Reprinted from the *Historical Society of Western Virginia Journal*, 20(2): 71-85, 2012 [2013].

Saltville during the Civil War

by Roger Allison, Jim Glanville and Harry Haynes

No issue of the Historical Society of Western Virginia Journal devoted to the 150th anniversary of the Civil War would be complete without a discussion of the role of Saltville during that conflict and the production of dry salt by the method of boiling down the brine that was pumped from the town's wells. The brine wells of Saltville were the source of two-thirds of the salt consumed by the Confederate States of America during the War.

Ella Lonn's 80-year-old book, "Salt as a Factor in the Confederacy," *[1]* opens with the striking, but perhaps apocryphal, account of a former Confederate officer speaking after the war in the northern salt-producing center of Syracuse, New York, and saying, " ... you northerners whipped us southerners ... because you had salt." That same theme has been taken up in the very recent book "Starving the South: How the North won the Civil War" by Andrew Smith, *[2]* in which he writes of a southern "Salt Famine."

At the time of the Civil War, Southerners annually consumed about 450 million pounds (9 million bushels) of salt, more than any other nation in the world. Salt's single most important use was to preserve meat and fish; in a time of pre-refrigeration, salt was invaluable as a preservative. Salt use peaked annually in the fall when animals were slaughtered in preparation for the coming winter. Livestock, such as cattle, mules, horses and pigs, also needed salt, and it was required for tanning leather and other commercial purposes.

The Northern blockade of the Confederacy initiated in 1861 by Lt. Gen. Winfield Scott's "Anaconda Plan" largely eliminated southern salt-making by solar evaporation along its Atlantic and Gulf coasts and in the lower Mississippi River. This action left the Confederacy increasingly reliant on inland salt sources. *[3]* The important Kanawha salt works were lost to the Confederacy after the September 1861 Battle of Carnifex Ferry near present day Summersville, West Virginia, and the salt works at Goose Creek in Clay County in eastern Kentucky were destroyed in October 1862.

In March of 1862, with the war almost a year old, the adjutant and inspector general of Alabama wrote to the Confederacy's quartermaster-general: "The salt question is hourly increasing in magnitude and importance. The people of the Confederate States require full 6,000,000 bushels at the lowest calculation ... [s]alt is in very great demand here, and every artifice and fraud is resorted to by speculators both in this State and Georgia." *[4]* The shortage of salt was a direct result of the Union blockade of the Confederacy which was described by an aide in a memorandum early in the second year of the war to President Jefferson Davis:

> The policy of the Northern leaders in the war for the subjugation of the Southern people has been to take our chief sea-coast cities, so as to cut off all supplies from foreign countries, get possession of the border States of Kentucky, Missouri, and Tennessee, which are the great grain-growing States, properly belonging to the

Roger Allison is a longtime Saltville resident, a journalist, co-owner of the Saltville Progress weekly newspaper, and a many year student of the town's history. Jim Glanville is a retired chemist who lives in Blacksburg and writes and speaks frequently about the history and archaeology of Southwest Virginia. Harry Haynes is the manager of the Museum of the Middle Appalachians in Saltville and frequently interprets the Civil War there.

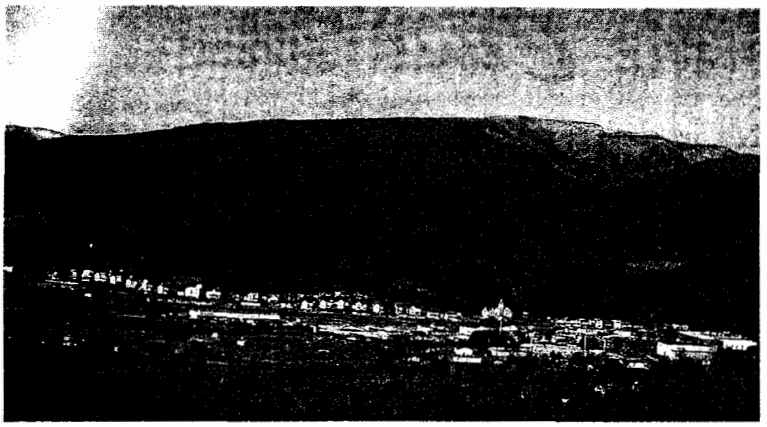
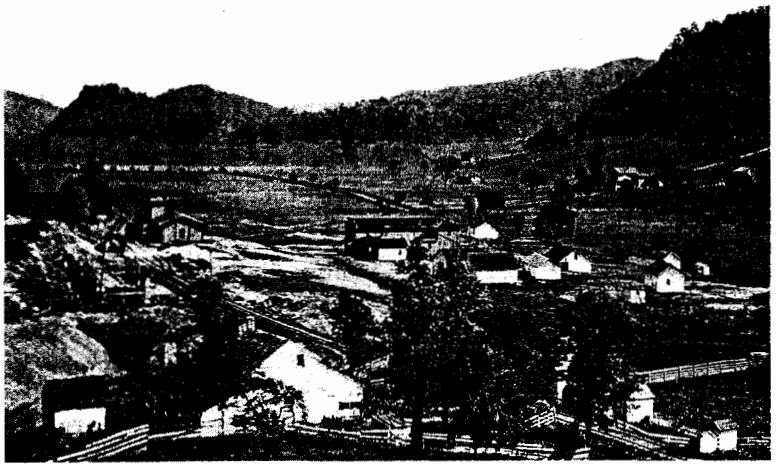


Figure 1. The modern town of Saltville viewed from the overlook on Route 107, the Chilhowie to Saltville Road (also called the R.B. Worthy Boulevard). The well-fields area is the open region in the lower left of the image. The present-day Saltville business district is at the right. The location of the overlook is shown on the map in Figure 9; at the left-hand edge of the map the direction of view is approximately due west. (Picture: Jim Glanville, December 2006)

Figure 2. No Civil War era photographs of Saltville are known to exist. This image from 1893 was taken about 1 mile west of the present downtown area looking to the northeast. It shows the soon-to-be-developed Saltville well-fields and the railroad line running from the lower right corner of the picture to the middle of its left edge, where the partly demolished Tennessee furnace can be seen. The overlook (from where the picture in Figure 1 was taken) was built 71 years later (in 1964) on the side of the hill in the far distance. (Picture 212-8, Phillips-Perry Collection; courtesy the Museum of the Middle Appalachians)



Confederacy; cut the railway connections between Virginia and the cotton States, and cut the cotton region in two divisions by getting full possession of the Mississippi river; by getting possession of the sea-coast cities on the one side and the principal grain-growing region on the other; by separating the cotton region of the Confederacy from Virginia and cutting it into two separate divisions; by commanding completely the Mississippi River, they expected to starve the people into subjection, or crush out one division after another by the great advantage they would possess in concentrating heavy forces upon any given section or division. The lull brought upon the people of the Confederate States by their great success during the first six months of the contest has enabled their persevering enemy to half succeed in their well-laid schemes for the complete subjugation of the Southern people. The late victories of the Confederate forces, and the repulses which the Northern troops have met with lately, have stirred up the Northern Government and people to such exertions as will in their opinion complete our subjugation at no distant day. The object of first magnitude, under existing circumstances, upon our part, is to get possession of Western Virginia, Kentucky, and Tennessee. *[5]*

Late in the war, after three years of more-or-less undisturbed operations at Saltville, northern forces finally attacked the town and on their second try in December 1864 significantly damaged the salt works. Views of Saltville as it looks today and as it looked in 1893 are shown in Figures 1 and 2.
A principal cause of the salt shortage in the Confederacy, and hence of the effectiveness of the blockade, was that the southern states had in the pre-war years developed a strong dependence on imported salt. This dependence had been noted and described in an 1860 book by the French geologist Raymond Thomassy. In a chapter titled "The Question of Indigenous Salt, and the Importance of this Commodity to the US," Thomassy observed rather flamboyantly: "To captivate a child a taste of sugar suffices: well, imported salt seems similarly to captivate the Unites States, particularly the southern states." To back up this contention with statistics he noted that southerners imported over 3 million bushels of salt in sacks from Liverpool (made in the nearby county of Cheshire by boiling brine), along with a quarter-million bushels of sea salt from the Caribbean, into the Port of New Orleans during the 12-month period from July 1855 to June 1856. However, the large amount of importation from Liverpool was not due to any particular southern taste for Cheshire salt, it merely reflected the rather mundane commercial reality that otherwise empty, returning cotton-carrying vessels could be sent back to America using salt as ballast and thus with cost-free transportation. *[6]*

Salt-making by brine boiling

The process used to make salt at Saltville was to boil its brine with the heat from wood fires. Brine is sodium chloride (NaCl) dissolved in water — an aqueous solution of common salt. In Saltville, wells dug in suitable places (such as on the well-fields) fill naturally with strong, high purity brine. When this brine is heated, its water — but not its salt — boils away, and solid, crystalline salt precipitates from the liquid as seen in Figure 3.

In 1857 the Saltville salt works was visited by two writers and a sketch artist from Harper's New Monthly Magazine. The report of that visit and the sketches are available for online viewing. *[7]* That visit has left us with a well-known, wonderful verbal and pictorial record of what Saltville's production facilities looked like only four years before the commencement of the Civil War.

The English traveler Edward King visited Saltville in 1874 accompanied by the sketch artist J. Wells Champney. Champney's sketch of salt making is shown in Figure 4. *[8]* Old salt kettles once used to boil brine are still found in and around Saltville, 150 years after the Civil War. The specimen pictured in Figures 5 and 6 is in the yard of a private home near Saltville. This kettle is noteworthy because it bears its maker's foundry mark and is the only kettle presently known to be so marked.

Figure 7 shows the locations of the salt furnace complexes in Saltville during the Civil War. To meet peak salt demand during the war, some furnaces were also operated 8½ miles from Saltville at Glade Spring where the Saltville rail spur joined the main line of the Virginia and Tennessee Railroad. The brine for these furnaces was shipped by rail from Saltville. Figure 8 shows the Scott furnace which was located on the site of today's Saltville golf course, not far from downtown.

Annual rates of salt production at Saltville during the 19th century

Many authors have discussed 19th century salt production at Saltville. Aggregating their data allows us to build up a picture of the annual rate of salt production, as summarized in Table 1 *(page 78)*. Among these authors are Charles Lanman *[9]*; Henry Darwin Rogers, a geologist commissioned by the State of Virginia to evaluate the mineral resources of Saltville *[10]*; an anonymous author quoting the Richmond Enquirer *[11]*; the English traveler Edward King, mentioned above *[12]*; the book by the historian of Smyth County, Goodridge Wilson *[13]*; the address by the student of local history, Judge Walter Henderson Robertson *[14]*; a hard-to-find essay written by the Marion, Virginia, native Cecil Greer

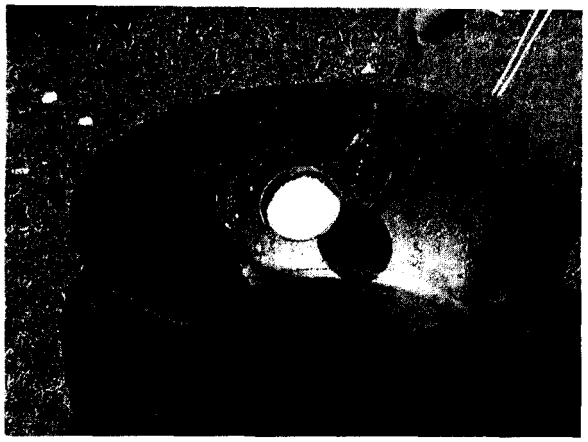


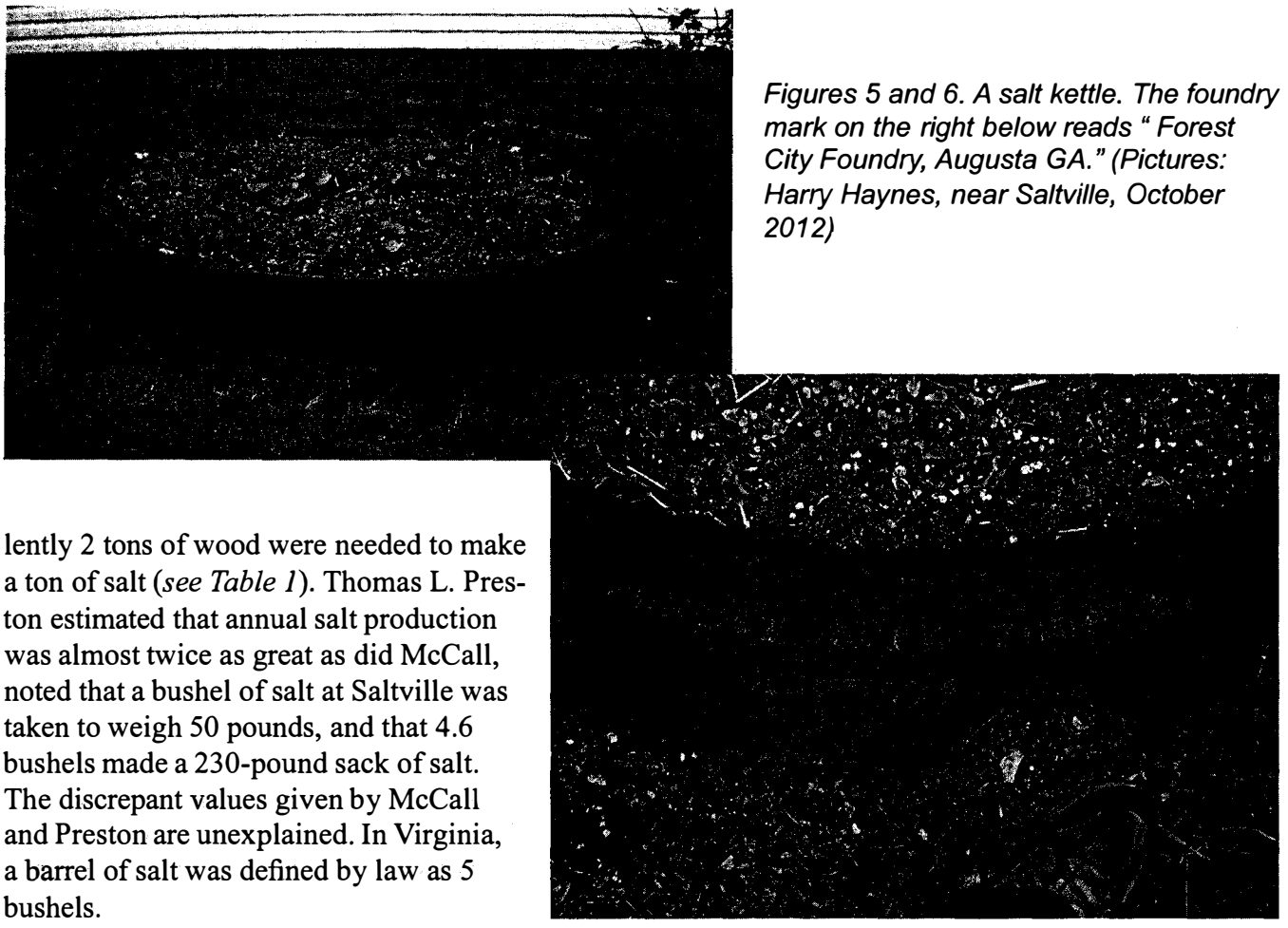
Figure 3. Reenactment of the making of salt from brine in a large metal kettle. A pierced ladle dips the salt crystals that have deposited from the brine as the water has boiled away. (Picture: Jim Glanville, Saltville, September 2004)

Figure 4. Another interior view of the Salt Works is provided by this original sketch by J. Wells Champney. Hot combustion gases from burning wood in the furnace through brick conduits below the iron kettles. Note that the nearer kettles are producing less steam than those in the distance. The furnace gas cooled as it passed forward down the kettle row and so the farthest kettles got the most heat and were the most productive. Open lattice baskets (seen in the foreground) allowed excess brine to drain and be recycled to the kettles. (Taken from page 571 in Edward King's "The Southern States of North America: A Record of Journeys in ....")

while a senior-year undergraduate student at the University of Virginia *[15]*; and, most importantly, a valuable scholarly monograph about Saltville's salt trade written during the 1990s by Will Sarvis *[16]*.

Useful statistics about the amount of salt making at Saltville also come in the form of answers to a list of questions sent in letters written by Alexander McCall and Thomas L. Preston about a dozen years prior to the beginning of the Civil War and transmitted in 1848 to the president of what was then called the Lynchburg and Tennessee railroad. *[17]* By 1848, considerable commercial interest had developed in constructing a railroad to link Lynchburg to Bristol and beyond into Tennessee with one of its uses being to haul salt. As mentioned above, this railroad duly opened and reached Bristol in October 1856. The 8½-mile railroad spur north to Saltville branching from the main line at Glade Spring was completed earlier the same year. *[18]* The railroad went first to Saltville, to generate revenue from hauling salt and plaster, with the construction of the main passenger line to Bristol coming only after the spur was completed. *[19]*

Alexander McCall wrote in his answers that two-thirds of Saltville's annual production of 200,000 bushels of salt was shipped by wagon and the remainder by flat boats to the Tennessee River. He noted that the entire U.S. demand for salt was 2 million bushels, revealing that in 1848 Saltville met just 10 percent of the national requirement. McCall noted the expense involved in hauling wood, and judged that three cords of hard wood would make 100 bushels "in a furnace under good trim." From this information we deduce that roughly 2 pounds of wood were needed to make a pound of salt, or equiva-



Figures 5 and 6. A salt kettle. The foundry mark on the right below reads " Forest City Foundry, Augusta GA." (Pictures: Harry Haynes, near Saltville, October 2012)

lently 2 tons of wood were needed to make a ton of salt (*see Table 1*). Thomas L. Preston estimated that annual salt production was almost twice as great as did McCall, noted that a bushel of salt at Saltville was taken to weigh 50 pounds, and that 4.6 bushels made a 230-pound sack of salt. The discrepant values given by McCall and Preston are unexplained. In Virginia, a barrel of salt was defined by law as 5 bushels.

Table 1 reveals that salt production at Saltville grew steadily through the middle part of the 19th century, reached a mighty climax following an exceedingly rapid, 10-fold increase during the Civil War, and fell back to earlier levels after the war's conclusion. Production of salt for sale as salt ended in 1907 when the Mathieson Alkali Company (which had opened in 1895) switched the brine entirely from salt making to use for the manufacture of chemical substances such as the alkali sodium carbonate.

Daily life in Saltville during the Civil War

From the beginning of the Civil War, in April 1861, it was more than three years until the war actually came to Saltville.

During the early part of the war, the salt-making capacity of the town was increased by the building of more furnaces and the adding of more kettles. After that build-up, Saltville functioned for many months as a busy industrial town, remote from the war, with daily life focusing around the railroad. In 1864, with daily salt production running around 300 tons a day, a daily train (Figure 9) was needed to transport the salt from Saltville. *[22]* Securing adequate railroad transportation, both to bring wood and take out salt, presented complex problems during much of the war, and led to difficult relations between Virginia and the other Confederate states. *[23]*

Salt production was a labor intensive business. Writing in 1875, Edward King said that 2,000 men worked at Saltville during the war. Several hundred horse-drawn wagon teams and much manual labor was needed to handle and bring the tons of wood needed to the furnaces and pack and load the outgoing salt onto railroad cars. Large furnaces with a hundred or more kettles, operating 24 hours a day,

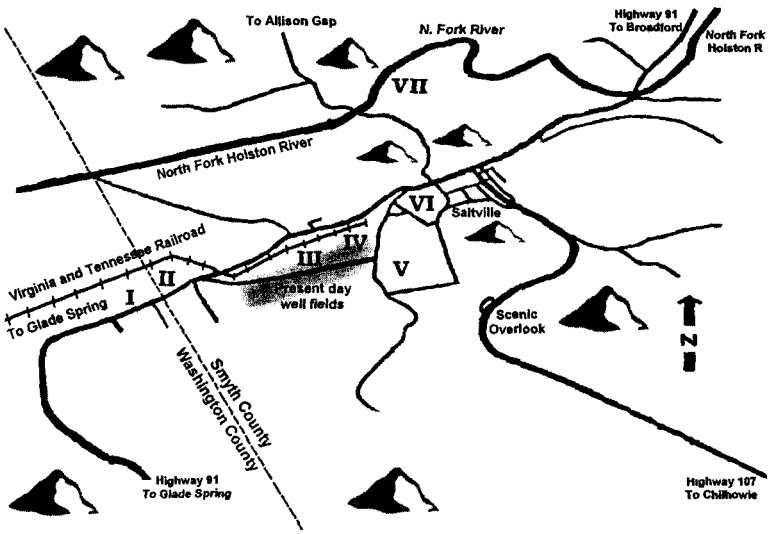
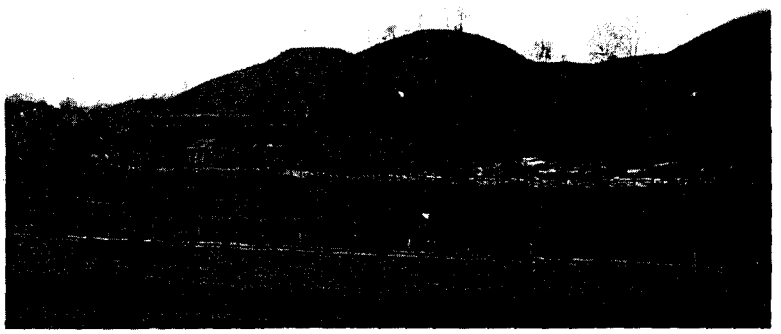


Figure 7. Map showing downtown Saltville and the main locations of the salt furnace complexes during the Civil War. About 60 furnaces were in operation during the war. Salt furnace complexes I, II, III and IV lay close to the railroad line, with complexes III and IV just to the north of the present-day well-fields area. The Scott furnace complex at V was on the present-day golf course. Furnace complex VI was just west of today's downtown area. The river furnaces at location VII, which had been idle prior to the beginning of the war, were brought back into service when the war started.

Figure 8. The Scott Furnace seen in 1893. Furnaces were long, shed-like buildings with a large chimney at one end. This facility fired 440 kettles in two double furnaces and supplied the Confederate States Army with salt. (Phillips-Perry Collection, picture a42, courtesy the Museum of the Middle Appalachians)



would have needed as much as 4 tons of fuel wood every day. Inside the furnace sheds, many workers were needed to move from kettle to kettle, dipping out the salt crystals as they formed during the process of brine evaporation and transferring them to the bushel baskets.

Based on his detailed analysis of post-war legal records, *[24]* co-author Allison concludes that there were at least 37 salt-producing companies operating an estimated 2,800 kettles. The exact number of furnaces operating during the war is impossible to determine — possibly about 60. Allison's investigations also show that some salt pans were operated during the war. Salt pans were gigantic kettles (they could be 6 to 20 feet in size) and were common in Europe. *[25]*

The traveler, librarian and government official Charles Lanman visited Saltville in June 1848 and described the manner in which Saltville brine was obtained. He tells that brine was raised by the power of horses from three artesian wells dug out to a depth of 225 feet and that 25 teams of horses were constantly working to bring wood to the furnace. *[26]* Wooden pipes were used to convey the brine from the wells to the furnaces. At this pre-railroad date, Lanman noted one or two dozen flat boats being filled with salt in readiness for the annual one-way trip down the North Fork of the Holston River to Kingsport when the river rose with its spring freshet, or spring "tide" as it was locally called. A general discussion of the production and transportation of brine has been provided by Zola Deutsch, who worked at Saltville in the 20th century. *[27]*

We have no intimate record of what life was like in Saltville during its time of maximum salt production in 1862-1864. However, we do have both a personal description from Booker T. Washing-

Figure 9. The 4-4-0 wood-burning steam locomotive Texas seen in a park in Atlanta, circa 1910. This locomotive paid many visits to Saltville during the Civil War. She was the principal Confederate locomotive in the "Great Locomotive Chase" of 1862. The Texas chased the General that had been stolen by Union raiders at Kennesaw, Georgia, and driven north by them to within 20 miles of Chattanooga before running out of fuel. This action was memorialized in the 1926 Buster Keaton silent film titled "The General." Later, she carried Georgia wood to Saltville and returned home with salt. Renamed Cincinnati in 1880, she continued in service until 1901. (Picture: Digital Library of Georgia, used with permission) [21]

ton of what daily life was like at the Kanawha County salt works and a scholarly analysis of the use of enslaved labor at those works from historian John Stealey. *[28]* The Kanawha salt works boiled brine using the heat from coal-fired furnaces. They were located on the Kanawha River about five miles south of today's Charleston, West Virginia. Booker T. Washington's stepfather escaped from enslavement in Franklin County, Virginia, during the war and followed Union soldiers to find refuge at the Kanawha salt works. After the war, in 1865, the stepfather called for Booker T. Washington and his mother to join him and they moved to the salt works, where the then 9-year-old Washington worked for a time. In his 1901 autobiography "Up From Slavery" *[29]* Washington described life at the Kanawha salt works as follows:

> Finally we reached our destination — a little town called Malden, which is about five miles from Charleston the present capital of the state. At that time salt-mining was the great industry in that part of West Virginia, and the little town of Malden was right in the midst of the salt furnaces. My stepfather had already secured a job at a salt-furnace, and he had also secured a little cabin for us to live in. Our new house was no better than the one we had left on the old plantation in Virginia. In fact, in one respect it was worse. Notwithstanding the poor condition of our plantation cabin, we were at all times sure of pure air. Our new home was in the midst of a cluster of cabins crowded closely together, and as there were no sanitary

Table 1: Annual Salt Production* at Saltville for Selected Years

Year	Bushels of Salt	Tons of Salt	Citation: Author, date: page
1830	75,000	2,000	Rogers, 1854: 3.
1848	730,000	18,000	Charles Lanman, 1849: 158.
1848	200,000	5,000	Alexander McCall, 1849: 3.
1848	350,000	9,000	T. L. Preston, 1849: 3.
1854	1300,000	7,500	Rogers, 1854: 3.
1858	300,000	7,500	DeBow, 1858, 369.
1864	4,000,000	100,000	King, 1875: 571, Sarvis, 1998: 23.
1867	400,000	10,000	Sarvis, 1998: 23.
1874	110,000	3,000	King, 1875: 571.
1882	440,000	11,000	Ogle, 2009, 24.

Notes to Table 1

*These round number values should be regarded only as approximations.

Note the widely discordant production figures stated for the year 1848.

A bushel is a dry measure measuring about 1¼ cubic feet and weighing 50 pounds.

A sack of salt is approximately 4½ bushels.

A furnace "in good trim" required about two tons of wood to make a ton of salt.

Typically, 20-25 gallons of saturated brine would have been needed to make a bushel of salt. *[20]*

regulations, the filth about the cabins was often intolerable. Some of our neighbours were coloured people, and some were the poorest and most ignorant and degraded white people. It was a motley mixture. Drinking, gambling, quarrels, fights, and shockingly immoral practices were frequent. All who lived in the little town were in one way or another connected with the salt business. Though I was a mere child, my stepfather put me and my brother at work in one of the furnaces. Often I began work as early as four o'clock in the morning.

The first thing I ever learned in the way of book knowledge was while working in his salt-furnace. Each salt-packer had his barrels marked with a certain number. The number allotted to my stepfather was "18." At the close of the day's work the boss of the packers would come around and put "18" on each of our barrels, and I soon learned to recognize that figure wherever I saw it, and after a while got to the point where I could make that figure, though I knew nothing about any other figures or letters.

Describing the workers at the Kanawha salt works, Stealey writes:

Saltmakers employed slaves in all phases of the manufacturing process and in all subsidiary activities necessary to support a salt furnace. The heart of the factory was the furnace with the ... brine water pumped by steam engines from nearby wells.... Necessary subsidiary activities for support of the process were maintenance

> and general labor, coal-mining (in earlier times, wood-cutting), blacksmithing, coopering (making barrels) and cooking. Most tasks performed by hired and company-owned slaves were routine, but some required a high degree of skill. In one completely integrated salt furnace operation that did not contract for coal and barrel deliveries, 23 to 33 slaves were required. ... In 1854, James Cowey, a manager of two salt furnaces, deposed that of 64 laborers under his control, 58 were slaves. ... Testifying in a deposition in 1853, a veteran salt maker estimated the employment of hands at two salt furnaces: fourteen coal diggers, five wheelers (wheeled coal from interior of mine to mouth), four haulers (hauled coal by team on railroad tramway from mine mouth to furnace), three kettle-tenders, one or two "cat-hole" cleaners (cleaned coal ash repository), six engineers (ran steam engines to pump brine from well and through wooden pipes to evaporation pan), two salt-lifters and wheelers (lifted salt from pan after evaporation and wheeled product to packing shed), seven "jim arounds" and packers ("jim arounds" were general laborers and firemen and packers placed salt into barrels for shipment), two blacksmiths, one "negro man sort of manager," and one cook. To attain optimum production capabilities and return on plant investment, saltmakers ran their furnaces 24 hours per day and, if they chose to incur the risk of arrest and overproduction, seven days per week.

While not being literal descriptions of daily life at Saltville during the Civil War, the preceding quotations from Washington and Stealey are illuminating and suggestive.

There is at present insufficient data to assess what fraction of the wartime work force at Saltville consisted of enslaved workers. Starobin in his analysis of southern industrial slavery does not specifically mention Saltville (though he does show one of the Harper's Magazine sketches made there), and notes that while many southern industries used slaves exclusively, some had racially integrated work forces. *[30]* John Stealey, in his careful study of slavery in the Kanawha salt industry, estimated that of the 1,500 slaves there in 1850 about 1,200 were male and 300 were female and that some of the salt manufacturing facilities were racially integrated.

The impressment of the Salt Works

With salt a scarce commodity, and Saltville being its principal supplier for most of the war, the Virginia governor and the Virginia General Assembly paid close attention to the matters of salt production and transportation. Salt workers were exempted from military service to the Confederacy within a few weeks of the outbreak of war. *[31]* An act regulating "the production, distribution and sale of Salt in this Commonwealth" passed the assembly on October 1, 1862. *[32]*

During the first two years of the war the privately owned salt-making companies performed very badly. The Assembly's Joint Committee on Salt reported late deliveries of an inferior product at a high price: "... throughout the year 1862 and the first half of 1863 — the absolute suffering of man and beast for want of salt — the repeated failures to obtain it from the owners of the salt works under county contracts and contracts by the governor, failures in point of quantity, quality and time of delivery, as well as the inordinate price commanded in the market by a most inferior article..." *[33]*

In spring 1862, Gov. John Letcher received broad authority to regulate Virginia's natural resources, including, of course, salt. A salt shortage that prevented adequate meat preservation in the fall of the year had the potential to cripple the Confederate army. Letcher visited Saltville in August and on his return to Richmond reconvened the assembly which granted him further wide-ranging powers. Now, the governor could legally take any action he deemed necessary to increase salt production and get it deliv-

ered where it was needed. Letcher tried various methods to achieve these ends, but hesitated to go too far, *[34]* despite the fact that some observers were publicly advocating that the state buy the salt works outright. *[35]*

Letcher and Virginia's slowness in taking direct action to secure the Saltville salt supply can be largely attributed to a deep philosophical respect for private property and a concomitant reluctance to condemn private property. The assembly was a conservative body. In the end, however, and with the prodding of a new governor, Virginia finally asserted its right of eminent domain, and justified by reasons of a time of war and Saltville being the site of the state's only available salt wells.

Letcher's successor as governor, William "Extra Billy" Smith, took office in January 1864 and finally convinced the General Assembly to authorize him to impress salt wells, furnaces and other private property. *[36]* The "ACT to authorize the Impressment of certain Salt Wells, Furnaces and other Property" was passed on March 8, 1864, and operations in Saltville were soon taken over by the state-appointed superintendent of salt works. *[37]*

By the summer of 1864 the salt situation had been much improved, "... and now on the other hand find that the people and the markets are so fully supplied with a sound merchantable article, that despite a depreciated currency and fabulous prices for all other articles of human consumption, salt alone is quoted in the price lists as 'dull' and 'flat' and 'cheap,' they will find in this, the highest vindication of their legislative policy and proof that they have been fortunate in the selection of their agents to carry out that policy." *[38]*

The full story of the debates in the assembly in Richmond over the impressment of the salt works lies beyond our scope here. However it is an interesting story and one that has never been told.

Brief military history of Saltville during the Civil War *[39]*

Southwest Virginia remained largely uninvolved militarily in the Civil War until the fourth year of the war. As late as the winter of 1863-64, the presence of Gen. James Longstreet's Confederate Army Corps in upper east Tennessee cast a protective shadow over the salt works. *[40]* William Marvel observed that even in 1864 "... [d]espite the excitement of periodic raids and the shortage or expense of certain necessities, life in the southwestern counties still remained relatively normal for a countryside at war." *[41]* Virginia's railroad network, which was the most extensive in all of the Confederacy, continued operating well in the region, with the Virginia and Tennessee Railroad, connecting Knoxville to Lynchburg, remaining unmolested.

The protection from Tennessee held until April 1864, when Longstreet shipped his force north and east along the Virginia and Tennessee Railroad to join Robert E. Lee's force facing the Army of the Potomac. Seeking to offer some continuing protection to the region, President Jefferson Davis appointed the popular battlefield commander John Cabell Breckenridge of Kentucky to command in western Virginia. Southwest Virginia finally became a target in the spring of 1864, when newly promoted overall commander of the Union forces Gen. Ulysses Grant planned offensive action in every theater of war east of the Mississippi River. Gen. George Crook would attack western Virginia from West Virginia, while from Kentucky southwest Virginia would be attacked by troops under the command of Gen. Stephen Burbridge. *[42]*

The Saltville branch of the Virginia and Tennessee Railroad had been completed only eight years earlier in 1856. It is possible to speculate that lacking rail transportation for salt, fighting the "Southern Cause" might not even have been possible five to six years before 1861. After three years of relative quiet, *[43]* the first major fighting in southwestern Virginia took place during Union Gen. George Crook's New River Valley Campaign with an action at Cloyd's Mountain in Montgomery County on May 9, 1864. *[44]* On May 10, 1864, a force under Union Gen. William Averell fought Confederates at Cove Mountain in Wythe County on his way to link up with Crook. Averell's force burned the New River

bridge at Radford the following day, but inflicted only moderate damage; it was quickly repaired and back in operation only five weeks later. These actions were only partial fulfillment of Grant's intention to starve the Confederacy of its resources by disabling the railroad in the Valley and Ridge Province by means of the destruction of the New River bridge. The geologist Robert Whisonant has nicely described the fundamental facts of geology and topography that influenced and controlled the military operations in 1864 in southwestern Virginia. *[45]*

The two battles at Saltville occurred later in 1864. In the first Battle of Saltville in October, Union troops led by Brig. Gen. Stephen G. Burbridge undertook a campaign against the salt works from Kentucky in late September. His force was composed of about 5,200 men and included the African American 5th U.S. Colored Cavalry. Burbidge's route to Saltville via the rugged Levisa Fork of the Big Sandy River was challenging. Overall organization of the defense of Saltville, in the hands of Gen. John Echols, gathered the forces for the defense of the salt works, while on the ground command in Saltville was held by Gen. Alfred E. Jackson, who it is said was derisively called "Mudwall" by his own men, a sobriquet he apparently earned by his ineptness compared to his more famous cousin, Stonewall Jackson (William Davis, 1971). The battle began at about 11 a.m. on the morning of Sunday, October 2, with command of the 2,500 defenders now in the hands of Confederate Gen. John Williams who had arrived less than two hours earlier with 1,700 of those defenders via the railroad. By making good use of their excellent Enfield rifles, and with the advantage of being on readily defensible terrain, the Confederate forces decisively rebuffed Burbridge's attack. Admitting failure, Burbridge withdrew his forces in the late afternoon. Historians count the first Battle of Saltville as a victory for the South.

The first Battle of Saltville is notorious because of an atrocity, the extent of which has been the subject of a long-running dispute among historians. On the morning of October 3, 1864, witnesses saw Confederate soldiers kill captured Union soldiers who had been left wounded on the battlefield. The dispute has been exacerbated because among the men killed were black Union soldiers of the 5th U.S. Colored Cavalry regiment. A recent, balanced summary of what has come to be called "the Saltville Massacre" was provided by Brian McKnight in 2009 and can be read online. *[46]* Among earlier works that discuss the atrocity are two articles, a book and a useful website. *[47]* Adding to the controversy

Despite the excitement of periodic raids and the shortage or expense of certain necessities, life in the southwestern counties still remained relatively normal for a countryside at war.

are the actions at Saltville of the infamous Confederate guerilla fighter Champ Ferguson *[48]* who was responsible for several of the killings on October 3 and on October 7 for the cold-blooded killing of a wounded Union officer at the hospital at nearby Emory and Henry College.

The second Battle of Saltville occurred in December 1864. Gen. George Stoneman began the campaign from Knoxville on the 10th and assembled a force of 5,500 in upper east Tennessee. Four days later he was in Abingdon and the following day at Glade Spring. Stoneman sent about half his force under the command of Brig. Alvan Gillem up the valley to attack the railroad and its depots before returning to join the attack on the salt works. Gillem fought an engagement at Marion on the 17th and 18th against defenders commanded by John C. Breckenridge who fell back towards Saltville but failed to reach it when they were blocked by Union troops and turned across rugged country in the direction of North Carolina. The second battle for Saltville began on the 20th of December when 500 defenders under Col. Robert Preston faced impossible odds with the approach of two Federal columns, respectively under Burbridge and Gillem, which overwhelmed the town's defenses. Preston evacuated the town late in the day leaving it in Union hands. On the following day, the Union troops burned 300 buildings, took sledge hammers to masonry structures and salt kettles, and filled the salt wells with debris. However, notwithstanding this mayhem, by March 1865 at least some of the salt wells and furnaces were back in operation, as was the railroad. However, Lee's surrender to Grant at Appomattox on April 9, 1865, rendered moot the operation of the Confederate salt works.

Saltville today

Saltville salt production continues today under very different circumstances from the 19th century. Today, in a collaborative business venture, United Salt Corporation operates a salt-dissolving facility pumping down water underground to depths of as much as 7,000 feet and pumping up the resulting brine. Dry salt for sale is made by evaporating that brine in a modern, chemically engineered evaporation facility. The deep underground cavities formed by salt removal are used by Spectra Energy Corporation to store natural gas. Spectra builds up the gas reserves during the warmer months so as to be able to deliver gas when needed in winter. *[49]*

The rails of the old railroad spur from Glade Spring to Saltville were taken up a few years ago and the rail bed converted to a recreational trail. *[50]*

The past decade has seen a resurgence of interest in Saltville as a battleground. In 2001, the Civil War Preservation Trust (now the Civil War Trust) purchased 107 acres of land at the center of the scene of fighting during the first Battle of Saltville. In 2007 this land was deeded to the Town of Saltville with the easement being granted to the Virginia Outdoors Trust. Professors Cliff Boyd and Robert Whisonant (retired) of Radford University have led preservation-directed projects funded by the American Battlefield Protection Program of the U.S. National Park Service. These efforts have yielded GPS mapping, studies to identify battlefield features, a conservation plan, a noteworthy listing in 2009 in the National Register of Historic Places, and a listing on the Virginia Landmarks Register, also in 2009.

Currently underway is the development of a virtual battlefield tour that will focus on four elements of Saltville's Civil War history: the salt works and the spike in production and infrastructure fueled by the Confederacy's need for salt; the two battles in 1864; the well-preserved fortifications built by Confederate engineers on the prominences surrounding the Saltville valley; and the execution of wounded African-American cavalry troops and other Union soldiers after the first battle of Saltville.

Memories of the Civil War remain vividly alive in Saltville. They have become a valuable tourist attraction.

ACKNOWLEDGMENTS

We thank the Interlibrary Loan office and the professional research staff of Newman Library at Virginia Tech. Author JG as ever thanks his wife Deena Flinchum. Author HH thanks his wife Melinda.

REFERENCES

1. Ella Lonn, "Salt as a Factor in the Confederacy." New York: W. Neale, 1933, p. 13.
2. Andrew F. Smith, "Starving the South: How the North won the Civil War." New York: St. Martin's Press, 2011. See also this author's "Did Hunger Defeat the Confederacy?" North & South 13(1): 40-64 (May) 2011, online at http://andrewfsmith.com/wp-content/themes/wooden-mannequin/pdf/HungerArticle.pdf, accessed 8 November 2011.
3. Brendan Wolfe, "Anaconda Plan," Encyclopedia Virginia. Ed., Brendan Wolfe, Virginia Foundation for the Humanities, 9 May. 2011. Online at http://www.encyclopediavirginia.org/Anaconda_Plan, accessed 8 November 2012.
4. George Goldthwaite, Adjutant and Inspector General, Alabama. "Letter to General Duff C. Green, Quartermaster-General, at Mobile, from Montgomery, Ala., March 20, 1862." "The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies: Series 4, vol. 1, Part 1 (Blockade Runners)," p. 1010. Online at http://ehistory.osu.edu/osu/sources/recordview.cfm?content=/127/1010, accessed 10 November 2012.
5. J. W. Gladney, "Memorandum to President Jefferson Davis." Richmond, Virginia August 6, 1862. "The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies: Series 4, vol. 2, Part 1 (Blockade Runners)," pp. 39-40. Online at http://ehistory.osu.edu/osu/sources/recordView.cfm?Content=128/0039, accessed 10 November 2012.
6. Raymond Thomassy, "Géologie Pratique de la Louisiane. Nouvelle-Orléans: Chez l'auteur," (Paris: Lacrois et Baudry), 1860, 187-190. Online at books.google.com/books?id=iMoQAAAAIAAJ. Accessed 9 November 2012.
7. Anthony Broadacre and Bob Larkin (pseudonyms) with sketches by David English Henderson, "A Winter in the South," Harper's New Monthly Magazine, volume 15, June to November, 1857. The Saltville material is on page 433 and pages 446-450. Online at http://www.sonofthesouth.net/leefoundation/civil-war/1865/january/saltville-virginia.htm, accessed 7 November 2012.
8. Edward King, "The Southern States of North America: A Record of Journeys in Louisiana, Texas, the Indian Territory, Missouri, Arkansas, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Kentucky, Tennessee, Virginia, West Virginia and Maryland." London: Blackie & Son, 1875. Online at ,http://books.google.com/books?id=rJo0AAAAIAAJ, accessed 12 November 2012. The sketch of brine boiling at Saltville is on p. 571.
9. Charles Lanman, "Letters from the Alleghany Mountains." New York: Putnam, 1849. Online at books.google.com/books?id=HCYUAAAAYAAJ. Accessed 11 November 2012. Salt making at Saltville is described in "Letter XX, The Nameless Valley of Virginia, June 1848," pp. 157-165. Lanman states on page 158 that a bushel of salt is 50 pounds at Saltville and "not fifty-six as in the north."
10. Henry Darwin Rogers, "Report [to Governor John B. Floyd] on the salt and gypsum of the Preston Salt Valley of the Holston River, Virginia." Boston: Printed by Thurston, Torry, and Emerson, 1854. Online transcription at: http://www.ls.net/~newriver/va/saltgyps.htm, accessed 11 November 2012.
11. No Stated Author. "Salt Resources of Virginia." DeBow's Review of Agricultural, Commercial, Industrial Progress and Resources (New Orleans, Louisiana) September, 1858, 25(3): 361-363. Online at http://books.google.com/books?id=siQKAAAAIAAJ, accessed 9 November 2012.
12. Edward King, "The Southern States of North America...."
13. Goodridge A. Wilson Jr. "Smyth County History and Traditions. Marion: Centennial Celebration Smyth County, VA, 1932." Facsimile reprint, published 1998 by Heritage Books, Bowie, Maryland. Pp. 192-197 describes the history of the salt works. Pp. 235-260 is a chapter titled "The War Between the States."
14. Walter H. Robertson, "Saltville: Address Delivered Before the Historical Society of Washington County on March 14, 1942." Historical Society of Washington County, Virginia Bulletin, Series I Number 8, March 1948, pp. 1-32.
15. Cecil R. Greer, "Saltville and Salt Mining Operations During the Civil War," The Annual Collection of Essays in History published by the History Club, University of Virginia. Charlottesville, VA 1957, pp. 66-79.
16. Will Sarvis, "The Salt Trade of Nineteenth Century, Saltville, Virginia." Will Sarvis. Columbia, Mo. Published by the author, 1998.
17. Alexander McCall and Thomas L Preston. Valuable and interesting letters from Doctor Alexander M'Call, and Thomas L. Preston, Esq., giving an account of the salt and plaster trade, etc. of southwestern Virginia, and of the Tennessee railroads,

&c.: and tables shewing the population, value of property, and business of Lynchburg, &c. (Richmond: The Lynchburg and Tennessee Railroad Company, printed by Shepherd and Colin), 1849. Online at http://books.google.com/books?id=mugzAQAAMAAJ. Accessed 9 November 2012.
18. Kenneth W. Noe, "Southwest Virginia's Railroad: Modernization and the Sectional Crisis in the Civil War Era," (Tuscaloosa: University of Alabama Press), 1994, pp. 29-30.
19. Roger A. Allison files.
20. The frequently quoted value of 18 gallons of Saltville brine to make a 50-pound bushel of salt was apparently cited first by McCall, 1849, as 18-20 gallons per bushel of salt. Even using the 50 pound bushel (and not the 56 pound bushel) this range is low. Using modern data, the value range of 20-25 gallons per pound of salt is more realistic (Lanman says 20 gallons per bushel), with the lower number of 20 only being approached under extremely well-managed boiling operations.
21. For the Great Railroad Chase see: William Pittenger, "Daring and Suffering: A History of the Great Railroad Adventure," (Philadelphia, J.W. Daughaday) 1864 and online at http://archive.org/details/daringandsuffer00pittgoog. Gordon L. Rottman, "The Most Daring Raid of the Civil War: The Great Locomotive Chase," (New York: Rosen Publishers) 2011. Movie: The General (Buster Keaton Productions and Joseph M. Schenck Productions) 1926; viewable online at http://www.youtube.com/watch?v=1b24wqhy0Zo.
22. William M.E. Rachal, "Salt the South could not savor: plenty of it was produced at Saltville, but distributing it was a problem not easily solved." Virginia Cavalcade, 3: 4-7, 1953.
23. Lonn, "Virginia and Interstate Relations," in Salt as a Factor, 137-159.
24. Roger A. Allison files. Analysis of Stuart, Buchanan & Co. vs. N. K. White et al: An appeal from the Circuit Court of Wythe to the District Court of Appeals at Abingdon, (Abingdon: Printed at the Virginian Office), 1867.
25. Robert P. Multhauf, "Neptune's Gift: A History of Common Salt," (Baltimore: Johns Hopkins University Press) 1978, pp. 84-88. See also en.www.wikipedia.org/wiki/Open_pan_salt_making.
26. Charles Lanman, Letters from the Alleghany Mountains.
27. Zola G. Deutsch, "Brine Wells and Pipelines," in Dale W. Kaufmann, ed. Sodium Chloride: The Production and Properties of Salt and Brine. New York: American Chemical Society and Reinhold Publishing Co. 1960, pp. 142-185.
28. John Edward, Stealey, III, "Slavery and the Western Virginia Salt Industry," Journal of Negro History 59: 105-131, 1974.
29. Booker T. Washington, "Up From Slavery: An Autobiography." New York: Dover Thrift Editions, 1995. Original edition Garden City, New York: Doubleday and Company, 1901, pp. 12-13.
30. Robert S. Starobin, "Industrial Slavery in the Old South," (New York: Oxford University Press) 1970. Discussion of racial integration at industrial facilities pp. 137 ff.
31. Acts of the General Assembly of the State of Virginia, passed in 1861, (Richmond: William F. Ritchie, public printer) 1861. Online at http://archive.org/details/actsofgeneralas00virg, accessed 22 November 2012. Exemption was passed at the Convention of Virginia in Secret Session May 1.
32. Acts of the General Assembly of the State of Virginia, passed at called session, 1862, (Richmond, William F. Ritchie, public printer, 1862. Online at http://archive.org/details/actsofgeneralassvirginia, accessed 22 November 2012.
33. "Report of the Joint Committee on Salt, February 22, 1984." Journal of the Senate of the Commonwealth of Virginia, 1863. Appendix document XVI. Richmond: James E. Goode, 1863. Online at http://books.google.com/books?id=dK00AQAAMAAJ, accessed 11/21/2012.
34. Brian D. McKnight, "Contested Borderland: The Civil War in Appalachian Kentucky And Virginia," (Lexington: University Press of Kentucky) 2006, 121. Letcher explained his reasons for not immediately impressing the salt works in: John Letcher, "Message from the Governor to the Gentlemen of the Senate and House, 7 January 1863," Journal of the House of Delegates of the State of Virginia for the Called session of 1862 (Richmond: William F. Ritchie, Public printer) 1863. Online at http://archive.org/stream/journalhouse18621863#page/n433/mode/2up. Notes in the files of co-author Allison hint that Governor Letcher fought to keep the Commonwealth from taking over the Salt Works because his cousin Elizabeth Letcher Pannill Stuart was the mother of W. Alexander Stuart, one of the owners of the works. She was also the mother of J. E. B Stuart. She lived in Saltville with her son Alexander throughout the war and was buried there in 1884.
35. A Citizen of the Southwest [sic]. "Salt for the People." The Daily Dispatch, Richmond. January 28, 1862. Richmond Dispatch. Accessed 16 November 2012, online at http://www.perseus.tufts.edu/hopper, accessed 16 November 2012.
36. Alvin A. Fahrner, "William 'Extra Billy' Smith, Governor of Virginia 1864-1865: A Pillar of the Confederacy," The Virginia Magazine of History and Biography, 74(1): 68-87.
37. Acts of the General Assembly of the State of Virginia, passed at session of 1863-4, (Richmond, William F. Ritchie, public printer) 1864. Online at http://archive.org/details/actsofgeneralass00invirg, accessed 22 November 2012.
38. Report of the Joint Committee on Salt, February 22, 1984.
39. In addition to those previously cited, books about Saltville's military history include Gary G. Walker, "War in Southwest Virginia 1861-65," (Roanoke: Published by the author) 1985; Richard R. Duncan, "Lee's Endangered Left: The Civil War in Western Virginia," (Baton Rouge: Louisiana State University Press) 1998; William C. Davis and James I. Robertson, "Vir-

ginia at War: 1862," (Lexington: University Press of Kentucky, 2007; and Michael K. Shaffer, "Washington County Virginia in the Civil War," (Charleston, SC: The History Press) 2012. Articles that discuss the military aspects of the war include four by Robert C. Whisonant, "Geology and the Civil War in Southwestern Virginia: The Smyth County Salt Works." Virginia Minerals, 42(3): 21-30, 1996; "Geology and the Civil War in Southwestern Virginia: Union Raiders in the New River Valley 1864;" Virginia Minerals. 43(4): 29-40, November 1997; "Geology and the Civil War in Southwestern Virginia: Iron Industry in the New-River-Cripple Creek District of Southwestern Virginia," Virginia Minerals, 44: 26-35, 1998; and "Mineral Fights — Civil War Battles for Southwestern Virginia's Lead and Salt," The Smithfield Review, 2: 77-90, 1998. Online military histories include Daniel O'Connell's "Salt, Lead and the fight for Southwest Virginia," online at http://www.brettschulte.net/CWBlog/wp-content/uploads/2009/02/saltville.doc, accessed 7 November 2012 and Matthew D. Parker's "Salt, Saltville and the American Civil War," online at http://thomaslegion.net/saltsaltvilleandtheamericancivilwar.html, accessed 7 November 2012. Also of interest is Allen Mesch's "Civil War Journeys: Saltville, VA., Part 1," online at http://www.civil-war-journeys.org/saltville_va_I.htm, accessed 8 November 2012, which shows some high-resolution pictures of Saltvile and its interpretive Civil War markers. A narrative of the battles, citations, and a map are found in The National Park Service Nomination Form for the National Register of Historic Places for Saltville Battlefields Historic District-I 295-5001, online at http://www.dhr.virginia.gov/registers/Counties/Smyth/295-5001_Saltville_Battlefields_2009_NR_FINAL.pdf, accessed 2 November 2012.

40. Joseph M Duracinsky, (in an on line Power Point presentation based on the work of Robert Whisonant accessed 5 November 2012) "Geology and the Civil War in Southwestern Virginia: Union Raiders in the New River Valley, May 1864," online at http://web.mst.edu/~rogersda/umrcourses/ge342/geo%20and%20civil%20war%20in%20virginia.pdf, posits that "Up to this point in the Civil War, there wasn't much fighting in the Valley and Ridge because virtually no one wanted to deal with crossing the complex terrain."

41. Marvel, "Battles for Saltville," 126.

42. Marvel, "Battles for Saltville," 78-79.

43. The only significant military action to take place southwest Virginia during the first three years of the war was a cavalry raid from West Virginia by a 900-strong force commanded by John T. Toland. The objectives of the raid were the railroad, the salt works, and the Wythe County lead mines. On 18 July 1863 this force was repulsed at Wytheville with Toland being killed and none of the raid's objectives accomplished.

44. See Jessee Ring, "The Battle of Cloyd's Mountain: A railroad, salt works, and lead mine," in this issue of the Historical Society of Western Virginia Journal.

45. Robert C. Whisonant, "Geology and the Civil War in Southwestern Virginia: Union Raiders in the New River Valley 1864," Virginia Minerals 43(4): 29-40, 1997.

46. Brian D. McKnight, "The Winnowing Of Saltville: Remembering a Civil War Atrocity," Journal for the Liberal Arts and Sciences 14(1): 33-51, 2009. Online at www.oak.edu/~oakedu/assets/ck/files/JLAS_FA09_4a.pdf, accessed 2 November 2012.

47. William C. Davis, "Massacre at Saltville," Civil War Times Illustrated 9: 4-5, (February) 1971; William Marvel, "The Battle of Saltville: Massacre or Myth?" Blue and Gray Magazine, August 1991, pp. 10-19 and 46-50. Thomas D. Mays, "The Saltville Massacre," (Abilene: McWhiney Foundation Press) 1998; and David E. Brown. "Was There a Massacre in Saltville in 1864?" online at http://mywebpages.comcast.net/~5thuscc/massacr.htm. Accessed 2 November 2012.

48. Thurman Sensing, "Champ Ferguson: Confederate Guerilla," (Nashville: Vanderbilt University Press), 1942. Brian D. McKnight, "Confederate Outlaw: Champ Ferguson and the Civil War in Appalachia," (Baton Rouge: Louisiana State University Press), 2011.

49. Roger Allison, "Spectra Energy, United Salt give boost to local economy," Saltville Progress, Thursday 14 May 2009, pp. B5 and B8.

50. D.W. Ogle, "The Salt Trail Guide: Saltville," Self published, 2009. A booklet.