan efforts to gain a local branch of a bank made little headway. Finally, in 1839, when the legislature finally approved the Bank of Kanawha, efforts still bogged down in disputes over the level of the bank’s financing and the institution’s location. Salt-makers refused to support a bank located in Charleston while legislators refused to support placing the bank in the Kanawha Salines, where the feared salt-makers would exert complete control over the institution. In the end legislators placed the bank in Charleston. However, salt-makers clearly held the reins of the new

²⁷⁹ Joel Shrewsbury to William Dickinson, October 28, 1816. In possession of author.

bank. Fifteen of the twenty-three bank commissioners engaged in the salt business, including Joel Shrewsbury, his son Joel, Andrew Donally, and Lewis Ruffner.²⁸⁰

While the crisis may have been named the Panic of 1819, the roots of the financial collapse were established as salt-making in the valley began to grow rapidly, due in part to the ease with which Ohio Valley men gained access to credit to finance the purchase of farms and livestock. During the War of 1812, the economy boomed and salt supplies shrank as demand rose. Kanawhans sought to take advantage of the lean salt supplies. Indeed, this is what drew men like Joel Shrewsbury, William Dickinson, and many others from the Shenandoah Valley to the Kanawha Valley. They not only sought to take advantage of higher salt prices, in a version of early Appalachian arbitrage, some like Dickinson sought to take advantage of the discount rates on notes. He ventured that the notes would retain their value and accepted notes rather than specie which others were requiring, while selling at a lower price. Dickinson wrote to Shrewsbury from Richmond in November 1817, “The banks of Virginia and all north of this have stopt [sic] the payment of specia. Their notes of course is on the depreciation, but as yet are received in payment for almost all debts and appear as current as ever in this place.” Despite the faith in Virginia bank notes, Dickinson continues, “I am told salt is worth 5 to 6\$ per bushel in Lynchburg. King has none on hand and sells as fast as they can make it for specia. Whoever goes there with notes have to go to Abinton (Abington) and make a discount of 12.5 cents before they can get salt.” Always on the lookout for an opportunity, Dickinson suggested, “it will turn them to Kanawha which I should recommend the receiving the

²⁸⁰ Stealey, *Antebellum*, 67.

notes as yet for salt, they will remain to be good as all such as owe the banks.”²⁸¹

Dickinson would come to reverse his suggested course in short order.

The hope of taking advantage of the discount rate to convert notes to cash soon evaporated as salt-makers found their creditors, free workers, and slave owners reluctant to accept western notes. Even methods that had successfully raised secure money in the past for Dickinson and Shrewsbury faltered. Having been tobacco brokers in the Shenandoah Valley, Dickinson and Shrewsbury kept a hand in that business, growing and selling tobacco themselves and brokering it for others as well.²⁸² Pent up demand in Europe after the war kept tobacco prices high and helped keep strong currencies flowing into Dickinson-Shrewsbury coffers. However, this avenue for good currency apparently became insufficient as western currency lost value relative to specie or eastern notes. Shrewsbury complained to his partner, “When your father was here he was very pressing for the hiring of his negroes last year. I proffered to pay him such notes as we have in this country would answer him.” This apparently did not suit the elder Dickinson, who responded that he “would not have western money even at home as a gift.” Even then, Dickinson Sr. continued that he would not accept it from Shrewsbury unless Shrewsbury provided him “with enough to burn a plant bed.”²⁸³ Dickinson senior clearly valued western money very little indeed.

²⁸¹ William Dickinson to Joel Shrewsbury, November 7, 1814. In possession of author.

²⁸² William Dickinson to Joel Shrewsbury, April 22, 1817. In possession of author.

²⁸³ Burning a plant bed was an early step in preparing a field for tobacco cultivation. This entailed using a very large amount of dry combustibles to create an extremely hot and large fire. It required a considerable blaze to burn all the green wood, bushes, grasses and roots that had until recently been growing in the field. Joel Shrewsbury to William Dickinson, July 8, 1817. In possession of author.

As the economy sank into dysfunction in 1819, a letter from Shrewsbury to William Dickinson reveals that the latter had come to hold the same regard for western money as his father. He also appears to have inherited his father's lack of patience or tact. Pressed to settle the company debts, Dickinson wrote to his partner for funds. Shrewsbury responded that the firm had only been paid in Kentucky and Ohio bank notes which would not suit Dickinson's creditors. Dickinson-Shrewsbury's major buyer of salt maintained good credit, so Shrewsbury assumed that he could pay Dickinson-Shrewsbury debts by issuing drafts on the money they were owed by that primary customer. This, he thought would leave their best customer and "creditors [to] fight out the bad currency of our country which I have done."²⁸⁴ What Shrewsbury did was not unreasonable. Trapped in a national currency mess, he sought a stable place to store the company's liquid assets; their account receivables. Shrewsbury decided that rather than hold quickly devaluing western notes or paying the hefty discount to turn them into eastern currency, he would keep his assets in the form of credits with what he considered a stable and trustworthy company. They remained liquid, and as far as Shrewsbury could judge, at least postponed the financial hit. It seems that Shrewsbury did not figure on Dickinson demanding eastern currency when there was none to be had. Shrewsbury finished his letter assuring his brother-in-law that all sales in the future would include eastern bank notes.

The new policy involving eastern currency as part of all future sales either failed completely or fell short of Dickinson's requirements. Given Shrewsbury's letter to Dickinson of April 7, 1819, it seems more likely that it failed completely. Shrewsbury informed Dickinson he had "laid aside every other exertion to procure the sums that you

²⁸⁴ Joel Shrewsbury to William Dickinson, February 1, 1819. In possession of author.

wrote for and have as yet failed, the Eastern funds is not in this country, and the business of the West is and has been done generally upon a Nominal Capotal [sic] by application to the Banks—and since the deranged state of the banks, no US paper or Eastern funds can be procured in this section of the Country.” Shrewsbury goes on to offer that “Kentucky and Ohio money has been offered at 20 to 25 percent discount without success, and since the decision of the Superior Court US, a great number of the Western Banks will fail and personal property and Real Estate is fast declining.”²⁸⁵ This passage further reveals a man who understood his position in the midst of competing national banking and economic policies. Shrewsbury’s reference to the US Superior Court decision likely refers to the US Supreme Court case *McCulloch vs. Maryland*, which was handed down only a month earlier. In it, the Supreme Court blocked the State of Maryland from laying a tax on the Second Bank of the United States. The ruling removed an important tool that states used to thwart the federal government’s control over banking in the states. In effect, the court told the states that federal banking policies held sway and enjoyed constitutional protection from the states.²⁸⁶ Shrewsbury’s understanding of its ramifications should further dispel any ideas that these Kanawhans held a narrow scope. Valley salt-makers saw themselves at the center of the nation, and as such kept their sights on the horizon in all directions.

In response to their need for eastern capital, Dickinson and Shrewsbury found two unique solutions which do not appear to have been followed by other salt-makers; one long term solution and one to meet immediate financial needs. Nashville served as a

²⁸⁵ Joel Shrewsbury to William Dickinson, April 7, 1819. In possession of author.

²⁸⁶ For a more complete treatment of the details and significance of *McCulloch v. Maryland*, see Richard E. Ellis, *Aggressive Nationalism: McCulloch v. Maryland and the Foundation of Federal Authority in the Young Republic* (Oxford: Oxford University Press, 2007).

strong market for Kanawha salt. In 1819, after predicting a tough year for Kanawha salt amidst the national financial meltdown, Shrewsbury wrote, “Col. Donally thinks Kanawha Salt can be sold and has been gone some time to Cincinnati, Louisville, Nashville...etc to try to sell out the different markets viz. Nashville 175,000 bushels, Cincinnati [sic] 125,000 bushels, Kentucky and Illinois [sic] 120,000 which would take all the Salt manufactured herein some section of the country.”²⁸⁷ In thinking about their liquidity and currency challenges Shrewsbury mused, “There ought to be some place to deposit the salt in some section of the country where money could be got of a kind that could be converted into a currency that would pay debts or buy Negroes, and Nashville has always been the favorite spot with me, the currency in that country could be converted at less discount than is common in the west.”²⁸⁸ This is precisely what Dickinson and Shrewsbury proceeded to do. Rather than broadly sell their product throughout the West, as Col. Donally sought to do, Shrewsbury and his partner focused on penetrating one market deeply. Dickinson even moved from Bedford County to Nashville in an effort to dominate one smaller local market with a better discount rate and more access to eastern notes.²⁸⁹ While this may not be truly ingenious, Dickinson and Shrewsbury’s choice to deeply penetrate one market with good currency, rather than continue to sell across the entire Ohio Valley underscores the Kanawhans’ savvy and comprehensive business perspective.

By the summer of 1819, the western currency debacle appears to have reached critical levels and severely cramped salt-makers’ efforts. The letters of Shrewsbury

²⁸⁷ Joel Shrewsbury to William Dickinson, April 7, 1819. In possession of author.

²⁸⁸ Joel Shrewsbury to William Dickinson, March 7, 1820. In possession of author.

²⁸⁹ Pauley, “The Good Stewards.”

reflect the desperate stage that credit markets reached. Shrewsbury complained, “I have been running everywhere from the mouth to the falls...I have offered Negroes and land at a sacrifice in bonds and still have failed. The truth is, their [sic] is no money in the country either to buy lands or negroes at a sacrifice that is worth anything in your country.”²⁹⁰ In another letter he informed his partner, “\$1,000 has not in my opinion been received in good money on the Kanawha this spring and summer...” He went on to explain that the lack of acceptable currency had reached a point where none of the salt-makers could pay their kettle tenders the \$6.00 to \$12.00 per day they earned.²⁹¹ Not only was Kanawha business crippled by the crisis, Shrewsbury reported that:

Mr. Lowry came on immediately from Vincenns [sic] [Vincennes, a Wabash River town in current day southern Indiana] and had more money than possibly suted [sic] in your Country, but when he got to Kentucky the suspension of specia had there taken place—he paid nearly all his Bonds leaving about \$150 to \$200 (providing the money can be got off at par) he seemed honest and fair and declared to me that Eastern money was not in the Country, the Vaults of the Banks shut and merchants perfectly heartless.²⁹²

Shrewsbury predicted that “the currency of the Western States will not get better for several years till the Debts to the East is wiped off and the produce of the West in exports exceed the imports.”²⁹³ Unable to raise the funds in the Kanawha to satisfy business debts, an exasperated Shrewsbury threatened to send the slaves they owned east to Dickinson to see if he could fare better. While one senses that Shrewsbury’s offer held a component of “If you think you can do better...” it was nevertheless, a significant statement. Salt-makers were constantly short of help. Selling slaves indicates that times were desperate.

²⁹⁰ Joel Shrewsbury to William Dickinson, May 25, 1819. In possession of author.

²⁹¹ Joel Shrewsbury to William Dickinson, July 6, 1819. In possession of author.

²⁹² Joel Shrewsbury to William Dickinson, February 7, 1820. In possession of author.

²⁹³ Joel Shrewsbury to William Dickinson, February 15, 1820. In possession of author.

It has been said that desperate times call for desperate measures, but the partners hit on a brilliant temporary solution—pigs. Pigs, as a valuable asset and business commodity, were very much a part of the salt-makers' environment. Kanawhan business men were used to scrutinizing the national market for pork products and making decisions informed by far flung markets. In August 1818, Shrewsbury wrote, "owing to marketts [sic] in New Orleans and other places being good for Bacon it will be very scarce here from this time till the pork market commences, which will operate a little troublesome to me as well as others."²⁹⁴ The partners decided to become swineherds. Since they already acted as salt-makers, tobacco-brokers, millers, and smith-owners, this continued lateral expansion of their business was not uncharacteristic. Shrewsbury arranged to purchase 500 hogs from a Mr. Evans in September 1819. All October the two planned for Dickinson to come west and drive the hogs back to eastern Virginia to sell for "good money." As October passed into November, Evans finally announced that he could not get them the swine until December, far too late for the animals to make the trek east. Shrewsbury quickly made new arrangements with local farmers for 500 hogs. By mid-November, Shrewsbury gave Dickinson the word to come get 400 of the animals to herd across the mountains and down into eastern Virginia to sell for the scarce eastern currency.²⁹⁵

Dickinson and Shrewsbury were hardly the first or last to herd swine east from Appalachia. Nevertheless, their decisions underscore the relentless opportunism, broad perspectives, flexible views of resources, and creative thinking that marks Kanawha

²⁹⁴ Joel Shrewsbury to William Dickinson, August 5, 1818. In possession of author.

²⁹⁵ Joel Shrewsbury to William Dickinson, October 26, 1819. In possession of author; Joel Shrewsbury to William Dickinson, October 30, 1819. In possession of author. Joel Shrewsbury to William Dickinson, November 2, 1819. In possession of author;

Valley salt-makers. The choice to drive swine also reflects attitudes about credit and reputation. Dickinson and Shrewsbury, while not among Virginia's gentry, were born far above the station of drovers. Indeed, they had increased their status and wealth even by 1819, yet they themselves drove hundreds of pigs across difficult terrain in the middle of winter rather than not meet their obligations to creditors. Either the partners held little regard for social conventions surrounding status, or a reputation for credit-worthiness was indispensable for men of business.

Like other Kanawha innovations, it is difficult to attribute the development of what has been called the nation's first business cartel to any one set of factors. While clearly economic in nature, the move toward an organization acting as one unit and thereby controlling availability and price of salt in the Ohio Valley was a crowning achievement. However, in some ways, the cartel which salt-makers are credited with forming was the least innovative development of all. The Kanawha cartels, or business combinations, as Stealey prefers to refer to them, were the evolutionary product of a number of small agreements that salt-makers took to gain a competitive edge.²⁹⁶ This development was in keeping with the nature of Kanawha innovation, which rarely bore the mark of radical new thinking. Progress tended to arise from a series of smaller adjustment or modifications. It was supremely practical.

The cartel evolved in response to the Kanawhans' other successful innovations. The development of the coal furnace, the utilization of natural gas, the shift to enormous, wide boiler pans, the drilling breakthroughs, the early embrace of the steam towboats; all these innovations allowed Kanawhans to create and deliver large amounts of salt to the

²⁹⁶ Stealey, *Antebellum*, 22.

markets of the Ohio Valley quickly and inexpensively. In 1808, Kanawha businesses produced 25 bushels of salt per day. By 1814, the region produced 600,000 bushels per year, just less than 1,650 bushels per day. By 1827, 787,000 bushels of salt packed in white oak barrels floated down the Kanawha to awaiting markets. Just eight years later in 1835, the amount of salt produced in the Kanawha had climbed to nearly two million bushels, nearly 20 percent growth per year.²⁹⁷ Consequently, while the cost of producing salt dropped to between \$0.16 and \$0.25 per bushel, the price in western markets hovered little above that and at times sold for as little as half the cost to produce it.²⁹⁸ Salt-manufacturers who had high fixed costs and low variable costs responded by producing more salt in order to drive their cost per bushel further down. This, in turn, increased supplies even more and placed more downward pressure on the price. The tension between efficiency, overproduction, and price drops, exacerbated by the seasonal nature of the business as dictated primarily by the Kanawha River, drove the salt-makers to take the small steps that led to the organization known as a cartel.

The evolution of the cartels began with an attempt by a few of the principals of the larger salt companies to buy some of their less established competitors. Many producers who flocked to the valley, encouraged by high wartime salt prices, were undercapitalized and disheartened at the post-war economic decline. Not all agreed to be part of this scheme. Dickinson-Shrewsbury began a long pattern of tagging along with Kanawhan cooperative salt organizations when it suited, without ever becoming completely connected with them. In 1817, Shrewsbury wrote to his partner, “the salt makers here Donally and Steel, Ruffner, Grant, Morris being the principal [sic] owners of

²⁹⁷ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 15.

²⁹⁸ Stealey, *Antebellum*, 76.

the salt works have concluded to buy out the small establishments on the river and raise salt to \$1 per bushel [sic]. They have bought several and I believe will buy out the whole.”²⁹⁹ Shrewsbury, in a move designed to have his cake and eat it too, went on to tell Dickinson, “I encourage them all I can tho [sic] not join them, and inform them your and my article of partnership prevents my becoming one of the contracting parties, but should we get to making salt, they can have it at \$1 per bushel so long as the company sells at that price and pay us for it punctually.”³⁰⁰ Given that Dickinson and Shrewsbury had not actually created their own salt at that point (they owned a great deal of timber, a well, and a salt furnace which they leased to others), it would be interesting to know the response of the major salt manufacturers to this somewhat impertinent offer. Shrewsbury’s prediction proved wrong. They were never able to gain more than approximately 25 percent of the valley’s salt production.³⁰¹ The leading salt-makers did not, however, abandon their efforts.

The very next year, 16 men agreed to form the Kanawha Salt Company, including Joel Shrewsbury, who must have found advantages to joining that he had failed to see before. This company represented the first of a number of iterations designed to impose quality control and production level restrictions.³⁰² Often the cooperative agreements lasted a finite period, sometimes as little as one year, allowing the firms to reevaluate the circumstances and needs of the members frequently. In the original organization, the 16 primary salt producers agreed that the firm would begin existence on January 1, 1818 and cease on December 31, 1822. Twice a year, the members met and

²⁹⁹ Joel Shrewsbury to William Dickinson, n.d. In possession of author.

³⁰⁰ Joel Shrewsbury to William Dickinson, October 28, 1817. In possession of author.

³⁰¹ Bryan Ward, *West Virginia Executive*, (Summer 2010).

held elections for the five directors, though meetings could be called when at least two-thirds of the members desired it. They agreed that the Kanawha Salt Company must buy all the salt the members produced at a price set by the company. Dividends were paid to members based on the size of the participating operations. Members agreed to restrict the membership's total salt production to 450,000 barrels. Salt was to be packed in barrels without the use of tallow, a trick used to speed crystallization and increase the salt's weight. The salt was required to sit in barrels for one month under cover before the salt-maker presented them for sale. The firm could buy or lease rival salt manufactories with profits from them to be divided by the members. Directors could discount the price paid to a member if they deemed the quality of the salt or the barrel inferior. By operating under this agreement, members sought to buoy prices by standardizing quality, restricting production, and controlling the release of the product into the market.³⁰³

While the West Virginia Geological Survey discusses the Kanawha Salt Company as having existed for 60 years, this is unintentionally misleading.³⁰⁴ The original Kanawha Salt Company did not survive until 1822 as planned. Five manufacturers refused to join and thus undermined the organization's efforts while taking advantage of the temporary price increases that resulted from the members' production restrictions, just as Shrewsbury had originally intended. Shrewsbury informed Dickinson, "John Warth would not come into measures with them nor sell them his salt. Warth wanted to sellout [sic] for 20,000 what was worth \$10,000."³⁰⁵ Pre-existing contracts also

³⁰³ Organization of the Kanawha Salt Company, West Virginia Archives and History; Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 5, 17.

³⁰⁴ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 17.

³⁰⁵ Stealey, *Antebellum*, 28; Joel Shrewsbury to William Dickinson, November 12, 1817. In possession of author.

undermined the fledgling cooperative's efforts.³⁰⁶ After one year, the organization fell apart under the destructive forces of a declining economy. The Kanawha Salt Company can be seen as a failure due to its inability to last the five years of its charter. In another light, however, this can be seen as a successful opening effort. The idea of regional quality control became established. It was an initial version which served acceptably in some ways and provided a base for decades of future versions of cooperative agreements. The lack of longevity of the Kanawha Salt Company may be seen as a failure, or a reasonable, though unintended, response to an extremely fluid business environment. The basic tenets of the Kanawha Salt Company: limit production, control releases to the market, and control quality, appeared again and again, often still under the name Kanawha Salt Company. Other than the rare occasion when investors from outside the valley sought to buy the bulk of the salt facilities outright, the same members formed the core of each new version.³⁰⁷

The salt cooperatives to follow often failed to meet with approval inside the valley. They found even less favor outside of the valley. Discord arose between cartel members and those who profited from cartel restrictions without joining. Several cartel policies particularly rankled salt consumers. As part of their efforts to restrict production, cooperatives not only restricted members' production, they also paid members and non-members to plug their brine wells. This practice was referred to as dead-renting. The cooperative determined the dead-rent paid by assessing the outflow and strength of wells

³⁰⁶ Joel Shrewsbury to William Dickinson, April 22, 1817. In possession of author.

³⁰⁷ Joel Shrewsbury to William Dickinson, October 28, 1817. In possession of author; Joel Shrewsbury to William Dickinson, February 1, 1820. In possession of author; Joel Shrewsbury to William Dickinson, February 2, 1820. In possession of author; Joel Shrewsbury to William Dickinson, April 21, 1820. In possession of author; Joel Shrewsbury to William Dickinson, July 22, 1820. In possession of author; Stealey, *Antebellum*, 26-40.

operating nearby.³⁰⁸ One Kanawha resident reported that “dead wells are now common at the Kanawha Salines and are giving to the place a dilapidated and melancholy appearance and doing real injury to the country. There are many dead wells, and monopolizers pay the owners for letting them remain idle and receives about \$1500 per annum for one and \$1500 per annum for another. Besides dead wells, there are also unborn wells, whose owners are paid for not letting them be dug.”³⁰⁹

Another practice that many found particularly offensive developed in part due to seasonal market cycles determined by the river flow and the cooler fall temperatures, which heralded the season to slaughter livestock. In order to avoid dumping all the salt on the market during the months when the rivers flowed, salt cooperatives over the years set up storehouses in various sites along rivers in the Ohio Valley. Salt was shipped there and released when supplies dwindled and prices rose. Locals likened this practice to hoarding or war profiteering. One resident of Pike County, Missouri complained of the Kanawha salt cooperative, “so adroitly do this company manage their operation, that in the spring season, when the waters are flush, and the navigation easy, they, by means of their own boats, deposite [sic] with some one house, at the most prominent points along the river, a quantity of their salt, sufficient to meet the want of the country; where it most usually remains on deposite [sic] until the late fall, or closing of the river by ice.” The Pike County residents continued that after the rivers closed to navigation, “if the stock of other varieties (of salt) happens to be light, this company never fail to turn their forecast to profitable account, and avail themselves of the *necessities* of the people to obtain

³⁰⁸ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 5, 17.

³⁰⁹ Benton, “Statement of a Citizen of Kanawha,” *Documents Related to the Trade*, 49.

exorbitant price for their salt.”³¹⁰ Having the necessity sitting in their neighborhood, but being unable to purchase it struck local settlers as deeply wrong.

Perhaps the most troubling policy for the average western consumer of the Kanawha salt cooperatives was the policy they developed of selling their salt on consignment. Another Pike County, Missouri resident, William Sitton, summarized, “In the sale of Kenawha [sic] salt, the usual (credit) upon goods and groceries is not extended, as it is an established rule that this article is to be sold for ready money only.”³¹¹ In Cape Girardeau, Missouri, a Mississippi River town where competing salt shipped up from New Orleans would have been more likely to be available, resident John Webb complained of similar policies. In a letter to his senator, Thomas H. Benton, Webb recreated a typical conversation with a storekeeper about Kanawha salt. “Go to a merchant and ask if he wants any kind of produce. If he says yes: Well I will bring it on such a day. I want some salt to pickle up my meat; for I have got no money. His reply is, My salt is a cash article; I cannot sell it for produce.” Webb continued that if the shopper offered to pay later or asked for credit the storekeeper would reply, “I only bring in the salt for accommodation; —or otherwise will reply, I am selling on commission, and am obliged to have the money.” Webb summarized, “On these terms I have known men to do without salt until they have suffered considerably for want of the article.”³¹² In a society where cash came to hand infrequently, demanding cash for a necessity of life was a radical departure from the norm. This policy was understandably unpopular and perhaps even insulting at a time when worthiness of credit stood as a significant component of a

³¹⁰ Benton, *Documents Related to the Trade*, 11.

³¹¹ Benton, *Documents Related to the Trade*, 12.

³¹² *Ibid.*, 48.

man's worth as a citizen. Nevertheless, from the salt-makers' perspective, this policy served as one of the surest methods to maintain price controls.

The salt cartels, combinations, or cooperatives, depending on the phrase one prefers, resembled the bulk of Kanawha Valley innovations. While significant in the end, they resulted from a series of modifications and adjustments meant to alleviate a problem or take advantage of an opportunity in some small way. Regardless of the venue, these innovations shared certain characteristics. Rather than emerging from some wild dream to radically change the game, they tended to be the culmination of a series of small problem solving steps. For example, the Ruffner brothers professed no dream of extraordinarily strong brine 400 feet below the river; they just wanted to see if the brine would become stronger a little farther down. As such, these innovations tended to be imminently practical. They reflected a certain disregard for convention, such as selling salt for cash only. They commodified nature ruthlessly, tirelessly, and never by halves. They approached problems and opportunities from the perspective that they sat at the center of a growing nation. Indeed, as producers of an essential mineral, they were a linchpin in the growth of the nation. The salt cooperative's operations throughout the Ohio Valley reflect this comprehensive vision. All these traits came into play when they approached one of the most crucial components of their organizations; the enslaved.

Chapter 4: Bending Agricultural Slavery

The antebellum Kanawha Valley economic engine rested on the backs of the enslaved, an unusually high proportion of which labored hundreds of miles from their owners. In his work on slave hiring, historian Clement Eaton described slave hiring as “the main method of introducing the slave into southern industry and city life—an important step toward freedom.”³¹³ Historians have since debated the extent and nature of slave-hiring. Some have argued that leased slaves formed a crucial cog in the antebellum South’s wheels of industry and as such, supported slave-holding. Others agree with Eaton that the higher degree of independence, greater mobility, and the opportunity to pit white slave owners against white slave-renters weakened the institution of slavery.³¹⁴ While Eaton may have been taken to task for suggesting that a slave could experience any degree of freedom while being owned by another, this was not his point. Eaton explored degrees of autonomy and the ability to exercise power and individual choice within the bounds of slavery. He did not suggest that slaves were in any respect free, but that slave leasing allowed extra room for the slave to exercise power.³¹⁵

³¹³ Clement Eaton, “Slave-hiring in the Upper South: A Step Toward Freedom,” *The Mississippi Valley Historical Review* 46, no. 4 (March 1960): 678.

³¹⁴ For an excellent and concise historiography of slave leasing in Virginia, see John J. Zaborney, *Slaves for Hire: Renting Enslaved Laborers in Antebellum Virginia* (Baton Rouge: Louisiana State University Press, 2012).

³¹⁵ Eugene Genovese notes that the number of self-purchases appears to have been too small to justify any literal interpretation of slave hiring as “a step toward freedom.” See Eugene D. Genovese, *Roll, Jordan, Roll: The World the Slaves Made* (New York: Pantheon Books, 1972), 392.

The salt-making industry, which relied heavily on leased slaves, substantiates Eaton's conclusions.³¹⁶ Not all Kanawha slaves were leased, but the practice was prevalent enough to partially define the nature of Kanawha Valley work regardless of whether salt-makers leased their laborers and craftsmen or owned them outright. Some estimates suggest that as many as half of the Kanawha workers were hired slaves.³¹⁷ Kanawha industry's need to compete for hired slaves even as they responded to pressure to produce salt more efficiently, greatly influenced the nature of the Kanawha salt industry and highlights the dynamic, flexible, and outwardly-focused perspective held by these Appalachian industrialists.

The rapid growth of the salt industry during and after the War of 1812 put salt-makers on a constant search for labor, free or enslaved. Newspapers such as the *Western Virginian* frequently featured advertisements for workers who had the skills needed to support the salt industry.³¹⁸ The January 28, 1829 issue announced, "Coopers wanted 5 or 6 steady hands to make salt barrels- for which liberal price will be paid in cash"³¹⁹ The offer of payment in cash rather than in notes or local credit underscores the urgency of

³¹⁶ Eugene Genovese suggests that between five and ten percent of slaves could expect to be hired out overall, but makes note that in Lynchburg as many as half the slaves were hired. Genovese also notes that mechanics and craftsmen were in particular demand. See Genovese, *Roll, Jordan, Roll*, 390-394.

³¹⁷ Stealey offers this relying on Dickinson-Shrewsbury documents. Dickinson-Shrewsbury controlled upwards of 260 slaves in 1850, a list made in 1856 suggests that company only owned 130 of those slaves outright leaving the remainder to have been hired. Dickinson- Shrewsbury could have hired an unusually high proportion of slaves, but this seems unlikely. Shrewsbury expressed a preference for owning slaves outright. As a successful, well-established company, Dickinson-Shrewsbury had greater wherewithal with which to purchase slaves than most Kanawha Valley companies. If anything, it seems likely that Dickinson-Shrewsbury was likely to hire a smaller percentage of slaves than were other companies. See Dickinson and Shrewsbury Letterbook. In possession of author.

³¹⁸ "Coopers Wanted," *Western Virginian*, January 28, 1829; "Colliers Wanting," *Kanawha Spectator*, August 21, 1821.

³¹⁹ "Coopers Wanted," *Western Virginian*, January 28, 1829.

the advertisers' need. Drillers found themselves in particular demand. Shrewsbury complained to his partner of the dearth of drillers and of having to wait weeks for drillers to finish meeting their commitments to others searching for brine.³²⁰ In a letter, after asking his partner to once again make every effort to get him workers, he complained, "hands are hiring very high hear [sic] \$15 to \$20 per month to safe hands, out of which their clothing, taxes and [?] time is to be deducted." The scarce men who had the freedom to work where they chose charged a premium in the Kanawha for their efforts.

Even if white laborers hired on, they could not be relied on to remain in the valley. While river conditions constrained the shipping of salt to six months of the year, salt production and its supporting industries, like cooperages, operated year-round. Shrewsbury's letters indicate that free labor showed a troubling propensity to move on in the autumn months. The Leftwiches, who had agreed to lease the Dickinson-Shrewsbury furnace, deserted as winter approached. Likewise, Shrewsbury lamented in September 1818, "our force is lessening at the furnaces. Aliff has started home and Crump talks of starting in a few days and am compelled to supply there [sic] places with a part [of] our plantation hands."³²¹ Crump led a team of enslaved sawyers.³²² William Aliff's departure must have been particularly troublesome. A lead kettle-tender and lead sawyer, he bore dual responsibilities. A furnace required six kettle-tenders who ensured that the expensive boiling pans shipped in from Pittsburgh never ran dry. Kettle-tenders worked in pairs on eight hour rotations.³²³ The quality and quantity of the factory's salt depended heavily on how well the kettle tenders performed. These were positions given to more trusted

³²⁰ Joel Shrewsbury to William Dickinson, November 26, 1816. In possession of author.

³²¹ Joel Shrewsbury to William Dickinson, September 12, 1818. In possession of author.

³²² Joel Shrewsbury to William Dickinson, September 28, 1818. In possession of author.

³²³ Joel Shrewsbury to William Dickinson, June 24, 1818. In possession of author.

workers, but trust only went so far. By January, Shrewsbury had found John McConahay to “work among the woodcutters,” but it was still “necessary for some person at the furnaces to be up all night among the kettle tenders to see they do their duty.”³²⁴

Free workers who failed to hear the call of home from the East might have found themselves beckoned by the West instead. Salt-workers generally occupied the lowest rungs of the white, socio-economic ladder. While the owners of the salt-works were the elite of the valley, common salt-workers could claim no such status. The promise of better fortunes in the Great West, the burgeoning Ohio Valley and other salt producing regions like Big Sandy lured free workers; those Shrewsbury had referred to as “the rabble.” The scarcity and migratory nature of free labor led Stealey to summarize, “Historians usually pose the question about the alternative use of free white or slave labor—a choice not confronted by western Virginia entrepreneurs. In the Salines, there was never enough free labor available for employment in all phases of the salt industry. The real choice was between no or insufficient labor or slave labor.”³²⁵ Shrewsbury’s letters rarely fail to support Stealey’s assertion.

Western Virginians’ 1861 decision at the Wheeling Convention to separate from the Old Dominion and remain with the North should not give the impression that Kanawha salt-makers resorted to exploiting slave labor reluctantly.³²⁶ Of the salt-makers, only the Ruffners were known to openly oppose slavery, though it is not known to what

³²⁴ Joel Shrewsbury to William Dickinson, January 1, 1819. In possession of author.

³²⁵ Stealey, “Slavery,” 130-131.

³²⁶ Scott MacKenzie found that slaveholding status of individual county precincts was no indicator of whether that precinct was secessionist. See Scott A. MacKenzie, “The Slaveholders’ War: The Secession Crisis in Kanawha County, Western Virginia, 1860-1861,” *West Virginia History* 4, no. 1 (spring 2010):43.

degree they relied on the enslaved.³²⁷ Salt-makers appear to have experienced little dissonance of conscience regarding slavery. They may not have had enough free labor to meet their needs but there is little indication Kanawhans would have chosen free men over the enslaved even if enough free workers had been available.

Not only was slave labor less likely to leave at will, though the Ohio River and freedom must have seemed torturously close, manufacturers carefully calculated that enslaved workers cost less than free labor. In a January 27, 1835 petition to the state assembly, salt-makers wrote, "Slave labor is usually cheaper than free and for the business in which we are engaged it is believed to be the best."³²⁸ This judgment rested on economics and availability rather than on moral arguments. Based on diaries and court depositions, Stealey calculated that the cost to rent, feed, house, clothe, pay taxes on, and care for a slave was \$275.00 per year. The wages and board for a free worker cost the employer over \$575.00 per year.³²⁹ Even if free labor was available, most salt-makers believed using slaves a better choice.

The nature of the work in the Kanawha varied, as might be expected in a valley where men pursued industries as diverse as farming, boat-building, mining, salt-making, and other activities. While it is difficult to apply sweeping generalizations to the work environment, some descriptions may be applied. Salt companies did not make up the entire industrial landscape, but they did dominate it. Moreover, hierarchically structured salt companies often owned the region's ancillary industries and would have maintained similar attitudes in the supporting concerns as in the salt manufactory. Whites generally

³²⁷ MacKenzie, "The Slaveholders' War," 43.

³²⁸ Stealey, "Slavery," 129.

³²⁹ *Ibid.*, 130.

occupied positions of authority, just as Crump and Aliff led Dickinson-Shrewsbury's timber-cutters and kettle-tenders. This should not suggest that slaves did not hold positions of authority though. Given the shortage of white labor and the disdain which salt facility owners seemed to hold for itinerant free labor, it is not surprising that slaves worked their way into positions of authority over other slaves. In 1811, at the Oxford Iron Works near Lynchburg, of the nearly 220 men working at the foundry, only three were reported to be white. The four furnace keepers, positions of extraordinary importance at a foundry, were enslaved. Moreover, the man responsible for all the day to day operations of this important industrial concern was a slave named Abram.³³⁰ To Kanawha businessmen already well aware of the large Lynchburg foundry and its inner workings, slaves in positions of responsibility would have been nothing unusual.

Salt-making was a high-volume, low- margin industry, with labor, even slave labor, constituting a significant expense for Kanawha industries. In 1814, the Kanawha Valley produced 640,000 bushels of the essential mineral, twice the amount of any other state. Thirty-two years later the Valley generated over three million bushels.³³¹ Despite the efforts of salt-makers to organize, limit production, and dictate prices, the price of salt often hovered little above production costs. With production limitations eliminating the ability to make more salt to boost the revenues needed to offset the high fixed costs, men like Shrewsbury and the Ruffners felt tremendous pressure to cut expenses. Even small increases in efficiency yielded significant savings. The airline industry offers a modern day equivalent in the now well-known story of American Airlines' removal of one olive

³³⁰ Dew, "Davis Ross," 195.

³³¹ Stealey, "Slavery," 107.

from its salads and the \$40,000.00 per year savings the cut is reputed to have yielded.³³² It is fitting that this parallel should arise from the commercial aviation industry, another field with high infrastructural and fixed costs combined with low margins that has also been accused of price collusion.

Low margins in salt-making did not spawn the idea of cost-cutting, but it certainly pushed Kanawhans to innovatively use all their resources, including slaves. Like other valley innovations, Kanawhans adapted, tweaked, and refined the jobs and the work environment to best meet their needs. As Virginians, tobacco agriculture formed the backdrop to which early salt-makers were accustomed. This was also the industry in which most of the slaves were inculcated. However, tobacco was a waning crop in eastern Virginia. In *Soil Exhaustion as a Factor in the Agricultural History of Virginia and Maryland 1606-1820*, Avery Craven offers, “The statements of both planters and travelers in the period from 1785 to 1820 bear witness of the continuance of exhausting cultivation, of wasted lands, abandoned fields, neglected stock and shifting crops.”³³³ Amidst this troubling agricultural landscape, falling tobacco prices, and aggressive competition from new tobacco-growing areas such as Kentucky, slave owners in eastern Virginia and Maryland deemed a portion of their slaves to be assets that they

³³² Michelene Maynard. “For Air Travelers. The Frill is Gone,” *New York Times*, June 10, 2005.

³³³ Joan E. Cashin, “Landscape and Memory in Antebellum Virginia” *The Virginia Magazine of History and Biography* 102, no. 4 (Oct., 1994): 480; Avery Odelle Craven, *Soil Exhaustion as a Factor in the Agricultural History of Virginia and Maryland: 1601-1860* (Urbana: University of Illinois Press, 1926).

could no longer afford to work themselves. Selling their excess slaves was an option, but some owners felt a reluctance to sell their human property.³³⁴

Given the complicated nature of slavery and the myriad slave-owner relationships, attitudes toward selling slaves could be complex. Reasons for hiring out rather than selling slaves varied. Some owners suggested that personal concern prompted their reluctance to sell. One Virginian wrote, “I send Letitia to you for hire—she is smart and active but obstinate, obtain for her a *strict* but humane master.”³³⁵ At times, discomfort with permanently breaking family units may have contributed to an unwillingness to sell slaves. This need not have been based on paternalistic or even humanistic concern for the security of the slave family. Owners could well have deemed the slaves more productive and less prone toward recalcitrance if slave families remained relatively intact.³³⁶

On occasions, recalcitrance served as a reason *not* to sell a slave. Owners, fearing that a rebellious slave might fetch little in sales, chose instead to lease their challenging property to a master known for breaking slaves’ will. Slave owners hoped that after hiring out insolent or otherwise uncooperative property to slave-breakers for a year, the slave would return docile and productive. One such man figured prominently in the life of Frederick Douglass. Douglass wrote of Edward Covey, “he enjoyed a reputation of being a first rate hand at breaking young negroes. This Covey was a poor man, a farm renter; and his reputation for being a good hand to break in slaves was of immense

³³⁴ Dickinson and Shrewsbury correspondence indicates that the partners felt that selling slaves was their least desirable option when trying to cover debts. Joel Shrewsbury to William Dickinson, July 6, 1819. In possession of author;

³³⁵ Eaton, “Slave-Hiring,” 665.

³³⁶ Dew, “Davis Ross,” 210.

pecuniary advantage to him.” After this introduction, Douglass offered the slaveholder’s perspective, “Some slaveholders thought it an advantage to let Mr. Covey have the government of their slaves for a year or two, almost free of charge, for the sake of the excellent training they had under his management.” Douglass then continued of Covey, “Like some horse-breakers noted for their skill, who ride the best horses in the country without expense, Mr. Covey could have under him the most fiery bloods of the neighbourhood [sic] for the reward of returning them to their owners *well broken*.”³³⁷

For some whites, slave ownership correlated to concepts of success and social stature. Selling slaves outright could lead to a decline in community position. Historian Jonathan Martin summarized this well in *Divided Mastery*. “Property in slaves was a touchstone of both patriarchy and whiteness in the South, and as such it was fundamental to constructions of self-worth and personal identity.”³³⁸ This may account for the transition at the Oxford Iron Works in central Virginia. In February 1777, David Ross, the iron-works owner, advertised that he wished to hire “50 or 60 Negro men for one, two, or three years.” By 1812, Ross proudly announced, “...every branch of the business is carried on by Servants belonging to the Estate, we have no hirelings above the rank of woodcutter.”³³⁹ Ross shows evident pride in owning all the significant tools of production in his large iron foundry, having risen above the need to rent workers. Ross’ pride substantiates Martin’s assertion that owning slaves carried a higher civic worth than the ability to hire them for some nineteenth century Virginians.

³³⁷ Frederick Douglass, *The Life and Times of Frederick Douglass from 1817 to 1882*. (London; Christian Age Office, 1882), 86.

³³⁸ Jonathan D. Martin, *Divided Mastery: Slave Hiring in the Upper South* (Cambridge: Harvard University Press, 2004), 13.

³³⁹ Dew, “Disciplining Slave Ironworkers,” 199.

In simple economic terms, some slave owners may have viewed their situation as a temporary imbalance between their labor resources and their labor needs. Since surely an imbalance would right itself in time, they felt selling slaves an unwise choice in the long term. Still others weighed the profits from selling against the profits from leasing. These slave owners judged leasing their slaves a more profitable affair than selling them or personally working them. In one letter asking an owner to lease his slaves, Shrewsbury wrote, "I think your own hands would meet (sic) you more than to keep them on your farms, as their wages would be valuable and worth a good price to you and the profits resulting also would more than double your farm profits and would be humanely treated."³⁴⁰ As slave owners contemplated whether to sell the property that they often long sought to amass, the suggestions of whites seeking to lease slaves for a year must have seemed the perfect solution. Regardless of the causes for motivation or hesitation, hiring out slaves offered an honorable and profitable compromise.³⁴¹

Budding salt industrialists often found themselves less troubled by complicating factors in decisions of slave ownership versus slave hiring. The capital outlays required to purchase the land for timber, pay a well driller for his costly exploration, and buy the expensive equipment including steam engines, pumps, and the massive iron reduction tanks, generally left little in the coffers for the outright purchase of slaves.³⁴² Salt-makers carefully weighed all the known costs of owning versus hiring slaves. Kanawhan industrialists generally used a rule of thumb that if a slave could be leased for no more than 20 percent of the purchase price, they were better off hiring. When Dickinson wrote

³⁴⁰ Joel Shrewsbury to William Dickinson, January 2, 1819. In possession of author.

³⁴¹ Eaton, "Slave-Hiring," 663.

³⁴² Men like Heth and Randolph were exceptionally well connected, commanded greater resources than most and served as an exception to the rule.

to Shrewsbury “the customary price for hire is \$70 to \$90 but the owners will not permit[sic] them to out of the neighborhood, I am told there was upward of 70 sold at Rivers for Cash, 500 to 650\$ [sic] common plantation hands,” he was conveying far more than price.³⁴³ Shrewsbury would have interpreted Dickinson’s message to mean several other things. First, without cold hard cash, obtaining labor of any sort was unlikely. He would have also understood that renting was a far better option than buying if they could find owners who would let them leave central Virginia. If owners would not lease their slaves to work out of that area for \$70.00 to \$90.00, they would have to pay a premium. Shrewsbury would have quickly figured that they could pay owners an additional \$30.00 to \$40.00 per slave in exchange for allowing the slave to work in the Kanawha Valley. Above that, it was preferable to buy them outright.

Some businessmen could ill-afford the dozens of slaves it would require to operate a salt-works. As the wealth of the salt firms increased, the propensity to purchase rather than hire slaves seems to have increased, suggesting that owning slaves was considered more advantageous than renting if finances allowed the heavier initial outlay.³⁴⁴ Convenience and economy, no doubt lay at the forefront of industrialists’ minds as they made their labor decisions. It was difficult to separate the two concerns. The saying “Time is Money” is particularly apt in this case. Dickinson-Shrewsbury correspondence almost invariably contains passages entreating the letters’ recipients to reply quickly, send workers, send equipment, and make decisions hastily. The letters convey frustration with the speed of communication and an urgency that time lost

³⁴³ William Dickinson to Joel Shrewsbury, February 24, 1820. In possession of author.

³⁴⁴ The Dickinson and Shrewsbury Letterbook shows a particularly high percentage of slaves as owned rather than rented, including a large number of families. See “Slave Lists,” Dickinson and Shrewsbury Letterbook; Stealey, “Slavery,” 113.

equated to money lost. Renting slaves required time. It consumed additional precious time every year.

At the end of November 1816, Shrewsbury wrote Dickinson, “you will please provide for to send to me some hands either by purchase or hire if we could possibly procure some by purchase it would sute [sic] us much better the trouble, expence [sic], and loss of time in hiring and sending them home is considerable.”³⁴⁵ Shrewsbury’s letter illuminates that while hiring slaves required less money initially, there were not-so-hidden costs inherent in the arrangement. While Shrewsbury’s call for more hands must have seemed incessant to his partner in Bedford County, the timing of this particular entreaty is noteworthy. As Shrewsbury wrote, looming in the forefront of his mind must have been the concern that, in just one month, as much as half of his enslaved workforce would put down their tools and begin walking eastward out of the valley. Salt-makers like Shrewsbury were not only powerless to stop this mass exodus, they had agreed to it in advance.

The agreements made between slave owner and hirer primarily reflect concerns of the property owner. Foremost among the provisions of slave hiring agreements were arrangements to ensure that the slaves were returned in good condition.³⁴⁶ With this in mind, the standard hiring agreement was for a period of nearly one year, beginning on the first day of January and ending on the following Christmas. Slaves were to return to their

³⁴⁵ Joel Shrewsbury to William Dickinson, November 26, 1816. In possession of author.

³⁴⁶ Dew suggests that relatively few slave hiring contracts reflect concerns about slave safety and slave working conditions. This runs counter to other historians’ assertions. This divergence of opinion probably reflects an evolution in slave hiring agreements. An evolution of slave hiring contracts from containing few stipulations about slave working and living conditions could have been brought about, in part, by the slaves themselves. See Dew, “Disciplining Slave Ironworkers.”

owners by Christmas in good condition. The time between Christmas and New Year was generally considered a holiday for hired slaves.³⁴⁷ Not only did this slash the workforce, but if slaves were thought at all prone to heed a call of freedom from nearby Ohio, whites had to be hired to escort them to their owners in the East. In 1818, Shrewsbury delayed returning Mrs. Williamson's slave back, writing to his partner, "I have kept Tom, Spencer and Abram a week longer than I shd [sic] expecting some information from you and receiving none, have started them home with a pass and money to bear their expences [sic] and as they are sensible negroes and desirous to get home have thought it not necessary to be at the expense of hiring a hand to go with them."³⁴⁸ This sort of delay would not have been unnoticed by the slaves' owners. One slave owner wrote to Dickinson, "Col. Dickinson. I want to know what is the reason my Negroes has not got home against your promise. I have been looking for them several days. I am geting verry [sic] uneasy about them. Please write to me when they started home and oblieige. Betsy Stratton."³⁴⁹ Stratton's curt note dispensed with niceties. She bluntly informed Dickinson that he had broken his word and failed to honor his part in their arrangement. Unfortunately, no record of Dickinson's response exists to enlighten as to how the Colonel responded to this woman's accusation that he had failed to honor his word. Interestingly, while Shrewsbury wrote about keeping Williamson's slaves longer than he should, he made no mention of Stratton's slaves. Shrewsbury also failed to write that Williamson's slave Abram was not only late returning, less of him was returning than had departed a year earlier. In April 1818, "Williamson's Abram...fell down and cut two of

³⁴⁷ Eaton, "Slave-Hiring," 668.

³⁴⁸ Joel Shrewsbury to William Dickinson, January 1, 1819. In possession of author.

³⁴⁹ Betsy Stratton to William Dickinson, January 2, 1819. In possession of author.

his fingers off and the other two nearly off his left hand which has rendered him of no service and never will be of much service again.”³⁵⁰ There is no record evident of what negotiations ensued after Williamson’s (or perhaps Abram’s) loss. Presumably the lack of fingers is why Shrewsbury specified to Dickinson that he would like to have Williamson’s Tom and Spencer back in 1819, but failed to mention wanting Abram again.

Those hiring slaves not only found returning the hired slaves to their owners a troublesome arrangement, but slave owners also became increasingly specific about the care and working conditions of their slaves. While it has been suggested that slave owners included few provisions to protect the welfare of their property, other historians have found just the opposite.³⁵¹ The variance probably reflects an evolution in slave hiring contracts. Early arrangements may have included few restrictive clauses as farmers leased field hands to each other or as the owner of a stone mason or carpenter rented their skilled artisan to a neighbor for duties related specifically to that specialized skill. As the practice expanded, agricultural slaves became more likely to find themselves laboring at unfamiliar industrial pursuits. Industries like the Kanawha salt concerns pulled workers far afield from their owners. Unfortunate accidents also provided often painful lessons to slaves and slave owners. All these served as stimuli for additional stipulations to protect their property. Hiring agreements from the Kanawha provide an example of this. After cholera epidemics rolled through the Kanawha, killing a far higher proportion of blacks than whites, stipulations for evacuating slaves in the case of cholera became more

³⁵⁰ Joel Shrewsbury to William Dickinson, May 12, 1818. In possession of author.

³⁵¹ Marcus Christian, *Negro Ironworkers of Louisiana: 1718-1900* (Gretna, Louisiana: Publican Publishing, 1972), 199.

common. John Cabell wrote in December 1832 that “a great many Negroes have been taken away by their owners on account of the Cholera being hard last fall, thinking it may come again next year. I have not hired half as many as I want.”³⁵² By 1849, slave rental agreements generally contained provisions for the slaves’ safety in the case of a cholera outbreak.³⁵³

Later hiring arrangements seem to more freely present the concerns of the individual owners. Clement Eaton highlights the correspondence of Virginians that stipulate special care be taken when hiring out their property. Owners carefully specified that the slaves were to be well cared for, and even allowed to visit their families periodically. These examples, however, were almost unfailingly concerns over house slaves.³⁵⁴ Well trained house slaves were unquestionably valuable. Their demeanor would have been of particular importance to masters and mistresses. Frequent interaction with and working proximity to whites gave greater reason for masters and mistresses to see to their slaves needs. Whether this stemmed from a genuine concern for the slaves’ happiness or simply an understanding that slaves who saw their families worked better and were more pleasant to interact with probably varied by individual master-slave relationship.

This level of concern for slaves’ happiness is not evident in Kanawha slave hiring agreements. One such contract was typical for its careful terms in which it was written. These were Virginians well versed in the state’s legal conventions. The contract states:

³⁵² John J. Cabell to Richard Cralle, December 30, 1832. Clemson University Special Collection, Clemson, South Carolina.

³⁵³ Register of deaths by Cholera 1849, West Virginia Archives, ms-80-172; Stealey, “Slavery,” 122.

³⁵⁴ Eaton, “Slave-Hiring,” 665-666.

And the said William doth hereby surrender and hire to said Henry W. four negroes belonging to said William for the year 1859 at the price of five hundred dollars to be paid by said Henry to said William at the end of the year and then according to the usage of the country, pay their taxes and doctors bills, which negroes are named as follows, Bob, Sam, David and George—and the said William B. doth surrender and hire to said furnace for the year 1859 on the same terms and conditions and at the same prices given by said William and under control as trustee afore being Bill, Moka, Peter, Paris, Edmund, Abraham, Allen, Isaac, seven negroe men; at the hire of one hundred fifty dollars each and also to clothe them as aforesaid, pay their taxes and doctors bills.³⁵⁵

While some had more specific provisions regarding slave treatment this example is typical in that they agreed only to maintain the slave in good, healthy condition, pay their taxes, and for their physicians. It reflects little overt regard for their state of contentment. The distances from the Kanawha to the agricultural centers of Virginia precluded family visits, so provisions discussing familial visits would have been pointless, even if they had been considered. The bottom line of the agreement was to make certain that the taxes were paid and that the slaves were returned with the same capacity for work that they had a year earlier.

The broad and powerful Kanawha River, an industrial thruway teeming with boats and wharves, posed multiple dangers. A slave drowning in the strong currents was not an uncommon event. Perhaps of more concern to whites was the river's obvious 44 mile path to Ohio. Unlike the Low Country rice plantation slaves who fled their masters, found survival in the fetid swamps unbearable, returned to those masters, and often received harsh punishments for their bid for freedom, slaves in the Kanawha saw a clear, close, and comparatively easy route north.³⁵⁶ The steamboats carrying salt provided constant opportunities for a short ride out of bondage. Notices of runaway slaves appear in the

³⁵⁵ William C. Brooks-Henry W. Reynolds Agreement, January 1, 1859, West Virginia Archives.

³⁵⁶ William Dusinger, *Them Dark Days: Slavery in the American Rice Swamp* (Athens: University of Georgia Press, 2000).

Kanawha papers, but those newspapers do not seem to have been rife with runaway advertisements.³⁵⁷ This may be because masters assumed that their property had headed west, and chose to advertise for their return directly across from Ohio in Point Pleasant, Virginia.

Given visitors' unpleasant descriptions of Kanawha Salines as a sooty, foul, deforested environment punctuated by factories with furnaces that boiled enormous vats of blood-red brine crowded along a greasy river replete with rotting animal corpses, it seems a wonder that slave owners would rent to Kanawhans at all. The significant premium they gained by agreeing that their slaves work in this environment convinced many though. In 1838, slaves hired to work in eastern Virginia fetched \$90.00 per year. To work in Kanawha County, eastern slaves leased for \$150.00.³⁵⁸ Likewise, a Virginia Supreme Court heard an appeal in which it was introduced and accepted as evidence that slaves hired to the Kanawha Valley at a 25 to 30 percent premium.³⁵⁹ On occasion, some sought to protect their property by specifying their slaves not labor in mines or should be put to work in cooperages, reputedly the safest place in the salt industry to work. It is questionable to what degree the slave owners actually believed that salt-makers would follow their specifications. One Bedford County resident, the same county in which William Dickinson resided, complained that it was common knowledge in the area that the juries were "gotten up by Salt makers and Men of influence at the Salines—who

³⁵⁷ Stealey asserts that overland flight by slaves was frequent, especially after the Christmas holiday when they had been paid for their overwork. See Stealey, "Slavery," 119; *Kanawha Banner*, April 2, 1835; Lucas Wilcox Diary, June 18, 1848, 2:2, West Virginia Regional History Collection, West Virginia University.

³⁵⁸ Stealey, "Slavery," 125.

³⁵⁹ *Ibid.*

never fail to hang the jury or find against a foreigner.”³⁶⁰ The validity of this complaint is unknown. However, it would have been uncharacteristic of Kanawhans to fail to use, manipulate or adjust every tool at their disposal to render them useful to their purposes.

The nature of slavery in the Kanawha, like slavery elsewhere is difficult to characterize. Nevertheless, for slaves working in the industrial sectors of the valley, some descriptions can be offered. The predominance of hired slaves and the seemingly perennial shortage of workers in the early decades of valley salt manufacturing combined to significantly influence the nature of slavery. While it may not have not have comprised an actual step toward freedom, these circumstances favored a curtailing of masters’ rights and a corresponding ability to exercise somewhat greater power by the slaves. In an effort to standardize the production for greater efficiency, to minimize fluctuations in quality, and to manage formerly agricultural slaves more efficiently, work was “routinized” to the highest degree feasible. Standardization resulted in an environment where slaves received specific repetitive quotas or repetitive work shifts. Masters encouraged slaves to labor after their shifts, and paid them for this work. This system called “overwork” allowed slaves to earn credit for working on Sundays or holidays. This increased production, kept slaves busy during any non-productive hours, and provided the opportunity to earn money for themselves rather than for others. Masters carried these credits on the books until the end of the year and paid them out at Christmas. As Shrewsbury sent Mrs. Williamson’s slaves back to Bedford County, he sent with them a note, “Please pay the negroe boys in Store Goods as follows viz Spencer Nine and half dollars, Tom Six and half Dollars, Abram four Dollars for labour of Sundays and Christmas.”³⁶¹ It seems likely

³⁶⁰ Ibid.

³⁶¹ Joel Shrewsbury to William Dickinson, January 2, 1819. In possession of author.

that Abram's loss of his fingers prevented him from working as many Sundays and holidays as his compatriots. Holding pay until the end of the year encouraged obedience. This was particularly important in an environment where slaves were numerous and exercised considerable ability to move about the countryside without supervision.

The nature of Kanawha industry itself led to greater degrees of slave autonomy. The Kanawha Salines was a veritable hive of activity around the clock. Salt-works sat close together along the river. Multiple cooperages, smithies, foundries, boatyards, warehouses, mills, and other commercial efforts packed the narrow river plain. The hills on either side swarmed with workers hauling timber and coal to feed the insatiable furnaces. Farms dotted the narrow strips of flat lands between the river industries, hillside mines, and remaining timber tracts. Amidst all this, slaves moved with relative autonomy within the bounds of their tasks. Additionally, the enslaved were permitted considerable ability to roam when they finished their shifts or met their daily quota.³⁶² In a narrow valley of crowded factories where thousands of slaves toiled, it would have been difficult to ascertain that each slave was where they should be. Brine-works and their ancillary industries maintained a constant flow of barrels, tools, wood, coal, salt, and other goods. The Kanawha environment had much more in common with the bustling Charleston, South Carolina described by Robert Olwell than the Virginia tobacco planting country from which the slaves of the Kanawha tended to be pulled.³⁶³

The heightened ability to travel is underscored by Shrewsbury's choice to send Mrs. Williamson's slaves unescorted on the days long walk back to Bedford County. Another letter reflects this same level of trust. Mr. Lewis writes, "This letter will be

³⁶² Stealey, "Slavery," 123.

³⁶³ Olwell, *Masters, Slaves, and Subjects*.

handed to you by negro, Stephen, who belongs to my son-in-law, Mr. Floyd, and who brought down a family of negroes, and is returning empty, but Mrs. Floyd recollected that Shepherd Brown of Wythe, wanted Salt hauled, and has proposed that her man goes by the Saltworks to take a load up to Brown.”³⁶⁴ Wythe County and Kanawha County Virginia lie roughly 130 miles apart. In a valley with the highest concentration of slaves west of the Allegheny Mountains, most working within and between numerous salt-works and their ancillary industries, monitoring the movements of slaves would have proved extremely difficult. Carrying “overwork” credits on the books until the year of work finished served as a useful tool of control in a bustling area so close to freedom.

Salt-makers also sought to promote a willingness to work through competition. Inter-company rivalries proliferated. Workers competed with rival company workers boasting that they could out-produce them individually and as groups. Competitions extended to contests to see which furnaces could produce the most salt in the least amount of time. Bragging if not outright lying about productive capabilities was reported.³⁶⁵ Also in the spirit of competition, Dickinson-Shrewsbury Company owned two slaves listed as “race-riders.” One wonders if the horse and jockey owners such as Dickinson and Shrewsbury intended horse racing merely for the entertainment of the owners or if this also served as a tool to manage black workers.³⁶⁶

Inter-company rivalry was not the only and certainly not the most serious competition occurring. Salt-makers were hardly the only businessmen seeking to hire workers for a year. In years when agricultural prices rose, owners had less incentive to

³⁶⁴ Lewis Account Book, December 30, 1839, West Virginia Regional History Collection, West Virginia University.

³⁶⁵ Stealey, “Slavery,” 123.

³⁶⁶ “Slave List,” Dickinson and Shrewsbury Letterbook. In possession of author.

hire slaves out to industries. Iron-works, railroads and canal companies, mines, and other industries vied for the right to control others' slaves for a year. Amidst this strong competition to hire slaves, Kanawhans paid premiums to mitigate the problem of distance and location. They had a strong incentive to treat the slaves well. If they failed to treat them well, the slave could tell their owner of it. The owner could then decide to hire his slave out to someone else next year. In a valley seemingly always short of workers, it was very much in the salt-makers' best interests for the slave to want to return for another year.³⁶⁷

The ability to influence their owners' decision regarding to whom they should be rented, if at all, was among the strongest tools in the hired slaves' arsenal. Often slaves needed to acquiesce to being sent to the Kanawha, if only half-heartedly. Iron manufacturer, Davis Ross lamented having to use a white miller at his iron-works after his slave miller, Billy Bacon, insisted on being hired out. Ross wrote, "if I could have prevailed on him to have gone to my mill at the Iron Works, I would not have taken forty pounds a year for him."³⁶⁸ While hired slaves could exercise power based on the shared knowledge that they were a prized commodity to be treated relatively well in hope they would return, this should not be stretched to the point to suggest that these slaves wanted to be in the Kanawha. Many may have preferred the relatively greater ability to roam, the opportunity to earn money for themselves on a regular basis, and the bustling slave community, but the Kanawha was probably just the lesser of the evils.

³⁶⁷ Joel Shrewsbury's letters almost invariably contain some reference to needing more slaves. His correspondence promises that hired slaves would be humanely treated if the owners would consent to let them come to the Kanawha. This suggests that salt-makers had an incentive to treat slaves well. Dickinson and Shrewsbury Letterbook; Eaton, "Slave Hiring," 678.

³⁶⁸ Dew, "Davis Ross," 204-205.

It would also be wrong to suggest that slaves on the Kanawha felt that theirs was the best of situations for a man owned by another. Many undoubtedly preferred to remain on the tobacco farms of eastern and central Virginia. On their 1814 trip from Bedford County west to the Kanawha, Shrewsbury, with then partner Pleasant Dickinson and several hired slaves made the dangerous journey in the winter on “the worst road you ever knew for Waggon [sic] to travel.” Shrewsbury pointed out that “William Terry’s negroes was loth [sic] to go—but have had no trouble with them and believe they will sute [sic] us extremely well.”³⁶⁹ They had good cause to fear the trip. On the journey a tired slave Jim, mangled his leg. Shrewsbury described that Jim had his “foot slip from the Swingletree and the Waggon [sic] wheel caught his foot and leg and hurt him tolerable bad...”³⁷⁰ The party proceeded on the days long journey despite Jim’s injured leg. Given the dangers of the journey, it seems little wonder that Jim was “loth to go.”

Why Ross’ miller prevailed in his wish to be hired out in Richmond and Terry’s slaves were coerced to the Kanawha anyway cannot be pinpointed. William Terry may have had debts with Dickinson and Shrewsbury that had to be cleared (as local merchants, that was certainly a plausible situation). In 1814, when the Shrewsbury-Dickinson party moved west, the demand for hired slaves was likely less strong than it became, leaving the slaves with less power to argue for a better position. Certainly at that early stage, the Kanawha salt industry was young and the work more likely to involve arduously sinking gums in the wilderness than “routinized” work in an established industrial hub. William Terry’s slaves notwithstanding, the enslaved operated within a

³⁶⁹ Joel Shrewsbury to William Dickinson, January 23, 1814. In possession of author.

³⁷⁰ *Ibid.*; A swingletree is part of the tack for a pair of horses and a wagon. A bar that aids in evening out the pulling of one animal relative to the other.

system that favored the slaves' ability to influence their work by complaining to their owner of poor treatment and misuse of their property. In a competitive hiring environment, this was a powerful tool.

The enhanced opportunity to pit whites against whites was not the only arena in which to exert power. Kanawha slaves in the first few decades of the 19th century possessed other methods to make their presence felt without overtly challenging authority or running away. Even as they completed assigned tasks, slaves showed they could work within the rules and still express power. Describing the Leftwichs, who rented Dickinson and Shrewsbury's first furnace, Shrewsbury wrote, "the Renters goes on of late tolerable smooth. I believe they find it best as their complaints has produced a hatred from the wood cutters of Burke and when they complain they send in all sweet gum which is hard to make burn when first cut, When they go on properly they forward the wood as it comes to hand."³⁷¹ Burke's slaves, while remaining within the expectation of their tasks, managed to convey to whites that it was best to take what wood the slaves offered or they receive worse. Judging from Shrewsbury's comments, it seems that the whites complied.

Not all slave resistance was as benign as that of Burke's wood cutters. In April 1818, when Williamson's slave Abram fell while cutting timber and cut two of his fingers off and the other two nearly off his left hand, some thought it intentional. Shrewsbury observed, "I will miss his services very much as he was more handy than the rest and a good chopper. He is much suspected by Aliff and all of doing it willfully, tho [sic] I think it was an accident."³⁷² The unfortunate description of Abram as "handy" aside, Shrewsbury's comments about the conjecture surrounding Abram's intent

³⁷¹ Joel Shrewsbury to William Dickinson, June 24, 1818. In possession of author.

³⁷² Joel Shrewsbury to William Dickinson, May 12, 1818. In possession of author.

provokes thought. That it was suggested that Abram, a capable and “handy” slave would permanently and painfully render himself useless, raises questions. If Abram did indeed remove his digits he knew that he was risking infection and death. Perhaps worse, as a vastly devalued slave, there was far less incentive for his owner to retain him and far more likelihood that he could be sold into even worse circumstances. This presents a picture of an environment which Abram found so unbearable that he was willing to risk illness, death, or unknown fates to end his Kanawha situation. This seems extreme, and is impossible to know, but it calls into question the degree to which slaves felt that they could exercise other forms of power.

Just the existence of the conjecture about how Abram’s injury came about speaks to white perspectives. Either they were blind to the realities of Abram’s existence, or they were inclined to think the slave so lazy that he would dangerously and painfully maim himself to avoid work. Presumably, whites who thought his amputation self-inflicted assumed that only laziness would drive the slave to such an action and disregarded the possibility that the Kanawha existence they created for slaves was unbearable. This ventures into the complex web of rationalizations that whites created to uphold slavery, and is far beyond the scope of this exercise. It does however, highlight the difficulty in summarizing the labor experience even in a region as small as the Kanawha Valley in the first few decades of the nineteenth century. Dickinson and Shrewsbury themselves, underscore the variable nature of the slave experience. In the lists of Dickinson-Shrewsbury Company’s nearly 150 company owned slaves, Dickinson claimed 18 as his personal property. Among those listed were four coopers, each described as a “fair hand”, Grundy, a “race rider”; Yellow Morris, a barber; Yellow John, a Horse Trainer; and

others who merited little or no description. Among those slaves who earned Dickinson's descriptive notes were Big Will, "a drunkard and a fiddler" as well as Washington, a 60 year old who Dickinson noted "will steal more in one week than he can earn in 12 months." Also noteworthy were Dennis, "an unmanageable negro—not valuable" and Joseph, described as "sickly and afflicted."³⁷³

These tart assessments of nearly one third of those Dickinson claimed, contrast strongly the attitude Shrewsbury evinced in a May 1819 letter in which he wrote, "I am this day imployed [sic] in Burying my negro boy LUKE he died last night after about six days sickness, was taken violent inflamatory Feaver [sic] which would yield to no medicine, bleeding, blistering nor anything the best Phicisians [sic] in this Country could do, which Phicisians I had to him the day he was taken and remained till he died without leaving the place. I miss Luke very much as he was a fine Waggoneer."³⁷⁴ Shrewsbury's description of Luke as a "waggoneer" should not necessarily lead the reader to dismiss Shrewsbury as a master lamenting the loss of a valuable economic tool. Nor was this the sadness for loss of a house slave, such as the valet reputed to be his son. The immediate summons of physicians and the subsequent requirement that they remain with Luke around the clock until he died indicate a concern born out of more than economics surrounding a slave who held a position of no particular elevation or unusual skill level. He drove wagons. This should not in any way suggest that the Kanawha Valley was a region of inhabitants prone to deep attachments between slave and master. Dickinson's summation of his slaves and the rumors that Abram had intentionally removed his own

³⁷³ Dickinson and Shrewsbury Letterbook. In possession of author.

³⁷⁴ Joel Shrewsbury to William Dickinson, May 11 1819. In possession of author.

fingers should quell that idea. The overall understanding that arises is that slavery was endlessly malleable.

Just as it reinvented, adapted, or twisted the technological, environmental, and economic resources at hand to respond nimbly to changes in national salt markets, valley industrialists altered their tools of labor. When local or free labor proved far too scarce, they turned naturally to slave labor. Indeed, many may have never looked to free labor. They achieved efficiency and quality by standardizing and routinizing industrial tasks for laborers steeped in tobacco growing. As competition for labor units grew, hired slaves found they could exercise greater power about their workplace. This provided the salt-maker's with more incentive to create an environment which was preferable to slaves while continuing to increase productive efficiency. The salt-makers of the Kanawha did not invent the "overwork" system, but they pressed it into service and used it as a tool to motivate slaves. They also counted on it to keep slaves from nearby non-slave states. As was typical of Kanawha salt industrialists, they employed a broad, flexible, pragmatic, and relentlessly resourceful approach to the human tools of production in their antebellum industrialization of Appalachia.

CONCLUSION

On February 25, 1829, the *Western Virginian* crowed to readers, “The pickling business has increased within the last four years at an astonishing rate. Cincinnati alone has put up from 100 to 150 thousand hogs—and no doubt a great portion of the hogs now taken to market on foot, will in a few years go in the shape of pickled pork or bacon, by the Mississippi to the Southern States and the Ohio, New York and Pennsylvania canals to the North.”³⁷⁵ Proclaiming the achievement of early Kanawha industrialists’ visions the writer continued, “The great Western States must be the immense provision stores for the planters of the South and the manufacturers of the North. In this way our salt will find a market nearly throughout the union.”³⁷⁶ The proud and confident prediction of continued national expansion for Kanawha salt markets sprang from the original visions of men like the Ruffner Brothers, William Dickinson, and Joel Shrewsbury. The exuberant forecast for continued growth held true, but only for a while.

Continuing their well-established pattern of capitalist innovation regardless of proximity or scale, Kanawha salt did indeed permeate markets “nearly throughout the union.” In 1810, Kanawha County produced 740,000 bushels of salt. By 1840, production reached 1.6 million bushels. Just a decade later, that number had nearly doubled to 3.03 million bushels.³⁷⁷ Kanawhans achieved this growth by continuing along the path of innovation, broad perspective, and relentless capitalism. This included the hallmarks of

³⁷⁵ “Kanawha Salt Works,” *Western Virginian*, February 25, 1829.

³⁷⁶ *Ibid.*

³⁷⁷ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 21.

unrestrained capitalism; severe environmental and human exploitation. Census figures indicating leaps in Kanawha County slave population relative to white population attest to human exploitation in particular. Between 1810 and 1820, slave populations grew at a rate of 60 percent to 1,717 people compared to a 40 percent increase in white residents. The growth of the slave population relative to the white population continued until 1850, when 3,140 slaves labored in the valley.³⁷⁸ Of those enslaved, half were owned or controlled directly by firms in the salt industry.³⁷⁹

Among the innovations employed by Kanawhans to achieve this explosive growth, the Patrick grainer system is worth noting. In 1833, George Patrick invented a system of brine reduction which revolutionized the industry.³⁸⁰ That same year, the *Kanawha Banner* reported that the Patrick grainer gave Kanawhan industrialists unlimited means of production, and that “the salt from this region would have nearly the whole territory on the Mississippi and its tributaries...”³⁸¹ The Patrick grainer was the product of the Kanawhans’ rival in the Onondaga salt producing region, yet the very year of its invention, Kanawhans altered it to meet their specific conditions and rapidly embarked on converting their furnaces. The Patrick system, in effect, transformed evaporative salt-making from a batch production process to a continuous stream process. Just as the assembly line forever revolutionized production in other industries, so did the Patrick grainer system for the salt industry. Kanawhans immediately adopted this new technology and put it to use to continue their dominance in inland salt markets. With the

³⁷⁸ Ninth Census of the United States, (Washington: 1872), I : 72.

³⁷⁹ Stealey, “Slavery,” 112.

³⁸⁰ For a thorough description of how the Patrick Grainer system operated, see Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 11.

³⁸¹ *Ibid.*

Patrick grainer, Kanawhans produced ever larger quantities of salt at increasingly smaller costs per bushel.

Despite valley industry's efficiency, the century's midpoint marked the zenith for Kanawha salt production. The Virginian salt-makers encountered circumstances that even they could not alter, develop a tool to remedy, or conspire to outnumber. As William Cronon illuminated in *Nature's Metropolis*, the commercial center of the Great West shifted with the advent of railroads, Great Lakes shipping, and northern canals.³⁸² When Cincinnati ceded the title of Porkopolis to Chicago, Kanawha Valley producers lost the geographic advantage they once held and Kanawhans' domination of inland salt markets faded rapidly. Kanawha salt shipments dropped precipitously from over three million bushels in 1850 to less than half that figure just five years later.³⁸³ The number of slaves in the valley plunged correspondingly from 3,140 in 1850 to 2,184, a decline of 30 percent in just one year.³⁸⁴

The move of the Great West's epicenter to the northwest vastly favored the salt-makers in the Onondaga region of New York and in Michigan. Producers there could rely on lakes and canals to transport their product to the packing-houses in the city that Carl Sandburg later christened, "Hog Butcher for the World."³⁸⁵ In 1859, the Michigan legislature passed an act encouraging the production of salt within the state. All Michigan-produced salt was exempted from state taxes. Additionally, the state agreed to pay a bonus of \$0.10 per bushel to a firm once it had created \$5,000.00 worth of salt.³⁸⁶

³⁸² Cronon, *Nature's Metropolis*.

³⁸³ Price, Hare, McCue and Hoskins, *West Virginia Geologic Survey*, 15

³⁸⁴ Stealey, *Antebellum*, 182; MacKenzie, "The Slaveholders' War," 21.

³⁸⁵ Carl Sandburg, "Chicago" *Chicago Poems* (United States: Dover Publications, 1994) 1.

³⁸⁶ Department of Environmental Quality "Salt: A Michigan Resource" State of Michigan.

This state incentive energized the Michigan salt industry into becoming a serious competitor with far better access to the now preeminent Chicago markets.³⁸⁷

Other competitors muscled forward to chip away at Kanawha hegemony of Ohio Valley salt markets; some newly arisen, some long-standing competitors. Brine discovered at the confluence of the Little Kanawha River and the Ohio River, near present day Parkersburg, proved stronger and far closer to Chicago markets, adding new competition for Kanawhas. Far away in the Caribbean, the enslaved had long produced salt from sea water. In ports like New Orleans, desirable “Turks Island” salt was readily available, but getting the salt upriver proved too costly to compete with Kanawha salt. With the growth of steamboat traffic, cotton from the Mississippi River Valley and the bounty of the Ohio Valley such as pork and wheat filled steamboats headed downstream for New Orleans. However, riverboat owners struggled to fill their holds with cargo for upstream voyages. Accordingly, they cut prices for upstream cargo, rendering Caribbean salt more accessible upriver. All these factors contributed to the erosion of the Kanawha Valley’s dominance.³⁸⁸

Transportation had always comprised a significant portion of the mineral’s cost for Kanawha Valley producers. Shipping salt down the Kanawha River to the Ohio, then down the Ohio to the Mississippi, up to the Illinois River to the Illinois and Michigan Canal, then an additional 96 miles on the canal to Chicago added costs that left valley industrialists unable to compete for the Chicago market. While losing a geographic

³⁸⁷ In yet another tangent to Cronon’s work, *Natures Metropolis*, Michigan’s salt industry thrived on a newly abundant combustible, the scrap from the timber industry which consumed the white pine forests of the region.

³⁸⁸ Stealey, *Antebellum*, 186.

advantage might have been overcome in some industries, in the low-margin, high-volume salt industry, it proved crippling.

Faced with increased competition and a significant geographic shift in their primary markets, Kanawhans did not fall back onto the small-scale agriculture often associated with Appalachian economies. As Kanawha salt's reign over the nation's abattoir ended, Kanawhan commercial visions not only failed to turn pastoral, they also failed to diminish in scope. Showing characteristic global vision and flexibility, area industrialists reasserted their commitment to extractive industries.

In 1848, a Colonel Stockton, who had been shipping coal out of the Kanawha Valley by flatboat, discovered a vein of oil-rich shale seven feet thick.³⁸⁹ Two years later in Scotland, James Young obtained a patent for a method of extracting oil from the shale known as cannel coal, or candle coal. This development set off a revolution in lighting. Cannel coal oil burned bright, exceptionally smoke-free, and left little residue. It is unknown whether salt-makers in the valley understood that the region's salt industry would drastically shrink in just a few years, but given their attention to national and international markets, it seems likely that many, if not all, foresaw the industry's troubled future. Even if they did not, Kanawha businessmen constantly sought new opportunities to capitalize on any natural resource the region offered. Few valley industrialists would have chosen to eschew the profits that sprang from a revolution in lighting simply because they were not based on brine. As their industry faded, salt-makers who in many

³⁸⁹ Philip Mallory Conley, *Early Coal Development in the Kanawha Valley, West Virginia History: a copyrighted publication of the West Virginia Archives and History* (1946-1947):213. Conley, "Early Coal Development," 213; Otis K. Rice, "Coal Mining in the Kanawha Valley to 1861: A View of Industrialization in the Old South" *The Journal of Southern History* 31 no. 4 (November 1965): 396.

cases already owned coal mines and large tracts of land, diversified further to take advantage of the new breakthrough in illumination.³⁹⁰

The pursuit of cannel coal, as salt markets became untenable, is reminiscent of the switch to coal-powered furnaces as wood supplies dwindled, and underscores that the history of the Kanawha Valley is of one of complete commitment to industrial pursuits. The cannel coal boom faded as the technology to extract the lamp fuel from crude oil developed, and kerosene became the primary lamp fuel. At that point however, Kanawhans had begun shipping the bromine extracted from brine down the Kanawha to Cincinnati, the Queen City of the West had reinvented itself as a soap manufacturing center. (Even today, Proctor and Gamble remains based there). Salt-makers continued to find every profitable use for brine.

The significance derived from examining this valley's late eighteenth and early nineteenth century history is manifold and primarily valuable in the context of the work of Appalachian, environmental, and southern historians. Early Kanawhan businessmen held much in common with their counterparts elsewhere in the United States. The nation's late eighteenth and early nineteenth century history is rife with examples of fiercely determined and voracious opportunists. Many regions can boast of inhabitants who exploited the environment to the point of its utter devastation for rewards from far-flung markets. In this regard, Kanawhans hardly stand alone. Indeed, the understanding that early Kanawhan industrialists were not unique to Appalachia is part of the value of

³⁹⁰ James T. Laing, "The Early Development of the Coal Industry in the Western Counties of Virginia, 1800-1865" *West Virginia History: a copyrighted publication of the West Virginia Archives and History* 2 no. 4, (January 1966):147; Conley, Philip Mallory. *Early Coal Development in the Kanawha Valley, West Virginia History: a copyrighted publication of the West Virginia Archives and History* (1946-1947):209.

this examination. An antebellum record that includes economic and industrial innovation with nation-wide implications, severe environmental degradation, and thousands of coerced factory workers might fail to elicit surprise were it to arise from Richmond, Lowell, or Philadelphia. While this record is noteworthy, it is only when these realities are placed in the heart of Appalachia that they appear extraordinary.

As has been mentioned, Appalachian historians continue to find it necessary to remind readers that the idea of nineteenth century Appalachia as a land apart, populated by insular people, is largely a Victorian fable. Despite the constant debunking of these myths, Appalachians remain tethered to seemingly unshakeable attributions. On its most basic level, this study should help punch yet another small hole in these tenacious myths. Perhaps eventually, such debunking will be unnecessary, but for the time being, the stereotypes persist, and so the reminders of their falseness remain worthwhile. This, however, is not the primary value of this examination.

The common historical narrative of the industrialization of Appalachia is one of internal colonization. Outside exploiters are credited with industrializing Appalachia. In the process of extracting natural resources and profits, they destroyed the social fabric of local communities as they destroyed the rugged landscape.³⁹¹ It is against the backdrop of this valuable narrative that this examination is perhaps most useful. Kanawha's salt industry stands in stark contrast to this dominant narrative of industrialization. The salt-makers were not northern capitalists, but in general, former agriculturalists from Virginia. While they often relied on credit from outside the region to fund their activities, they

³⁹¹ Ronald Eller examines this extensively. For a fuller discussion, see, Ronald D. Eller, *Miners, Millhands and Mountaineers: Industrialization of the Appalachian South 1880-1930* (Knoxville: University of Tennessee Press, 1982).

were not remote businessmen unconcerned with the local social fabric, nor were they “big fish in a small pond” who lost their economic and political grip.³⁹² Kanawha salt-makers led the community that they help found. They rotated through the local political offices just as Clendenin did. They were integral to the social, economic, and political life of the valley. Even after the Civil War, salt-makers retained control of the region economically and socially. It should not be concluded that narratives of internal colonization bear less merit. It should, however, put forward that the common story (even in academia) of greedy outsiders tearing open and shredding local economies, environments, and communities cannot be assumed, even for the heart of Appalachia.

The valley’s history also conflicts with common images of the American industrial revolution. Not only does Kanawha salt manufacturing occur far from the New England and mid-Atlantic factory towns generally associated with the industrialization of the country, it happened far earlier. Consequently, the environmental ills that accompany industrialization occurred in the early nineteenth century, earlier than one generally thinks of foul, blackened air, and undrinkable, greasy, stinking streams. Even when early environmental degradation is brought to mind, the cities of the East are seen as the likely sites of these ills, not the Mountain West. Contrary to these preconceptions, Virginians

³⁹² In 1864, the president of the Kanawha Salt Company, J.P Hale had been an officer for the Kanawha Infantry Regiment for the Confederacy, He held this important position even though the valley was in Union hands at the time. See, “Constitution of the Kanawha Salt Company 1864” (Cincinnati: Moore, Wilstack and Baldwin Printers, 1864). West Virginia State Archives. Henry Ruffner organized the first Presbyterian church in Charleston. See Otis K. Rice, *Charleston and the Kanawha Valley* (n.p.: Windsor Publications, 1981) 24. Salt-maker William Dickinson II, son of William Dickinson, founded the Kanawha Valley Bank in 1869 with other salt-makers. One Valley Bank grew to be the largest bank in West Virginia before it was purchased by BB&T. See Bill Drennen , *One Kanawha Valley Bank: A History* (Charleston: 2001).

had environmentally devastated this region of their state within 20 years of the signing of the Constitution.

Another area where Kanawha Valley salt-making offers fresh perspectives is in the light of William Cronon's superlative book, *Nature's Metropolis*. Cronon's examination of Chicago and its hinterlands discusses the momentous shift of the Great West northwest to Chicago. Cronon does not, however, attempt to examine the ramifications for those cities like Cincinnati, which were left to reestablish their focus and re-negotiate economic relationships with their trading partners like the Kanawha Valley. This study provides insight into how other metropolises and their commercial networks reevaluated their situations in light of Chicagoans' extraordinary exploits. It also offers a somewhat richer and fuller scope to Cronon's work and adds detail to the understanding that the boosters for Chicago did more than build a city; they fundamentally changed the histories of places far removed from the shores of Lake Michigan. This understanding adds weight to the importance of Cronon's work. It also suggests the value of further study of the cities which had once hoped to dominate the Great West and had to reinvent their business bases and renegotiate trade networks in the wake of Chicago's tremendous rise. Examinations of this type could offer a more extensive understanding of the environmental and economic shifts and changes that men in Chicago and their supporters wrought across the nation.

Perhaps one of the most valuable perspectives to be gained from this study is the insight that if one is to comprehend how these early Appalachians made decisions, it must be understood that they viewed themselves as not on the edge of the developed East, but at the commercial center of the nation. They perceived that they were one of the

primary driving forces of an economic engine, not marginal, but central. Thus, if one views early Kanawhans and their history through a lens of “Appalachianess,” one risks missing the mark. As salt-makers desperately sought laborers in the East, constantly reevaluated sales and production agreements for marketing their salt in the West, ordered massive iron constructions from the mid-Atlantic states, tracked the price of bacon in New Orleans, lobbied congress, and negotiated currency discount rates across the nation, they envisioned themselves and their valley not as an isolated backwater, but the geographic and commercial heart of an empire of commerce.

BIBLIOGRAPHY

PRIMARY SOURCES

- “Salt Manufacture on the Kenawha River.” *American Magazine of Useful and Entertaining Knowledge*, no. 8 (1837).
- Atkinson, George W. *History of Kanawha County: From its organization in 1789 until the Present Time; Embracing Early Settlements, and Thrilling Adventures with the Indians, Derived from Histories and Aged Citizens*. Charleston, WV: The Office of the West Virginia Journal, 1876.
- Benton, Thomas Hart. *Documents Related to the Trade and Manufacturing of Salt*. Washington DC: Blair and Rivers Printers, 1839.
- Bishop, Leander. *History of American Manufactures 1698-1860*. Philadelphia: Edward Young and Company, 1861.
- Bruns, Jean. *Abstracts of the Wills and Inventories of Bath County, Virginia 1791-1842*. Baltimore: Genealogical Publishing Company, 2009.
- Cannel Coal Company of Coal River, “Report of the Board of Directors of the Cannel Coal Company of Coal River, West Virginia Incorporated by the State of Virginia.” New York: William C. Bryant and Company Printers, 1854.
- Cramer, Zadok. *The Navigator*. 7th ed. Pittsburgh: Cramer, Spear and Eichbaum, 1811.
- Dickinson and Shrewsbury letters in possession of author.
- Douglass, Frederick. *The Life and Times of Frederick Douglass from 1817 to 1822*. London: Christian Age Office, 1882.
- Henning, William Waller. *The Statutes at Large, Being a Collection of all the Laws of Virginia from the First Session of the Legislature in the Year 1619*. Richmond: Franklin Press, 1823.
- Horner, Inman. “Cuthbert Bullitt. Letter of Inman Horner to Hugh Blair Grigsby.” *William and Mary Quarterly Historical Magazine* II, no. 2 (April 1922): 89-91.
- Howe, Henry, “Early Industry in Kanawha County.” *Historical Collections of Virginia*. Charleston, SC: William R. Babcock, 1845.

- Jefferson, Thomas. *Notes on the State of Virginia*. East Rutherford, NJ: Viking Penguin Books, 1998.
- Royall, Anne. *Royall's Sketches of History, Life and Manners in the United States*. Carlisle, MA: Applewood Books, 1826.
- Ruffner, David. "Kenawha Salt-works." *Niles Weekly Register* 8, (April 22, 1815): 136.
- Shrewsbury, Joel. *Memorial of the Manufacturers of Salt in the County of Kanawha, Virginia against the Repeal of the Duty on Foreign Salt*. Charleston: Offices of the Kanawha Banner, 1830.
- Smith, John. *The Complete Works of Captain John Smith*. Edited by Philip L. Barbour. Chapel Hill: University of North Carolina Press, 1986.
- Tipton, J.C. "1898 Charleston and its Resources: Capitol City Illustrated" 1898. Reprint, Charleston, WV: Charleston Bicentennial Commission, 1997.
- Thwaites, Rueben Gold and Louise P. Kellogg, eds. *Documentary History of Lord Dunmore's War*. Madison: Wisconsin Historical Society, n.d.
- United States Bureau of the Census. Third Census of Population. 1810. <http://0-persi.heritagequestonline.com.wncln.wncln.org/hqoweb/library/do/census/results/hitlist?series=3&state=11&countyid=902&hitcount=562> (accessed June 2013).
- United States Congress. *The Congressional Record. History of the Proceedings of the Debates of the First House of Representatives of the United States of America*. New York: Harrison and Purdy, n.d.
- United States Congress. *Documents Relating to the Trade in and Manufacture and Uses of Salt*. 21st Cong., 1st sess. 1839.
- Virginia General Assembly. *Acts Passed at a General Assembly of the Commonwealth of Virginia*. Richmond: Thomas Ritchie, 1815.
- Washington, George. *The Writings of George Washington*. Edited by John C. Fitzpatrick. Washington DC: Government Printing Office, 1936.

SECONDARY SOURCES

- Adams, Shelby Lee. *Salt and Truth*. Richmond: Candela Books, 2011.
- American Chemical Society. "A Brief History of Procter and Gamble." *National Historic Chemical Landmarks*.
<http://acswebcontent.acs.org/landmarks/landmarks/tide/history.html> (accessed July 31, 2011).
- Bailey, Rebecca. *Matewan, Before the Massacre: Politics, Coal and the Roots of Conflict in a West Virginia Mining Community*. Morgantown: West Virginia University Press, 2008.
- Barnhart, John D. "Recent Industrial Growth and Politics in the Southern Appalachian Region." *The Mississippi Valley Historical Review* 17, no. 4 (March 1931): 581-594.
- Batteau, Allen W. *The Invention of Appalachia*. Tucson: University of Arizona Press, 1990.
- Berlin, Ira. *Many Thousands Gone: The First Two Centuries of Slavery in North America*. [Cambridge ?]: The President and Fellows of Harvard College, 1998.
- Bernhart, John Jr. *Appalachian Aspirations: the Geography of Urbanization and Development in the Upper Tennessee River Valley, 1865-1900*. Knoxville: University of Tennessee Press, 2007.
- Berry, Thomas Senior. *Western Prices before 1861*. Cambridge: Harvard University Press, 1943.
- Billings, Dwight B. and Kathleen M. Blee. *The Road to Poverty: The Making of Wealth and Hardship in Appalachia*. Cambridge, UK: Cambridge University Press, 2000.
- Billings, Dwight B., Gurney Norman, and Katherine Ledford. *Back Talk from Appalachia: Confronting Stereotypes*. Lexington, KY: University Press of Kentucky, 2001.
- Bowman, Larry G. "The Scarcity of Salt in Virginia during the American Revolution." *The Virginia Magazine of History and Biography* 77, no. 4 (October 1969): 464-472.

- Brantly, John Edward. *History of Oil Well Drilling*. Houston: Book Division Gulf Publishing Company, 1971.
- Brower, Leon. "Negroes During the Depression in Kanawha County, West Virginia." *The Social Service Review* 10, no. 4 (December 1936): 646-659.
- Brown, Ian W. *Salt and the Eastern North American Indian: An Archeological Study*. Cambridge: Harvard University Printing Office, 1980.
- Cashin, Joan E. "Landscape and Memory in Antebellum Virginia." *The Virginia Magazine of History and Biography* 102, no 4. (October 1994): 477-500.
- Caudill, Harry M. *Night Comes to the Cumberlands: A Biography of a Depressed Area*. Boston: Little, Brown and Company, 1962.
- Celeste, Erika. *Red Salt and Reynolds*, Paradise Film Institute. 2003.
- Chlor-Alkali Division of Food Machinery and Chemical Corporation. "The Salt Industry in the Kanawha Valley" South Charleston, WV: Chlor-Alkali Division of Food Machinery and Chemical Corporation, 1960.
- Christian, Marcus. *Negro Ironworkers of Louisiana 1718-1900*. Gretna, LA: Publican Publishing, 1972.
- Clark, T. D. "Salt as a Factor in the Settlement of Kentucky." *Filson Club History Quarterly* 12 (1938): 42-52.
- Cohen, Stan. *Kanawha County Images: A Bicentennial History 1788-1988*. Charleston, WV: Pictorial Pictures Publishing Company, 1987.
- Conley, Phil. "Early Coal Development in the Kanawha Valley." *West Virginia History* 8, no. 2 (January 1947): 207-210.
- _____. *History of the West Virginia Coal Industry*. Charleston: Education Foundation Inc., 1960.
- Craven, Avery Odelle. *Soil Exhaustion as a Factor in the Agricultural History of Virginia and Maryland 1601- 1860*. Urbana: University of Illinois Press, 1926.
- Crawford, E.T. "Salt- Pioneer Chemical Industry of the Kanawha Valley." *Industrial Engineering Chemistry* (October-December 1935): 1411-1417.
- Cronon, William. *Nature's Metropolis: Chicago and the Great West*. New York: W. W. Norton and Company, 1991.

- Curry, Richard Orr. *A House Divided: A Study of Statehood Politics and the Copperhead Movement in West Virginia*. Pittsburgh: University of Pittsburgh Press, 1964.
- Davis, Leslie Martz. "Economic Development of the Great Kanawha Valley." *Economic Geography* 22, no. 4 (October 1946): 255-267.
- Dew, Charles B. "Disciplining Slave Iron Workers in the Antebellum South: Coercion, Conciliation and Accommodation." *American Historical Review* 79, no. 2 (April 1974): 393-418.
- Drennen, Bill. *One Kanawha Valley Bank: A History*. Charleston, WV: n.d.
- Druyvesteyn, Kent. "With Great Vision: The James River and Canal." *Virginia Cavalcade* 21, no. 3 (January 1972).
- Dunaway, Wayland Fuller. *History of the James River and Kanawha Company*. New York: Columbia University, 1922.
- Dunaway, Wilma, A. *The First American Frontier: Transition to Capitalism in Southern Appalachia, 1700-1860*. Chapel Hill: University of North Carolina Press, 1996.
- _____. *Slavery in the American Mountain South*. Cambridge, UK: The Press Syndicate of the University of Cambridge, 2003.
- _____. "The Southern Fur Trade and the Incorporation of Southern Appalachia 1690-1763." *Review Braudel Fernand Center* 17, no. 2 (Spring 1994): 215-242.
- Dusinberre, William, *Them Dark Days: Slavery in the American Rice Swamps*. Athens: University of Georgia Press, 2000.
- Eaton, Clement. "Slave Hiring in the Upper South: A Step Toward Freedom." *The Mississippi Valley Historical Review* 46, no. 4 (March 1960): 663-678.
- Eller, Ronald D. *Miners, Millhands, and Mountaineers*. Knoxville: University of Tennessee Press, 1982.
- _____. "Toward a New History of the Appalachian South." *Appalachian Journal* 5, no. 1 (Autumn 1977): 74-81.
- Ellis, Richard E. *Aggressive Nationalism: McCulloch v. Maryland and the Foundation of Federal Authority in the Young Republic*. Oxford: Oxford University Press, 2007.
- Fischer, David Hackett. *Albion's Seed: Four British Folkways in America*. New York: Oxford University Press, 1989.

- Fogel, Robert William and Stanley L. Engerman. *Time on the Cross: The Economics of American Negro Slavery*. New York: W. W. Norton and Company, 1974.
- Fones-Wolf, Ken. *Glass Towns: Industry, Labor and Political Economy in Appalachia, 1890-1930s*. Urbana: University of Illinois Press, 2007.
- Gatrell, Jay D. "Localized Innovation: A Geography of the Petro-Chemical industry in the Kanawha Valley of West Virginia." Doctoral Dissertation, West Virginia University, 1999.
- Genovese, Eugene D. *Roll Jordan Roll: The World the Slaves Made*. New York: Pantheon Books, 1972.
- Goldstein, Joyce and Michael Parsons. "Knockin' on Heaven's Door: Health and the Chemical Industry, Kanawha Valley West Virginia." Paper presented at the Kanawha Valley Occupational and Environmental Health Conference, June 1979.
- Hale, John P. *History of the Great Kanawha Valley*. 1891. Reprint, Gauley Bridge, WV: Gauley and New River Publishing Co., 1994.
- Hamilton, Virginia. *Many Thousands Gone: African Americans from Slavery to Freedom*. New York: Knopf Publishers, 1993.
- Hansen, Michael C. *Geofacts*. Ohio Department of Natural Resources. Division of Geological Survey, no. 10 (November 1995).
- Harkins, Anthony. *Hillbilly: A Cultural History of an American Icon*. New York: Oxford University Press, 2004.
- Harper, Eugene R. "Glenwood 1852. Why? The Context for an Historic House" Presented at the Glenwood Estate Symposium. Marshall University Graduate College. (July 2007).
- Harris, V. B. *Kanawha's Black Gold and the Miner's Rebellions*. Ann Arbor, Mich.: Braun-Brumfield, 1987.
- _____. *Great Kanawha; An Historical Outline* Charleston, W.V.: Jarrett Printing Company, 1976.
- Hsiung, David C. *Two Worlds in the Tennessee Mountains*. Lexington: University of Kentucky Press 1997.
- Inscoe, John C. *Appalachians and Race: The Mountain South from Slavery to Segregation*. Lexington: University of Kentucky Press, 2000.

- _____. *Mountain Masters, Slavery and the Sectional Crisis in North Carolina*. Knoxville: University of Tennessee Press, 1989.
- _____. *Race, War and Remembrance in the Appalachian South*. Lexington: University of Kentucky Press, 2008.
- Jakle, John A. "Salt on the Ohio Valley Frontier, 1770-1820." *Annals of the Association of American Geographers* 59, no. 4 (December 1969): 687-709.
- Johnson, Paul. *Sam Patch, the Famous Jumper*. New York: Hill and Wang, 2003.
- Johnston, Franklin. "A Brief History of Chemistry in the Kanawha Valley." presentation, American Chemical Society (1977).
- Kemp, Emory L. *The Great Kanawha Navigation*. Pittsburgh: University of Pittsburgh Press, 2000.
- Kurlansky, Mark. *Salt: A World History*. New York: Penguin Group, 2002.
- Laidley, W.S. *History of Charleston and Kanawha County West Virginia and Representative Citizens*. Chicago: Richmond Arnold Publishing Company, 1911.
- Laing, James T. "The Early Development of the Coal Industry in the Western Counties of Virginia 1800-1865." *West Virginia History* 27, no. 2 (January 1966): 144-155.
- Laub, C. H. "Revolutionary Virginia and the Crown Lands 1775-1783." *William and Mary Quarterly* 59, no. 4 (October 1931): 304-314.
- Lewis, Ronald L. *Black Coal Miners in America: Race, Class, and Community Conflict, 1780-1980*. Lexington: University Press of Kentucky, 1987.
- _____. *Transforming the Appalachian Countryside: Railroads, Deforestation, and Social Change in West Virginia, 1880-1920*. Chapel Hill: University of North Carolina Press, 1998.
- MacKenzie, Scott A. "The Slaveholders' War: The Secession Crisis in Kanawha County, Western Virginia." *West Virginia History* 4, no. 1 (Spring 2010): 33-57.
- Martin Jonathan D. *Divided Mastery: Slave Hiring in the Upper South*. Cambridge: Harvard University Press, 2004.
- Mason, Bernard. "Entrepreneurial Activity in New York During the American Revolution." *The Business History Review* 40, no. 2 (Summer 1966): 190-212.
- Maury, M. F. and William Fontaine. *Resources of West Virginia*. Wheeling: The Register Company, 1876.

- McCormick, Kyle. *The New-Kanawha River and the Mine War of West Virginia*. Charleston, W.V.: Mathews Printing and Lithographing Company, 1959.
- McDowell, R. E. "Bullitt's Lick and Related Salt Works and Settlements." *Filson Club History Quarterly* 30, (May 1956).
- Mitchell, Robert D. *Appalachian Frontiers: Settlement, Society and Development in the Preindustrial Era*. Lexington: University Press of Kentucky, 1990.
- Michigan Department of Environmental Quality. *Salt: A Michigan Resource*. report, Geological Survey Division, n.d.
- Moore, George Ellis. "Slavery as a Factor in the Formation of West Virginia." *West Virginia History* VIII, no. 1 (October 1956): 5-89.
- Morrison, Russell and Peter Avenali. "Charleston W. Va. Trip." *The Analysts Journal* 13, no. 3 (June 1957): 165-166.
- Multhauf, Robert P. *Neptune's Gift: A History of Common Salt*. Baltimore: The Johns Hopkins University Press, 1978.
- Ohio Department of Natural Resources: Division of Geological Survey. "The Teays River." *Geofacts*, <http://ohiodnr.com/geosurvey> (accessed April 2010).
- Olwell, Robert. *Masters, Slaves and Subjects: The Culture of Power in the South Carolina Low Country 1740-1790*. Ithaca: Cornell University Press, 1998.
- Otterbein, Keith F. "Five Feuds: An Analysis of Homicides in Eastern Kentucky in the Late Nineteenth-Century." *American Anthropologist* 102, no. 2 (June 2000): 231-243.
- Pauley, Don E. "The Good Stewards: A Family History of the John L. Dickinson Family of Kanawha County, West Virginia." unpublished report prepared for Marshall Evans. Charleston, WV (May 1, 2007).
- _____. "Dickinson Papers: Part 1 The Colonel William Dickinson, Jr. Notes." unpublished report prepared for Marshall Evans. Charleston, WV. (n.d.)
- Pearce, John Ed. *Days of Darkness: The Feuds of Southern Kentucky*. Lexington: University of Kentucky Press, 1994.
- Peyton, Billy Joe. *Charleston*. Charleston, SC: Arcadia Publishing, 2010.
- Price, Paul H, Charles H. Hare, J. B. McCue, and Homer A. Hoskins. *Salt Brines of West Virginia Volume III of the West Virginia Geological Survey*. Morgantown: State of West Virginia, 1937.

- Pudup, Mary Beth, Dwight B. Billings, and Altina L. Waller. *Appalachia in the Making: the Mountain South in the Nineteenth Century*. Chapel Hill: University of North Carolina Press, 1995.
- Rice, Otis K. *Charleston and the Kanawha Valley*. Woodland Hills, CA: Windsor Publications, 1981.
- _____. "Coal Mining on the Kanawha Valley to 1861: A View of Industrialization in the Old South." *The Journal of Southern History* 31, no. 4 (November 1965): 393-416.
- Rogers, William B. *Report of the Geological Reconnaissance of the State of Virginia*. Philadelphia: Desilver, Thomas and Company, 1836.
- Rothbard, Murray N. *A History of Money and Banking in the United States: the Colonial Era to World War II*. Auburn, AL: Ludwig von Mises Institute, 2002.
- _____. *The Panic of 1819: Reactions and Policies*. New York: Columbia University Press, 1962.
- Salstrom, Paul. review of *The First American Frontier: Transition to Capitalism in Southern Appalachia, 1700–1860*, by Wilma A. Dunaway, *The Journal of American History* 83, no. 3 (Dec., 1996): 999-1000. www.jstor.org/stable/2945673 (accessed 03/09/2012).
- Shapiro, Henry. *Appalachia on our Mind: The Southern Mountaineer in the American Consciousness, 1870-1920*. Chapel Hill: University of North Carolina Press, 1978.
- Starobin, Robert S. "Disciplining Industrial Slaves in the Old South." *The Journal of Negro History* LIII, no.2 (April 1968): 111-128. www.jstor.org/stable/2716487 (accessed June 26, 2012).
- _____. "The Economics of Industrial Slavery in the Old South." *The Business History Review* 44, no.2 (Summer 1970): 131-174.
- _____. *Industrial Slavery in the Old South*. New York: Oxford University Press, 1970.
- Stealey, John E. *The Antebellum Salt Business and Western Markets*. Lexington: The University Press of Kentucky, 1941.
- _____. *Kanawhan Prelude to Nineteenth-Century Monopoly in the United States*. Richmond: Virginia Historical Society, 2000.

- _____. "Slavery and the Western Virginia Salt Industry." *The Journal of Negro History* 59, no. 2 (April 1974): 105-131.
- _____. "Virginia's Mercantile-Manufacturing Frontier: Dickinson and Shrewsbury and the Great Kanawha Salt Industry." *The Virginia Magazine of History and Biography* 101, no. 4 (October 1993): 509-534.
- Straw, Richard A. and H. Tyler Blethen, eds. *High Mountains Rising: Appalachia in Time and Place*. Chicago: University of Chicago Press, 2004.
- Thoenen, Eugene D. *History of the Oil and Gas Industry in West Virginia*. Charleston: Education Foundation Inc., 1964.
- Waller, Altina L. *Feud: Hatfields, McCoys and Social Change in Appalachia, 1860-1900*. Chapel Hill: University of North Carolina Press, 1988.
- Weiss, Harry B and Grace M Weiss. *The Revolutionary Saltworks of the New Jersey Coast with Notes on the Early Methods of Making Salt in New England, New York, Delaware and Virginia*. Trenton: Past Times Press, 1959.
- Whisnant, David E. *Modernizing the Mountaineer: People, Power and Planning in Appalachia*. United States: Appalachian Consortium Press, 1994.
- White, Richard. *Land Use, Environment, and Social Change: The Shaping of Island County, Washington*. Seattle: University of Washington Press, 1992.
- Wiebe, Robert H. *The Search for Order: 1877-1920*. New York: Hill and Wang, 1967.
- Williams, John Alexander. *Appalachia: A History*. Chapel Hill: The University of North Carolina Press, 2002.
- _____. *West Virginia: A History*. Morgantown: West Virginia University Press, 1976.
- Wintz, William D. *Annals of The Great Kanawha*. Charleston, WV: Pictorial Histories Publishing Company, 1993.
- _____. *Nitro: The World War I Boom Town*, Charleston, WV: Pictorial Histories Publishing Company, 1985.
- Zaborney, John J. *Slaves for Hire: Renting Enslaved Laborers in Antebellum Virginia*. Baton Rouge: Louisiana State University Press, 2012.