

# Semi-Official Imprinted Envelopes of the C.S.A. Nitre and Mining Bureau

by


**Thomas Lera**

The Confederate Period begins December 20, 1860, the date South Carolina (the first Confederate State) seceded, which led less than a year later to the War Between the States. The entire Confederacy would eventually officially number 11 seceded plus 2 divided states. One of the issues concerning the War was the individual rights of the states. Did a state, once it voluntarily joined the Union, have the right to secede from that union whenever it wished? The Southern States said, "Yes," the Northern States, "No." The final resolution to the question was determined by the outcome of the war.

The next important date to remember is February 4, 1861, when the first 6 seceded states joined together to form the central government of the Confederate States of America (CSA), with Jefferson Davis as provisional president. Montgomery, Alabama was initially its capital but was later moved to Richmond after the secession of Virginia.

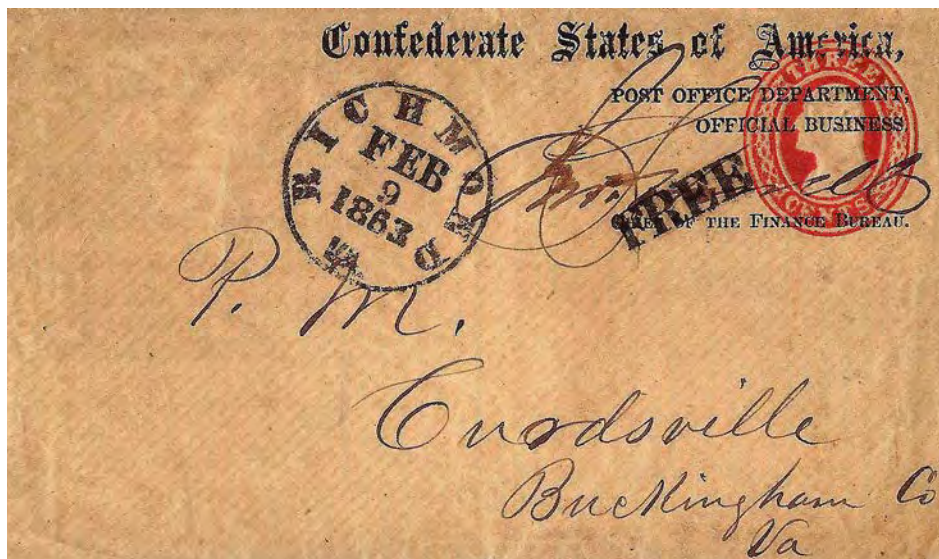
The actual war began on April 12, 1861 with the bombardment of Fort Sumter. The following table outlines the secession of the Confederate States and Territories. <sup>i</sup>

SECESSION OF CONFEDERATE STATES AND TERRITORIES



State or Territory	Ordinance Passed (*Interim Periods)	Admitted to Confederacy
Alabama	January 11, 1861	February 4, 1861, Montgomery Convention
Arizona Territory	April 3, 1860, Provisional Government *March 16, 1861, Mesilla Secession Conv. *March 23, 1861, Tucson reaffirms Secession *August 1, 1861, Military proclamation	*January 13, 1862, Congressional bill passed effective upon declaration President *January 18, 1862, Pres. Davis signed bill February 14, 1862, Presidential proclamation
Arkansas	May 6, 1861	May 18, 1861
Florida	January 10, 1861	February 4, 1861, Montgomery Convention
Georgia	January 19, 1861	February 4, 1861, Montgomery Convention
Indian Territory		November 22, 1861, Dept. Ind. Terr. formed
Kanawha	*Aug. 20 - Nov. 26, 1861, West Va. Renamed	*November 26, 1861, Reverted to West Va.,
Kentucky	Neutrality proclaimed May 20, 1861. *Secession ordinance November 18, 1861. Both Union & Confederate governments.	December 10, 1862
Louisiana	January 26, 1861	February 4, 1861, Montgomery Convention
Mississippi	January 9, 1861	February 4, 1861, Montgomery Convention
Missouri	May 21, 1861, Neutrality proclaimed *October 31, 1861, Legislature remnants Both Union and Confederate governments	*August 19, 1861, "Alliance" formed November 28, 1861
New Mexico Territory	July 23, 1861, Confederate invasion and occupation of Mesilla commences	*August 1, 1861, Military proclamation for Territory of Arizona (see Arizona)
North Carolina	May 20, 1861	May 27, 1861
South Carolina	December 20, 1860	February 4, 1861, Montgomery Convention
Tennessee	*May 6, 1861, Secession referendum *June 8, 1861, Popular vote June 24, 1861, Ratification election	May 16, 1861 (contingent upon June 24 vote)
Texas	*February 1, 1861, Secession referendum *February 23, 1861, Popular vote, effective March 2, 1861.	March 6, 1861
Virginia	*April 17, 1861, Secession referendum May 23, 1861, Popular vote	May 7, 1861
West Virginia	*June 11, 1861, Second Wheeling Convention *June 19, 1861, "Restored government" *October 24, 1861, Popular vote	*December 31, 1862, President Lincoln signed West Va. State Act Proclaimed April 20, effective June 20, 1863

On February 23, 1861, the Congress of the Confederate States of America proposed a bill to establish the Post Office Department. On March 15, 1861, the Confederate Postal Act was passed and provided the Postmaster-General and the various Bureau Chiefs in the Confederate Post Office Department, authorization to send official mail postage free by placing their signature on envelopes provided for this purpose.<sup>ii</sup>



*Post Office Department. Official Business, Chief of Finance Bureau. CSA Catalog Type FIN-03 with Jno. L. Harrell signature on 3c 1860-61 envelope to postmaster at Curdsville, Buckingham Co. Va "Richmond Va. Feb 9,1863" circular date stamp and "Free" hand stamp.<sup>iii</sup>*

Simultaneous with the Postmaster-General's "Proposal for Postage Stamps", a call for bids on "Stamped Envelopes" to be furnished for a period of four years was published in the Richmond Enquirer and other papers in March and April of 1861. The CSA Post Office Department was to provide the public with this convenient commodity to which it had become accustomed under the old regime (The United States Post Office), and accordingly prescribed the following specifications covering the standard sizes in general use at that time.

- No. 1, or note size, 2 7/8 x 4 3/4 inches, of white paper
- No. 2, or letter size, 3 1/4 x 5 1/2 inches, of buff or white paper
- No. 3, or official size, 3 7/8 x 8 3/4 inches, of buff or white paper, or in such proportions of either as may be required.

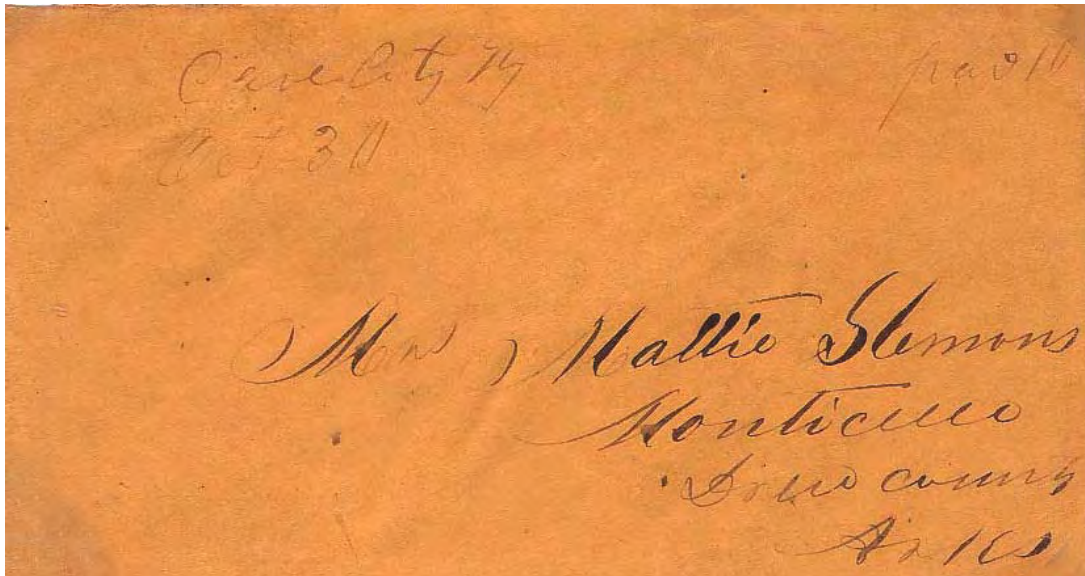
The first typographic printing required by the provisional government was given to a firm in Montgomery, Alabama. Upon the establishment of the Confederate States of America and the removal of the seat of government to Richmond, VA, the contract for the printed official forms, including the various Departments' Stationery, was awarded to the firm of Richie and Dunnivant of Richmond.<sup>iv</sup>

On June 1, 1861, the United States Postal service ceased all operations in the seceded states. The Confederate Postal Service took over all existing USA post offices within their states, and new, simple rates were established and effective from June 1, 1861 through June 30, 1862.

- 5 cents per 1/2 oz under 500 miles
- 10 cents per 1/2 oz over 500 miles
- 2 cents drop letter and circular

The “Drop Letter” mentioned above never traveled between post offices and refers to a letter “dropped” at the same post office at which the addressee would later retrieve it. A “Circular” was a printed business document or newspaper sent with either a wrapper or in an unsealed envelope. On July 1, 1862, the 5 cents rate was eliminated and the standard rate became a uniform 10 cents per ½ oz for any distance.

The Confederate government contracted for the printing of postage stamps to conform to the new rates. However, the actual printing of the stamps and distribution to the post offices, particularly to the small rural towns, was slow. When June 1, 1861 arrived, there were no Confederate stamps available. Postmasters resorted to simple hand stamp devices to show the postage had been pre-paid. Many post offices were too small even to have a hand stamp device, and letters were both postmarked and rated all in manuscript.

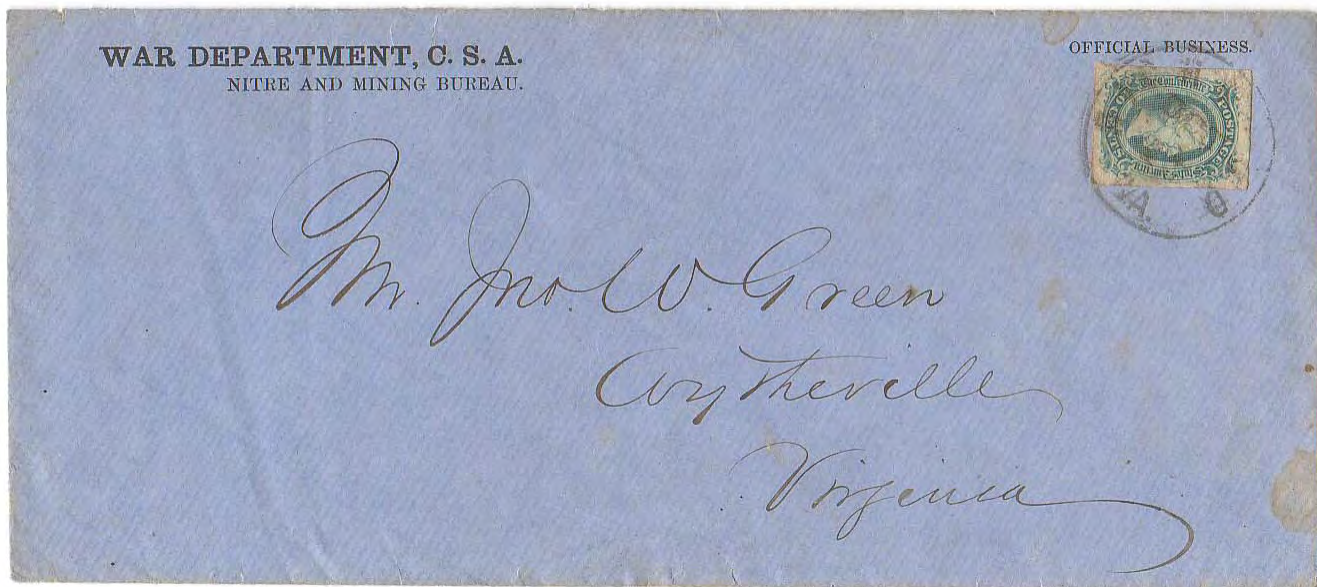


*This manuscript postmark, dated October 30 (1861), is one of two known examples of this Confederate marking.*

The Official Envelopes of the Post Office Department were part of this contract and were printed in Richmond. Every department of the Confederate Government – civil and military – in their official correspondence, used imprinted envelopes but they had no franking privilege.<sup>v</sup>

All official correspondence outside of the Post Office Department required the payment of postage. High-ranking members of the Confederate Government, including the President, heads of executive departments, members of Congress and some military commanders, used imprinted envelopes for official correspondence, but history has classified these envelopes as semi-official since the payment of postage was required.<sup>vi</sup>

One of the War Departments that used the semi-official envelopes was the Nitre and Mining Bureau located in Richmond, Virginia on Bank Street between 9<sup>th</sup> and 10<sup>th</sup> Street.



*CSA Catalog Type WD-NM-01: WAR DEPARTMENT, NITRE AND MINING BUREAU, OFFICIAL BUSINESS with 10c CSA #11 Type 1 (A&D) To: Major Jonathan W. Green, Wytheville, VA from Richmond, VA. Dated October 23, 1864 (Powell Type 6p, Richmond, VA circle date cancel). Major Jonathan W. Green owned and operated furnaces at Mount Hope from 1861 or 1862 that provided pig iron to the Confederacy.<sup>vii</sup>*

The Nitre and Mining Bureau was under the Ordnance Department as part of the War Department. This letter illustrates a previously unknown semi-official imprint on an Official Size No. #3 envelope.

Many departments, bureaus and branches of the Confederate Government were provided with “Imprinted Envelopes”. Although the words “Official Business” were commonly a part of the imprint, these envelopes were not “official” in the philatelic or postal sense. They are classified as “Semi-Official” because they did not carry the free-franking privilege and they required prepayment when transmitted through the Confederate postal system.<sup>viii</sup> They are divided into two main divisions: 1) Confederate States Governmental and Military Imprints; and 2) State Governmental and Local Imprints. These envelopes were intended to convey governmental business only and were not meant for private correspondence; however, the rule was frequently disregarded. In such cases, the words “Official Business” were generally obliterated by pen strokes.

Imprints are known on United States postal stationery and commercial envelopes of many sizes and colors. Variations in imprints are a result of the printer’s type style, the positioning of lines in relation to one another, and the relative spacing between lines of print.<sup>ix</sup> The printing was almost all done in Richmond VA by Archer and Daly, and ordered on an “as needed” basis by the various agencies. The type would be set, the envelopes printed, and when the order was completed, the type taken down and reset for the next order, though generally not exactly the same way each time.<sup>x</sup>

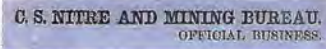
Local newspapers and printing offices sometimes also printed envelopes. For example, on January 31, 1863 N.S. Morse printed 5,000 Government size envelopes stamped “Nitre and Mining Bureau” for \$ 16.00 per thousand (\$ 80.00) for Captain George Arnold at Augusta.<sup>xi</sup> E. B. Long and Company printed 15,000 small envelopes on December 18, 1863 for the “Nitre and Mining Bureau” at \$50.00 per thousand (\$750.00) for distribution throughout the 2<sup>nd</sup> Division of the Nitre and Mining Bureau and also Captain Arnold.<sup>xii</sup> The envelopes cost more because the confederacy had difficulty in procuring stationery in the troubled times, especially envelopes. Envelopes plainly of amateur manufacture are very common and were often made of very unsuitable paper.<sup>xiii</sup> In the Chapter on Semi-Official Imprints of *Confederate States of America: Catalog and Handbook of Stamps and Postal History*, there is a section “Nitre and Bureau” with fifteen different imprinted envelopes listed.<sup>xiv</sup>

**NITRE AND MINING BUREAU**

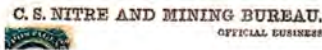
**Nitre and Mining Bureau**



WD-NM-01 Imprint at left with "OFFICIAL BUSINESS." imprint at right



WD-NM-02 "O" of "OFFICIAL" under "I" of "MINING"; imprint at left



WD-NM-03 "O" of "OFFICIAL" under "NG" of "MINING"; imprint at left



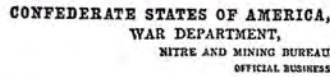
WD-NM-04 "W" of "WAR" under "T" of "CONFEDERATE"



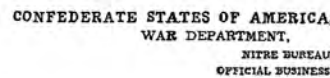
WD-NM-05 "W" of "WAR" under "TE" of "CONFEDERATE"; "D" of "DEPARTMENT" under "A" of "STATES"; imprint at left



WD-NM-06 "W" of "WAR" under "E" of "CONFEDERATE"



WD-NM-07 "W" of "WAR" under last letter and space after "CONFEDERATE"; "D" of "DEPARTMENT" under second "T" of "STATES"



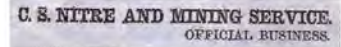
WD-NM-08 "W" of "WAR" under space before and first letter of "STATES"



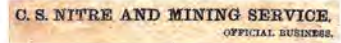
WD-NM-09 "W" of "WAR" under "TA" of "STATES"



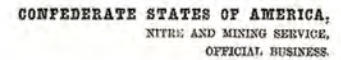
WD-NM-10 Imprint at top left



WD-NM-11 Imprint at top left



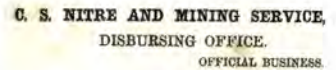
WD-NM-12 "O" of "OFFICIAL" under "NG" of "MINING"



WD-NM-13 "N" of "NITRE" under first "S" of "STATES"



WD-NM-14 "N" of "NITRE" under first "T" of "STATES"; imprint at left



WD-NM-15

What was the Nitre and Mining Bureau? How was it created? To begin with to fight a war, one needs a supply of gunpowder. The ingredients and composition of gunpowder in the 1860's were little changed from the formula devised six centuries earlier by Roger Bacon: 75 % saltpeter combined with sulphur and charcoal to complete the mixture, in equal or slightly varying proportions of 12 to 13 percent each. <sup>xv</sup>

The archaic spelling "saltpetre" is used herein to refer to the nitrates mined from caves and used as a synonym for niter, the mineral name for naturally occurring potassium nitrate (KNO<sub>3</sub>). However, niter was only a minor constituent of the saltpeter or "petre dirt" which was mined from caves and subsequently leached of nitrates for processing into KNO<sub>3</sub>, the principal ingredient of gunpowder. <sup>xvi</sup>

The key criterion for nitrate deposits in caves or rock shelters is the presence of any kind of forest growing over them. <sup>xvii</sup> Grassland soils retain nitrogen within the soil-root zone and use nitrogen immediately; forest soils have lower nitrogen retention so the nitrates are more easily leached out to infiltrate the cave environment. <sup>xviii</sup> Saltpeter sites were developed if there was a dependable water supply and enough nitrates in the subsoil to warrant mining. <sup>xix</sup> The forest also supplied timber for manufacturing tools and firewood for the evaporation kettles and production of charcoal used in the chemical conversion of saltpeter to gunpowder. <sup>xx</sup>

When the war began, the supply of gunpowder in the whole Confederacy could not be counted on to last more than a month. While the United States and foreign powers had long established sites for the manufacture of gunpowder, the Confederacy entered the conflict with no powder mills of consequence. Either the Confederacy would have to produce saltpeter, or it would have to surrender – and the idea of that never crossed its mind. <sup>xxi</sup> President

Jefferson Davis and Major Josiah Gorgas selected George Washington Rains for the job of expediting Confederate powder manufacture, giving him *carte blanche* power to do so. <sup>xxii</sup>

Major George W. Rains published “Notes on Making Saltpetre from the Earth of Caves, which he and Lieutenant Colonel Gorgas distributed. During the fall of 1861, Gorgas called for the delivery of saltpeter and offered thirty-five cents a pound for it. (George W. Rains, *Notes on Making Saltpetre from the Earth of The Caves*, Augusta GA.: Steam Power Press Chronicle & Sentinel, 1861.)<sup>xxiii</sup>

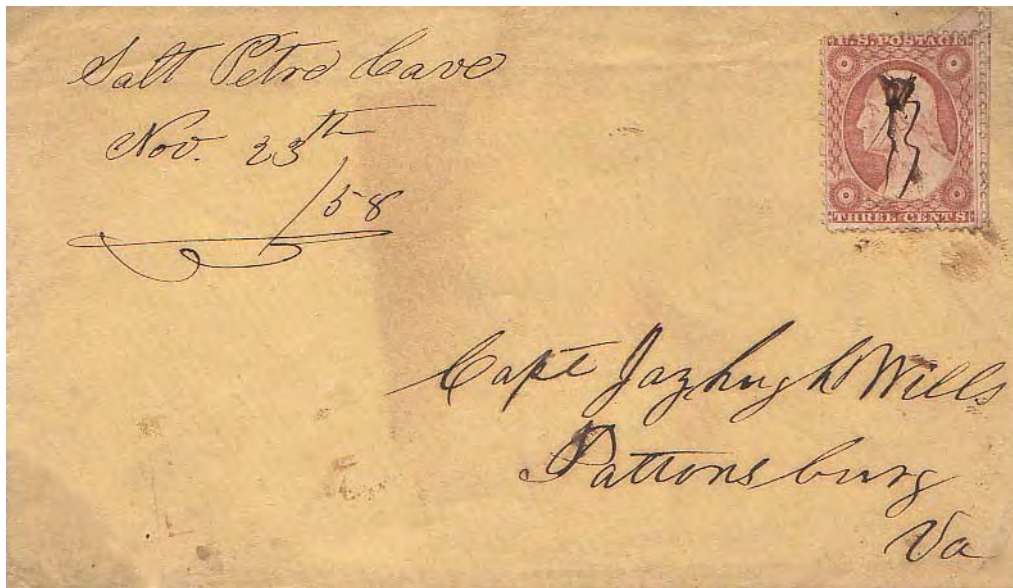
Joseph LeConte published a pamphlet entitled “Instructions for the Manufacture of Saltpetre”, in 1862, in which he stated “It will be seen that under the most favorable circumstances saltpetre cannot be made in any considerable quantity in less than six or eight months, and that if we commence now the preliminary process of *preparing black earth*, so as to insure a sufficient and permanent supply, results cannot be expected under eighteen months or two years. Let no one be discouraged by this fact, under the idea that the war *may* not last so long, and all his or her work *may* be thrown away. There is every prospect now of the war continuing at least several years, and of our being thrown entirely on our own resources for war materials. Besides, even if the war should be discontinued, the work is by no means lost. The method of preparing and making saltpetre-beds is precisely the most approved method of making the best manure, and all the labor and pains necessary for the *preparation of black earth*, and the construction of saltpetre-beds, and which I hope to induce my fellow-countrymen to undertake under the noble impulse of patriotism, ought to be annually undertaken by every planter, under the lower impulse of a wise self-interest, and would be amply rewarded in the increased production of field crops.” <sup>xxiv</sup>

During the Civil war, the Confederacy had to depend almost completely on caves for its sources of saltpeter, a necessary ingredient to manufacture gunpowder. The accompanying table lists the total number of saltpeter caves during the Civil War by state. <sup>xxv</sup>

### Saltpeter Caves during the Civil War

<i>State</i>	<i>Number of Saltpeter Caves</i>
Alabama	55
Arkansas	3
Georgia	5
Illinois	1
Indiana	13
Kentucky	21
Maryland	5
Missouri	13
Pennsylvania	1
Tennessee	117
Virginia	19
West Virginia	27

The saltpeter-gunpowder manufacturers needed to have their work sites as close to major transportation routes as possible and therefore the drier caves and rock shelters near the crossroads of travel became saltpeter mines. Looking at a map of the United States with all of its caves indicated, the majority of saltpeter sites are confined to of Maryland, West Virginia, Virginia, Georgia, Alabama, Tennessee, Kentucky, Indiana, Illinois, Missouri, and Arkansas. <sup>xxvi</sup>



Letter to Captain Jazhugh Mills of Pattonsburg, VA from Harvey J. Wilson, November 22, 1858. (Scott #26). **Earliest Known Cover** from this Post Office, which opened on June 2, 1858 with John A. Biggs, Postmaster.<sup>xxvii</sup>

On February 20, 1861, Congress passed “An Act to Provide Munitions of War and for Other Purposes,” authorizing the President or Secretary of War to contract for the purchase and manufacture of heavy ordnance and of small arms, for machinery to manufacture or alter small arms and ammunition, and to employ the necessary agents and artisans to accomplish these objectives. The act also provided for the establishment of powder mills and for the manufacture of powder.

Eight days after this act was passed, another entitled “An Act to raise Provisional Forces for the Confederate States of America, and for other purposes” found approval, authorizing the President to receive all the arms and munitions which the several states might wish to give to the Confederacy. On March 6, 1861, Congress passed the law. “An Act for the establishment and organization of the Army of the Confederate States of America” provided for the formation of a Corps of Artillery charged with ordnance duty, and set up a table of authorized personnel, which allowed for one colonel, two lieutenant colonels and ten majors.<sup>xxviii</sup> On April 8, 1861, Special Order Number 17, from the Confederate Adjutant General’s Office, was issued officially assigning Major Gorgas, Chief of Ordnance, as the Confederate provisional Congress had already made some provision for the creation of an ordnance bureau.

On January 13, 1862 “An Act to Encourage the Manufacture of Small Arms, Saltpeter, and of Gunpowder within the Confederate States” was passed by Congress. The Act read:

SECTION 1. *The Congress of the Confederate States of America do enact*, That every person who shall propose to establish, put in operation, and carry on a manufactory of small arms within the Confederate states for making small arms for the Army of the Confederate States; and every person who shall propose to establish, put in operation, and carry on a manufactory of gunpowder within the Confederate States suitable as ammunition for the Army of the Confederate States; and every person who shall propose to establish, put in operation, and carry on a manufactory of saltpeter within the Confederate States, who shall submit to the Secretary of War his proposal or proposals, in one or more of these respects, with a statement of the amount proposed by him to be so invested in said undertaking or undertakings and of the extent and plan of his undertakings, and who shall produce satisfactory evidence to the Secretary of War that he has actually expended in the prosecution of the proposed work one-fourth of the capital proposed to be invested therein, shall be entitled, unless the Secretary of War deem such work visionary or impracticable, or at points too remote for the advantage of the Confederacy, to receive at such times and in such amounts as may be required for the construction and operation of such works, as an advance from the Treasury, a

sum equal to 50 % on the amount proposed by him to be so invested, to be repaid, without interest, to the Confederate States, from the first merchantable article manufactured, at such price as shall be agreed upon and stipulated for before or at the time of such advance by the Secretary of War and the other contracting party, said price to be such as shall be sufficient to afford the manufacturer a liberal profit upon the probable cost of production: *Provided, however,* That no such advance shall be made until the party applying therefore shall enter into bond and security, to be approved by the Secretary of War, or by some one appointed by him to take and approve said bond. Said bond to be in the penalty of double the amount proposed to be advanced, and to be conditioned to the effect that the principal obligor shall well and truly, and by a certain time, to be named in the bond, proceed to erect, complete, and put into effective operation the manufactory proposed; that he will expend the sum proposed for these purposes; that he will expend the sum proposed for these purposes; that he will appropriate the money advanced by the Government to such purpose, and to no other use or purpose; and, as far as practicable, will keep the said properly insured, and that he will repay the same from the first merchantable article manufactured until he shall fully repay to the Confederate States, in the article and at the price stipulated for, the sum advanced; *And provided further,* That no such advance shall be made until the party applying therefore shall subscribe a written oath indorsed upon the back of said bond, which may be administered by any person competent to administer oaths, that said advance is asked for the purposes specified in this act, and for no other, and he or they will so apply said funds which may thus be advanced. And a willful and corrupt violation of this oath shall be deemed perjury, and punishable by imprisonment for not less than three or more than ten years.

SECTION 2. *The Congress do further enact,* That the Secretary of War may, at his discretion, in anticipation of the erection of such manufactory or manufactories, enter into such further contracts with the persons proposing to establish the same, for the thing to be produced, as shall comport with the then present or prospective wants of Government, and may or may not, at discretion, require security for the performance of the same; but no advance or prepayment shall be made on such last-mentioned contracts. And contracts made under this section of the act shall be such as may afford the manufacturer a liberal profit on the probable cost of production.

SECTION 3. *The Congress do further enact,* That in the case of destruction of any such manufactory of gunpowder, without the negligence or fault of the owner, before the repayment to the Government of the advance made by it under the first section of this law, the owner shall be excused from further performance of such contract, save so far as he may be able to perform his contract with the property remaining, or from the manufactured article on hand at the time of and saved from such loss.

SECTION 4. The provisions of this act shall apply to cases of enlargement of manufactories of small-arms, gunpowder and saltpeter, now established or being established within the Confederate States, but the advances made in such cases shall only be 50% upon the amount proposed to be invested in the enlargement of such manufactory, and no now existing investment in such manufactory shall be computed or taken into account in determining such 50 per cent.

Alexander H. Stephens, *President of the Congress pro tempore.*

I certify that this act passed Congress. J.J. Hooper, Secretary. <sup>xxix</sup>

On January 22, 1862, Jefferson Davis rejected the Act stating “The requirement of the bill that liberal profits shall be granted and an extraordinary advance be made, coupled with the absence of any Executive discretion to refuse any contract proposed for the supplied mentioned in the bill, would inevitably expose the Treasury to heavy drafts from the class of speculating contractors. I regret that these features of the bill compel its return, as some of its provisions would be valuable adjuncts to existing legislation in enabling the Government to aid in the establishment of manufactures of arms and the creation of artificial saltpeter beds.” <sup>xxx</sup>



“The Act to Encourage the Manufacture of Saltpeter and Small Arms” was revised, and, on April 17, 1862, approved by Congress. The Act read:

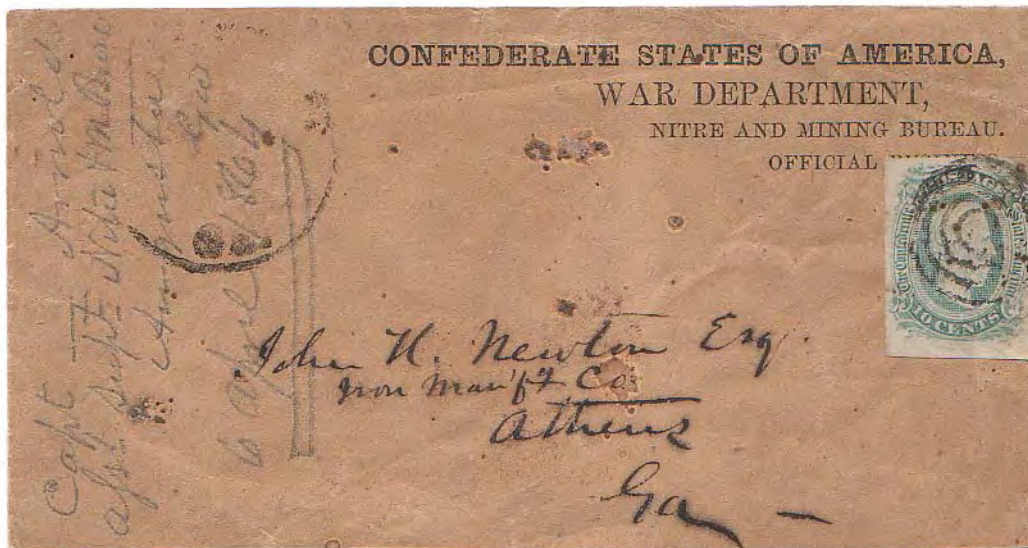
*The Congress of the Confederate States of America do enact,*

SECTION 1. That any person or persons who may propose to establish within the limits of the Confederate States a manufactory or manufactories of saltpeter and of small-arms adapted to the use of the Army, shall be entitled to receive from the Government an advance of 50% of the amount required for the erection and preparation of the works and machinery necessary to such manufactory or manufactories, to be repaid without interest in the product of such manufactory or manufactories, at a price to be agreed upon before such advance shall be made, and subject to the following conditions, to wit: First, That the contractor or contractors shall submit to the President a plan of the proposed works, showing the location, nature and extent, together with a sworn estimate of their probable cost, and a detailed account under oath of the amount already expended on the same, which amount shall be at least 25% of the entire estimated cost of such work. Second, that the amount so advanced shall be paid in installments as the works shall progress toward completion. Third, that the President shall approve the proposed enterprise and works. Fourth, That the contractor or contractors shall enter into bond with sufficient security, to be approved by the President, in the penalty of double the amount proposed to be advanced, and conditioned that the principal obligor or obligors shall well and truly, by a certain time, (which may be extended by the President if he sees thinks proper) named in the bond, proceed to erect, complete and put into effective operation the manufactory or manufactories proposed; that he or they will expend the sum named for these purposes; that he or they will appropriate the money advanced by the government to such purpose and to no other use or purpose, and, as far as practicable, keep the property insured; and that he or they will repay the same from the merchantable articles manufactured, to be delivered at such time and in such quantities as may be agreed upon, the same, in all cases, to be inspected by a Government officer before it is received, until he or they shall fully repay to the Confederate States, in the article and at the price stipulated for the sum advanced; that the contractor or contractors shall subscribe a written oath, indorsed upon the back of said bond, which may be administered by any one authorized to administer an oath, that said advance is asked for the purposes specified in this act, and that he or they will so apply said fund, which may thus be advanced; and a willful and corrupt violation of this oath shall be deemed perjury, and punishable by imprisonment for not less than three or more than ten years.

SECTION 2. The provisions of this act shall apply to cases of establishment or (of) manufactories of saltpeter and of small-arms, now established or being established within the Confederate States, but the advances made in such cases shall only be 50% upon the amount proposed to be invested in the enlargement of such manufactory or manufactories; and no now existing investment in such manufactory or manufactories shall be computed or taken into account in determining such 50 per cent. <sup>xxxii</sup>

A supplement was passed on April 18, 1862, added other materials including the production of coal and iron. The supplementary act read as follows:

*The Congress of the Confederate States of America do enact,* That the provisions of the act entitled “An act to encourage the manufacture of saltpeter and small arms,” shall also apply to all establishments or mines for the production of coal and for the production and manufacture of iron, and that in addition to the advance of 50% therein mentioned, the President be and he is, hereby authorized to enter into contracts for the purchase of coal and iron, in such quantities as may probably be required for a series of years, not exceeding six, and to make advances thereon not exceeding one-third of the amount of the contract. <sup>xxxii</sup>



**CSA Catalog Type WD-NM-06** - To: John H. Newton, Esq. Iron Manufacture Co. Athens, GA. From: Capt. Arnold Asst. Supt. Nitre & Mining, Augusta, GA. April 4, 1864 with a 10c CSA #11 Type 1 (A&D). John H. Newton was a merchant in Georgia, director of the Bank of Athens, attorney, and director of the North Eastern Railroad. At the end of the Civil War he was the largest owner of wild lands in Georgia.<sup>xxxiii</sup> Capt. George Arnold was in charge part of the time the 2<sup>nd</sup> Division of the Bureau located in Augusta Georgia.

Since the early 1600's India had supplied most of the world's saltpeter. Its saltpeter trade was under British control, purchases from suppliers in Calcutta usually being arranged through brokers in London or Liverpool. Shipments to other countries could be shut off just as swiftly as word could pass from Whitehall to the port officials in Calcutta and other Indian shipping ports.<sup>xxxiv</sup> Meanwhile, Major Gorgas, Chief of Ordnance, had been working on the expansion of his bureau. From the crew of a small chemical adjunct to handle mineralogical experimenters, Gorgas wanted to create a separate corps of officers charged with "the extraction of niter from the caves and the construction and supervision of niter beds." Gorgas selected Major Isaac M. St. John take charge of the corps.<sup>xxxv</sup> While Congress was considering revision to the act to encourage the manufacture of saltpeter and small arms, it passed on April 11, 1862, "An Act for the Organization of a Corps of Officers for the Working of Niter Caves and Establishing Niter Beds" on April 11, 1862,

*The Congress of the Confederate States of America do enact,*

SECTION 1. That for the purposes of procuring a supply of niter, adequate to the wants of the Government, during the continuance of the war with the United States, the President be, and he is hereby, authorized to appoint a corps of officers, consisting of one superintendent, with the rank, pay and allowances of a major of artillery, four assistants, with the rank, pay and allowances of a captain of artillery, eight subordinates, with the rank, pay and allowances of first lieutenants of artillery.

SECTION 2. The duties of the officers, under the supervision of the Chief of Ordnance, shall be to inaugurate and prosecute a system for the efficient working of the niter caves, and to purchase and contract for the delivery of niter produced within the limits of the Confederate States; to inspect the niter caves and

other natural deposits of nitriferous earth, and to report the probable annual supply from these sources, and the extent and economy, or otherwise, with which they are being worked by private enterprise; to establish niter beds in the vicinity of the principal cities and towns of the confederacy, and to contract for the necessary grounds, sheds, etc., and for the offal and other materials used in

the preparation of niter beds; to diffuse information and to stimulate enterprise in the production of an article essential to the successful prosecution of war. The superintendent will make reports, as stated, to the Chief of Ordnance, to be submitted to the Secretary of War, for the information of Congress. This organization is to be continued at the discretion of the President. <sup>xxxvi</sup>

The Confederacy's sources of niter were restricted to what was captured and what could be secured from caves and artificial niter beds. <sup>xxxvii</sup> When the Confederacy was cut off by the blockade of all its ports, it resorted to the caves of Virginia, Alabama and Tennessee, particularly to the great Nicojack Cave near Chattanooga, for the means of making gunpowder. <sup>xxxviii</sup>



*CSA Catalog Type WD-NM-14 - To: Robert L. Horner (Nitre Broker) Bath Alum Post Office, Bath, VA with a 10c CSA #2 Type 2 (A&D) from Staunton, VA. Lieutenant Robert L. Horner was Superintendent of Douglas Cave Works within the boundaries of Nitre and Mining Bureau District 4 1/2. <sup>xxxix</sup>*

Some artificial niter beds (nitrieries) had been started in Richmond before St. John's corps came into being. He set about expanding these, establishing others at Columbia, Charleston, Savannah, Augusta, Mobile, Selma and other places. The niter business in Selma contributed a bit of doggerel to literature. Jonathan Haralson, niter agent in Selma, advertised for urine, one of the components of niter. In a local newspaper he reputedly requested human urine from the ladies of Selma to preserve their "chamber-lye" for the use of his organization. This furnished too great a temptation to a self-styled wit, allegedly named Wetmore, who composed several stanzas of naughty verse. <sup>xi</sup> (See Appendix A for the verses.)

On April 15, 1862, Special Order No. 85 was issued from the Secretary of War Jonathan Withers, Assistant Adjutant-General, Adjutant and Inspector General's Office, Richmond. Section VIII read: "Military commanders are directed and officers of the Niter Bureau are authorized to seize niter in the hands of private individuals who either decline to sell it or ask more than 50 cents per pound for it. Certificates of impressments will be given by the officers making the seizure, which will entitle the party to the money when presented to any officer of the Niter Bureau, or the money may be paid at the time of the seizure. All quartermasters are directed to give precedence in transportation to niter over all other Government stores."<sup>xli</sup>

The Niter and Mining Bureau advertised in Southern cities for nitre and saltpeter. Below are two examples of advertisements:

Nitre and Mining Bureau, Jonesboro, Jan. 26, 1864

Nitre manufacturers are hereby ordered to bring in the Nitre they have on hand. It will be received at this place on the last Thursday of each month at Zollicoffer the last Saturday. Those at or below Greenville can send it up by the cars to this place, marked to me with the names of the parties sending it. \$1.50 will be paid where 50 lbs of good Nitre is delivered per month by each man, or \$ 1.00 per lb where less is delivered.

All the NITRE man in the counties of Sullivan, Carter, Washington and Greene, are also ordered to come in person to this place, to have new details furnished them. Between the 1<sup>st</sup> and 10<sup>th</sup> of February, next as the old details are to be revoked and the men must come to be provided with new ones.

By John W. Pearce, Lieut., Nitre & Mining Corps, in charge of District 7. <sup>xlii</sup>

NOTICE, Columbia, S.C. February 26, 1864

The patriotic citizens of Columbia are respectfully informed, that under orders from the proper authorities, the NITROUS EARTH, under old buildings, stables, etc., in this city, will be collected for the purpose of making SALTPETER. Scrapings to the depth of only three or four inches are required, and in cases where any damage is done in collecting or removing the nitrous earth, it will be promptly repaired.

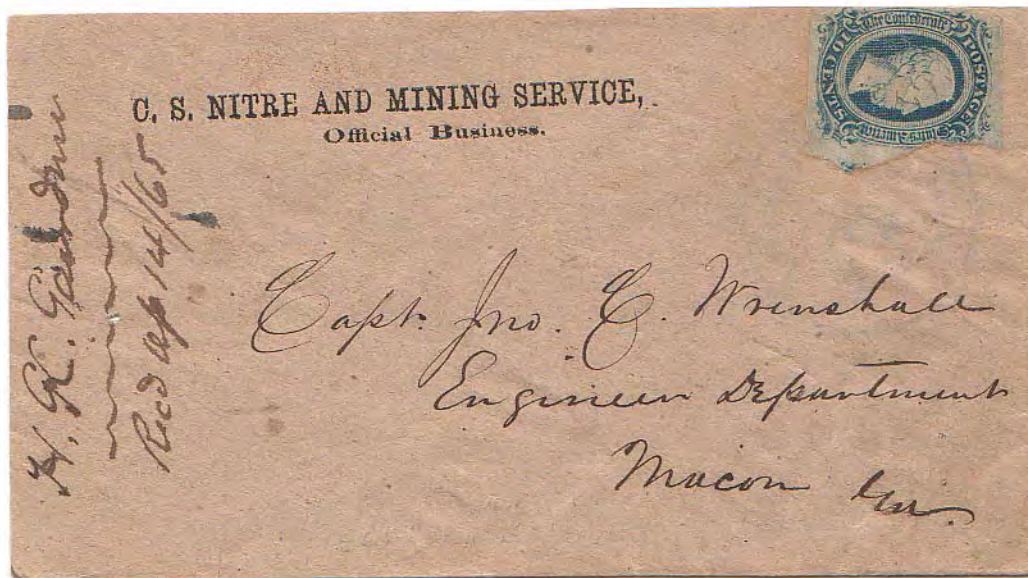
By: John LeConte, Asst. Superintendent of Nitre and Mining Service. <sup>xliii</sup>

On May 7, 1862, Captain Richard Morton of the C.S. Niter Bureau wrote to now Lieutenant Colonel Gorgas, Chief of Ordnance, regarding “one of the most important questions which ever comes up for the consideration of the Niter Bureau is the propriety of taking possession of caves containing nitrous earth, and having these caves worked either by energetic private parties who have contract to furnish niter to the Government, or else having them worked on Government account, and when the Bureau was organized by Major St. John was completely under the impression that the responsibility of deciding properly such questions would rest upon himself or some officer responsible to him, and had given instructions to the officers of the corps in accordance with this impression.

“A case, however, occurred on yesterday, and I decided that it was proper to take possession of a cave in Giles County, and wrote to the officer in command of our troops near the cave and requested him to do so, and in order to make the paper official I requested the Secretary of War to approve it. He, however, referred the matter to General Heth to see that the cave be worked to the best advantage.

“Now it appears to me that this deprives us of the greater part of our efficiency as an organization, for it is the duty of the agents of the Bureau to be properly informed from personal inspection of the pros and cons of every case, and being thus informed and responsible for results it would seem that they are the most suitable persons to decide the question of impressments, and I would most respectfully request that applications be made to the Secretary of War to issue an order directing the military authorities to impress caves upon application of the officer in charge of the operations of the Niter Bureau in each state. This seems to me to be very necessary to the proper efficiency of the corps.” <sup>xliv</sup>

On May 9, 1862, Lieutenant Colonel J. Gorgas affirmed Captain Morton's concerns and requested the Secretary of War George W. Randolph give instructions to military commanders to act upon the requisitions of officers of the Niter Bureau in charge of the District.<sup>xlv</sup>



*CSA Catalog Type WD-NM-10 To: Capt. J. C. Wrenshall, Engineering Depot, Macon, GA. April 12, 1865 10c CSA #11 Type 1 tied by Ultramarine postmark from Augusta GA. Capt. J.C. Wrenshall was an architect and civil engineer, who was in charge of the engineer's office in Macon Georgia. He was responsible for the plotting of field notes and duplicating maps for use on the army.<sup>xlvi</sup> Received by Henry Kollock Gairdner, merchant, cotton buyer and guano manufacturer and Asst. Superintendent of District 8.<sup>xlvii</sup>*

On May 31, 1862, General Order 41 was issued from Secretary of War Adjutant and Inspector General S. Cooper, in Richmond. It read as follows:

SECTION 1. General officers and officers in command of all departments, districts, and separate posts will make a detail of men from their commands to work the niter caves which may be situated within the limits of their respective commands. These details will be made on the requisition of the officer in charge of the Niter Bureau in the War Department. The men thus detailed will be organized temporarily under the command of the niter officer in charge of the particular cave, who will make monthly reports to the general or other officer commanding the department, district, or post in which the cave may be located, in order that such commanding officer may treat as deserters such of the detailed men as may leave the works without permission. And it is enjoined upon generals and other commanding officers to give protection, as far as possible and to the extent of their means, against any encroachments of the enemy upon the niter caves within the limits of their commands.

SECTION 2. All persons in the employment of the Niter Bureau, whether contractors for manufacturing saltpeter, or laborers in their employment, are exempt by law from enrollment.

SECTION 3. Officers of the Quartermaster's and Commissary Departments will furnish the officers and men of the Niter Bureau with provisions and forage as in the case of ordnance officers and men in the field.

SECTION 4. Officers of the Niter Bureau are authorized to impress free Negroes for the purpose of working the niter caves, who will be paid wages and furnished with subsistence.<sup>xlviii</sup>

Congress asked several questions of Lieutenant Colonel J. Gorgas on the quantities of materials and measures to procure them. Major George W. Rains, in a letter written to Gorgas on July 25, 1861, stated “in four months, if I am fortunate, I may be able to make two and a half tons of powder per day, and this joined to the amount fabricated by the private mills above referred to, will give a probable supply of three and a half to four tons per twenty-four hours at that time.”<sup>xlix</sup>

Superintendent I.M. St. John reported to George W. Randolph, Secretary of War “the Plan of Operations the Bureau” has been approved. The Plan was:

1. To explore rapidly, but with system, for niter caves and deposits.
2. To stimulate private enterprise by circular and newspaper publications, personal appeal and instruction, and affording facilities for work, prompt payment and a liberal supply of tools and utensils.
3. When advisable, to start work on Government account.

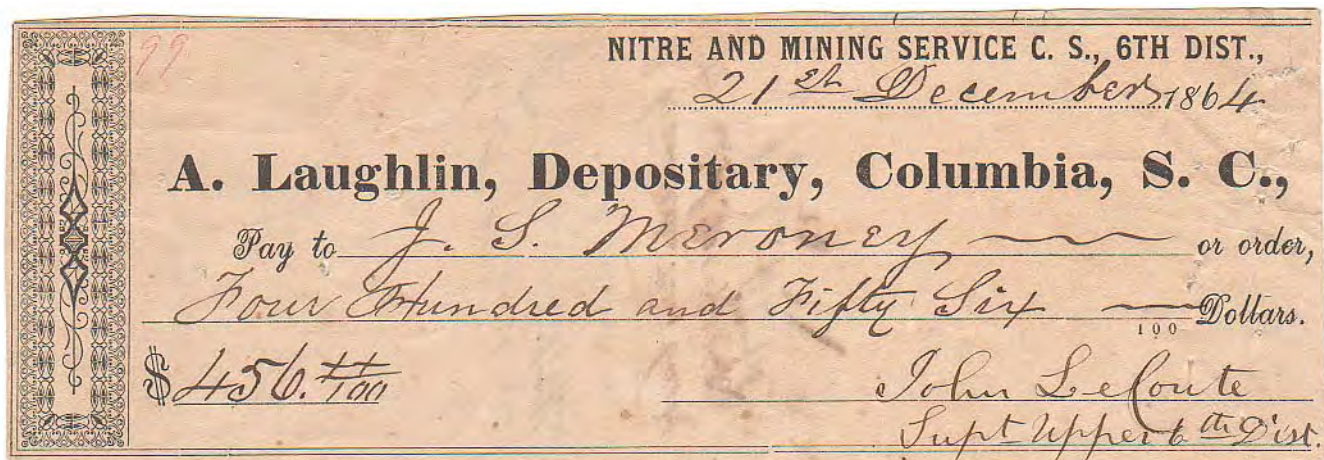
As rapidly as competent agents could execute it, the plan began in each district and, before the end of May, the survey was in full progress. First known localities were examined and later new ground; the caves were explored, earth tested and, when practicable, measured, and the results communicated to the Richmond office for registration and mapping. Good working caves should contain at least 5,000 cubic feet of earth. The nitrous earth, which usually covers the cave floor or fills crevices in its side chambers, must be dry, and should yield 1% or more nitrates. As exploration continued, the Bureau agents spared no effort to induce private parties to work every available source of niter supply – caves, plantation deposits, tobacco barns, old cellars, and artificial niter beds – efforts which continue today. On August 1, 1862, the furnaces were up and work under way at 16 Government caves, with an average work force of 272 whites and 115 Negroes.<sup>1</sup>

Secretary of War George W. Randolph, reported to President Jefferson Davis on August 12, 1862, “ that a Niter Bureau has also been organized and under its able and indefatigable head, Major I.M. St. John is doing good service. General Order No. 41, herewith communicated, was issued to facilitate the operations of the Bureau. The production of Niter is already 1,000 pounds a day, and there is good reason to think that it will reach 3,000 pounds a day and supply our consumption.”<sup>ii</sup>

On September 12, 1862, The Adjutant and Inspector General S. Cooper issued General Order No. 66 that read:

Section IV. The superintendent of the Niter and Mining bureau, or such officers as he may designate, are authorized and required to impress for the Government any mineral mines or niter caves or deposits required for the wants of the service, in all cases where such mines, caves, or deposits are suffered to remain unworked, or which may be imperfectly worked by the owner or lessor. Compensation for ore, earth, buildings, timber, and all materials necessary for such work thus taken and used may be settled by private agreement or by arbitration, under the direction of the Niter and Mining Bureau.

Section V. Enrolling and recruiting officers, in the discharge of their duties under the conscript or other acts, are enjoined not to remove or interfere with workmen or employees at the niter, lead, or copper works, or mines worked by Government officers, or by contractors for the Ordnance Department, without first apprising and obtaining the consent of the superintendent, or officer in charge, who will be held strictly responsible for any abuse or evasion of the law.<sup>iii</sup>



On March 11, 1864 in Columbia South Carolina, Alexander Laughlin, a merchant, was established as a depositary for funding CSA Treasury Notes following the passage of the February 17, 1864 “Act to Reduce the Currency and Authorize a New Issue of Notes and Bonds”.<sup>liii</sup> John LeConte, Superintendent of the Upper 6th Niter and Mining Service District, sometimes known as District 6 ½, signed the check for \$456.00 on December 21, 1864, addressed to John S. Meroney, a Camden, North Carolina, merchant (the company was known as Meroney, Boswell and Brothers). They specialized in “dried and green hides”. It is possible that John LeConte was paying J.S. Meroney for leather for worker’s shoes.

On December 3, 1862, the Nitre and Mining Bureau Superintendent, Major St. John, reported to Secretary of War, J.A. Seddon, “that the per diem yield of niter production has steadily increased from 200 pounds in April to somewhat over 2,000 pounds in October. This yield very nearly meets the present demands of the service for the next three months and probably for the winter. I have respectfully to request a general order directing the extension of niter production in the interior districts of North Carolina, Georgia and Alabama and if the operations are thus to be extended, authorizing the use of conscript labor where indispensably needed.”<sup>liv</sup>

Although the services of the Nitre Bureau employees were officially recognized in a December 5, 1862 order as “second to no other” in importance to the war effort, the men’s duties were often not appreciated and they were sometimes viewed as shirking combat duty in the armed forces. Soon after the Nitre District was established, the South was divided into fourteen districts, of which Numbers One, Two, Three, Four, and Four and One Half were in the Virginias.<sup>lv</sup> Over these districts were three supervisory divisions: First Division - Alabama, Georgia and South Carolina; Second Division - Virginia, Tennessee, Kentucky and North Carolina; and Third Division - Trans-Mississippi area. This diversification reduced red tape and allowed officers to impress a cave into production quickly. The Nitre and Mining Bureau became an efficiently running machine. All results were communicated to the Richmond Office.

In the following year, on March 26, 1863, the Adjutant and Inspector General S. Cooper issued General Order No. 33 that reaffirmed the Niter and Mining Bureau. It read:

Section I. The corps of officers for the ordnance duty will hereafter be composed exclusively as follows:

5. Officers of the Niter and Mining Bureau, appointed under act of Congress.<sup>lvi</sup>

On May 1, 1863, an act was passed by Congress authorizing the President to appoint officers in the Niter and Mining Bureau and in the engineering troops during the Senate recess. It stated:

*The Congress of the Confederate States of America do enact, That the President be, and he is hereby, authorized to appoint officers in the Niter and Mining Bureau and in the engineering troops during the recess of the Senate, to be confirmed by the Senate at its next session, and the commission of officers so appointed shall expire at the end of the next session of the Senate, unless the same be confirmed.*<sup>lvii</sup>

The war was heating up and gunpowder was becoming a strategic commodity. On June 16<sup>th</sup>, 1863, S. Cooper, Adjutant and Inspector General issued, General Order No, 85, which reaffirmed Congress's act establishing the Niter and Mining Bureau and set forth its regulations. The regulations read:

Section I. The following act of Congress and the regulations adopted by the department in pursuance thereof are published for the information of all concerned:

*AN ACT to establish a Niter and Mining Bureau*

Section 1. *The Congress of the Confederate States do enact*, That the officers authorized and appointed under the act entitled "An act for the organization of a corps of officers for working of niter caves," etc., passed April 11, 1862, together with such additional officers as authorized by the provisions of this act, shall constitute an independent bureau of the War Department, to be entitled "The Niter and Mining Bureau."

Section 2. *Be it further enacted*, That said bureau shall have charge of all the duties prescribed in the second section of said act, and shall besides be charged with all duties and expenditures connected with the mining of iron, copper, lead, coal, etc., so far as it shall be deemed necessary to supply the military necessities of the country; and the superintendent thereof shall, under the Secretary of War, have full power to make such leases of real estate and purchases of fixtures as are necessary or appurtenant to any mines it may be deemed expedient to open or work on Government account; and may also contract, subject to the approval of the Secretary of War, for such supplies, by purchase or otherwise, of all copper, lead, iron, coal, zinc, and such other material as may be required for the prosecution of the war.

Section 3. *Be it further enacted*, That said bureau shall consist of one lieutenant-colonel as superintendent; three majors as assistant superintendents; six captains and ten lieutenants, in which shall be included the officers of the present Niter Corps, who shall have the same pay and allowances prescribed for officers of cavalry of the same grades. Approved April 22, 1863

Section II. The Secretary of War is of opinion that it is necessary to accumulate supplies of iron in the various military departments for the repair of railroads, the manufacture of arms, munitions, and materials of war, and for the operations of the Quartermaster's, Ordnance, and Engineer Departments, and that experience has shown that the necessary supply cannot be obtained by purchase. Impressment, therefore, according to the act of Congress relating to impressments, has become necessary to secure a supply. It is ordered that all impressments that may be made of iron for this purpose shall be conducted by the chiefs of the Quartermaster's, Ordnance, Engineer, and Niter and Mining Bureaus, or by officers designated by them, who shall in every instance communicate to the owner the necessity that exists for the use of the property, the disposition of the officers to purchase the same, and an offer to purchase it at a price to be ascertained in accordance with the act relating to impressments if the parties cannot agree upon the same.

Section III. And whereas the existing necessity for iron in the departments aforesaid, and for the good of the public service, is such that all practicable measures must be taken to secure an adequate supply, it is further ordered that whenever it may become necessary to secure the full product of any mine or manufactory that the same shall be worked for the sole benefit of the Government of the Confederate States. It shall be competent to the chief of either of the department aforesaid to lease or purchase the same; and in case that the lease or purchase is impracticable, then they are authorized to impress the same for the use of the Confederate States during the war, or while such necessity shall continue.



Section IV. That the proceedings under these orders will be conducted under the fourth section of the act concerning impressments, and in pursuance of the directions contained in paragraph I. <sup>lviii</sup>

The supervision of the production of iron, lead, copper and all other materials needing development, without which the firearms of our day would have been useless, was added to the nitre bureau as well as the regulation of the manufacture of sulfuric and nitric acids (the latter required for the supply of the fulminate of mercury from percussion-caps). Such was the progress that, in a short time, the bureau was aiding or managing some 20 to 30 furnaces with an annual yield of 50,000 tons or more of pig iron. The lead- and copper-smelting works erected were sufficient for all wants, and the smelting of zinc of good quality had been achieved. The chemical works were placed at Charlotte, North Carolina to serve as a resource were the supply from abroad to be cut off. <sup>lix</sup> All of this occurred directly due to the October 5, 1863 General Order No. 133 from S. Cooper, Adjutant and Inspector General.

Section I. The chief of the Nitre and Mining Bureau is directed through the officers of his Bureau, to impress copper, coal, and such other minerals as may be needed for the use of the Government.

Section II. The provisions of paragraph I, General Order 67, current series, is extended to officers of the Conscription Bureau. The payments authorized will be may out of the funds appropriated for the support of that Bureau. <sup>lx</sup>



*CSA Catalog NM-WD-02 To: Jonathan Green, Mount Hope Furnace, Wytheville, VA.  
From: Richmond April 14<sup>th</sup>. The pair of 5c Richmond typographs Major Green was  
an iron contractor who provided pig iron from his Mt. Hope and Beaugard Furnaces  
to the Nitre and Mining Service.*

On November 26, 1863 James A. Seddon, Secretary, of War reported to Jefferson Davis, President of the Confederate States of America, "it is gratifying to be able to report that during the past year the Ordnance and Mining Bureaus have steadily increased the production and supply of arms and munitions. Notwithstanding the serious injury sustained from fire by one of the leading establishments of the Confederacy for the manufacture of ordnance, yet by prompt repairs and the establishment of similar works in other portions of the Confederacy the manufacture has rather increased, and is now believed to be adequate to the regular demands of the service. Arms, too, of approved kinds are being made with more facility at more places and in larger numbers than at any previous time. Very valuable additions to our supplies of arms have been made during the year by our importations from abroad, and thus have enabled the Bureau promptly to repair the very heavy losses, which were sustained in the disastrous campaign in Mississippi. But without such aids in the future, unless unwanted losses occur, confidence

is felt in our ability by internal manufacture to provide arms adequate to the demands of our armies. In the manufacture of powder, balls, etc., progress has been marked, and with some addition in the supplies of niter from foreign sources there will be no want of adequate supplies of superior quality. Special attention has been given to the distribution of these works in different portions of the Confederacy, so as not to leave our supplies dependent on single disasters. While not yet wholly independent in the supply of niter, there has been until very recently marked increase in its production. This increase during the past year nearly doubled from production. The temporary occupancy by the enemy of the districts of the country where the richest deposits of nitrous earth were found has for the present diminished the production, but it is encouraging to know that the artificial sources of supply in beds of nitrous earth will soon begin to be available, and much more that supply the deficiencies which have resulted from the operations of the enemy. The mining operations in iron, lead, and coal have all been pushed with remarkable skill and activity under the zealous head of the Niter and Mining Bureau in despite of all the embarrassments resulting from the paucity of laborers and fluctuating prices, and the result has been in each more abundant production and a better prospect of future sufficiency than we have yet enjoyed. A more decisive exhibition of the resources and exhaustless capacities of endurance possessed by the Confederacy could not well be presented that the decided increase amid unprecedented efforts and sacrifices in the field and numberless impediments in procuring machinery, labor, and supplies of all the great manufactures essential for successful defense.”<sup>lxi</sup>

The Confederates were losing ground and more able fighting troops were needed. On February 9, 1864, S. Cooper issued General Order No, 18.

Section 1. Applications from officers of the Niter and Mining Corps for field service cannot now be considered. Workmen employed by them may be organized and armed for local defense. But their military orders must be subordinated to work as the leading aim and consideration, and second in importance to no other military service.

Section 2. A limit (not yet reached) to the number of able-bodied workmen to be assigned to this service – submitted by the chief of the Niter and Mining Bureau – has been carefully considered and approved, and communicated to the Bureau of Conscription as a guide for its action.

Section 3. Military commanders will extend to the Niter and Mining Service, especially in districts exposed to the enemy, protection, aid, and encouragement.

Section 4. General Orders, No. 32, series 1863, forbids interference with the workmen or employees at mines, furnaces, or niter works, whether worked by the Government or contractors. These orders are now repeated and especial attention is called to them.<sup>lxii</sup>

A detailed report from Colonel St. John, Chief of the Niter and Mining Bureau, was given to James A. Seddon, Secretary of War, on October 1, 1864. It detailed the work of the Niter and Mining Bureau from its inception to September 30, 1864.<sup>lxiii</sup>

Colonel St. John stated, “the entire force heretofore employee in the Government niter and mining service east of the Mississippi River has been as follows:

	<i>FROM 18 TO 45</i>	<i>OVER 45 AND DISABLED</i>	<i>NERGO</i>
Iron Mining	2,313	205	4,301
Nitriaries	38	14	581
Niter Production	1,690	146	823
Total	4,041	365	5,705

The total amount of niter imported equaled 1,720,072 pounds, for a grand total of 3,455,603 <sup>3</sup>/<sub>4</sub> pounds to date.

**C.S. Niter and Mining Bureau, return of niter as of September 30, 1864** <sup>lxiv</sup>

<i>District</i>	<i>State</i>	<i>Officer in Charge</i>	<i>Niter Delivered (lbs)</i>	<i>Expenditures (\$)</i>
1	Virginia	Prof. D.K. Tuttle	126,351	98,718.03
2	Virginia	William A. Jones	12,909 <sup>1</sup> / <sub>4</sub>	16,920.63
3	Virginia	Capt. R.C. Morton	116,564	91,286.67
4	Virginia	James B. Noyes	42,173	40,275.51
4 <sup>1</sup> / <sub>2</sub>	Virginia	Maj. James F. Jones	207,587	164,495.01
5	North Carolina	Maj. C.R. Barney	238,907 <sup>1</sup> / <sub>2</sub>	163,983.68
6	South Carolina	Prof. F.S. Holmes & John Le Conte	2,008	
7	Tennessee	Maj. T.J. Finnie	190,307	132,326.96
8	Tenn. & Georgia	Capt. F.H. Smith	85,706	
9	Upper Alabama	Capt. William Gabbett	225,665	237,977.17
10	Lower Alabama	W.H. C. Price	34,716	26,171.14
12	Florida	Lieut. C.H. Latrobe	820	6,258.92
14	Georgia	Henry P. Farrow	29,913	
	Texas & Arkansas	Maj. Isaac Road & Capt. R.H Temple	408,905	
		Niter made but not delivered	13,000	
<b>Totals</b>			<b>1,735,531 <sup>3</sup>/<sub>4</sub></b>	<b>978,313.72</b>



One of the Saltpeter Caves in Georgia was Cave Spring. This letter is addressed to Mr. Johnson a tanner from J.H. Russell a farmer in Floyd Springs, GA. The pair of 5c London-printed typographs (CSA #6) is postmarked September 21, 1862 <sup>lxv</sup>

**The Officers of the Niter and Mining Service were as of September 30, 1864.** <sup>lxvi</sup>

<i>NAME AND RANK</i>	<i>WHERE STATIONED</i>	<i>ASSIGNMENT</i>
Col. I. M. St. John	Richmond	Chief of Bureau
Lieut. Col. Richard Morton	Richmond	In charge of Niter and general mining service, Virginia, North Carolina and Tennessee
Lieut. Col. W. R. Hunt	Selma, Ala.	In charge of Iron Service, Georgia, Alabama and Mississippi
Major Isaac Reed	San Antonio, Tex.	In Charge of niter and general mining service, Trans-Mississippi Department
Major John Ellicott	Richmond	Iron Service and Government Furnaces, Virginia and North Carolina
Major T.J. Finnie	Wytheville, VA	Niter and Mining District No. 7, West Virginia and Tennessee
Major James F. Jones	Staunton, Va.	Niter and Mining Districts No. 4, Valley of Virginia
Major C.R. Barney	Greensborough, N.C.	Niter and Mining District No. 5, North Carolina
Captain F.H. Smith	Montgomery, Ala.	Iron Service, assistant to Colonel Hunt
Captain William Gabbett	Blue Mountain, Ala.	Niter and Mining Districts Nos. 8 & 9, Upper Alabama and Tennessee
Captain R. H. Temple	San Antonio, Tex.	Mexican Niter
Captain H. F. Reardon	Richmond	Disbursing Officer and in charge of contracts
Captain R.C. Morton	Fincastle, Va	Niter and Mining District No. 3, West Virginia
Captain John W. Pearce	Jonesborough, Tenn	Niter and Mining District No. 7, Assistant to Major Finnie
Captain R.A. Stovall	In the Field	Georgia and Upper Alabama, Assistant to Captain Gabbett
Captain S. Chalaron	Richmond	Nitriaries and foreign correspondence
Captain J. R. Hale	In the field	Georgia
Lieutenant R.L. Sprigg	Rio Frio, Tex	Assistant to Major Reed
Lieutenant Ed Harrison	San Antonio, Tex	Assistant to Major Reed
Lieutenant J. H. Matthews	Columbus, Miss	Assistant to Professor Price
<b>Scientific Arm of Corps</b>		
T.G. Clemson	Shreveport, La	Supervisor of mines, trans-Mississippi Department
N.A. Pratt	Augusta, Ga	Bureau Chemist
Joseph Le Conte	Columbia, SC	Consulting Engineer
D.K. Tuttle	Abington, Va	Superintendent Niter and Mining Districts No. 1 & 2 and lead mines
W.H.C. Price	Montgomery, Ala	Superintendent Niter and Mining District No. 10, Alabama
F.S. Holmes	Charleston, SC	Superintendent Niter and Mining District No. 6, South Carolina
John Le Conte	Columbia, SC	Superintendent Niter and Mining District No. 6 1/2, South Carolina
Edmund Harrison	Near Richmond	Superintendent nitriaries in Virginia
R.B. Gorsuch	Selma, Ala	Inspector of mines and furnaces

Mr. Wright, a former employee of the Waltham Abbey Government Gunpowder Works in England, working at the Manchester Mill near Nashville in 1861, aided Colonel George W. Rains. Wright had seen the recently developed “incorporating process” of gunpowder manufacture at the Waltham plant. Rains also obtained, possibly from Wright, a copy of a pamphlet written by the Waltham Abbey Superintendent, Major J. Fraser Baddeley of the Royal Artillery. This pamphlet described the manufacturing process and machinery in the text, but contained no plans or construction details. <sup>lxvii</sup> However, based on the information at hand, Rains established a powder mill in Augusta, Georgia and production began in 1862.

Colonel (previously Major) St. John organized the collection of nitre from caves, encouraging those too weak to fight to scour old cellars and tobacco barns, starting huge nitre beds in Columbia, S.C., Charleston, Savannah, Augusta, Mobile, Selma and other spots throughout the South. The nitre was obtained by lixiviation (*separation of a mixture by dissolving out one component*) of the nitrous earth. At the end of 1864, it was estimated there was 2.8

million cubic feet of material in various stages of decomposition in these beds, of which a large proportion were presumed to yield 1-½ pounds of nitre per foot of earth.<sup>lxviii</sup>

Unfortunately, the war ended before many of these beds were ready to be harvested, but it was estimated they contained as much as four million pounds of niter. The powder works began to crank out gunpowder on April 10, 1862 (though many of the buildings were not completely finished until the following year) and continued until April 18, 1865, when Rains called a halt to operations. During this time, the works produced 2,750,000 pounds of gunpowder or about 5,000 lbs. per day.<sup>lxix</sup>

[The Union, on the other hand, received all its saltpeter from foreign importations. General James W. Ripley wrote to Secretary of War Stanton in May 1862, revealing that the government now had on hand 7,556,091 pounds of saltpeter, sufficient to produce 94,445 barrels of gunpowder, or enough to carry the war on at its present gigantic scale for another three years.]<sup>lxx</sup>

It is doubtful if more than a select few Confederate Ordnance officers ever came to thoroughly appreciate or understand the miracles performed by Gorgas in providing for the supreme necessities of his bureau. In considering his success, one observes an apparent tendency at the time to assume Gorgas himself produced the arms and munitions necessary to the war. He, however, supplied the materials that were made into, or the ways and means to import, those arms and munitions. His achievements cannot be evaluated until it is seen that he was the man upon whom everything about ordnance depended. From the outset it was Gorgas who drew together the personnel and built an organization capable of making ordnance and munitions in an agrarian economy. This organization was so efficient, so reliable, its chief needed only be concerned with the top command.<sup>lxxi</sup> Gorgas made a variety of other contributions, decentralizing operations and centralizing command functions, including the authority to print envelopes and stationery.<sup>lxxii</sup>

One of his main efforts was to geographically decentralize to afford more even distribution and adequate reserve installations. Decentralization, as has been pointed out, had its inconvenient side. Gorgas would have infinitely preferred to locate almost all his manufacturing centers in a single fairly safe place, from which supplies could be shipped to the various armies, but the Confederacy's railroad system precluded such a policy. As it was, the necessity of decentralizing multiplied the tasks of the bureau a hundredfold. No other phase of bureau history so clearly illustrates Gorgas as an administrator than the supervision and management of his many subordinates and the arsenals, depots, and shops over which they presided. He gave careful attention to the selection of assistants and managed them with wisdom. Mostly men of great ability, they came to regard him as a sort of father-confessor to whom they could take every problem, no matter how trivial, for solution or explanation. They trusted Gorgas to give them the backing and wherewithal to create supplies, and he never betrayed their confidence.<sup>lxxiii</sup> Gorgas was promoted to Brigadier General November 11, 1864. St. John was promoted to Brigadier General on February 16, 1865 and Rains ended the Civil War as a Colonel.

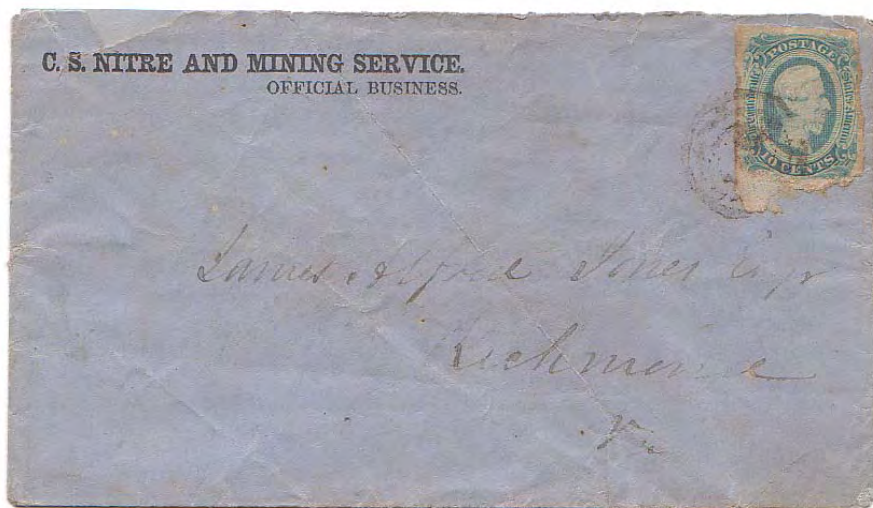
Overall, the smallness and seclusion of the scattered nitre operations rendered them seemingly unaffected by the Union advance. Despite the weakness of the Confederacy, the Nitre and Mining Bureau expanded and increased production. St. John had developed production of saltpeter to the point where the Confederacy would have been independent of importation had the necessary territory been held. "It is but a just tribute to say that, beginning without even instructed workmen, Colonel Rains' Augusta Powder Mill had, before the close of the war, was, in the opinion of competent judges, pronounced to be the best powder mill in the world." quoted Jefferson Davis.<sup>lxxiv</sup> The remarkable fact remains, the Confederacy never lost a battle for lack of powder.<sup>lxxv</sup>

Speleologist and author Horace C. Hovey reflected the national significance of saltpeter caves in American history when he wrote: "It is strange that these interesting materials of American history seem to have completely escaped the attention of our best historians. It is certainly of historic moment, that when the fate of the nation trembled in the balances, the mineral contents of our numerous caverns enabled a waning force to gather new strength and to prolong the war far beyond what would have otherwise been possible."<sup>lxxvi</sup>

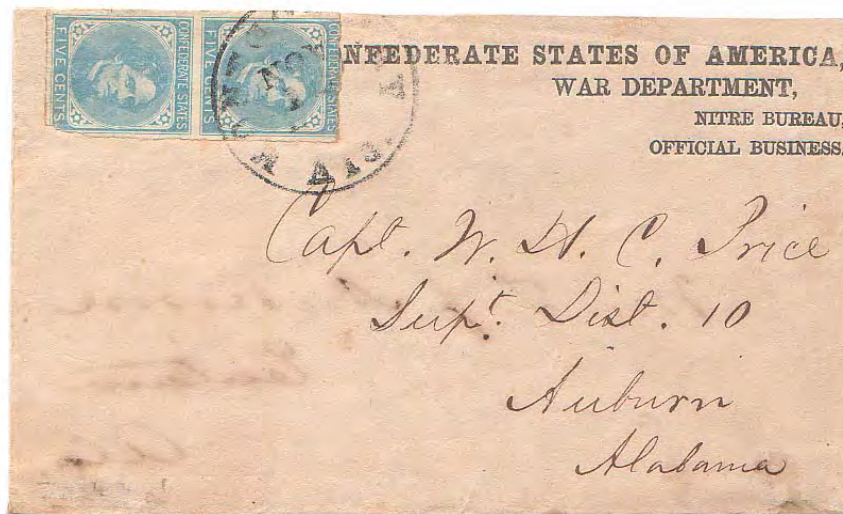
Gorgas wrote: "We began in April of 1861, without an arsenal, laboratory or powder mill of any capacity and with no foundry or rolling mill, except in Richmond, and, before the close of 1863, or within a little over 2 years, we

supplied them. During the harassment of war, while holding our own in the field defiantly and successfully against a powerful enemy; crippled by a depreciated currency; throttled with a blockade that deprived us of nearly all the means of getting material or workmen; obliged to send almost every able-bodied man to the field; unable to use slave labor, with which we were abundantly supplied, except in the most unskilled departments of production; hampered by want of transportation even of the commonest supply of food; with no stock on hand even of articles such as steel, copper, leather, iron, which we must have to build up our establishments, and in that short period created, almost literally out of the ground, foundries and rolling mills at Selma, Richmond, Atlanta, and Macon; smelting works at Petersburg, chemical works at Charlotte, North Carolina; a powder mill far superior to any in the United States and unsurpassed by any across the ocean; and a chain of arsenals, armories and laboratories equal in their capacity and their improved appointments to the best of those in the United States, stretching link by link from Virginia to Alabama.”<sup>lxxvii</sup>

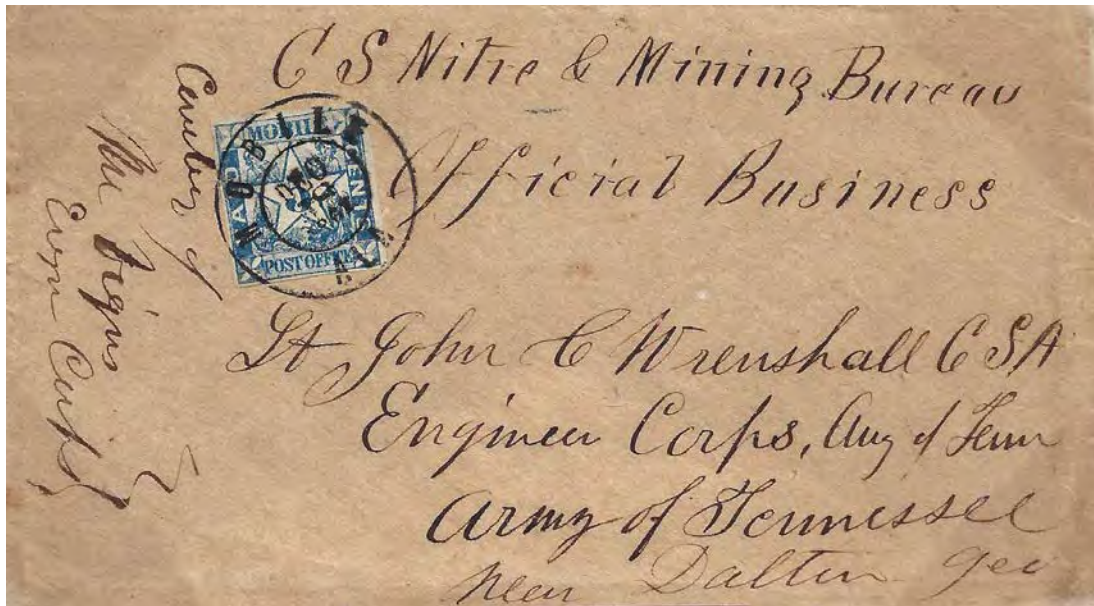
Some additional covers showing the other types of imprints and unique manuscripts.



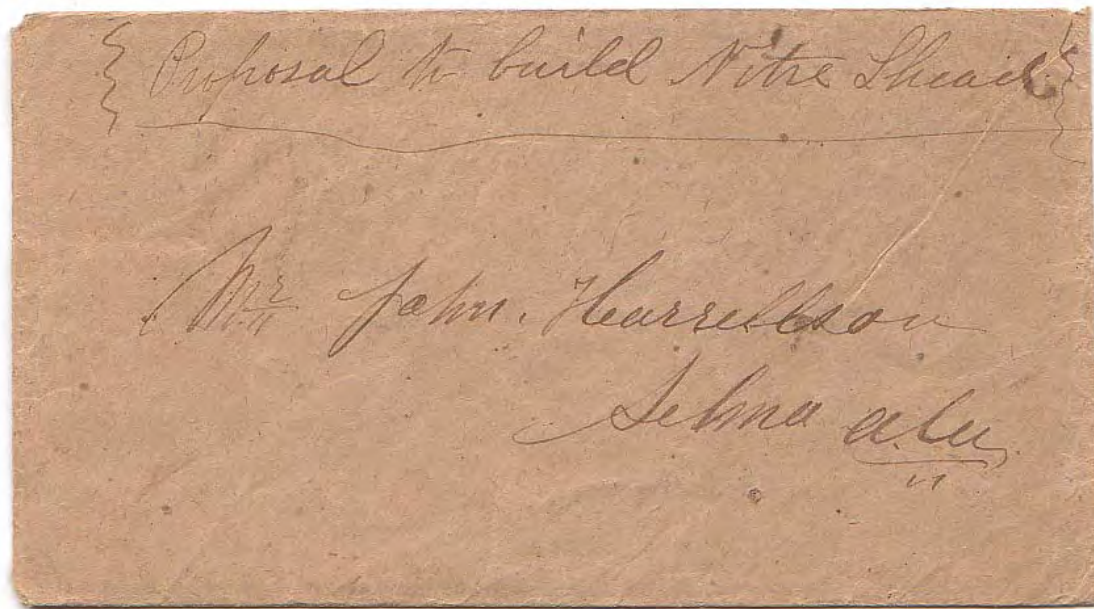
*CSA Catalog WD-NM-11 with a 10c CSA #12 Type 2 (A&D) postmarked by a strike of the Army of Northern Virginia target cancel (New Dietz type 2T). Semi-official covers with field postmarks are rare. The cover is addressed to James Jones, an attorney in Richmond.*



*CSA Catalog WD-NM-09 To: Captain William H.C. Price, Superintendent of Nitre and Mining District 10, Auburn, Alabama. The pair of 5c typographs is tied by a Montgomery, Alabama postmark dates November 12 (1862). During the first nine months of 1864, Major Price's district produced 34,716 pounds of nitre from the nitriaries.*



*Dec. 10, 1861 CDS on Mobile ALA postmaster's 5c lithographed provisional  
On white wove paper (Type MOB-AL-B02b)*



*Example of a turned cover from Peyton King, an attorney in Selma, who submitted to John Haralson in October 1863 a proposal to build a "Nitre Shed"*

### Appendix A

Jonathan Haralson ran an ad in the Selma newspaper starting a "chain reaction" which we shall quote in full. The ad read "October 1, 1863, The Selma Ala. Sentinel. The ladies of Selma are respectfully requested to preserve all their chamber lye collected about their premises for the purpose of making Nitre. Wagons with barrels will be sent around for it by the subscriber." Signed Jonathan Haralson, Agent Nitre and Mining Bureau.

On seeing the wagons making their rounds of the Selma streets, Thomas B. Wetmore was inspired to write the following:

I	II	III
<p>“Jno Haralson! Jno Haralson!            You are a funny creature;            You’ve given to this cruel war            A new and useful feature.            You’ve let us know, while every man            Is bound to be a fighter,            The women, bless them, can be put            To making lots of nitre.</p>	<p>Jno Haralson! Jon Haralson!            Where did you get the notion            Of sending barrels around our street            To fill them with that lotion?            We thought the women did enough            At sewing shirts and kissing:            But you have put the lovely dears            To patriotic p_____g.</p>	<p>Jno Haralson! Jno Haralson!            Can’t you suggest a neater            And faster method for our folks            To make up our saltpetre?            Indeed, the thing is so very odd,            Gunpowder like and cranky,            That when a lady lifts her skirt            She shoots a horrid Yankee!”</p>

But the end is not yet. Haralson picked up his pen and in addition to writing to the paper he wrote the following reply to his friend, Thomas B. Wetmore.

I	II	III
<p>“The women, bless their dear souls,            And everyone for war            To “soldier boys” they’ll give them shoes,            Their stockings by the score.            They’ll give their jewels all away,            Their petticoats to-boot            They’ll have saltpetre, or they’ll shout,            In earnest phrase – “Wet more”!</p>	<p>The women, were it not for them            Our country would be lost:            They charm the world, they nerve our hearts            To fight at every cost            What care they how our powder’s made?            They’ll have it, or they’ll bore            Through mines or beds in stables laid,            And, straining, cry “Wet more”!</p>	<p>Women, yes they stoop to conquer,            And keep their virtue pure;            It is no harm to kill a beast            With chamber lye I’m sure.            But powder we are bound to have,            And this they’ve sworn before;            And if the needful thing is scarce,            They’ll “press” it and “Wet more”!</p>

All this was too good for the Yankees to keep out of and so when a Boston, MA, widow read Wetmore’s poem she added the following to the trilogy:

I	II	III
<p>“Jno Haralson! Jno Haralson!            We read in song and story            That women in all these years,            Have sprinkled fields of glory;            But never was it told before            That how, midst scenes of slaughter,            Your Southern beauties dried their tears            And went to making water.</p>	<p>No Wonder, Jno., your boys were brave;            Who would not be a fighter            If every time he shot his gun            He used his sweetheart’s urine?            And, vice verse what could make            A Yankee soldier sadder,            Than dodging bullets fired from            A pretty woman’s bladder</p>	<p>They say there was a subtle smell            That lingered in the powder;            And as the smoke grew thicker,            The din of the battle grew louder            There was found in this compound            This serious objection;            The soldiers could not sniff it in            Without a stiff e_____.”<sup>lxxviii</sup></p>

### Acknowledgements

I would like to thank William Halliday for letting me use his Nitre and Mining covers as illustrations in this paper and for his review comments. I would also be remiss if I did not acknowledge Marion O. Smith for his genealogical research and valuable comments on this paper. Without his help this paper would not have been possible. And thank you William Lommel, Smithsonian National Postal Museum, for creating the list showing the different “Nitre and Mining Bureau” imprints from the CSA Catalog (see page 5).

This article was first published in *The Confederate Philatelist*, Vol. 46 No. 4, July - August 2001, pp.113 - 137. It has been modified to include the new **CSA Catalog** numbering system (see endnote #3). This paper received the “*Confederate Philatelist* Writers Award for 2001”.



- 
- <sup>i</sup> Siegel Auction Galleries, April 12, 2000, page 3.
- <sup>ii</sup> August Dietz (“Dietz, 1929”, henceforth) *The Postal Service of The Confederate States of America*, 1929, Richmond, Virginia, Press of the Dietz Printing Company, pages 357–360.
- <sup>iii</sup> Kaufmann, Patricia A., Francis J. Crown, Jr., and Jerry S. Palazolo, 2012, *Confederate States of America: Catalog and Handbook of Stamps and Postal History* (“CSA Catalog” henceforth), Confederate Stamp Alliance, page 390.
- <sup>iv</sup> Dietz, 1929, op. cit., pages 277–278.
- <sup>v</sup> Dietz, 1929, op. cit., page 278.
- <sup>vi</sup> James W. Bowman, Sept/Oct 1976, *Texas Philatelist Journal*, Volume 24 No. 5, “Confederate Official and Semi-Official Covers”, pp. 19–20.
- <sup>vii</sup> Mary B. Kegley, compiler, *Glimpses of Wythe County*, Wytheville, VA., 1986.
- <sup>viii</sup> Dietz, 1929, op. cit., page 283.
- <sup>ix</sup> Hubert C. Skinner, Erin R. Gunter and Warren H. Sanders, 1986, (“Skinner, 1986”, henceforth) *The New Dietz Confederate States Catalog and Handbook*, Bogg & Laurence Publishing Company, Inc. Miami, Florida, page 177.
- <sup>x</sup> Correspondence with John Kimbrough, MD on March 26, 2000.
- <sup>xi</sup> Confederate Papers Relating to Citizens or Business Firms, RG 109, (M346, Roll 717), NA, N. S. Morse File, Augusta Chronicle and Sentinel.
- <sup>xii</sup> Confederate Papers Relating to Citizens or Business Firms, RG 109, (M346, Roll 597), NA, E. B. Long and Company.
- <sup>xiii</sup> Major Edward B. Evans, December 1988, *The American Philatelist*, Volume 3, No. 3, “The Governmental Postal Issues of the Confederate States of America”, page 64.
- <sup>xiv</sup> CSA Catalog, op. cit., pages 402–03.
- <sup>xv</sup> Harold B. Hancock and Norman B. Wilkinson, March, 1964, *Civil War History*, Volume X, No. 1, “The Devil to Pay!: Saltpeter and the Trent Affair”, page 20.
- <sup>xvi</sup> David A. Hubbard, Jr., 1995, *1995 NSS Convention Guidebook*, “Virginia Saltpeter Caves: A Discussion & Listing with Special Emphasis on Giles County”, NSS, Huntsville, AL., page 182.
- <sup>xvii</sup> Angelo I. George, April, 1986, (“Filson, 1986”, henceforth), *The Filson Club History Quarterly*, Volume 60, Number 2, “Saltpeter and Gunpowder Manufacturing in Kentucky.” page 200.
- <sup>xviii</sup> Carol A. Hill, Duane DePaepe, Gary Eller, Peter M. Hauer, John Powers, and Marion O. Smith, 1981, *The NSS Bulletin*, Volume 43 No. 4, “Saltpeter Caves of the United States”, page 124.
- <sup>xix</sup> Filson, 1986, op. cit., page 207.
- <sup>xx</sup> Filson, 1986, op. cit., page 202.
- <sup>xxi</sup> Vandiver, 1994, op. cit., page 76.
- <sup>xxii</sup> Frank E. Vandiver, 1994, (“Vandiver, 1994”, henceforth), *Ploughshares into Swords*, Texas A&M University, College Station, Texas, page 75.

- 
- <sup>xxiii</sup> Marion O. Smith, 1995, *1995 NSS Convention Guidebook*, “The Confederate Nitre Bureau and Virginia’s Nitre District Number Three”, NSS, Huntsville, AL. page 187.
- <sup>xxiv</sup> Joseph LeConte, 1862, *Instructions for the Manufacture of Saltpetre*, Columbia S.C., Charles P. Pelham, State Printer, page 14.
- <sup>xxv</sup> Carol Hill, October, 1982, *NSS Bulletin*, Volume 44, Number 4, “Saltpeter Caves of the United States”, pp 117–120.
- <sup>xxvi</sup> Filson, 1986, op. cit., page 197.
- <sup>xxvii</sup> Robert L. Lisbeth, editor, 1982, *Virginia Postal History Society* “Catalog of Virginia Postal Markings and Postmasters’ Provisionals, Colonial - 1865”, page on Salt Petre Cave, Botetourt Co.
- <sup>xxviii</sup> Vandiver, 1994, op. cit., page 57.
- <sup>xxix</sup> United States War Department, United States Record and Pension Office, et.al., 1900, (“OR”, henceforth), *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, Series 4 – Volume 1, pages 864 - 865.
- <sup>xxx</sup> OR, 1900, Series 4 – Volume 1, op. cit., page 863.
- <sup>xxxi</sup> OR, 1900, Series 4 – Volume 1, op. cit., pages 1070– 1071.
- <sup>xxxii</sup> OR, 1900, Series 4 – Volume 1, op. cit., pages 1074.
- <sup>xxxiii</sup> Augusta Longstreet Hull, 1978, *Annals of Athens, Georgia 1801- 1901*, Danielsville, GA., page 129.
- <sup>xxxiv</sup> Harold B. Hancock and Norman B. Wilkinson, March, 1964, *Civil War History*, Volume X, No. 1, “The Devil to Pay!: Saltpeter and the Trent Affair”, page 20.
- <sup>xxxv</sup> Vandiver, 1994, op. cit., page 106.
- <sup>xxxvi</sup> OR, 1900, Series 4 –Volume 1, op. cit., pages 1054 - 1055.
- <sup>xxxvii</sup> Vandiver, 1994, op. cit., page 61.
- <sup>xxxviii</sup> Horace C. Hovey, May, 1899, *Kentucky Historical Genealogical Magazine*, “Saltpeter Caves of Kentucky”, page 51.
- <sup>xxxix</sup> Marion O. Smith, June, 1987, *The NSS Bulletin*, “The Identification of Horner’s and Heaton’s Niter Works, Bath County, Virginia”, pp. 15 - 25.
- <sup>xl</sup> Vandiver, 1994, op. cit., page 107.
- <sup>xli</sup> OR, 1900, Series 4 –Volume 1, op. cit., pages 1059–1060.
- <sup>xlii</sup> *Jonesborough Daily Telegraph*, February 6, 1864.
- <sup>xliii</sup> *The Daily South Carolinian*, Volume 15, Number 52. March 1, 1864 page 1.
- <sup>xliv</sup> OR, 1900, Series 4 –Volume 1, op. cit., pages 1115–1116.
- <sup>xlv</sup> OR, 1900, Series 4 –Volume 1, op. cit., pages 1116.
- <sup>xlvi</sup> Charles F. Baker, February, 1913, *Confederate Veteran Magazine*, Volume 21, “Something of Battle Field Maps”, page 63.
- <sup>xlvii</sup> The Southern Historical Association, 1895, *Memoirs of Georgia*, Atlanta, GA., page 630.

- 
- xlvi OR, 1900, Series 4 –Volume 1, op. cit., pages 1139–1140.
- xlix OR, 1900, Series 4 –Volume 1, op. cit., pages 555–557.
- <sup>l</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 26–30.
- <sup>li</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 42–48.
- <sup>lii</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 83–84.
- <sup>liii</sup> Columbia Daily South Carolina, March 12, 1864, page 4.
- <sup>liv</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 222–224.
- <sup>lv</sup> Marion O. Smith, 1995, *1995 NSS Convention Guidebook*, “The Confederate Nitre Bureau and Virginia’s Nitre District Number Three”, NSS, Huntsville, AL., page 190.
- <sup>lvi</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 458–459.
- <sup>lvii</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 534.
- <sup>lviii</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 594–595.
- <sup>lix</sup> Peter Smith, editor, 1961, *The Rise and Fall of the Confederate Government by Jefferson Davis*, Glouster, Mass., Crowell-Collier Publishing Books, pages 222–223.
- <sup>lx</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 853.
- <sup>lxi</sup> OR, 1900, Series 4 –Volume 2, op. cit., pages 1007.
- <sup>lxii</sup> OR, 1900, Series 4 –Volume 3, op. cit., pages 94–95.
- <sup>lxiii</sup> OR, 1900, Series 4 –Volume 3, op. cit., page 696.
- <sup>lxiv</sup> OR, 1900, Series 4 –Volume 3, op. cit., page 698.
- <sup>lxv</sup> Both parties were in the Cave Spring District of the 1860 Census, Floyd County, GA. Cave Spring District Number 355. Page 356.
- <sup>lxvi</sup> OR, 1900, Series 4 –Volume 3, op. cit., page 702.
- <sup>lxvii</sup> C.L. Bragg, M.D., 1997, *Confederate Veteran Magazine*, Volume 1. Reprint, “The Augusta Powder Works: The Confederacy’s Manufacturing Triumph”, pp 1 –11; Baddeley, Major J. Fraser, *Pamphlet on the Manufacture of Gunpowder as Carried on at the Government Factory, Waltham Abbey*, Waltham Abbey: E. Littler, 1857, page 3.
- <sup>lxviii</sup> Jefferson Davis, 1881, *The Rise and Fall of the Confederate Government*, New York D. Appleton and Co. 405pp.
- <sup>lxix</sup> J.W. Mallett, 1909, *Southern Historical Society Papers*, Vol. 37, “Works of the Ordnance Bureau”, 10pp.
- <sup>lxx</sup> Harold B. Hancock and Norman B. Wilkinson, March, 1964, *Civil War History*, Volume X, No. 1 “The Devil to Pay! Saltpeter and the Trent Affair” pp. 20 – 32. (J.W. Ripley to Edwin M. Stanton, May 3, 1862, Letters to the Secretary of War (Ordnance Office, National Archives), XIII.)
- <sup>lxxi</sup> Vandiver, 1994, op. cit., page 145.

---

lxxii Vandiver, 1994, op. cit., page 179.

lxxiii Vandiver, 1994, op. cit., page 206– 207.

lxxiv C.L. Bragg, M.D., 1997, *Confederate Veteran Magazine*, Volume 1, Reprint. “The Augusta Powder Works: The Confederacy’s Manufacturing Triumph” page 11; Comeaux, C. Stewart, “How the Confederacy Met the Gunpowder Problem.” *Confederate Veteran Magazine*, Vol. 35. 1927. Reprint. Wendell, NC: Broadfoot’s Bookmark, 1984, page 366.

lxxv Thomas Lera, July, 1993, *Saltpeter and the Confederate Nitre Corps*, *The American Philatelist*, page 646.

lxxvi Horace C. Hovey, 1987, *Scientific American*, LXXVI “Our Saltpeter Caves in Time of War”, page 291.

lxxvii Peter Smith, editor, 1961, *The Rise and Fall of the Confederate Government by Jefferson Davis*, Gloucester, Mass., Crowell-Collier Publishing Books, pages 225–226.

lxxviii Walter M. Jackson, 1954, *The Story of Selma*, Birmingham: The Birmingham Printing Company, Pages 199–201.