Industrial Intersection:
Slavery and Industry in Late Antebellum Virginia

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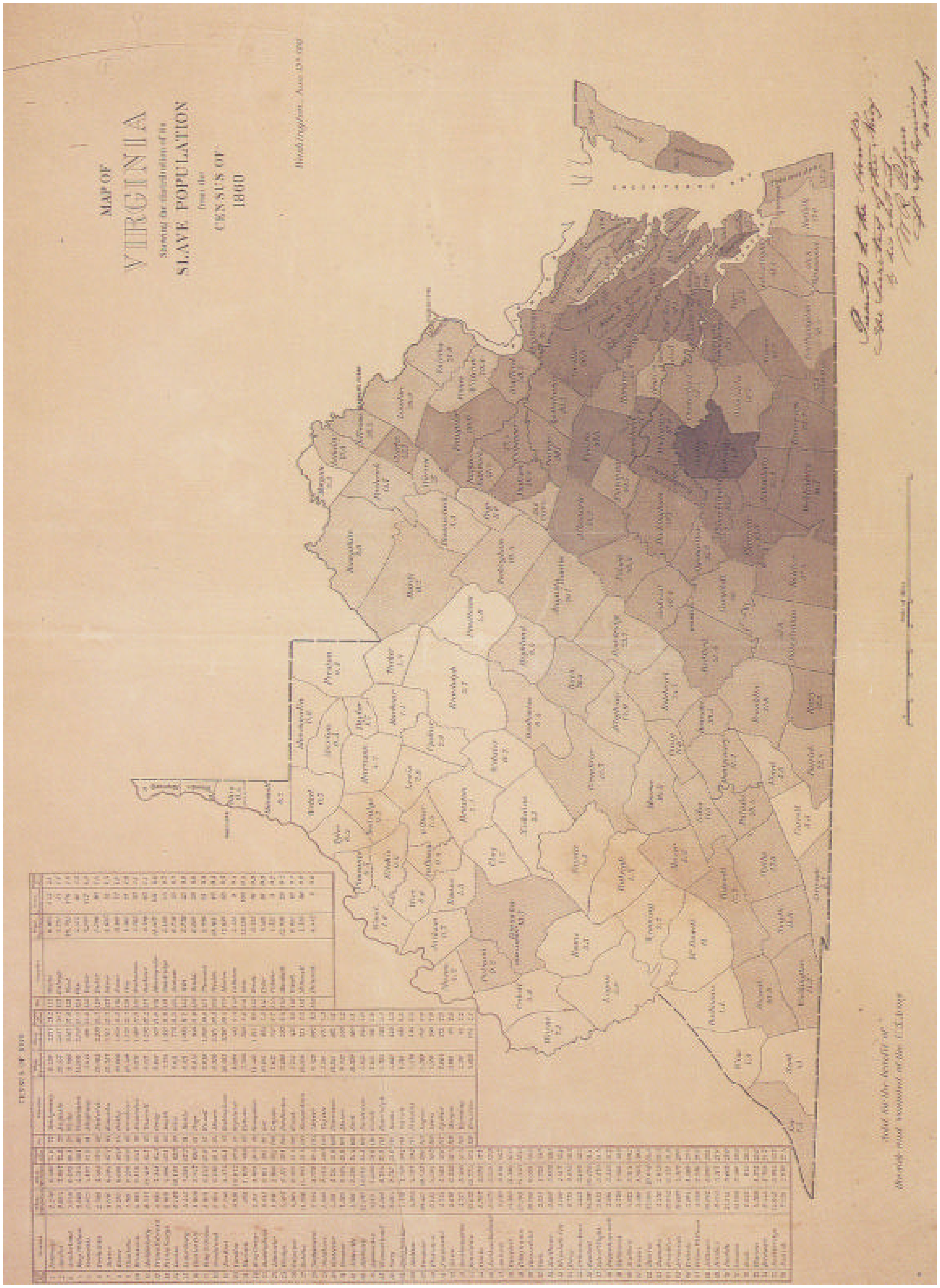
MAP OF
VIRGINIA
Showing the distribution of its
SLAVE POPULATION
from the
CENSUS OF
1860

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Industrial Intersection:

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"Of all the parties engaged or interested in its transportation and manufacture, the South is the only one that does not make a profit. Nor does she, as a general thing, make a profit by producing it." "We have reference only to those who are not too perverse, or ignorant, to perceive naked truths—that free labor is far more profitable than slave labor."[1] So wrote Hinton Rowan Helper in 1857, thus proving himself not only the most vociferous of the southerners who demanded slavery's eradication, but also one outspoken in his contention that slave-driven industry was inefficient and unprofitable because it employed slaves.

Helper's contention that industrial concerns in the South were inherently inefficient and unprofitable and that slave labor in general was not conducive to industrialization, a belief held widely outside the academy, has had a long history *within* the academy as well. It dates at least as far back as Ulrich B. Phillips, who said that industrial labor was suited only for slaves in a semi-free condition, such as those who hired out their own labor and paid a portion of their wages to their owners.[2] Phillips saw Denmark Vesey's 1822 revolt in Charleston, South Carolina, as the primary example of slavery's inability to intersect with industrialization. Vesey and his top lieutenants were, Phillips claimed, the smartest—and most industrially inclined (Vesey himself was a

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[1] Hinton Rowan Helper, The Impending Crisis of the South: How to Meet It (Cambridge, MA: Belknap, 1968), pp. 54-55, 40-41.

[2] Ulrich B. Phillips, The Slave Economy of the Old South, Edited and with an Introduction by Eugene Genovese (Baton Rouge: Louisiana State University Press, 1968), pp. 203-204).

blacksmith)—and this fact was taken as evidence that skilled slaves were uncontrollable. Phillips' other major work on the subject, a collection of primary documents from the early republican and antebellum eras, is indicative of his opinion on the matter by the choice of documents included. A brief survey of these documents turned up the public announcement of a Virginia planter-industrialist who had integrated his textile mill and soon regretted that decision, foreseeing decreased profits; a Frederick Law Olmsted quote which blamed the undercapitalization of the South on slavery; and a quote from a contemporary Georgia analysis which stated that free labor in industry was cheaper than slave labor because slaves required feeding.[3]

In Negro Labor in the United States, Charles H. Wesley put the matter quite simply: "Plantation economics and the domestic system were firmly established in the South while the industrial system had taken deep roots in the North and east".[4] Wesley went further, explaining why he felt this was the case: slaves were viewed as lazy, and slavery was viewed as inefficient.[5] Wesley was not blind to the fact that slaves were employed in industrial concerns, but he saw this as an irrational act on the part of the southern entrepreneur: they were trying so desperately to prove that slavery was the superior labor system that they felt a compelling desire to employ slaves in as many ways as possible.[6] Wesley saw Virginia's manufacturing wealth as having originated in the western section, which relied on free labor,[7] and he declared that "no direct relation between manufacturing and slavery can be discovered in [North Carolina and

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[3] Phillips, ed., Plantation and Frontier Documents, 1649-1863: Illustrative of Industrial History in the Colonial and Ante-bellum South (Cleveland: Arthur H. Clark, 1909), pp. 314c, 337c, and 356b.
[4] Charles H. Wesley, Negro Labor in the United States, 1850-1925 (NY: Russell and Russell, 1927), p.1.
[5] Wesley, Negro Labor in the United States, 1850-1925, pp.3-4.
[6] Wesley, Negro Labor in the United States, 1850-1925, pp.6-8.
[7] Wesley, Negro Labor in the United States, 1850-1925, p.10.

Tennessee]".[8] Wesley went on to assert that "Slavery was one of the causes for the backwardness of southern industrial progress"[9] and that "It was owing to slavery that manufacturing was not carried on in the South".[10]

Later claims of a similar nature can be found in the work of Richard B. Morris and Eugene D. Genovese. Morris saw white competition as the major detrimental factor for the successful merger of slavery and the trades.[11] Genovese argued, in an extension of Phillips' statements, that industrialization was incompatible with slavery because it was only successful when the slave was given so many privileges as to make him indistinguishable from the free laborer. These privileges, Genovese maintained, created too many social repercussions for the planters to allow it to continue politically unhindered.[12] Genovese also believed that slavery inhibited market size, thereby limiting the ultimate importance of the market in society and stunting the growth of slave societies into modern capitalist societies.[13]

The most recent historians who have agreed with this opinion regarding the interaction of slavery with industrialization include Herbert G. Gutman, Gavin Wright, and Bruce Laurie. Gutman's comment that "efficient slave labor is not the same as an efficient plantation"[14] can be reasonably extended to include manufactories; he also

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[8] Wesley, Negro Labor in the United States, 1850-1925, p.11.
[9] Wesley, Negro Labor in the United States, 1850-1925, p.11.
[10] Wesley, Negro Labor in the United States, 1850-1925, p.12.
[11] Richard B. Morris, Government and Labor in Early America (NY: Columbia University Press, 1946), pp. 182-188.
[12] Eugene D. Genovese, The Political Economy of Slavery: Studies in the Economy and Society of the Slave South (NY: Vintage, 1965), pp.224-225.
[13] Genovese, Roll, Jordan, Roll: The World the Slaves Made (NY: Vintage Books, 1972), pp. 44-45.
[14] Herbert C. Gutman, Slavery and the Numbers Game: a Critique of Time on the Cross (Urbana: University of Illinois Press, 1975), pp. 14-15.

believed that a very low skill level among the freedmen of the Reconstruction era had existed well before emancipation.[15]

Gavin Wright is more clear in his statements regarding slave labor's incompatibility with industrialization, however. He sees industrialization in slave societies as an inefficient and unprofitable alternative to planter-dominated agriculture: "Even the most successful southern manufacturers had to recruit labor vigorously in the North, and found the presence of slaves in the labor force made such hiring especially difficult";[16] "The availability of the [big money] plantation alternative must retard the growth of industry".[17] Wright also argues that poor whites, who regarded manufacturing as their province, vigorously opposed the employment of slaves.[18] Bruce Laurie agrees: "Native white workers curtailed the use of slaves in skilled work."[19] He saw slaves, even skilled slaves, as much more important (and their masters beholden) to the agricultural sector: skilled industrial "slaves were only accessible when cotton prices fell".[20] Pertaining to Virginia in particular, Laurie looked at Richmond's Tredegar Iron Works and interpreted the earlier research of Charles B. Dew (see below) in a dramatically different way than did the original author. He saw the Tredegar director's refusal to rely solely on slave labor as indicative that slave labor was more expensive and less

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[15] Gutman, Slavery and the Numbers Game: a Critique of Time on the Cross, pp. 55-61.
[16] Gavin Wright, "Did Slavery Retard the Growth of Cities and Industry?" in David, Gutman, Sutch, Temin, and Wright, Reckoning with Slavery: A Critical Study of the Quantitative History of American Negro Slavery (NY: Oxford University Press, 1976), p.331.
[17] Wright, "Did Slavery Retard the Growth of Cities and Industry?", p.329.
[18] Wright, "Did Slavery Retard the Growth of Cities and Industry?", p.331.
[19] Bruce Laurie, Artisans into Workers: Labor in Nineteenth-Century America (NY: Noonday Press, 1989), p.27.
[20] Laurie, Artisans into Workers: Labor in Nineteenth-Century America, p.32.

efficient.[21] Finally, Laurie makes a bold statement: "Slavery [was] wasteful and inefficient".[22]

Those who have sought to depict slavery (and industrial slavery) as profitable started out as part of the new and exciting trends taking place in the study of history during the 1960s. The first of this new generation of historians to tackle the question of industrialization's interaction with the peculiar institution were Charles B. Dew and Robert S. Starobin. These two historians took unorthodox views of the institution of slavery and set out, in their research, to look at the varying ways in which bondsmen were employed. Dew analyzed the Tredegar Iron Works in Richmond, Virginia, which had an integrated workforce (slave and free) as early as 1840. He demonstrated not only that a significant number of slaves were employed in industrial occupations, especially in the cities of the border South, but also that industrial slavery, urban as well as rural, was in fact commonplace. In 1971 Starobin took the argument a step further, stating that industrial slavery was actually *profitable*. Utilizing both quantitative evidence and deduction, Starobin provided a variety of reasons for this conclusion, including, for example, negation of purchase cost through the system of inheritance, and the nascent union movement in southern cities, that raised the labor costs of entrepreneurs who employed free workers.[23] His argument was not that slave-labor industrial concerns were *more* efficient than free-labor concerns, only that they were actually efficient.

During the 1970s, scholars improved upon and added to the work of Dew and Starobin. Two such scholars were Claudia Dale Goldin and Ronald L. Lewis. Goldin

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[21] Laurie, Artisans into Workers: Labor in Nineteenth-Century America, pp.34-35.
[22] Laurie, Artisans into Workers: Labor in Nineteenth-Century America, p.55.
[23] Starobin, Industrial Slavery in the Old South,, pp.116-190.

challenged the work of Richard Wade by utilizing cliometrics. While Wade had set the prevailing tone for the study of the history of urban slavery (that slavery was constantly in decline whenever it entered the cities because it was not suited for urban work, because there were too many distracting influences separating the slave from the control of the master),[24] Goldin found that "slavery and Southern cities were not incompatible during the period 1820-1860."[25] Lewis' work was a lengthy and detailed account of the various industrial concerns of Maryland and Virginia and their employment of slave labor.[26]

Since the publication of Lewis, however, additional studies have further clouded the issue of whether slavery helped or retarded industrialization in Virginia. For example, Frederick F. Siegel compared the county of Pittsylvania with concurrent developments in the county of Augusta, and concluded that geographical location and the availability of adequate transportation affected the survivability of southern industrial enterprises to a greater extent than did the choice between free and slave labor.[27] In 1993, John E. Stealey III detailed yet another vital Virginia industry run primarily on slave labor, the antebellum salt industry in the Kanawha valley of Western Virginia, and linked that industry's decline and ultimate failure during the 1850s with northern competition, not labor type.[28] Most recently, in his 1996 study of the political maturity of Virginia, William G. Shade stated that "by most standards the society of

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[24] Richard C. Wade, Slavery in the Cities: The South, 1820-1860 (NY: Oxford, 1964), p. 247-8.
[25] Claudia Dale Goldin, Urban Slavery in the Antebellum South, 1820-1860: A Quantitative History (Chicago: University of Chicago: 1976), p.123.
[26] Ronald L. Lewis, Coal, Iron, and Slaves: Industrial Slavery in Maryland and Virginia, 1715-1865 (Westport, CT: Greenwood Press, 1979).
[27] Frederick F. Siegel, The Roots of Southern Distinctiveness: Tobacco and Society in Danville, Virginia, 1780-1865 (Chapel Hill: University of North Carolina Press, 1987), p.166.
[28] John E. Stealey, III, The Antebellum Kanawha Salt Business and Western Markets (Lexington: The University Press of Kentucky, 1993), pp.184-191.

antebellum Virginia displayed the social and economic characteristics that accompanied the appearance of nineteenth-century democracy across the new nation. Its population grew rapidly; its economy both expanded and developed; its sundry people prospered and became more diverse as they became more prosperous."[29]

In short, historians in recent decades have reached contradictory conclusions about the compatibility of slavery with industrial growth and profitability. The purpose of the present work is to re-examine this question as it pertains to late antebellum Virginia. The border states (defined here as Delaware, Kentucky, Maryland, Missouri, and Virginia—slave states which bordered on free states) were as a group unique during the antebellum era in that their peoples and state governments maintained the legality of the peculiar institution throughout the period, in line with the rest of the South, while pursuing economic policies more in line with the rapidly-industrializing North. By the late 1850s, Southern industry accounted for about 20% of U.S. industrial output and about 15% of industrial investment,[30] and this contribution is attributable in large part to the industrial concerns of Virginia, which led the slave states in capital invested in manufacturing and was second only to Maryland in the annual value of product and number of hands employed.[31] Furthermore, all the border states except Delaware continued to employ slaves and free blacks throughout the antebellum period as their primary manual labor system.[32]

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[29] William G. Shade, Democratizing the Old Dominion: Virginia and the Second Party System, 1824-1861 (Charlottesville: University of Virginia Press, 1996), p.6.
[30] Robert S. Starobin, Industrial Slavery in the Old South (NY: Oxford, 1970), p. 11.
[31] Helper, p. 284.
[32] In Missouri it was one of two primary manual labor systems, as free white labor was just as important there as slave labor.

The present work will investigate how the experience of late antebellum Virginia, where industrial concerns employing slave labor ostensibly thrived, suggests an answer to the question of the viability of industrial enterprises in slave societies. While Virginia lacked a major industrial city on the scale of Baltimore,[33] the Old Dominion held a wide variety of industrial concerns, from mining and iron casting to tobacco processing and canal- and railroad building.[34] Virginia had also been the first slave colony, dating back to the arrival of the very first slave ship in 1619;[35] in 1860, the state as a whole remained deeply committed to the peculiar institution.[36] A great deal of both impressionistic and quantitative data suggests that slaves were widely used in manufacturing and transportation construction in the state. Yet Virginia also contained vast western regions with little or no commitment to slavery that would break off and form the new state of West Virginia during the Civil War. In part, by comparing the relative efficiency of industrial firms in the two parts of the state where slavery was present or absent, the present study seeks to cast new light on this as-yet-unresolved debate about the intersection of slavery and industrialization.

In 1840, Virginia had a diversified economy as well as society. As with the nation as a whole, the majority of laborers were employed in agriculture, and as with the South as a whole, the most important laboring element were slaves. But by 1840,

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[33] Majewski, A House Dividing, p. 3.
[34] See Charles B. Dew, Ironmaker to the Confederacy: Joseph R. Anderson and the Tredegar Iron Works (New Haven: Yale, 1966); "Slavery and Technology in the Antebellum Southern Iron Industry: the Case of Buffalo Forge," in Ronald L. Numbers, and Todd L. Savitt (eds.), Science and Medicine in the Old South (Baton Rouge: LSU, 1989); and Bond of Iron (NY: Norton, 1994); Lewis, Coal, Iron, and Slaves; Siegel, The Roots of Southern Distinctiveness; and Stealey, The Antebellum Kanawha Salt Business and Western Markets.
[35] Betty Wood, The Origins of American Slavery (NY: Hill and Wang, 1997), p. 40.
[36] 1860 Federal Census Information: see appendices and maps.

Virginia had developed an important and vital manufacturing sector as well. In Danville, a city in the Southside Piedmont county of Pittsylvania, for instance, several tobacco manufactories processed the local crop for retail sale—and employed slave labor to do it.[37] In the Valley counties, particularly Bath, Rockbridge, Augusta, and Rockingham, precious industrial minerals were being mined for use in furnaces which produced, among other things, pig iron and wrought iron.[38] Much of that iron was transported to the City of Richmond, where it would then be further worked at establishments like the Tredegar Iron Works and others in Henrico and Chesterfield Counties, counties with very high slave populations.[39] In the Tidewater, slaves continued to work in the shipping trades and their dependent services, like blacksmithing. And in the most recently settled part of Virginia, the Northwest, slaves were employed in the salt mines and processing operations along the Kanawha River.[40] An intricate and detailed system of transportation had also developed, mainly the result of slave labor: the James River and Kanawha Canal was designed to link the eastern and western parts of the state, and several railroad lines were under construction, which would eventually connect all corners of the state and extend outward to other states as well.[41] In all of these trades and in the transportation methods that linked them, slaves played an integral role in the industrial development of Virginia.

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[37] Siegel, The Roots of Southern Distinctiveness, pp.128-132.
[38] See Dew, Bond of Iron, and appendices and maps.
[39] Unfortunately, the published census data do not provide an accurate method of calculating the percentage of slaves who were employed in manufacturing, but only shows the percentage of the general population enslaved and the percentage of the general population employed in manufacturing. To achieve greater precision, one would need to use manuscript census records from the schedules for manufacturing, an effort which I expect to undertake as part of a doctoral dissertation.
[40] Stealey, The Antebellum Kanawha Salt Business and Western Markets, p.133-158.
[41] Majewski, A House Dividing, pp.12-36, 59-84.

Slaves who were employed in industrial positions tended to enjoy better creature comforts than common field hands. Because of the value most masters and hirers placed on skilled slave labor, these slaves, whether owned by the industrialist or hired from their owners for the year, spent many a "sick day" lounging out in the woods or by a stream, and collected large sums of annual overwork pay, from which they could regularly draw on account, even on credit, from the company store. This store would sell special items like clothing and edible delicacies, but interestingly also sold mirrors, expensive items which when purchased (and the store records indicate that they were) indicate a pride, even an ego, in a class of people who had been taught from birth that they were somehow of lesser value than the whites, and less beautiful. Interestingly, despite the hard work entailed in mine and foundry work, hired slaves from such Piedmont counties as Spotsylvania, Louisa, and Albemarle made the annual trip "over the mountain" to the Valley mines and forges. These workers were encouraged, naturally, to marry and have children, thereby creating an incentive for overwork (and the benefits it brought) and a disincentive for rebellion or escape.[42]

While slavery-fueled industrial enterprises were profitable, or at least potentially profitable, according to Charles Dew and Robert Starobin slavery-driven industrialization in antebellum Virginia inhibited further development and stunted the modernizing process.[43] Dew argues that masters had a dependable, semi-reliable workforce which required both positive and negative forms of inducement. Positive

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[42] Dew, Bond of Iron. Overwork pay, pp.177-180, 182-183, 189-191, 193-197, 199-201, 206, 209, 212; the company store, pp.177-178, 180-183, 189-190, 193-196, 199-200, 206, 209-210, 212; the purchase of mirrors, pp.180-181; misuse of "sick days", 247, 259-261.

[43] This is the opinion presented by Charles Dew in "Slavery and Technology in the Antebellum Southern Iron Industry: The Case of Buffalo Forge", in Numbers/Savitt, pp. 125-6. This is also the standard critique offered of slavery as an *agricultural* labor force.

forms of inducement consisted of overwork pay and travel as well as other privileges. Negative forms of inducement consisted of the lash and other punishments, or, to be more specific, the threat of the use of punishment. Industrialization generated skilled slaves, but these represented a minority not only among the slave population but the general population as well. Where skill was scarce, industrial masters came to depend on their skilled slaves. A balance would be struck between positive and negative inducements, between masters who wanted the slaves to work nonstop and slaves who never wanted to work at all. With this balance, Dew insists, came the stagnation of the individual industrial concern, even as revenues continued to be generated and profits continued to be garnered. New companies would innovate, when possible, but as soon as this "inducement balance" was struck, they would become mired in repetition.

In the northern panhandle of western Virginia, and along the upper Ohio River and up into the Appalachian mountains along the Pennsylvania border as far as the headwaters of the Potomac, was a region peopled mainly by Northern emigrants and their descendants, people who saw slavery as antithetical to the very meaning of the word industry, as being incompatible with industriousness. And this was the section of the state with the closest ties to what many people at the time saw as the homeland of the industrial revolution: Ohio and western Pennsylvania. Geography had conspired to cut this section off from the rest of the state, and make it much more inclined to congress with the north in trade, and therefore side with the North in politics and social outlook. The best example of this could be found in Ohio, Brooke, and Hancock counties, the three northern counties of the panhandle, which were so isolated by successive walls of mountain ranges that the only convenient way to reach them from elsewhere in Virginia

was to travel through one or more other states, at least one of which was free. So while in 1840 Ohio County, which contained the City of Wheeling, had a number of persons employed in manufacturing roughly equivalent to that of Henrico county, which contained the City of Richmond, it had almost no slaves. And doing business primarily with other major Ohio River cities such as Pittsburgh and Cincinnati, it had no use for slaves in its trades. In fact, the only use of slaves in Wheeling we have evidence of at all (aside from their probable use as house servants) is as items of trade value for sale downriver.[44]

Throughout the 1840s and 1850s, slave-driven industrial concerns in Virginia continued to operate and were on the whole highly efficient in the value of product per worker (the one notable exception being the Kanawha salt industry, which lost out to cheaper competition from New York and Pennsylvania and confronted severe difficulties in maintaining a slave-labor force on a river which fed into the Ohio, the border between slavery and freedom).[45] Richmond's Tredegar Iron Works, which had an integrated workforce, saw its best years during the 1850s;[46] William Weaver's Buffalo Forge in Rockbridge County, which was run completely on slave labor at every step of the manufacturing process (even to the extent of having slave hands farm the land part of the year),[47] along with the concerns of Weaver's closest friends and family members, was succeeding.[48] Railroad construction during this period continued apace.

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[44] Judge John S. Cochran, Bonnie Belmont (Wheeling: Press of Wheeling News Lith., 1907), pp. 50-59.
[45] Stealey, The Antebellum Kanawha Salt Business and Western Markets, pp.184—190.
[46] Dew, Ironmaker to the Confederacy, pp. 22-83.
[47] Which may have adversely affected the census information, as it is uncertain in which capacity these slaves contributed to the censuses.
[48] Dew, Bond of Iron, p.98-122.

For many slaves employed in industrial concerns, the hiring process was a fact of annual life. Indeed, slaves with industrial skills, such as blacksmiths and carpenters, found themselves to be much in demand, and their owners often determined that more money could be made by hiring these slaves out than by employing them in farm or house work. The hiring cycle began in December of each year, as the hired slaves made their annual Christmas return to their homes and their families. It was at this time that the owners of industrial concerns, or their agents, began their search for the ensuing year's labor. The first step for Danville hirers, for instance, was to comb through the local papers of the Piedmont, in search for such notices as

> **Factory Hands for Hire.** The Subscriber has for hire the ensuing year, several Negroes, accustomed to the factory; among them a *number one prise hand*, and several twisters and stemmers.[49]

And also

> **For Hire and for Sale.** I HAVE several slaves belonging to the estate of Alex. F. Nelson, dec'd, myself and others, to hire out for the ensuing year. Among them are a Blacksmith, Men, Boys, and young Women…Persons wishing to hire or to purchase are requested to make early application to the subscriber.[50]

[49] Lynchburg *Virginian*, December 13, 1847, p.3, c.4.
[50] Staunton *Spectator*, December 11, 1850, p.3, c.3.

When hirers had not contracted enough labor by early January, as was often the case, they generally inserted their own advertisements:

> **Wanted.** 50 YOUNG able bodied NEGROES wanted, to work on the James River and Kanawha Canal, between Lynchburg and Hardware, during the ensuing year.[51]

> **Wanted to Hire.—**The subscribers wish to hire for their work on the Va. And Tenn. Railroad, in the Mountain region of Va., a number of strong men and boys, for which liberal hire will be paid. They have had long experience in the management of Negroes, and are themselves large owners. Hired Negroes will receive the same treatment in every respect that they give their own. One of us can be seen in Lynchburg, at any time, till the 10th of January at the Washington Hotel, or at McCorckle, Simpson, & James, or at McDaniel & Hart's. They will also buy men and boys.[52]

It is important to note that the above advertisements are for transportation construction firms, and are seeking "strong", "able-bodied" laborers, without emphasis as to skill. Both transportation construction firms and manufacturing firms employed unskilled slave labor; all available evidence, however, points to the conclusion that skilled industrial slave labor was used exclusively in manufacturing.

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[51] Lynchburg *Virginian*, January 3, 1848, p.3, c.5.
[52] Lynchburg *Daily Virginian*, December 1, 1853, p.1, c.1.

Slave hiring contracts were single-sheet documents which were sometimes notarized or prepared by lawyers, but often simply signed by the parties involved. The official form seems to have been as follows:

> On or before the 31st December, 1841, we bind ourselves, our heirs, &c., jointly and severally, to pay to William B. Sterritt, administrator of Peter Salling, dec'd, the sum of *one hundred and thirty nine dollars and seventy five cents* current money of Virginia; being for hire, for the year 1841, of 4 negroes named *Tom Carter Archy & Rod*, which Negro, we bind ourselves, heirs, &c., to treat with humanity, feed and clothe well, and to return to the said Sterritt, at the expiration of the said hiring year, at the house of Peter A. Salling, with a complete suit of new winter clothing, well made of good strong materials. Witness our hands and seals this 31st December, 1840….[53]

It was often the case that the wishes of individual slaves were considered in terms of where they were to be hired. A letter to her hiring agent, the Lexington lawyer James Dorman Davidson, from the owner of "Rutherford", stated that she "would like you to hire him to Jordan's Iron Works provided you can get $150 for him[,] which is in the neighborhood of his wife[,] he says he greater [sic] prefers going to iron works to working on the canal…."[54]

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[53] James Dorman Davidson papers, 1840, the McCormick Collection (Wisconsin Historical Society).
[54] Mrs. Hannah V. Esseonler (?) to James Dorman Davidon, December, 1843, Davidson Papers, the McCormick Collection (Wisconsin Historical Society).

January was also the time when industrialists were concerned with getting the other ancillary labor costs out of the way. This was a time of prolific drygoods purchases on their part—supplies for hired as well as owned slaves. As an example, we have a receipt from the papers of Jordan & Irvine, a Lexington Iron Works, showing a purchase of shoes from Randolph J. Bollin.[55] At the same time, the firm was contracting in Lexington for the purchase of sugar, flannel cloth, and buttons, intended to be used for slave food and clothing.[56] Oftimes the need for slave shoes was not met until well into the year: "…Did you engage any shoes in Louisa [County]? My hands are badly off for shoes."[57]

The list of slave hires from the small iron-making firm of Jordan & Davis in the Valley county of Rockbridge for the year 1840 are instructive in that they reveal not only an average cost per hired hand, but also the sex and in one case an industrially-appropriate nickname for one of the hires (Big Isham). They are also an important source in that they help to put a human face on people who appear in the census data and manufacturing data as mere statictics.[58]

Amount	Date	Owner	Hire
$80	1/1/40	James M. Beazley	Benjamin
$180	1/6/40	Ann Powell	Isaac, John
$115	1/6/40	Robert Brutenfield	Minor, his boy
$60	1/6/40	Benjamin Shindler	Bob

[55] Jordan & Davis Papers, January 23, 1840, the McCormick Collection (Wisconsin Historical Society).
[56] Jordan & Davis Papers, February 8, 1840, the McCormick Collection (Wisconsin Historical Society).
[57] Jordan to Davis, March 12, 1840, Jordan and Davis Papers, the McCormick Collection (Wisconsin Historical Society).
[58] Jordan & Davis Papers, January, 1840, the McCormick Collection (Wisconsin Historical Society).

$247	1/7/40	Richard Galley	Big Isham, Jim, John
$55	1/8/40	Francis Mop	Dick
$170	1/8/40	Mildred Mom	Washington, Frederick
$330	1/9/40	J.G. Dickenson	Dick, John, Garland
$180	1/40	John Henderson	2 Males
$270	1/40	John Henderson	Willis, Ted, Walker
Total: $1687			**20 hires; $84.35 Avg.**

Early in January, almost immediately following the conclusion of the holidays, hired slaves from the Piedmont would make their annual trek over the Blue Ridge Mountains to their employment in the Valley.[59] They would generally travel as a group, individuals being likely to be viewed as runaways. Ironically, runaways grew to adapt to this system. A notice in the Lexington *Valley Star* in January of 1847 offered a $50 reward for a runaway slave from Louisa County who "has gone over the mountains…in company with some of the many hirelings, which are traveling in that direction at this season of the year. He will probably hire himself at some of the furnaces for a time, and then strike for the Ohio by way of the Salt Works…."[60]

Industrial concerns saw their share of runaways during the year, both hired and owned outright. As a result, few, if any, industries employing slave labor operated in close proximity to Virginia's northern borders. An examination of such local periodicals

[59] This may have adversely affected the census data in that these slaves were essentially being imported from high-slavery areas to work in low-slavery areas. It is uncertain whether these slaves were counted by the census as having resided in the counties where they worked in the summer or where they lived for a brief period with their owners during the winter.
[60] Lexington *Valley Star*, January 28, 1847, p.3, c.3,

as the Ceredo *Crescent*[61] (Wayne County, on the Ohio River), the Martinsburg *Gazette*[62] (Berkeley County, on the Potomac), the Wheeling *Argus*[63] and the Wheeling *Intelligencer*[64] (Ohio County, in the northern panhandle) reveals no advertisements for the sale or hire of slaves, nor any postings of runaway slaves with industrial skills. In contrast, runaway announcements posted in places safely distant from the state's northern border often listed the skills of the slave, when they were skilled.[65]

Occasionally, when there was an unexpected need for additional labor, hands would be hired for partial-year terms. In October of 1840, as the weather cooled and production increased, ironmaster William Davis felt the need to ask his partner to procure more hands: "We are in want of the hands you proposed…please send them on as soon as possible."[66]

With the coming of December, the hired slaves made their long trek back to their homes, where they would spend the traditional holiday time with their families. It was at this time that their owners were paid, usually by sending payment back with the slaves themselves, and it was customary to deduct one dollar for annual medical expenses.[67]

The statistical data found in the appendices and translated into the maps are based on the slave and manufacturing censuses from 1840, 1850, and 1860. Totals of

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[61] 1857-1860, Incomplete.
[62] 1841-1855, Incomplete.
[63] 1840-1849.
[64] 1852-1863.
[65] Examples can be found in the Staunton *Spectator*, December 5, 1844, p.4, c.4, and the Charlottesville *Jeffersonian Republican*, October 24, 1850, p.3, c.6.
[66] Jordan to Davis, October 6, 1840, Jordan and Davis Papers, the McCormick Collection (Wisconsin Historical Society).
[67] Jordan & Davis Contract payment, Jordan and Davis Papers, the McCormick Collection (Wisconsin Historical Society).

population by county were tabulated, then compared to the total number of individuals enslaved in the same areas, as well as the total number of persons employed in manufacturing, to determine percentages of each statistic for each area. These percentages were then tabulated *in toto* to create a percentage range for enslavement and for manufacturing for the entire state across the entire span of time, from 1840 to 1860. These two ranges were each divided into three levels, and each level was assigned a color (the lowest being yellow, the middle being green, and the highest being blue).[68] The purpose of this exercise was to track changes from one county to another across the twenty-year span. Two maps were generated for each of these censuses, both broken down by county: one depicts the percentage of persons enslaved; the other depicts the percentage of persons employed in manufacturing.

The other statistical tabulation was the creation and assignment of manufacturing indices. The manufacturing indices were created based on the total number of individuals in each county employed in manufacturing compared to the value of the annual product of manufactures in the same areas. Each county was then assigned a manufacturing index based on the annual value of manufacturing product per individual employed in manufacturing. These indices of productivity per employee give us a rough estimate of how well industry was doing in each of these areas, and the manufacturing indices were then compared to the enslavement percentages, and other evidence that slaves were employed in manufacturing, to give us a rough estimate as to whether or not the use of slaves in industry was efficient. Unfortunately, the annual value of product from manufacturing is not available in the 1840 census, so the information in the

[68] See Appendix 4.

manufacturing indices reflects the 1850 and 1860 census data only. One manufacturing index map was generated for each of these two census years.

The number of individuals employed in manufacturing shows an overall decline in the number of counties with percentages in the highest and middling levels of the range as Virginia progressed from 1840 to 1860.[69] The 1850 and 1860 data show that most counties in both of these censuses registered at the lowest levels.[70] The overall number of persons employed in manufacturing, however, increased from 1840 to 1860 in most counties. This would tend to support the theory that manufacturing in Virginia was not dynamic: while more and more people were being employed in manufacturing, as the overall population increased, still larger numbers were being employed in more traditional pursuits. As we can see, there is a decline over the time period not only of counties at the highest level but at the middling level as well.

The proportion of counties' population constituted by slaves[71] changed little over time. In 1840 the Tidewater and Piedmont counties had the highest percentages of slave populations, with the Valley counties at the middling level and the Northwest and Southwest showing the lowest percentages. This pattern remained the case in 1850 and in 1860. The 1840 and 1850 percentages are likewise identical, while by 1860 a decrease in slave population is evident in Norfolk, Fauquier, Kanawha, Allegany, and Washington Counties and an increase in percentage is evident, somewhat anomalously, in the Northwest county of Doddridge. The absolute figures, however, show an increase in the total slave population statewide. If the data indicate any hard conclusion it is that

[69] See Appendix 1, Maps 2.1-2.3.
[70] See Appendix 1.
[71] See Appendix 2, Maps 3.1-3.3.

the overall population of Virginia was growing, and the free population was growing faster than the slave.

The manufacturing indices, however, tell a very interesting story.[72] As Maps 4.1 and 4.2 demonstrate, most Virginia counties improved their manufacturing indices between 1850 and 1860, that is to say, they increased the amount of annual value of manufactures per individual employed in manufacturing. But some of the greatest improvements in this scale took place in counties with the highest slave populations. Of the ten counties which raised their manufacturing indices from the lowest end of the range to the highest, four (Buckingham, Greensville, King and Queen, and King William) register at the highest end of the range of percentages for individuals enslaved; three (Nansemond, Nelson, and Northumberland) register in the middling range of percentages of individuals enslaved; and three (Gilmer, Monroe, and Russell) register at the lowest end of the slave percentage range.[73] Unfortunately, because we have no statistical data on the actual percentage of these slaves that were employed in manufacturing, we cannot draw the hard conclusion from this evidence that it was the high slave population which made for these increases in efficiency; what the figures do demonstrate, however, is that industry thrived in areas with high concentrations of slaves.

But let us take a closer look at Henrico and Ohio counties, for it is in these two counties that we can perhaps get the best comparative analysis of the importance of freedom versus slavery in the value of manufactures. In Henrico, thanks to the work of

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[72] See Appendix 3, maps 4.1-4.2.

[73] All three of the counties which dropped from the highest range in their manufacturing index to the lowest, Essex, Princess Anne, and Stafford, were also in the highest range of percentage enslaved.

Charles Dew,[74] as well as the statistical evidence found in the appendices, we know that a large portion of the manufacturing population was enslaved. In Ohio county, where the slave population declined from 212 in 1840 to 100 in 1860,[75] while the number of individuals employed in manufacturing increased from 1259 in 1840 to 2236 in 1860,[76] it can safely be assumed that the vast majority of manufacturing workers were free.[77] At the very least we can draw the reasonable conclusion that more slaves were employed in manufacturing—and that manufacturing was more dependent on slave labor—in Henrico than in Ohio County. In 1850, Ohio County reported a manufacturing index of $963.27, while Henrico County reported $1,389.30;[78] in 1860, Ohio County reported a manufacturing index of $1,346.64, while Henrico County reported $1,703.38.[79] Thus, while the percentage increase in the value of output per worker over the decade was slightly higher in Ohio county than in Henrico, because Ohio started with a lower index, the more important fact is that in both census years productivity per worker was higher in Henrico than in Ohio. From these data, one can reasonably conclude that the use of slave labor was not detrimental to the annual value of manufacturing product—indeed, it appears to have been a more efficient labor system than free labor.

The final piece of statistical evidence in our discussion of comparative labor efficiency is the regression analyses which looked at the state county by county to determine if there was indeed a correlation between the percentage of slaves in a county

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[74] Dew, Ironmaker to the Confederacy, pp.3, 19, 20, 22-24, 26, 27, 28, 58, 262-3.
[75] See appendix 2.4.
[76] See appendix 1.4.
[77] If there *were* any slaves employed in manufacturing in Ohio county, based on these numbers, their representation would have been—statistically—extremely insignificant.
[78] See Map 4.1.
[79] See Map 4.2.

and it's manufacturing index, or amount of money earned in manufacturing per employee.[80] The intent was to uncover any patterns in 1850 and 1860 in such a correlation, thus enabling us to state conclusively that the manufacturing index had a relationship, either positive or negative, with the percentage of slaves. A positive relationship would indicate that entrepreneurs probably could have produced more valuable product in counties with higher slave percentages; a negative relationship would indicate just the reverse, that greater success in production was enabled by a lower slave percentage. A total of ten regression analyses were conducted for standardized beta coefficients, five for each available census year. In each census year, one analysis was conducted which included all counties,[81] one which included only those counties which generated at least $100,000 in total manufacturing output during the census year, one which included only those counties which generated at least $500,000, one which included only those counties which generated at least $800,000, and one which included only those counties which generated at least $1,000,000. The purpose of the multiple analyses was to see if the results would change significantly when much of the counties with very little manufacturing output were removed from the equation; after all, counties with a scattering of mills were not as important to the manufacturing picture of late antebellum Virginia as those with factories, mines, railroad construction sites, or foundries. Ultimately, these analyses were conducted in an attempt to discover if the comparison between the high-output counties of Henrico and Ohio was typical for the state as a whole (or at least the high-output counties of the state).

[80] See Table 1.
[81] Those for which a manufacturing index as well as a slave percentage were available.

The results of these analyses show a remarkable correlation between percentage of slaves in the total county population and manufacturing index for 1850, especially those analyses conducted at the $500,000 level and higher. When the fourteen counties which generated at least $500,000 were analyzed, the resulting beta coefficient was .221 (a 2.2% rise in manufacturing index for every 10% rise in the slave percentage); for the seven counties at $800,000 or higher, that figure jumped to .410 (a 4.1% rise in manufacturing index for every 10% rise in the slave percentage); and when the analysis was limited to the five counties which generated at least $1,000,000, the coefficient was an amazing .520 (a 5.2% rise in manufacturing index for every 10% rise in the slave percentage). In short, these figures show not only that the comparison of Henrico and Ohio Counties in 1850 was typical of the high-output counties of the state, but that it does not go far enough: county slave percentage was an even greater indicator of worker output than the Ohio-Henrico comparison demonstrates.

Strangely, this trend was not repeated in 1860. The analyses conducted for that year show a steady decline from an already negligible positive figure when all counties were considered (.020), reaching a nadir (-.240) at the analysis of those counties which generated at least $800,000, and then seeing a slight rise (but still a negative relationship) at the $1,000,000 level (-.036). In short, for 1860 the contrast between Ohio and Henrico Counties is misleading because it's a fluke: these figures show a decrease in manufacturing index as slave percentage increases.

What possible explanation can we provide for the dramatic difference in the results of the regression analyses between 1850 and 1860? For one thing, new counties were included in the census records by 1860, and these new counties were all in the

western part of the state. Many of these new counties were producing above $100,000 in manufacturing output, and few had any appreciable percentage of slaves in their population. Also, these figures suggest that free-labor factories, on the whole, became more efficient during the 1850s.

But the most obvious answer can be found in the mix of counties at the differing analyzed levels between the two census years. There is a noticeable drop in the slave percentage of major Tidewater and Piedmont manufacturing counties, due to an increase in the white population of cities such as Richmond (Henrico County) and Petersburg (Chesterfield County) and a decrease in the manufacturing output in Danville (Pittsylvania County). In short, between 1850 and 1860, where the slave percentage changes, the manufacturing index remains virtually unchanged, and where the manufacturing index changes, the slave percentage remains virtually unchanged.[82]

Finally, the answer may have something to do with the types of industrial work being conducted in the various parts of the state. It may very well be that the completion of railroads in southwestern Virginia, or one of the two recessions which occurred during the 1850s, put a temporary halt to transportation construction in the state, an industry which not only relied heavily on slave labor but also used the raw product of other Virginia slave-driven industries, i.e. pig iron. This may have caused a ripple effect among slave-driven industrial concerns, causing a decrease in worker output.

Certainly the1850 figures provide ample evidence that worker manufacturing productivity in counties with higher percentages of slaves was just as efficient, and could even be greater than, that of free-labor counties. The 1860 figures show that this

[82] See Appendices 2 and 3.

wasn't always the case, but it is not the purpose of this essay to prove that one labor system was always more efficient than the other, only to investigate the possibility that slaves could be just as efficient workers in manufacturing as their free-labor counterparts. The results of the 1850 regression analyses do just that.[83]

It has become a traditional distinction[84] to separate societies with legal slavery into two distinct categories: societies with slaves, which are societies wherein slavery is legal but not crucial, and slave societies, wherein slavery is both legal and crucial. The Northern colonies during the American Revolutionary period fit the former category, while the southern colonies fit the latter. From the research which went into the preparation of the present study, it is apparent that late Antebellum Virginia, taken as a whole, was a slave society, wherein slavery was both legal and crucial; the Northwest region of Virginia during the same period, however, taken separately, was a society with slaves, wherein slavery was legal but not crucial.

It is further made apparent by the present study that Virginia was a society in which industrialization, in its various forms, was taking shape; the intent of the author is to show how that industrialization intersected with the institution of slavery in a slave society. That a section of Virginia was not a slave society is a happy coincidence in that it allows for a degree of comparison. But it is not the intent of the present study to compare industrialization in slave and free societies. Rather, I seek merely to

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[83] It is also entirely possible that the manuscript manufacturing censuses will shed more light on this problem. I may be able to construct equivalent figures and conduct equivalent regression analyses for the 1840 figures when I examine those manuscripts in the future. Unfortunately, time constraints for this essay were prohibitive of such an attempt at this time.

[84] See, for instance, James Oakes, Slavery and Freedom: An Interpretation of the Old South (NY: Knopf, 1990); Peter Kolchin, American Slavery, 1619-1877 (NY: Hill and Wang, 1993); Ira Berlin, Many Thousands Gone: The First Two Centuries of Slavery in North America (Cambridge: Harvard, 1998).

demonstrate the degree to which it occurred, even thrived, in areas where slave labor was the primary labor source.

I also hope that my statistical technique will present a paradigm through which future studies of the interaction between slavery and industrialization, at both the state and the national level, can be viewed. The methodology of the manufacturing index in particular may prove invaluable in upholding (or refuting) the author's theory that the use of slave labor was not detrimental to the annual value of manufacturing product.

The really intriguing question, of course, is why firms that employed slave labor rather than free labor appear to have been more efficient, and perhaps profitable, at least as measured by the value of output per worker. One possible reason for the increased efficiency of slave-driven enterprises in Virginia may have been the nature of the products produced. The two main manufactured goods produced in Virginia by successful slave-driven enterprises were iron and commercial tobacco. Iron required extensive mining and lumbering to deliver the ore, charcoal and wood necessary to provide the raw product and to keep the forge "fired up". These tasks were onerous but regimented, two qualities well-suited to slave employment throughout history. By contrast, free whites during the nineteenth century, a time when the world of the individual self-employed master artisan was giving way to the group dynamic of the factory experience, resisted the regimentation which accompanied the move to the factory.[85] Differing degrees of worker discipline between free and slave workers was certainly the experience of Buffalo Forge and the Tredegar Iron Works,[86] and it is my belief that the reason for this lies in the middling status of white workers, who cherished

[85] Laurie, Artisans into Workers: Labor in Nineteenth-Century America, p.45.
[86] Dew, Bond of Iron, p.22, and Ironmaker to the Confederacy, pp.24-26, 91, 239, 240, 315.

their freedom and social superiority over the slaves and were therefore less easy to discipline in jobs which were also done by slaves.

Another possible reason for greater efficiency of slave-driven enterprises in the slave society of Virginia pertains to the relative transience of free white labor when compared to slave labor. Whites, put simply, always had the option of leaving their employers, and, as they were generally solicitous of their own profit and advancement, did so, especially where slaves represented their competition. As the entrepreneur never had any reasonable surety that skill and managerial expertise would not be used for the benefit of some competitor, the development of such skill and expertise in white industrial employees was more of a risky venture than the slave alternative; slaves, by contrast, were not transient; what transience they had was at the discretion of their owners. Skill and managerial expertise could be freely developed in slaves owned outright by entrepreneurs without fear that these would be employed to benefit another. The successful slave-driven concerns maintained a core of owned slaves supplemented by hired workers, both skilled and unskilled. Whereas the free white laborer was always free to leave and seek his fortune elsewhere, the slave could either attempt escape (an extremely difficult proposition at any serious distance form the northern border), or make the best of a bad situation, which, as the experience of Buffalo Forge has shown, is exactly what they did.[87]

A third possible explanation for the greater efficiency of slave-driven enterprises is a recasting of Charles Dew's argument that slave-driven enterprises were profitable but not dynamic; that is, when the "inducement balance" was struck, the individual firm

[87] Dew, Bond of Iron, p.208-241.

would stagnate.[88] Is it possible that slave-driven manufacturing enterprises in slave societies were more efficient than those run on the free-labor alternative precisely *because* they were not dynamic? In other words, could a lack of technological innovation in the industries that employed slave labor have eliminated the need for the adaptability that would have been provided by free labor?

But there is an important variable that the data do not reveal, in that the manufacturing indices are based on the value of goods produced in dollars per worker, rather than the weight of goods produced in tons per worker. This is a crucial distinction because of the differing markets in different areas of Virginia. Put simply, most manufacturers in the slave-heavy parts of Virginia were insulated from northern competition, either because they made products like tobacco, which northerners did not produce, or because they were so distant from the North that the cost of shipping heavy products like iron were prohibitive. In short, such manufacturers could charge what their markets could bear, leading to relatively high manufacturing indices.

Wheeling and northwestern Virginia were another matter entirely. Their products consisted of salt, finished metal, and glassware, exactly the same products produced elsewhere along the Ohio River and further north into the Great Lakes region (and it will be remembered that it was salt from upstate New York and western Pennsylvania which put the Kanawha valley's salt industry out of business during the 1850s). Western Virginia's manufacturers had to compete in a regional market easily penetrated by outside competition. The result would have been that they had to lower their selling prices to meet that competition, thus effectively reducing their manufacturing indices.

[88] Dew, "Slavery and Technology in the Antebellum Southern Iron Industry: The Case of Buffalo Forge", pp.122-126.

It is for this reason that I have taken a survey of the total product value of manufacturing in the border counties (the Potomac and Ohio River counties as well as two mountain counties on the Pennsylvania border), and compared the results with those of what I call the "central manufacturing belt" of Virginia (a semi-circular swath of land extending west from Richmond and Petersburg into the Valley and then south to Danville). As Appendix 4 demonstrates, these two areas had very similar average values for total production, indicating that the disparity between the differing markets and the products produced may have been insignificant as it pertains to the present study.

What we are left with, however, by way of an answer to the question of slavery's compatibility with industrialization, is uncertain. The manufacturing indices and regression analyses do indeed point to the conclusion that slave labor could be (and sometimes was) equal or better than free labor in Virginia by measure of productivity per worker; but those figures do not take into account differing geographical considerations or the presence of strong competitive markets. Historians remain divided on the issue, and rightly so: a good deal more research, including an in-depth analysis of manuscript census records, needs to be done before we can make a definitive statement on the subject.

The Border States were, by their very geographical position, caught between two competing visions of America, two competing ways of life. But they were a middle ground not only in the fact of political geography, separating the free North from the deep South, but also in their outlook on the various methods of achieving economic prosperity. Virginia was a crucial border state in this regard, again not simply because it strode the geographical middle ground between the north of Ohio and Pennsylvania and

the South of North Carolina and Tennessee, but because it was both the visionary of a rich industrial future and the champion of a modern anomaly, the peculiar institution. The present study does not presuppose that the facts as they pertain to Virginia would hold true elsewhere in the Border States, but it does pose questions which scholars focusing on those other states may find prudent to investigate.

There is also a larger, more hypothetical, question at play here, one with ominous portent. And that question pertains to the incompatibility of industrialization (and therefore modernization) with American slavery. The present study has postulated that American slavery may indeed have been compatible with industrialization. Sadly, slavery in Virginia was proving to be a very adaptable institution.

Appendices

Appendix 1
Individuals Employed in Manufacturing

1.1: Tidewater Region

	1840			1850			1860		
	Total	**Man.**	**%**	**Total**	**Man.**		**Total**	**Man.**	**%**
Accomack	17096	400	2.3	17890	51	0.3	18586	51	0.3
Arlington	X	X	X	10008	75	7.9	22652	881	6.7
Caroline	17813	341	1.9	18456	126	0.7	18464	88	0.5
Charles City	4774	73	1.5	5909	74	1.5	5609	45	0.8
Chesterfield	17148	1107	6.5	17489	1946	11.1	19016	1705	9.0
Elizabeth City	3706	107	2.9	4586	47	1.0	5798	57	1.0
Essex	11309	140	1.2	10206	20	0.2	10469	23	0.2
Fairfax	9370	77	0.8	10682	32	0.3	11834	X	X
Gloucester	10715	269	2.5	10527	120	1.1	10956	157	1.4
Greensville	6366	135	2.1	5639	8	0.1	6374	31	0.5
Hanover	14968	279	1.9	15153	60	0.4	17222	64	0.4
Henrico	33076	4059	12.3	43572	4377	10.0	61597	7589	12.3
Isle of Wight	9972	273	2.7	9353	102	1.1	9977	128	1.3
James City	3779	51	1.3	4020	X	X	5798	93	1.6
King & Queen	10862	322	3.0	10319	14	0.1	10323	37	0.4
King George	5927	148	2.5	5971	25	0.4	6571	145	2.2
King William	9258	260	2.8	8779	27	0.3	8530	59	0.7
Lancaster	4628	0	0.0	4708	16	0.3	5151	45	0.9
Matthews	7442	392	5.3	6714	34	0.5	7091	20	0.3
Middlesex	4392	407	9.3	4394	21	0.5	4364	X	X
Nansemond	10795	149	1.4	12283	362	2.9	13693	28	0.2
New Kent	6230	60	0.1	6064	14	0.2	5883	49	0.8
Norfolk	37569	1518	5.5	33036	1541	4.7	36164	683	1.9
Northampton	7715	482	6.2	7498	43	0.6	7832	40	0.5
Northumberland	7924	143	1.8	7346	10	0.1	7531	41	0.5
Prince George	7180	158	2.2	7596	86	1.1	8411	46	0.5
Prince William	8144	216	2.7	8129	96	1.2	8565	113	1.3
Princess Anne	7285	40	0.5	7669	25	0.3	7714	26	0.3
Richmond	5965	87	1.5	6448	27	0.4	6856	15	0.2
Southampton	14525	205	1.4	13521	24	0.2	12915	45	0.3
Spotsylvania	15161	624	4.1	14911	134	0.9	16076	427	2.7
Stafford	8454	231	2.7	8044	120	1.5	8555	383	4.5
Surrey	6480	161	2.5	5679	40	0.7	6133	87	1.4
Sussex	11229	147	1.3	9820	32	0.3	10175	98	1.0
Warwick	1456	0	0.0	1546	X	X	1740	31	1.8
Westmoreland	8019	94	1.2	8080	19	0.2	8282	9	0.1
York	4720	52	1.1	4460	X	X	4949	386	7.8
Totals	**371452**	**13207**	**3.6**	**386505**	**9748**	**2.5**	**437856**	**13725**	**3.1**

1.2: Piedmont Region

	1840			1850			1860		
	Total	**Man.**	**%**	**Total**	**Man.**	**%**	**Total**	**Man.**	**%**
Albemarle	22624	904	4.0	25800	359	1.4	26625	242	0.9
Amelia	10320	463	4.5	9770	21	0.2	10741	71	0.7
Amherst	12576	612	4.9	12699	X	X	13742	86	0.6
Appamattox	X	X	X	9193	75	1.0	8889	59	0.7
Bedford	20203	322	1.6	24080	100	0.4	15068	473	1.9
Brunswick	14346	217	1.5	13894	13	0.0	14809	65	0.4
Buckingham	18786	2123	11.3	13837	31	0.2	15212	82	0.5
Campbell	21301	494	2.3	23245	1717	7.4	26197	2214	8.5
Charlotte	14595	3234	22.2	13955	19	0.1	14471	58	0.4
Culpeper	11493	439	3.8	12282	183	1.5	12063	98	0.8
Cumberland	10399	515	5.0	9751	68	0.7	9961	55	0.6
Dinwiddie	22558	2331	10.3	25118	783	3.1	30198	3111	10.3
Fauquier	21897	6935	4.1	20868	168	0.8	21706	268	1.2
Fluvanna	8812	350	4.0	9487	277	2.9	10353	339	3.3
Franklin	15832	606	3.8	17430	278	1.6	20098	557	2.8
Goochland	9760	275	2.8	10352	269	2.6	10656	75	0.7
Greene	4232	156	3.7	4400	51	1.2	5022	34	0.7
Halifax	7335	233	2.3	8872	172	0.6	12105	589	0.8
Henry	7335	233	3.2	8872	172	1.9	12105	589	4.9
Loudon	20431	970	4.7	22071	349	1.6	21774	296	1.4
Louisa	15433	446	2.9	16691	162	1.0	16701	282	1.7
Lunenburg	11052	315	2.9	11692	31	0.3	11983	20	0.2
Madison	8107	212	2.6	9331	76	0.8	8854	36	0.4
Mecklenburg	20724	645	3.1	20630	249	1.2	20096	630	3.1
Nelson	12287	381	3.1	12758	149	1.2	13015	40	0.3
Nottoway	9719	0	0.0	8437	31	0.4	8836	122	1.4
Orange	9125	341	3.7	10067	131	1.3	10851	90	0.8
Patrick	8032	147	1.8	9609	247	2.6	9359	124	1.3
Pittsylvania	26398	1087	4.1	28796	977	3.4	32104	1374	0.7
Powhatan	7924	228	2.9	8178	X	X	8392	34	0.4
Prince Edward	14069	4411	31.4	11857	458	3.9	11844	313	2.6
Rappahannock	9257	336	3.6	9782	70	0.7	8850	62	0.7
Totals	**445563**	**30312**	**6.8**	**470894**	**7663**	**1.6**	**487095**	**12113**	**2.5**

1.3: Valley Region

	1840			1850			1860		
	Total	**Man.**	**%**	**Total**	**Man.**	**%**	**Total**	**Man.**	**%**
Allegany	2749	111	4.0	3515	179	5.1	6765	74	1.1
Augusta	19628	902	4.6	24610	492	2.0	27749	502	1.8
Bath	4300	141	3.3	3426	40	1.2	3676	37	1.0
Berkeley	10972	733	6.7	11771	269	2.3	12525	126	1.0
Botetourt	11679	569	4.9	14908	325	2.2	11516	247	2.1
Clarke	6353	211	3.3	7352	129	1.8	7146	42	0.6
Frederick	14242	680	4.8	15975	491	3.1	16546	426	2.6
Hampshire	12295	1011	8.2	14036	174	1.2	13913	122	0.9
Hardy	7622	267	3.5	9543	94	0.9	9864	76	0.8
Highland	X	X	X	4227	10	0.2	431	16	3.7
Jefferson	14082	808	5.7	15357	672	4.4	14535	297	2.0
Morgan	4253	185	4.3	3557	19	0.5	3732	38	1.0
Page	6194	401	6.5	7600	75	1.0	8109	108	1.3
Pendleton	6940	158	2.3	5795	80	1.4	6164	57	0.9
Roanoke	5489	213	3.4	8477	37	0.4	8048	124	1.5
Rockbridge	14284	1012	7.1	16045	432	2.7	17248	638	3.7
Rockingham	17344	809	4.7	20294	382	1.9	2919	332	11.4
Shenandoah	11618	666	5.7	13768	256	1.9	13896	205	1.5
Warren	5627	314	5.6	6607	169	2.6	6442	88	1.4
Totals	**175671**	**9191**	**5.2**	**206863**	**4325**	**2.1**	**191224**	**3555**	**1.9**

1.4: Northwest Region

	1840			1850			1860		
	Total	**Man.**	**%**	**Total**	**Man.**	**%**	**Total**	**Man.**	**%**
Barbour	X	X	X	9005	X	X	8958	3	0.0
Braxton	2575	43	1.7	4212	34	0.8	4992	21	0.4
Brooke	7948	425	5.3	5054	228	4.5	5494	268	4.9
Clay	X	X	X	X	X	X	1787	X	X
Doddridge	X	X	X	2750	4	0.1	5203	19	0.4
Gilmer	X	X	X	3475	4	0.1	3759	20	0.5
Hancock	X	X	X	4050	130	3.2	4445	207	4.7
Harrison	17669	428	2.4	11728	90	0.8	13790	111	0.8
Jackson	4890	X	X	6544	75	1.1	8306	59	0.7
Kanawha	13567	1085	8.0	15383	1435	9.3	16150	632	3.9
Lewis	8159	75	0.9	10031	68	0.7	7999	5	0.1
Marion	X	X	X	10552	136	1.3	12722	234	1.8
Marshall	6937	144	2.1	10138	46	0.5	12997	346	2.7
Mason	6777	162	2.4	7539	28	0.4	9173	305	3.3
Monongalia	17368	450	2.6	12387	185	1.5	13048	65	0.5
Nicholas	2515	40	1.6	3963	1	0.0	4627	67	1.4
Ohio	13357	1259	9.4	18006	2493	13.8	27422	2236	8.2
Pleasants	X	X	X	X	X	X	2945	21	0.7
Pocahontas	2922	53	1.8	3598	9	0.3	3958	11	0.3
Preston	6866	163	2.4	11708	15	0.1	13294	125	0.9
Putnam	X	X	X	5335	79	1.5	6301	54	0.9
Randolph	6208	119	1.9	5243	X	X	4990	X	X
Ritchie	X	X	X	3902	7	0.2	6847	8	0.1
Roane	X	X	X	X	X	X	5381	7	0.1
Taylor	X	X	X	5367	46	0.9	7463	23	0.3
Tucker	X	X	X	X	X	X	1428	X	X
Tyler	6954	177	2.5	5498	29	0.5	6517	29	0.4
Upshur	X	X	X	X	X	X	7292	28	0.4
Wayne	X	X	X	4760	29	0.6	6747	12	0.2
Webster	X	X	X	X	X	X	1555	X	X
Wetzel	X	X	X	4284	25	0.6	6703	24	0.4
Wirt	X	X	X	3353	36	1.1	3751	10	0.3
Wood	7923	173	2.2	9450	108	1.1	11046	105	1.0
Totals	**132635**	**4796**	**3.6**	**197285**	**5340**	**2.7**	**252090**	**5055**	**2.0**

1.5: Southwest Region

	1840			1850			1860		
	Total	**Man.**	**%**	**Total**	**Man.**	**%**	**Total**	**Man.**	**%**
Boone	X	X	X	3237	57	1.8	4840	198	4.1
Buchanan	X	X	X	X	X	X	2793	X	X
Carroll	X	X	X	5909	19	0.3	8012	136	1.7
Craig	X	X	X	X	X	X	3553	9	0.3
Fayette	3924	85	2.2	3955	28	0.7	5997	87	1.5
Floyd	4443	95	2.1	6458	33	0.5	8236	18	0.2
Giles	5307	114	2.1	6570	X	X	6883	12	0.2
Grayson	9087	108	1.2	6677	X	X	8252	16	0.2
Greenbrier	8695	347	4.0	10022	X	X	12211	93	0.8
Lee	8441	56	0.7	10267	22	0.2	11022	3	0.0
Logan	4309	X	X	3620	X	X	4938	13	0.3
McDowell	X	X	X	X	X	X	1535	X	X
Mercer	2333	6	0.3	4222	4	0.1	6819	17	0.2
Monroe	8422	235	2.8	10204	69	0.7	10757	58	0.5
Montgomery	7405	196	2.6	8539	112	1.3	10617	139	1.3
Pulaski	3739	142	3.8	5118	54	1.1	5416	84	1.6
Raleigh	X	X	X	1765	X	X	3367	X	X
Russell	7878	140	1.8	11919	32	0.3	10280	36	0.4
Scott	7303	61	0.8	9829	32	0.3	12072	5	0.0
Smythe	6522	285	4.4	8162	159	1.9	8952	97	1.1
Tazewell	6290	56	0.9	9942	33	0.3	9920	21	0.2
Washington	13001	423	3.3	14612	264	1.8	16891	342	2.0
Wise	X	X	X	X	X	X	4508	2	0.0
Wyoming	X	X	X	1645	X	X	2861	X	X
Wythe	9375	208	2.2	12024	322	2.7	12305	336	2.7
Totals	**116474**	**2557**	**2.2**	**154696**	**1240**	**0.8**	**193037**	**1722**	**0.9**

Appendix 2
Individuals Enslaved

2.1: Tidewater Region

	1840			1850			1860		
	Total	**Ensl.**	**%**	**Total**	**Ensl.**	**%**	**Total**	**Ensl.**	**%**
Accomack	17096	4630	27.1	17890	4897	27.9	18586	4507	24.2
Arlington	X	X	X	10008	1382	13.8	22652	1386	11.0
Caroline	17813	10314	57.9	18456	10661	57.8	18464	10672	57.8
Charles City	4774	2433	51.0	5909	2764	57.8	5609	2947	52.5
Chesterfield	17148	8702	50.7	17489	8616	49.3	19016	8354	43.9
Elizabeth City	3706	1708	46.1	4586	2148	46.8	5798	2417	41.7
Essex	11309	6756	59.7	10206	6762	66.3	10469	6696	64.0
Fairfax	9370	3453	36.9	10682	3250	30.4	11834	3116	26.3
Gloucester	10715	5691	53.1	10527	5557	52.8	10956	5736	52.4
Greensville	6366	4302	67.6	5639	3785	67.1	6374	4167	65.4
Hanover	14968	8394	54.8	15153	8393	55.4	17222	9483	55.1
Henrico	33076	13237	40.0	43572	16109	37.0	61597	20041	32.5
Isle of Wight	9972	3786	38.0	9353	3395	36.3	9977	3570	35.8
James City	3779	1947	51.5	4020	1868	46.5	5798	2586	44.6
King & Queen	10862	5937	54.7	10319	5764	55.9	10323	6139	59.5
King George	5927	3382	57.1	5971	3403	57.0	6571	3673	55.9
King William	9258	5780	62.4	8779	5731	65.3	8530	5525	64.8
Lancaster	4628	2478	53.5	4708	2640	56.1	5151	2869	55.7
Matthews	7442	3309	44.5	6714	2923	43.5	7091	3008	42.4
Middlesex	4392	2209	50.3	4394	2342	53.3	4364	2375	54.4
Nansemond	10795	4530	42.0	12283	4715	38.4	13693	5481	40.0
New Kent	6230	3385	54.3	6064	3410	56.2	5883	3374	57.4
Norfolk	37569	9735	35.3	33036	10400	31.5	36164	9004	24.9
Northampton	7715	3620	46.9	7498	3648	48.7	7832	3872	49.4
Northumberland	7924	3243	40.9	7346	3755	51.1	7531	3439	45.7
Prince George	7180	4014	55.9	7596	4408	58.0	8411	4997	59.4
Prince William	8144	2767	34.0	8129	2498	30.7	8565	2356	27.5
Princess Anne	7285	3087	42.4	7669	3130	40.8	7714	3186	41.3
Richmond	5965	2363	39.6	6448	2277	35.3	6856	2466	36.0
Southampton	14525	6555	45.1	13521	5755	42.6	12915	5408	41.9
Spotsylvania	15161	7590	50.1	14911	7481	50.2	16076	7786	48.4
Stafford	8454	3596	42.6	8044	3311	41.2	8555	3314	38.7
Surrey	6480	2853	44.0	5679	2479	43.7	6133	2515	41.0
Sussex	11229	6834	60.9	9820	5992	61.0	10175	6384	62.7
Warwick	1456	831	57.1	1546	905	58.5	1740	1019	58.6
Westmoreland	8019	3590	44.8	8080	3557	44.0	8282	3704	44.7
York	4720	2112	44.7	4460	2181	48.9	4949	1925	38.9
Totals	371452	169173	45.5	386505	172382	44.6	437856	179497	41.0

2.2: Piedmont Region

	1840			1850			1860		
	Total	**Ensl.**	**%**	**Total**	**Ensl.**	**%**	**Total**	**Ensl.**	**%**
Albemarle	22624	11809	52.2	25800	13338	51.7	26625	13916	52.3
Amelia	10320	7023	68.1	9770	6819	69.8	10741	7655	71.3
Amherst	12576	5777	45.9	12699	5953	46.9	13742	6278	45.7
Appamattox	X	X	X	9193	4799	52.2	8889	4600	51.7
Bedford	20203	8864	43.9	24080	10061	41.8	15068	10176	40.6
Brunswick	14346	8805	61.4	13894	8456	60.9	14809	9146	61.8
Buckingham	18786	11014	58.6	13837	8161	59.0	15212	8811	57.9
Campbell	21301	10045	47.2	23245	10866	46.7	26197	11580	44.2
Charlotte	14595	9260	63.4	13955	8988	64.4	14471	9238	63.8
Culpeper	11493	6069	52.8	12282	6683	54.4	12063	6675	55.3
Cumberland	10399	6781	65.2	9751	6329	65.0	9961	6705	67.3
Dinwiddie	22558	9947	44.1	25118	10880	43.3	30198	12774	42.3
Fauquier	21897	3453	49.0	20868	10350	50.0	21706	10455	14.4
Fluvanna	8812	4146	47.0	9487	4737	49.9	10353	4994	48.2
Franklin	15832	5158	32.6	17430	5726	32.9	20098	6351	31.6
Goochland	9760	5500	56.3	10352	5845	56.5	10656	6139	57.6
Greene	4232	1740	41.1	4400	1699	38.6	5022	1984	39.5
Halifax	7335	2852	54.8	8872	3340	55.7	12105	5018	56.2
Henry	7335	2852	38.9	8872	3340	37.6	12105	5018	41.5
Loudon	20431	5273	25.8	22071	5641	25.6	21774	5501	25.3
Louisa	15433	9010	58.4	16691	9864	59.1	16701	10194	61.0
Lunenburg	11052	6707	60.7	11692	7187	61.5	11983	7305	61.0
Madison	8107	4308	53.1	9331	4724	50.6	8854	4397	49.7
Mecklenburg	20724	11915	57.5	20630	12462	60.4	20096	12420	61.8
Nelson	12287	5967	49.0	12758	6142	48.1	13015	6238	47.9
Nottoway	9719	7071	72.8	8437	6050	71.7	8836	6468	73.2
Orange	9125	5364	58.8	10067	5921	58.8	10851	6111	56.3
Patrick	8032	1842	22.9	9609	2324	24.2	9359	2070	22.1
Pittsylvania	26398	11558	43.8	28796	12798	44.4	32104	14340	44.7
Powhatan	7924	5129	64.7	8178	5282	64.6	8392	5403	64.4
Prince Edward	14069	8576	61.0	11857	7192	60.7	11844	7341	62.0
Rappahannock	9257	3663	39.6	9782	3844	39.3	8850	3520	39.8
Totals	**445563**	**218842**	**49.1**	**470894**	**216756**	**46.0**	**487095**	**227790**	**46.7**

2.3: Valley Region

	1840			1850			1860		
	Total	**Ensl.**	**%**	**Total**	**Ensl.**	**%**	**Total**	**Ensl.**	**%**
Allegany	2749	547	19.9	3515	694	19.7	6765	990	14.6
Augusta	19628	4135	21.1	24610	5053	20.5	27749	5616	20.2
Bath	4300	1047	24.3	3426	947	27.6	3676	946	25.7
Berkeley	10972	1919	17.5	11771	1956	16.6	12525	1650	13.2
Botetourt	11679	2925	25.0	14908	3736	25.0	11516	2769	24.0
Clarke	6353	3325	52.3	7352	3614	49.1	7146	3375	47.2
Frederick	14242	2302	16.2	15975	2294	14.4	16546	2259	13.7
Hampshire	12295	1403	11.4	14036	1433	10.2	13913	1213	8.7
Hardy	7622	1131	14.8	9543	1260	13.2	9864	1073	10.9
Highland	X	X	X	4227	364	8.6	431	402	9.3
Jefferson	14082	4157	29.5	15357	4341	28.3	14535	3960	27.2
Morgan	4253	134	3.2	3557	123	3.5	3732	94	2.5
Page	6194	781	12.6	7600	957	12.6	8109	850	10.5
Pendleton	6940	462	6.7	5795	322	5.6	6164	244	4.0
Roanoke	5489	1553	28.9	8477	2510	29.6	8048	2643	32.8
Rockbridge	14284	3510	24.6	16045	4197	26.2	17248	3985	23.1
Rockingham	17344	1899	10.9	20294	2331	11.5	23408	2387	10.2
Shenandoah	11618	1033	8.9	13768	911	6.6	13896	753	5.4
Warren	5627	1434	25.5	6607	1748	26.5	6442	1575	24.4
Totals	**175671**	**33697**	**19.2**	**206863**	**38791**	**18.8**	**211713**	**36784**	**17.4**

2.4: Northwest Region

	1840			1850			1860		
	Total	**Ensl.**	**%**	**Total**	**Ensl.**	**%**	**Total**	**Ensl.**	**%**
Barbour	X	X	X	9005	113	1.3	8958	95	1.1
Braxton	2575	64	2.5	4212	89	2.1	4992	104	2.1
Brooke	7948	91	1.1	5054	31	0.1	5494	18	0.3
Clay	X	X	X	X	X	X	1787	21	1.2
Doddridge	X	X	X	2750	31	1.1	5203	34	0.7
Gilmer	X	X	X	3475	72	2.1	3759	52	0.2
Hancock	X	X	X	4050	3	0.2	4445	2	0.0
Harrison	17669	693	3.9	11728	488	4.2	13790	582	4.2
Jackson	4890	87	1.8	6544	53	0.8	8306	55	0.7
Kanawha	13567	2560	18.9	15383	3140	20.5	16150	2184	13.5
Lewis	8159	124	1.5	10031	368	3.7	7999	230	2.9
Marion	X	X	X	10552	94	0.9	12722	63	0.5
Marshall	6937	46	0.7	10138	49	0.5	12997	29	0.2
Mason	6777	808	11.9	7539	647	8.6	9173	376	4.1
Monongalia	17368	260	1.5	12387	176	1.4	13048	101	0.8
Nicholas	2515	72	2.9	3963	73	1.8	4627	154	3.3
Ohio	13357	212	1.6	18006	164	0.9	27422	100	0.4
Pleasants	X	X	X	X	X	X	2945	15	0.5
Pocahontas	2922	219	7.5	3598	267	7.4	3958	252	6.4
Preston	6866	91	1.3	11708	87	0.7	13294	67	0.5
Putnam	X	X	X	5335	632	11.8	6301	580	9.2
Randolph	6208	216	3.5	5243	201	3.8	4990	183	3.7
Ritchie	X	X	X	3902	16	0.4	6847	38	0.5
Roane	X	X	X	X	X	X	5381	72	1.3
Taylor	X	X	X	5367	168	3.1	7463	112	1.5
Tucker	X	X	X	X	X	X	1428	20	1.4
Tyler	6954	85	1.2	5498	38	0.7	6517	18	0.3
Upshur	X	X	X	X	X	X	7292	212	2.9
Wayne	X	X	X	4760	189	4.0	6747	143	2.1
Webster	X	X	X	X	X	X	1555	3	0.0
Wetzel	X	X	X	4284	17	0.4	6703	10	0.1
Wirt	X	X	X	3353	32	1.0	3751	23	0.6
Wood	7923	624	7.9	9450	373	3.9	11046	176	1.6
Totals	**132635**	**6252**	**4.7**	**197285**	**7611**	**3.9**	**252090**	**6124**	**2.4**

2.5: Southwest Region

	1840			1850			1860		
	Total	**Ensl.**	**%**	**Total**	**Ensl.**	**%**	**Total**	**Ensl.**	**%**
Boone	X	X	X	3237	183	5.7	4840	158	3.3
Buchanan	X	X	X	X	X	X	2793	30	1.1
Carroll	X	X	X	5909	154	2.6	8012	262	3.3
Craig	X	X	X	X	X	X	3553	420	11.8
Fayette	3924	133	3.4	3955	156	3.9	5997	271	4.5
Floyd	4443	321	7.2	6458	443	6.9	8236	475	5.8
Giles	5307	574	10.8	6570	657	10.0	6883	778	11.3
Grayson	9087	492	5.4	6677	499	7.5	8252	547	6.6
Greenbrier	8695	1214	14.0	10022	1317	13.1	12211	1525	12.5
Lee	8441	580	6.9	10267	787	7.7	11022	824	7.5
Logan	4309	150	3.5	3620	87	2.4	4938	148	3.0
McDowell	X	X	X	X	X	X	1535	0	0.0
Mercer	2333	98	4.4	4222	177	4.2	6819	362	5.3
Monroe	8422	868	10.3	10204	1061	10.4	10757	1114	10.4
Montgomery	7405	1493	20.1	8539	1471	17.2	10617	2219	20.9
Pulaski	3739	954	25.6	5118	1471	28.7	5416	1589	29.3
Raleigh	X	X	X	1765	23	1.3	3367	57	1.7
Russell	7878	700	8.9	11919	982	8.2	10280	1099	10.7
Scott	7303	344	4.7	9829	473	4.8	12072	490	4.1
Smythe	6522	838	12.8	8162	1064	13.0	8952	1037	11.6
Tazewell	6290	786	12.5	9942	1060	10.7	9920	1202	12.1
Washington	13001	2058	15.8	14612	2131	14.6	16891	2547	15.1
Wise	X	X	X	X	X	X	4508	66	1.5
Wyoming	X	X	X	1645	61	3.7	2861	64	2.2
Wythe	9375	1618	17.3	12024	2185	18.2	12305	2162	17.6
Totals	**116474**	**13221**	**11.4**	**154696**	**14971**	**9.7**	**193037**	**19446**	**10.1**

Appendix 3
Manufacturing Indices

3.1: Tidewater Region

	1850			1860		
	Man.	**Product ($)**	**$ per pers.**	**Man.**	**Product ($)**	**$ per pers.**
Accomack	51	19830	380.00	51	29385	576.18
Arlington	75	60319	804.25	881	761290	864.12
Caroline	126	170569	1353.72	88	203600	2313.64
Charles City	74	30600	413.51	45	114100	786.90
Chesterfield	1946	7031524	3613.32	1705	2686870	1575.88
Elizabeth City	47	38690	823.19	57	56995	999.91
Essex	20	59715	2985.75	23	16000	695.65
Fairfax	32	97279	3039.97	X	X	X
Gloucester	120	108278	902.32	157	156326	995.70
Greensville	8	10000	1250.00	31	92827	2994.42
Hanover	60	116823	1947.05	64	101035	1578.67
Henrico	4377	6080960	1389.30	7589	12926949	1703.38
Isle of Wight	102	49550	485.78	128	90500	707.03
James City	X	X	X	93	157693	1695.62
King & Queen	14	5600	400	37	87460	2363.78
King George	25	28625	1145.00	145	69430	478.83
King William	27	50900	1885.19	59	131675	2231.78
Lancaster	16	4350	271.88	45	84040	1867.56
Matthews	34	18000	529.41	20	40105	2005.25
Middlesex	21	39655	1888.33	X	X	X
Nansemond	362	152810	422.13	28	81500	2910.71
New Kent	14	53552	3825.14	49	100402	2049.02
Norfolk	1541	1409757	914.83	683	732841	1072.97
Northampton	43	30480	708.84	40	25510	637.75
Northumberland	10	4300	430.00	41	90732	2212.98
Prince George	86	22276	259.02	46	35400	769.57
Prince William	96	142296	1482.25	113	235927	2087.85
Princess Anne	25	142296	5691.84	26	20750	798.08
Richmond	27	13315	493.15	15	9000	600.00
Southampton	24	14275	594.79	45	21140	469.78
Spotsylvania	134	231000	1723.88	427	368050	861.94
Stafford	120	379160	3159.67	383	302920	790.91
Surry	40	14300	357.50	87	97545	1121.21
Sussex	32	64330	2010.31	98	182535	1862.60
Warwick	X	X	X	31	132856	4285.68
Westmoreland	19	16300	857.89	9	5600	622.22
York	X	X	X	386	218697	566.57
Totals	**9748**	**16711714**	**1714.37**	**13725**	**20647695**	**1504.39**

3.2: Piedmont Region

	1850			1860		
	Man.	**Product ($)**	**$ per pers.**	**Man.**	**Product ($)**	**$ per pers.**
Albemarle	359	492985	1373.22	242	605010	2500.04
Amelia	21	44800	2133.33	71	158545	927.16
Amherst	X	X	X	86	112245	1305.17
Appamattox	75	65820	877.60	59	51542	873.59
Bedford	100	114755	1147.55	473	598919	1266.21
Brunswick	13	9700	746.15	65	176820	2720.31
Buckingham	31	24050	775.80	82	169904	2072.00
Campbell	1717	1839307	1071.23	2214	3171860	1432.64
Charlotte	19	8150	428.95	58	64765	1116.64
Culpeper	183	147422	805.58	98	159175	1624.23
Cumberland	68	93525	1375.37	55	42326	769.56
Dinwiddie	783	702537	897.24	3111	3570855	1147.82
Fauquier	168	251976	1499.86	268	337848	1260.63
Fluvanna	277	185750	670.58	339	300455	886.30
Franklin	278	183640	660.58	557	485233	840.96
Goochland	269	231717	861.40	75	126683	1689.11
Greene	51	38804	760.86	34	47315	1391.62
Halifax	172	182720	1062.33	589	189213	321.24
Henry	172	84213	489.61	589	408245	693.12
Loudon	349	598987	1716.30	296	750178	2534.39
Louisa	162	104350	644.14	282	455950	1616.84
Lunenburg	31	59734	1926.90	20	59147	2957.35
Madison	76	142141	1870.28	36	57080	1585.56
Mecklenburg	249	191231	768.00	630	518398	822.85
Nelson	149	99110	665.17	40	132165	3304.13
Nottoway	31	61206	1974.39	122	186541	1529.02
Orange	131	114770	876.11	90	143360	1592.89
Patrick	247	119370	497.40	124	70790	570.89
Pittsylvania	977	827409	846.89	1374	1670257	1215.62
Powhatan	X	X	X	34	23950	704.41
Prince Edward	458	301920	659.21	313	299917	958.20
Rappahannock	70	123664	1766.63	62	102859	1659.02
Totals	**7663**	**7445763**	**971.65**	**12113**	**15247550**	**1258.78**

3.3: Valley Region

	1850			1860		
	Man.	**Product ($)**	**$ per pers.**	**Man.**	**Product ($)**	**$ per pers.**
Allegany	179	63385	354.11	74	132851	1795.28
Augusta	492	530961	1079.19	502	915713	1824.13
Bath	40	43136	1078.40	37	59280	1602.16
Berkeley	269	581211	2160.64	126	351302	2788.11
Botetourt	325	162859	501.10	247	357955	1449.21
Clarke	129	211664	1640.80	42	176075	4192.26
Frederick	491	593317	1208.38	426	729051	1711.39
Hampshire	174	195275	1122.27	122	278960	2286.56
Hardy	94	130163	1384.71	76	83495	1098.62
Highland	10	21000	2100.00	16	24060	1503.75
Jefferson	672	915267	1362.00	297	733792	2470.68
Morgan	19	30200	1589.47	38	128175	3373.02
Page	75	175472	2339.63	108	206136	1908.67
Pendleton	80	92992	1162.40	57	91307	1601.88
Roanoke	37	74000	2000	124	274012	2209.77
Rockbridge	432	307842	712.60	638	958743	1502.73
Rockingham	382	620795	1625.12	332	422588	1272.86
Shenandoah	256	422500	1650.39	205	169338	826.04
Warren	169	281670	1666.69	88	251259	2855.22
Totals	**4325**	**5453709**	**1260.97**	**3555**	**6344132**	**1784.57**

3.4: Northwest Region

	1850			1860		
	Man.	**Product ($)**	**$ per pers.**	**Man.**	**Product ($)**	**$ per pers.**
Barbour	X	X	X	3	1800	600.00
Braxton	34	49027	1441.97	21	48280	2299.05
Brooke	228	181349	795.39	268	314129	1172.12
Clay	X	X	X	X	X	X
Doddridge	4	6000	1500.00	19	11900	326.32
Gilmer	4	4000	1000.00	20	47222	2361.10
Hancock	130	113245	871.12	207	143408	692.79
Harrison	90	149880	1665.33	111	183808	1655.93
Jackson	75	130266	1736.88	59	137098	2323.69
Kanawha	1435	794733	553.82	632	741351	1173.02
Lewis	68	33168	487.76	5	4360	872.00
Marion	136	188950	1389.34	234	287977	1230.67
Marshall	46	75000	1630.43	346	513530	1536.21
Mason	28	25050	894.64	305	274950	901.46
Monongalia	185	358634	1938.56	65	155346	2389.94
Nicholas	1	500	500.00	67	124900	1864.18
Ohio	2493	2401434	963.27	2236	3011089	1346.64
Pleasants	X	X	X	21	20895	995.00
Pocahontas	9	6439	715.44	11	11250	1022.73
Preston	15	12700	846.67	125	239664	1917.31
Putnam	79	54112	684.96	54	69914	1294.70
Randolph	X	X	X	X	X	X
Ritchie	7	8315	1187.86	8	12000	1500.00
Roane	X	X	X	7	13900	1985.71
Taylor	46	27850	605.43	23	54566	2372.43
Tucker	X	X	X	X	X	X
Tyler	29	65573	2261.14	29	62664	2160.82
Upshur	X	X	X	28	68550	2448.21
Wayne	29	17290	596.21	12	9385	782.08
Webster	X	X	X	X	X	X
Wetzel	25	10250	410.00	24	47935	1997.29
Wirt	36	23900	663.89	10	15500	1550.00
Wood	108	70315	651.06	105	195500	1861.90
Totals	**5340**	**4807976**	**900.37**	**5055**	**6822871**	**1349.73**

3.5: Southwest Region

	1850			1860		
	Man.	**Product ($)**	**$ per pers.**	**Man.**	**Product ($)**	**$ per pers.**
Boone	57	51300	900.00	198	85600	432.32
Buchanan	X	X	X	X	X	X
Carroll	19	21706	1142.42	136	105007	772.11
Craig	X	X	X	9	15838	1759.78
Fayette	28	15332	547.57	87	62450	717.82
Floyd	33	32873	996.15	18	23210	1289.44
Giles	X	X	X	12	61736	5144.67
Grayson	X	X	X	16	70240	4390.00
Greenbrier	X	X	X	93	217602	2339.81
Lee	22	10315	168.86	3	600	200.00
Logan	X	X	X	13	7388	568.31
McDowell	X	X	X	X	X	X
Mercer	4	3000	750.00	17	18000	1058.82
Monroe	69	64130	929.42	58	120192	2072.28
Montgomery	112	46250	412.95	139	155235	1116.80
Pulaski	54	30962	573.37	84	72295	860.65
Raleigh	X	X	X	X	X	X
Russell	32	22906	715.81	36	105096	2919.33
Scott	32	36136	1129.25	5	4885	977.00
Smythe	159	74355	467.64	97	89200	919.59
Tazewell	33	18500	560.61	21	16020	762.86
Washington	264	211887	802.60	342	360066	1052.82
Wise	X	X	X	2	725	362.50
Wyoming	X	X	X	X	X	X
Wythe	322	145525	451.94	336	165550	492.71
Totals	**1240**	**782477**	**631.03**	**1722**	**1756935**	**1020.29**

Appendix 4
Regional Comparison of Manufacturing Indices

Appendix 4.1: Manufacturing Indices, Border Counties

County	Manuf. Index, 1850	Manuf. Index, 1860
Prince William	1482.25	2087.85
Fairfax	3039.97	X
Arlington	804.25	864.12
Loudoun	1716.30	2534.39
Jefferson	1362.00	2470.68
Berkeley	2160.64	2788.11
Morgan	1589.47	3373.02
Hampshire	1122.27	2286.56
Hardy	1384.71	1098.62
Tucker	X	X
Preston	846.67	1917.31
Monongalia	1938.56	2389.94
Hancock	871.12	692.79
Brooke	795.39	1172.12
Ohio	963.27	1346.64
Marshall	1630.43	1536.21
Wetzel	410.00	1997.29
Tyler	2261.14	2160.82
Pleasants	X	995.00
Wood	651.06	1861.90
Jackson	1736.88	2323.69
Mason	894.64	901.46
Wayne	596.21	782.08
Average	**1345.58**	**1789.55**

Appendix 4.2: Manufacturing Indices, Central Manufacturing Belt

County	Manufacturing Index, 1850	Manufacturing Index, 1860
Chesterfield	3613.32	1575.88
Henrico	1389.30	1703.38
Goochland	861.40	1689.11
Fluvanna	670.58	886.30
Louisa	644.14	1616.84
Albemarle	1373.22	2500.04
Rockingham	1625.12	1272.86
Augusta	1079.19	1824.13
Rockbridge	712.60	1502.73
Botetourt	501.10	1449.21
Bedford	1147.55	1266.21
Pittsylvania	846.89	1215.62
Average	**1205.37**	**1541.86**

Table 1
Results of Regression Analyses

Standardized Beta Coefficient:

Limit	1850	1860
None	.132 (123 counties)	.020 (135 counties)
Over $100,000	.005 (053 counties)	.016 (076 counties)
Over $500,000	.221 (014 counties)	.000 (018 counties)
Over $800,000	.410 (007 counties)	-.240 (008 counties)
Over $1,000,000	.520 (005 counties)	-.036 (006 counties)

Predictors (Constant): Percentage of slaves as part of the county population
Dependent Variable: County Manufacturing Index

Dollar amounts in the "Limit" column indicate minimum total manufacturing output by county for each analysis.

The counties included in the "None" line were all the counties for which records of slaves as a percentage of the population as well as manufacturing indices were available.

Table 2
Regional Manufacturing Index Graph

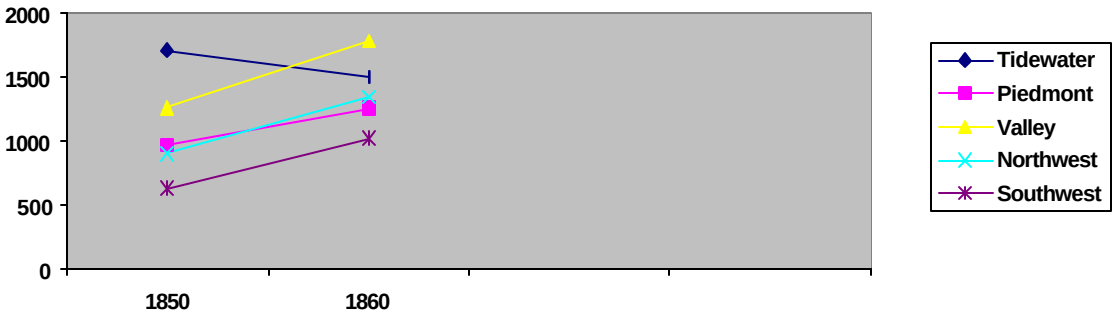


Table 3
Map Methodology and Key

Methodology:

Each of the three fields (Percent of individuals employed in manufacturing, Percent of individuals enslaved, and Manufacturing index) was tabulated to produce a range, which was then divided by three, producing three degrees.[89]

Range of percent of individuals employed in manufacturing, 1840-1860:		0.0-13.8
Lowest degree:	0-4.6	
Middling degree:	4.7-9.2	
Highest degree:	9.3-100	
Range of percent of individuals enslaved, 1840-1860:		0.0-73.2
Lowest degree:	0-24.4	
Middling degree:	24.5-48.8	
Highest degree:	48.9-100	
Range of manufacturing indices, 1850-1860 (in dollars):		168.86-5691.84
Lowest degree:	up to 1112.87	
Middling degree:	1112.88-2056.28	
Highest degree:	2056.29 and greater	

Key:

The Regions of Virginia, 1840-1863:

I. Tidewater
II. Piedmont
III. Valley
IV. Northwest
V. Southwest

Yellow:	Lowest degree
Green:	Middling degree
Blue:	Highest degree
White:	No data available[90]

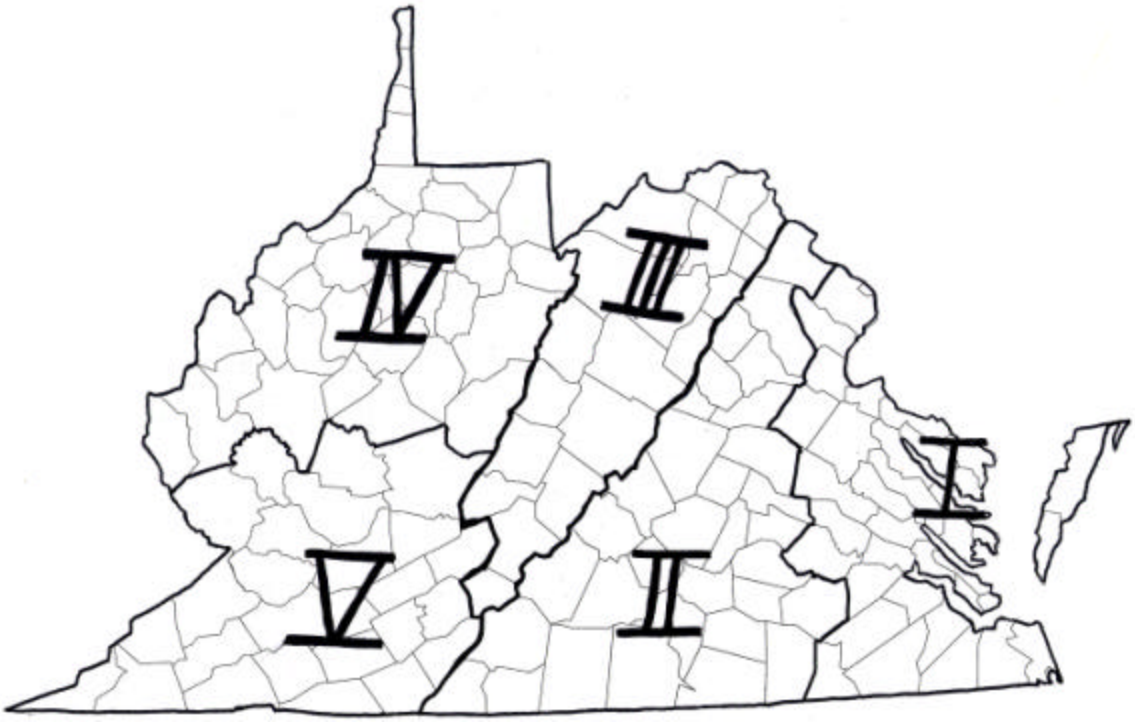
[89] Data significantly distant from the median figure (where the entry appeared anomalous) were not used in the calculation of the ranges.

[90] In some cases (mostly in the west), the lack of data is due to these counties not having been established as independent counties by the time of the given census.

Maps

1. General Informational Maps

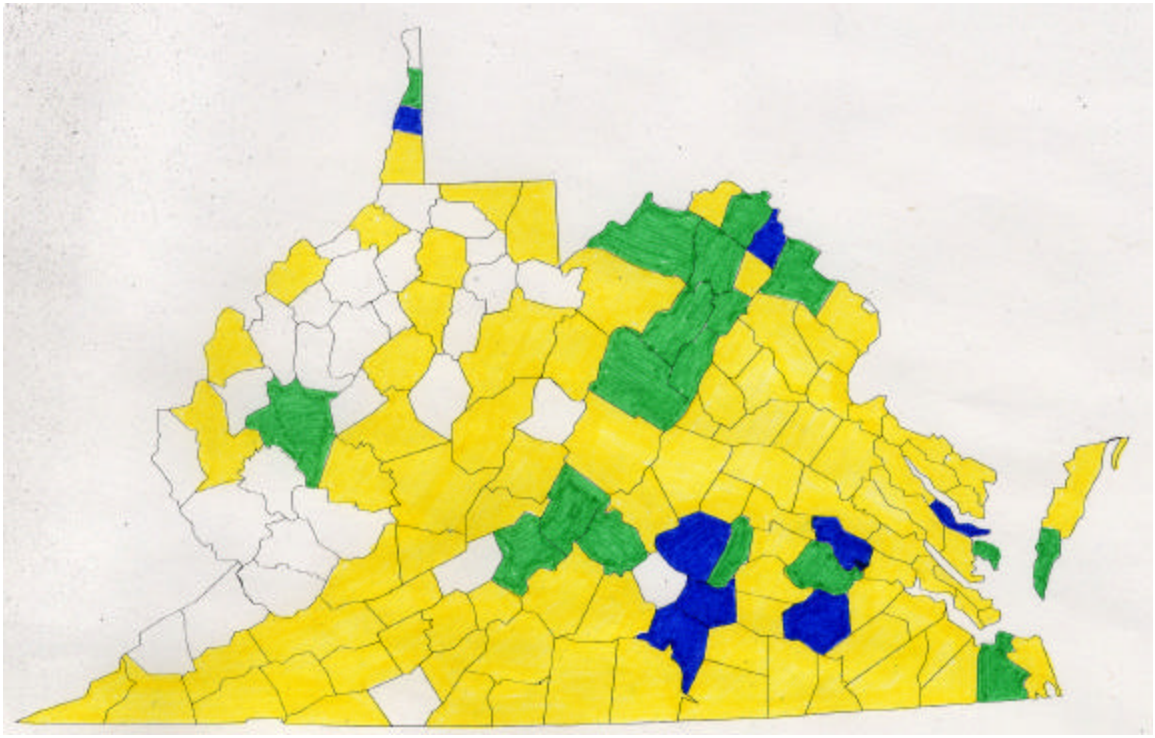
Map 1.1: The Regions of Virginia, 1840-1863



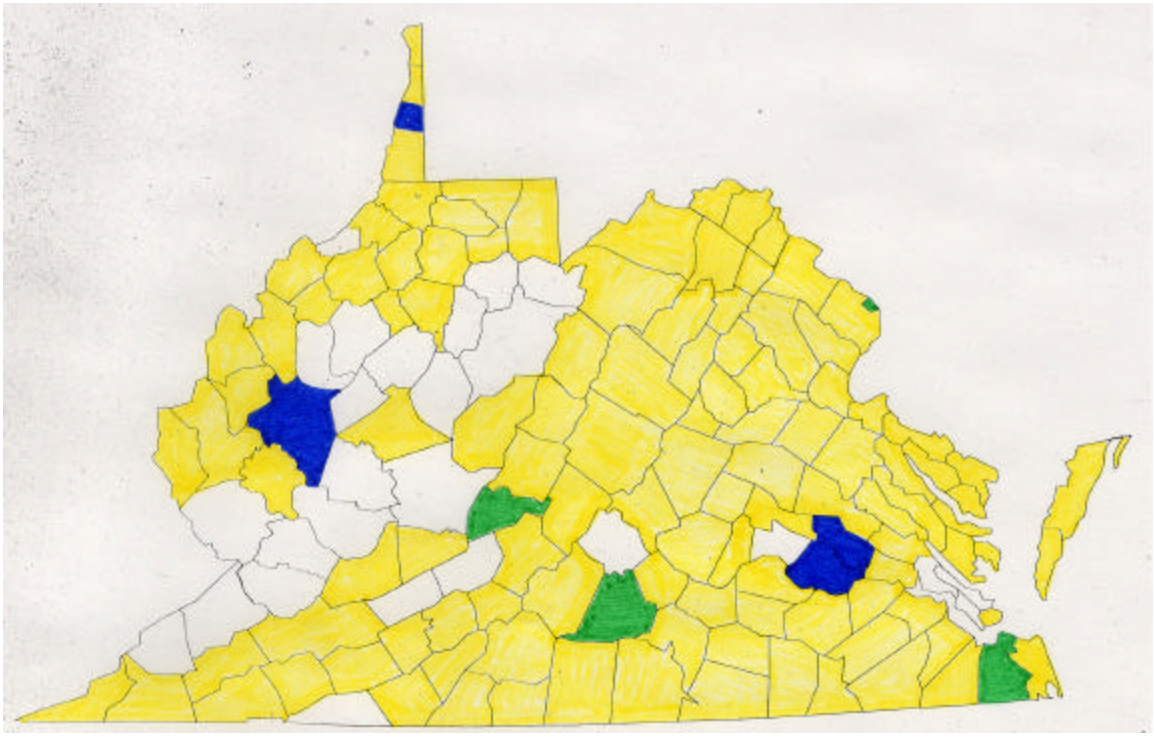
Map 1.2: The Separation of West Virginia, 1863

2. Individuals Employed in Manufacturing

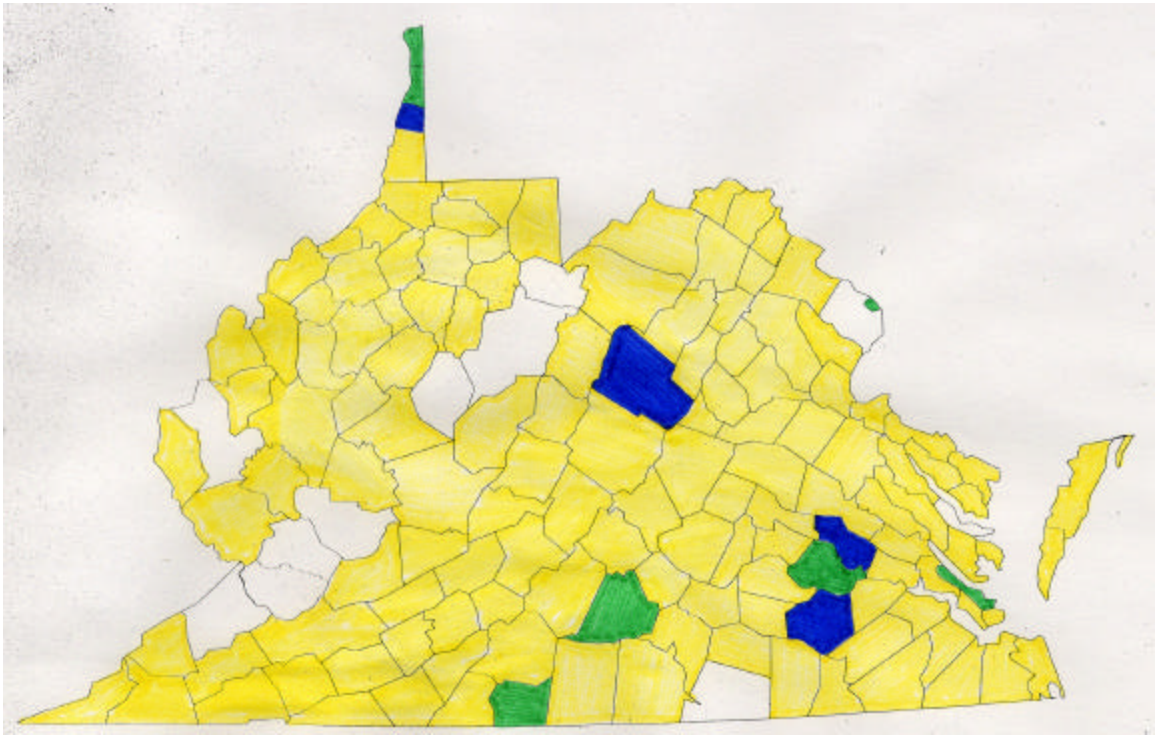
Map 2.1: 1840 Census Data by County



Map 2.2: 1850 Census Data by County

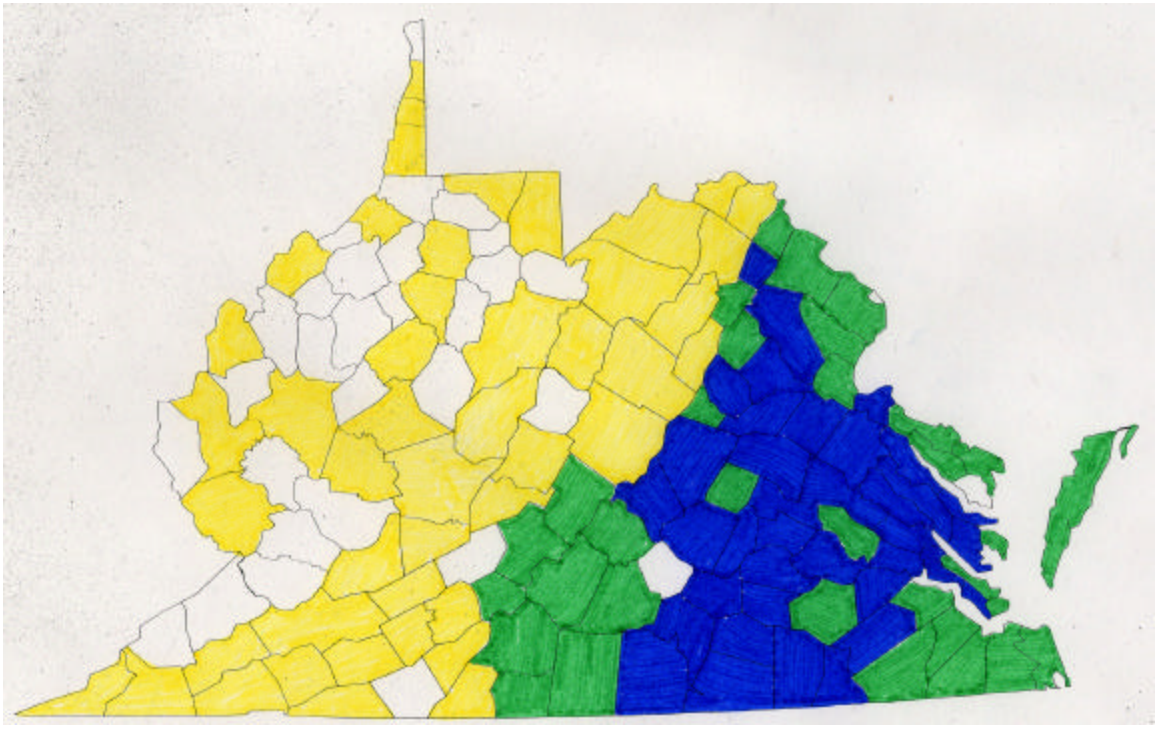


Map 2.3: 1860 Census Data by County

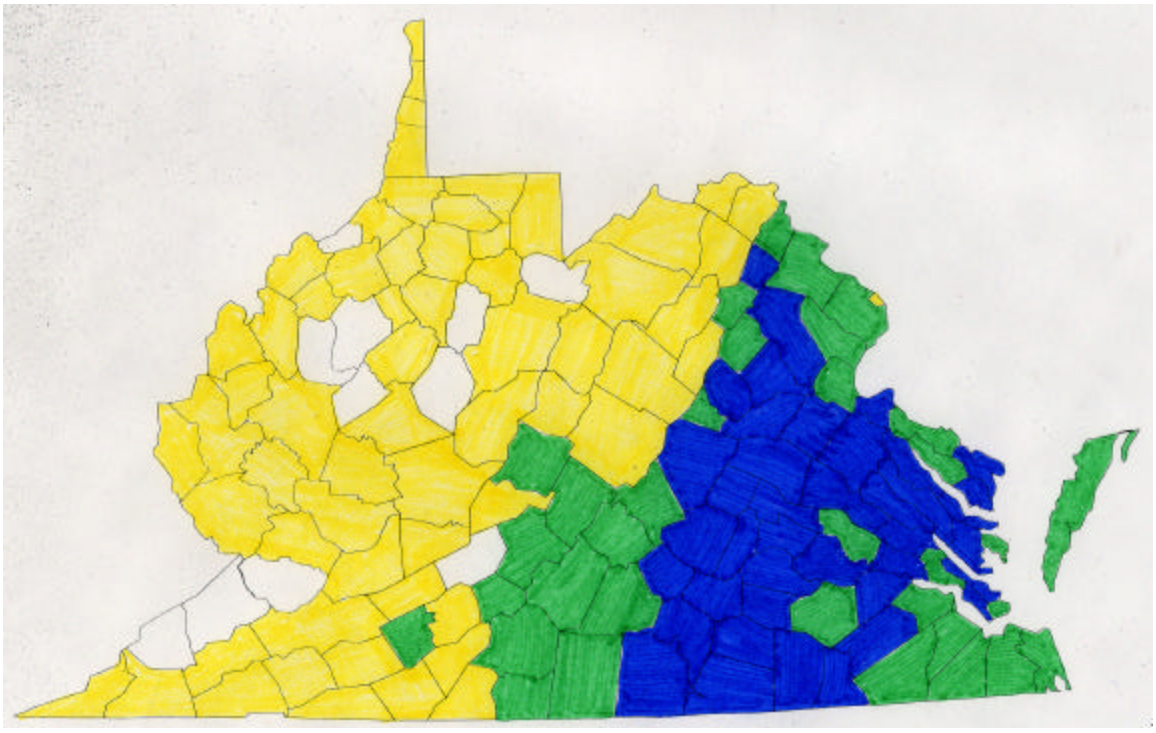


3. Individuals Enslaved

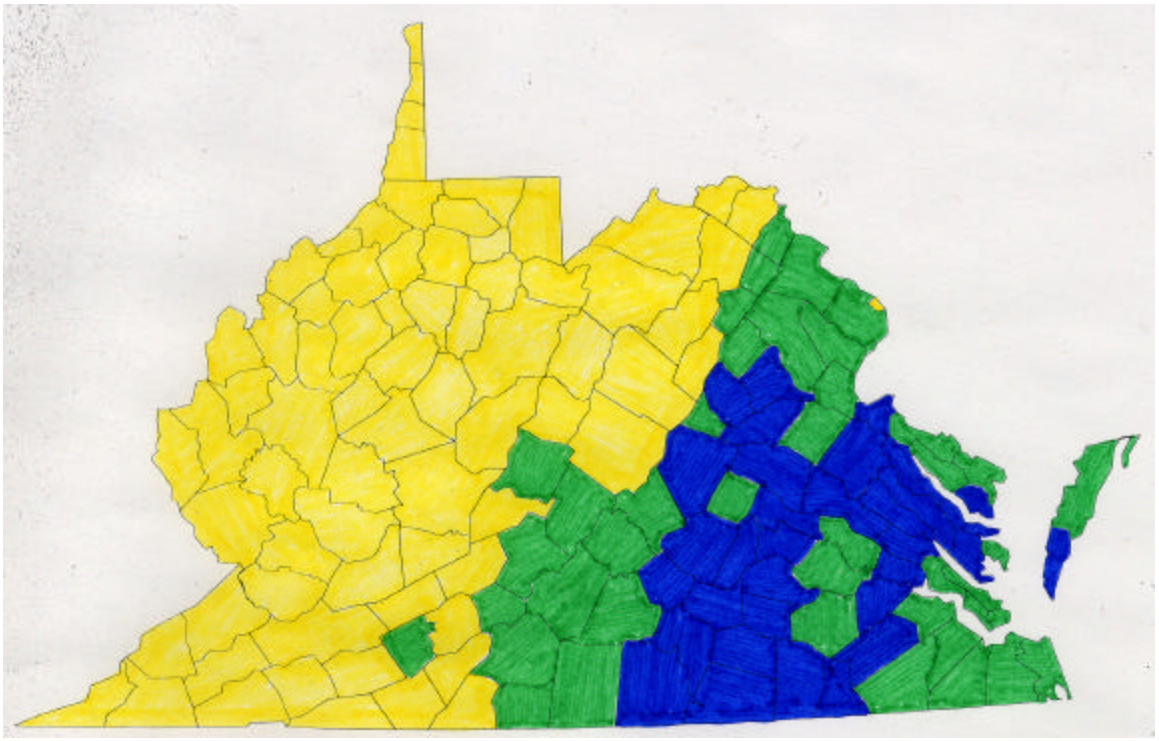
Map 3.1: 1840 Census Data by County



Map 3.2: 1850 Census Data by County

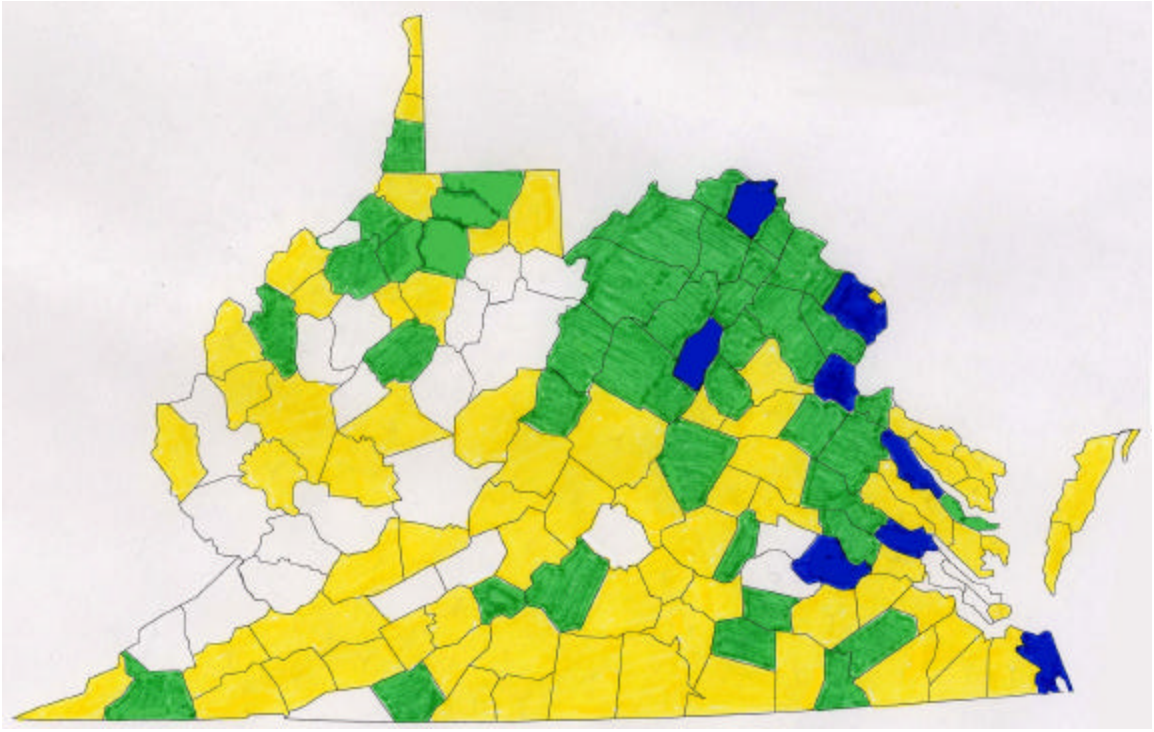


Map 3.3: 1860 Census Data by County

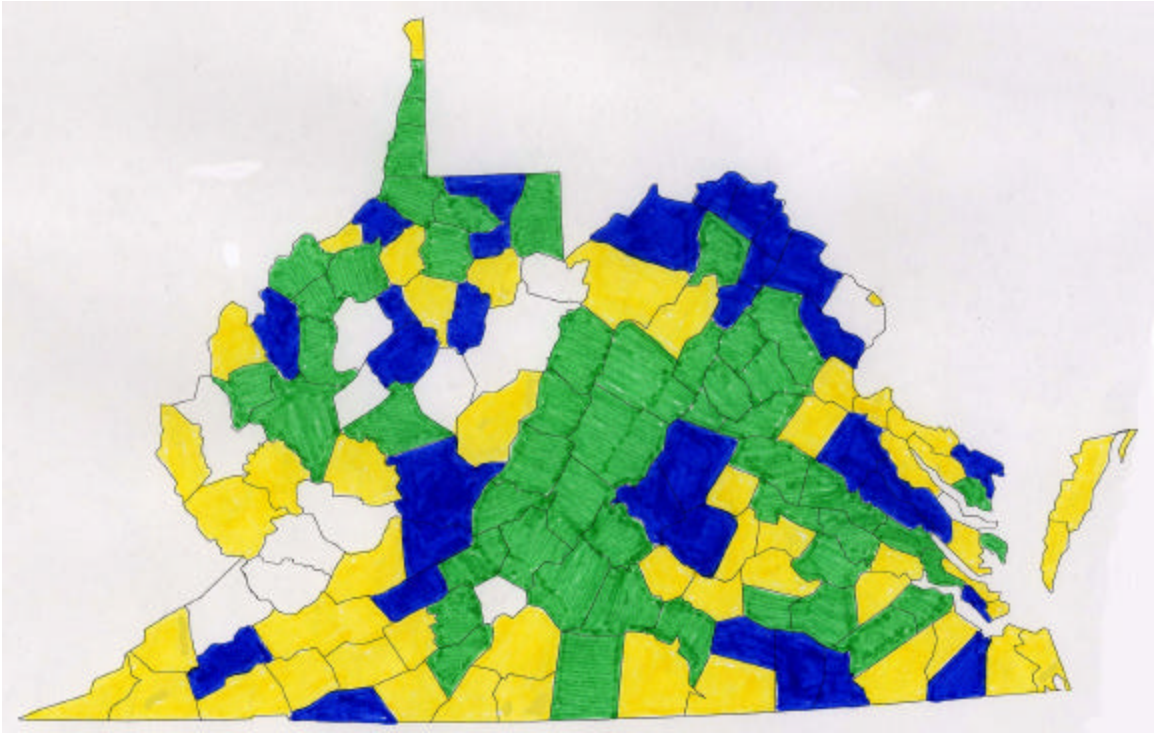


4. Manufacturing Indices

Map 4.1: 1850 Manufacturing Index



Map 4.2: 1860 Manufacturing Index



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