

# A Nation in Extremity: Sewing Machines and the American Civil War

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*The sewing machine, a mid-nineteenth century civilian experimental invention with little public appeal, gained widespread acceptance in the United States only after it proved of value in outfitting the Union army during the American Civil War (1861–65). Although it is not unusual for wartime circumstances to advance development and implementation of new technologies, little attention has been paid to the military's role in advancing the major shift to mass-produced machine-made clothing and accessories that took place in the decades following the Civil War.*

## INTRODUCTION

It is not unusual for a population waging war to increase its use of new technologies, which in turn influence the outcome of the war. The sewing machine, which came of age during the American Civil War, has such a story. The sewing machine did not gain acceptance in the United States prior to the Civil War of 1861–65, either in domestic or industrial applications. Although an unpopular device in the country before the Civil War, the emergency demands of warfare production encouraged the use of sewing machines for military supply.

Sewing machines have received at most a few sentences in the majority of history texts; the reasons for their adoption into American industry and homes are therefore seldom discussed. This paper will explore how the multitudinous sewing demands of the war served as a catalyst for the acceptance of sewing machines in the United States.<sup>1</sup> Only a few books have come close to giving sewing machines proper historical scrutiny: Ruth Brandon's biography of inventor Isaac Singer, *A Capitalist Romance*, and Don Bisell's history of the business innovations developed by the Singer Company, *The First Conglomerate*. David Hounshell included an examination of how sewing machines were made in his excellent *From the American System to Mass Production*.<sup>2</sup> Each of these books barely touched on the Civil War period, omitting discussion of the social or cultural impacts of the machine's use in America. No other books even attempt a thorough study of sewing machine history.

Most Americans disliked sewing machines when they were initially introduced for a variety of reasons; either because they were expensive equipment which endangered the jobs of thousands of seamstresses and tailors or because they threatened to invade the domestic sphere with factory technology.<sup>3</sup> Luddite-like protest came not only from the workers who stood to lose their jobs, but also by socially aware citizens concerned about the working classes. Resistance from the labour force contributed to the negative

views of sewing machines held by potential home purchasers who were loath to bring an iron machine into their residences.<sup>4</sup>

Sectional tension between the northern and southern parts of the United States had been building since the formation of the country; the most serious difference between the regions was the system of slavery holding African-Americans in bondage. Whereas the North had slowly phased out slavery, it remained a prominent labour arrangement in the South.<sup>5</sup> By mid-century, Southern society had produced a very different economic structure than that created in the Northern states. According to Civil War historian James McPherson, whereas the 'Union stood for popular government, equal rights, and the dignity of labor; the Confederacy stood for aristocracy, privilege, and slavery'.<sup>6</sup> In November 1860, Republican candidate Abraham Lincoln was elected President on a platform that forbade the extension of slavery. In the following months eleven states seceded from the Union and formed the Confederate States of America to protect slavery in its territory. War between the Northern Union and the Southern Confederacy officially began in April 1861 and lasted for four years before the country was reunited and slavery completely abolished.<sup>7</sup>

Before the Civil War the United States Congress had not authorized advance production and storage of army supplies in case of future necessity. Instead, army equipment was prepared after need arose. No supplies were on hand when President Abraham Lincoln expanded the Federal armed forces by 139,748 men during the spring months of 1861. Demand overwhelmed the ability of manufacturers to equip new recruits. Supply problems were made yet more difficult when hundreds of thousands of additional men volunteered beyond Lincoln's requests. A shortsighted Congress persisted in authorizing this increase of troops, without granting corresponding financial support for the Quartermaster Department.<sup>8</sup> Responsibility for equipping an increased army with decreased funds forced Quartermasters to act creatively.

Sewing machines had the potential to be extremely helpful with meeting war production demands but, of the two combatants, only the Union was able to manufacture sewing machines. The states that remained in the Union contained 74 manufacturers of sewing machines in 1860.<sup>9</sup> In contrast, in the same year the 11 Confederate states had not a single sewing-machine manufacturer among them. This disparity in sewing-machine production meant that the Union army had a clear advantage in its ability to utilize sewing machines for the growing demands of war, whereas the Confederacy would have first needed to establish sewing-machine factories to do so.<sup>10</sup> Therefore the tale of the sewing machine's contribution to the war effort is a Northern story.

Although no published documents exist on the degree of sewing-machine usage during the Civil War, primary evidence suggests that utilization was extensive. It is not yet possible to determine how many sewing machines the disparate groups of military, industry, or home users purchased respectively. However, there are suggestive sources that we can turn to in trying to decipher sewing-machine use during the war. This paper will discuss evidence gathered from letters, newspapers, government documents, and Civil War era sewn artefacts surviving in archives.

Some historians have made the error of assuming that pre-war anti-machine bias extended through the conflict. According to Erna Risch, author of a history of the Quartermaster's Corps, the sewing machine 'was not used in the production of clothing during the Civil War' because '[h]and-sewn garments were considered to be more

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durable', so '[m]achines were only used for sewing caps and chevrons (officer's rank patch), articles that were not exposed to much hard usage'.<sup>11</sup> But Risch bases her claims on a *pre-war* source, a letter from Quartermaster General Jesup in 1859 — two years before the onset of the war.<sup>12</sup> Furthermore, Quartermaster Jesup died before the Civil War and therefore did not serve as Quartermaster General during the crisis. In quoting Jesup, Risch assumed — as have many others — that pre-war prejudices against sewing machines impacted wartime manufacturing. However, I believe that my evidence shows sewing-machine use during the war differed greatly from her conclusion.

### SEWING MACHINES AND MILITARY SUPPLY

There were many incentives to purchase sewing machines during the war. The pressing demand for military goods urged factories and homes to produce at faster rates, but tailors who left for the front took their swift-fingered expertise with them. Only with the help of a sewing machine could a newly hired amateur create professional quality stitches immediately. The crisis of wartime demands provided the ideal time to break down the last barriers that blocked the adoption of sewing machines.

In 1861 the newly selected United States Quartermaster General Montgomery Meigs lamented, 'The nation is in extremity. Troops, thousands wait for clothes to take the field'. To remedy the desperate situation of army equipment, Quartermaster Meigs urged that army suppliers 'set the innumerable needles and sewing machines at [their] command to work, with them and any durable substantial cloth, green blue grey or any modest color to make uniforms though different in color from the regulation uniform . . .'.<sup>13</sup> Meigs' assumption that sewing machines should be used for military manufacture marked a departure from the prior social conventions that kept Northerners wary of sewing machines. His acceptance of a wide variety of non-regulation clothing and his disregard for uniformity reveals the difficult circumstances he faced. Perhaps it was the army's need for swift results that prompted him to accept machine-produced goods for the first time in American military history. In the same letter Meigs stated his philosophy that reflected the necessity of being flexible during war: 'We must bear the clamor of fools who would pick flaws in a pin while the country hangs in the balance', he wrote of those who would disagree with his decision to furnish the troops by any reasonable means.

The chapters of the 1865 Quartermaster's Manual that relate to the regulations for 'Clothing and Equipage' provide details on measurements, fabrics and designs, but give few, if any, sewing instructions. These manuals were intended for those who sewed uniforms, as well as the Quartermasters who inspected goods. Despite the attention paid to the visual design of clothing in the Manual, the method of stitching the garments was left to the individual producer. The only items whose descriptions mentioned sewing were 'uniform hats', 'uniform caps for light artillery', 'forage caps', 'army bootees', 'cavalry boots', and 'neck stocks'. Most instructions for these items merely mentioned that certain parts needed to be 'strongly sewed'.<sup>14</sup>

However, three items specifically mention *machine* stitching. The specifications for forage caps (the familiar cap worn by hundreds of thousands of Union army soldiers) explicitly state that the cap should be sewn together using 'a single row of machine stitches, 16 to the inch'. In the case of 'bootees' (leather shoes)<sup>15</sup> and cavalry boots,

both begin with the title: 'Description of material and workmanship of all hand-sewed [bootees or boots] made for the United States Army', yet conclude with the remark that '[i]f sewed by machinery, to be made with double soles, which must be sewed with two rows of stitching to the uppers, without a welt'. Printed in 1865, the manual accurately reflects how clothing and equipage was made during the war. These passages indicate that the use of sewing machines to make caps and boots was so common by the close of the war that machine-stitching directions were included in the Quartermaster Department regulations.<sup>16</sup>

Perhaps resistance to sewing machine stitching was felt less strongly in relation to hats and shoes which were garments for the extremities rather than main body clothing. It may also be that changes in civilian footwear production influenced this trend. The pre-war 1860 United States Census of Manufactures recorded that increased shoe production and economy in the trade had been thanks to the use of sewing machines which were creating a 'silent revolution in boot and shoe manufacture'.<sup>17</sup> Civilian footwear manufacturers who picked up government contracts for army boots may have influenced the change in the construction of army footwear.

Evidence that contractors used sewing machines to fulfil army orders can be found in the classified advertising section of period newspapers. On 29 May 1863 the manufacturing firm Stevens and Carples printed an advertisement in the New York newspaper *The Brooklyn Eagle* asking for 'sewing machine hands to make shelter tents'. The company reprinted this advertisement four times that week, and also gave notice that they required employees to sew haversacks. According to another advertisement, women could earn \$6–\$12 dollars a week at this factory if they had their own sewing machine.<sup>18</sup> This was an excellent wage at a time when army nurses were only receiving \$12 a month for their difficult work. Select army contractors made a concerted effort to procure machine-sewn goods for the army.

Sewing-machine manufacturers themselves became personally involved with the Union war effort. The holder of the majority of the most important sewing-machine patents,<sup>19</sup> inventor Elias Howe, Jr, volunteered for the Union army. Howe enlisted with the Connecticut 17th Infantry, Co. D. on 14 August 1862 at the age of 43. His listed occupation was 'machinist'. Private Howe spent the majority of his war service as a recruiting officer in New York where he remained from 1863 until he was mustered out.<sup>20</sup> Additionally, both Elias Howe, Jr, and James Wilcox of Wilcox & Gibbs Sewing Machines served with the Committee on Manufactures and Mechanic Arts for the Brooklyn and Long Island fair that benefited the United States Sanitary Commission.<sup>21</sup>

A preference for well-sewn goods was one factor that prompted army personnel to adopt machine-sewn products. While some army personnel and quartermasters personally favoured<sup>22</sup> pegged shoes,<sup>23</sup> others just as strongly preferred machine-sewn ones.<sup>24</sup> For example, Quartermaster General Montgomery Meigs acted against the recommendation of his quality-testers when he ordered machine-sewn boots for the Union army. In December of 1861, the 'report of the inspection of shoes' machine-sewn by the manufacturer, Mr McKay, was 'so unfavorable' that Meigs limited purchase of the shoes to five hundred pairs instead of his original authorization of ten thousand.<sup>25</sup> However, two weeks later Meigs reconsidered, after personally inspecting samples of machine-sewn shoes. In a letter to a quartermaster in New York, Meigs related that '[s]amples of shoes machine sewed from the manufactory of Gordon McKay' he had viewed were 'well

worn'. This was a compliment, because badly constructed shoes broke down before receiving much wear. Additionally, Meigs reported that a General Schueck showed him a machine-sewn pair which was 'worn for two months on the hard rocks and in the mud of Western Virginia, and which [Schueck] praises as the best shoes he has ever had'. To conclude his remarks to his subordinate, Meigs noted, 'I doubt the correctness of the [original] conclusions of the inspectors of shoes . . .'.<sup>26</sup> After viewing physical evidence, Meigs recommended the adoption of machine-stitched items since they proved effective against the demands of war. According to sewing-machine historian Grace Rogers Cooper, over the course of the struggle the Union army purchased 473,000 pairs of 'machine sewed bootees' since they lasted eight times longer than those sewn by hand.<sup>27</sup>

Another incentive that prompted the adoption of machine-sewn shoes for the army was their cheaper price. In April 1864 the Chief Quartermaster at the Schuylkill Arsenal near Philadelphia, Pennsylvania, printed a notice in the local paper asking for bids on a government contract of tens of thousands of pairs of army standard cavalry boots and infantry bootees.<sup>28</sup> Local manufacturers responded with contract bids. To use size 9 as the example, army standard oak tanned leather shoes sewed by hand cost \$2.60 per pair minimum, whereas the cheapest machine-sewn bootees went for \$2.17 per pair. Naturally, government agents chose the lowest bidder; the machine-sewn bootees of James B. Montague won the contract. In 1865 a 'report of the Committee appointed to investigate the operations of the Bootee Manufacturing Establishment' at the Schuylkill arsenal in Pennsylvania revealed that the average cost of bootees manufactured at the Arsenal was \$3.74 per pair of shoes.<sup>29</sup> This arsenal, one of the three largest government-run production depots, is known not to have used sewing machines. The Federal government was able to save more than \$1.50 per pair of shoes by contracting with machine-sewn shoe manufacturer James Montague at \$2.17 per pair rather than producing army footwear in the Arsenal at \$3.74 per pair.

Manufacturers and quartermasters were not the only men who realized the benefits of sewing machines for army production. A man who identified himself as a regimental tailor wrote an unusual letter to the New York Singer office on 2 January 1862. The return address indicated that the soldier, Louis LeSage, was stationed at his regiment's training camp near Washington DC. LeSage addressed his letter to Mr Singer and wrote: 'As I intend to purchase a Sewing Machine shortly you would oblige me by sending me a Price [Circular] of your Machines'. LeSage signed his name as the Regimental Tailor to the 2nd Rhode Island Volunteer Infantry and asked for a prompt reply.<sup>30</sup>

This letter is unique. No other mentions of 'regimental tailors' have yet come to light. LeSage's letter hints at a direct way that sewing machines could have helped the war effort. In naming himself as the regimental tailor for the 2nd Rhode Island Volunteers, Louis LeSage suggested that he was responsible for keeping the clothing of many soldiers in good repair. To do so, this resourceful man turned to a sewing-machine manufacturer for help.

Unfortunately, sources regarding Louis LeSage's efforts as regimental tailor do not extend farther than the letter he wrote. Records verified that he did indeed enrol in the 2nd Rhode Island Volunteers, Company I, but his military service history was marked 'unknown'.<sup>31</sup> Personal accounts by other 2nd Rhode Island Volunteers yield no mention of Louis LeSage or any company tailor. LeSage's letter suggests the pervasiveness of

sewing-machine use, but as of yet there is no confirmation that he procured one for his regiment.

#### EVIDENCE OF SEWING MACHINE USE FOUND IN EXTANT MILITARY GOODS

However, concrete evidence of widespread sewing-machine use exists in Union tents, uniforms, flags, and other sewn items that survive in archives. Few historians have considered these materials left from the war as sources, but my firsthand inspection of artefacts revealed a great deal of machine stitching. Remaining Civil War artefacts demonstrate that tailors and seamstresses on the Northern home front used sewing machines extensively.

My examinations of major archival collections of surviving Civil War sewn materials have so far included 182 Union and 303 Confederate items. The collections examined were the holdings of the Smithsonian Institution, the Wisconsin Veteran's Museum, the Museum of the Confederacy, the Atlanta Historical Society, and the National Civil War Museum.<sup>32</sup> Although it is impossible to determine exactly how many artefacts are contained in private collections, these five museums represent the majority of uniforms and other sewn Civil War goods extant today.

Of the uniforms examined in the five museums, a large percentage of the Union goods displayed machine-stitching, whereas an overwhelming percentage of Confederate goods were hand-sewn.<sup>33</sup> Scrutiny yielded 66 Union machine-sewn goods, yet only six machine-sewn Confederate items made in America.<sup>34</sup> Out of the 303 Confederate items that had decipherable stitching techniques, 0.7 per cent were completely machine-sewn, 1.3 per cent were partially to mostly machine-sewn, and 98 per cent were made by hand. Of the 162 Union items I studied, 14 per cent were completely machine-sewn, 24 per cent were partially to mostly machine-sewn, and 62 per cent were entirely hand-sewn. The total number of archived Union goods machine-sewn in some way was 38 per cent, 19 times the 2 per cent of the Southern goods observed.

The Federal uniforms in the Smithsonian collection largely came from the Schuylkill Arsenal. As mentioned earlier, sewing machines were not used within the Schuylkill Arsenal. So if we recalculate the Union numbers *excluding* all the artefacts from the Smithsonian Institution (machine-sewn or otherwise), we get some interesting results. Instead of only 14 per cent of observed artefacts constructed entirely by machine, the figure rises to 36 per cent. Instead of 24 per cent partially machine-sewn, this amount also increases to 36 per cent. And the hand-sewn percentage drops from 62 per cent to 28 per cent, leaving 72 per cent of observed Union artefacts produced with the help of a sewing machine. For examples of machine-sewn artefacts, see Figs. 1–4.

#### CONCLUSIONS

It is fair to conclude that the sewing machine was beneficial to the Union war effort to a far greater degree than it was to the Confederacy. Although we will probably never know the exact numbers of sewing-machine use, the figures suggest that at least one-third of Union production occurred quickly, easily, and with reliable quality.<sup>35</sup> The South, on the other hand, made far less by machine. Every piece of military gear not



FIG. 1. Union shelter tent thoroughly machine-stitched including centre seam and edging (seen here with hand-sewn eyelets). Soldier wrote in ink, 'Tent Slept under before Petersburg va winter of 64+65'. Wisconsin Veterans Museum, V2007.1.56. *Photo: Author.*



FIG. 2. Red and white Union signal flag is entirely machine-sewn. Stamped 'National Flag 1863 Depot N.Y.'. National Civil War Museum, 1994.19.21-a-b (101.895-a-b). *Photo: Author.*



FIG. 3. Union soldier's cloth bag. Sewing done entirely by machine. National Civil War Museum, 1995.87.10. *Photo: Author.*



FIG. 4. Shirt worn by Union soldier David Ambrose during the Civil War. Sewn by hand: bottom hem, armhole, inside sleeve seam, and buttonholes. All other seams sewn by machine. Ambrose gave the shirt to his grandson in 1909 just before his death. National Civil War Museum, 2001.53.15. *Photo: Author.*

made by machine was produced with greater expense of time and labour.<sup>36</sup> This meant Southern troops had to wait longer for their supplies.

It is possible that without the Civil War the sewing machine would not have won its important place in American factories. During the Civil War the sewing machine was

popularized and utilized on a wide scale for the first time in US history. The sewing machine enabled the Union to equip its soldiers and respond to emergency demands in a way that the Confederacy could not. The adoption of sewing machines into the garment industry for military clothing enabled this machine to establish firmly a permanent presence in United States manufacturing.

## REFERENCES

<sup>1</sup> Other relationships between popular acceptance of the sewing machine and the American Civil War will be explored in a forthcoming article by the author.

<sup>2</sup> Ruth Brandon, *A Capitalist Romance; Singer and the Sewing Machine* (Philadelphia: J. B. Lippincott Co., 1977); Don Bissell, *The First Conglomerate* (Brunswick, Maine: Audenreed Press, 1999); David A. Hounshell, *From the American System to Mass Production 1800–1932* (Baltimore: Johns Hopkins University Press, 1984).

<sup>3</sup> As a contemporary wrote, ‘Machinery as a substitute for hand labor . . . for obvious reasons, always meets with opposition, more or less violent, when first introduced. This was the case in the United States with the sewing-machine’. Anon., XIX. – *Facts and Scraps. The Sewing-machine in America; The English Woman’s Journal*, 6, no. 32 (1860), p. 126.

<sup>4</sup> The nineteenth century was the era of social crusades in the US including anti-prostitution, temperance, abolition, women’s rights, and unionization. For examples of reactions against sewing machines, see Brandon, *A Capitalist Romance*, p. 59, and pp. 120–24 for a good discussion of anti-sewing machine prejudices. See also Frederick L. Lewton, *The Servant In the House: A Brief History of the Sewing Machine*, from the Annual Report of the Board of Regents of The Smithsonian Institution (Washington: US Government Printing Office, 1930), p. 563; Mary H. Blewett, ‘The Sexual Division of Labor and the Artisan Tradition in Early Industrial Capitalism: The Case of New England Shoemaking, 1780–1860’, in Carol Groneman and Mary Beth Norton eds, *To Toil the Livelong Day, America’s Women at Work, 1780–1980* (Ithaca: Cornell University Press, 1987), p. 41.

<sup>5</sup> The number of slaves held in bondage in the North in the 1850s was small because most northern states had passed gradual emancipation acts decades before. In contrast, some areas of the South had a majority population of slaves.

<sup>6</sup> James M. McPherson, *Battle Cry of Freedom, The Civil War Era* (New York: Ballantine Books, 1988), p. 549.

<sup>7</sup> For more on the causes of the war, see David Potter, *The Impending Crisis 1848–1861* (New York: Harper & Row, 1976).

<sup>8</sup> Erna Risch, *Quartermaster Support of the Army, A History of the Corps 1775–1939* (Washington, DC: Quartermaster Historian’s Office. Office of the Quartermaster General. US Government Printing Office, 1962), p. 339.

<sup>9</sup> *Manufactures of the United States in 1860*, compiled from the Original Returns of The Eighth Census, Under the Direction of the Secretary of the Interior (Washington, DC: Government Printing Office, 1865). See Totals of Manufactures.

<sup>10</sup> Based on my research, I estimate that the South contained a total of approximately 3,000 sewing machines at the outbreak of the war compared to the North which possessed up to 100,000 machines. To reach these estimates I considered surviving company records, sales data, patent information, and advertising brochures.

<sup>11</sup> Risch, *Quartermaster Support of the Army*, p. 348.

<sup>12</sup> National Archives, Washington, DC. Record Group 92, *OQMG Letter Book, Clothing*, vol. 17, pp. 29–31 (Jesup to Nechard & Co., 31 Mar 1859).

<sup>13</sup> National Archives, Record Group 92, Textual records of the Office of the Quartermaster General, *Clothing & Equipage, 1821–1914*. Letters sent relating to clothing returns and vouchers (to 1841) and to clothing and equipage generally (from 1841) 1827–70, vol. 18 of 32n NM-81 Entry 999, pp. 185–86 (Meigs to Major D. H. Vinton, 24 July 1861).

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<sup>14</sup> Extracts from the *Quartermaster's Manual* (1865) relating to clothing and equipage, Chapter 6, Miscellaneous Information.

<sup>15</sup> A bootee is a 'boot having short let. For men, [these are] usually made with elastic gore over ankle or with laced front', whereas boots constitute 'Footwear extending above ankle'. In America that often means 'extending well up calf of leg or higher', such as a cavalry man would wear. Mary Brooks Picken, *A Dictionary of Costume and Fashion* (Mineola, New York: Dover Publications Inc., 1985), p. 28.

<sup>16</sup> Extracts from the *Quartermaster's Manual* (1865) relating to clothing and equipage, Chapter 6, Miscellaneous Information, pp. 10–14. John G. Furey sent Col. G. H. Grosman detailed instructions for the stitching required to make good-quality machine-sewn army boots. 'Presents a statement of the manner in which work should be done in the Manufacture of Army Bootees machine Sewed', 12 July 1864, PA NA branch RG 92, Entry 2177, Box 6.

<sup>17</sup> *Manufactures of the United States in 1860*, p. lxxi.

<sup>18</sup> Advertisement in *The Brooklyn Eagle*, 9 Dec 1863.

<sup>19</sup> Elias Howe, Jr, did not necessarily create the best sewing machine, but he was one of the first to patent his inventions, including the crucial lock-stitch mechanism for which all later companies had to pay him royalties.

<sup>20</sup> Private Howe was discharged on 19 July 1865. National Archives Military Service Records. Form 86, File Designation Howe, Elias Jr. Co. D, 17 Ct. Inf.

<sup>21</sup> Well aware of the negative image that still clung to sewing machines, producers were understandably interested in associating their merchandise with the patriotic Sanitary Fairs which were volunteer fundraising ventures for the United States Sanitary Commission. Historical Society of New York call# SY1864, no. 191.

<sup>22</sup> Letter refers to 'pegged Boots and Bootees are often preferred by troops'. Letter to Major General M. C. Meigs dated 10 Mar 1865. National Archives, Philadelphia Branch (NA PA) RG 92, Entry 2173, Box 71, vol. 7/1/1864–3/15/1865, p. 480.

<sup>23</sup> Pegged construction utilized small wooden pegs (nails) to attach soles to the bottom of shoes rather than stitching. Pegging was ultimately a less durable way to attach soles.

<sup>24</sup> Letter refers to 'the well known prejudice in the Army against pegged shoes'. Letter dated 23 Sept 1862 (NA PA) RG 92, Entry 2173, Box 70, Book Apr 1862–Feb 1863, p. 304.

<sup>25</sup> National Archives, Washington, DC. Record Group 92, *OQMG Letter Book, Clothing*, vol. 18, p. 697 (Meigs to Major D. H. Vinton, 12 Dec 1861).

<sup>26</sup> National Archives, Washington DC. Record Group 92, *OQMG Letter Book, Clothing*, vol. 18, p. 737 (Meigs to Major D. H. Vinton, 28 Dec 1861).

<sup>27</sup> Grace Rogers Cooper, *The Sewing Machine; Its Invention and Development* (Washington, DC: Smithsonian Institute Press, 1976), p. 60.

<sup>28</sup> NA PA Branch, RG 92 Office of the Quartermaster General, Philadelphia Depot, *Proposals 1861–1866*, HM Entry 2225, Box 2/2.

<sup>29</sup> NA PA Branch, RG 92, Entry 2177, Box 5, 21 Aug 1865. The price difference cannot be attributed to inflation alone because the government arsenals were notorious for refusing to raise payments or wages in response to wartime inflation.

<sup>30</sup> Singer Manufacturing Company Records, *Outgoing Correspondence* (microfilm edition, 1991), State Historical Society of Wisconsin, Microform 2014, Reel 1 P92-9246.

<sup>31</sup> This record lists a 'LeSage, Lewis' from Providence, RI, but I prefer to use LeSage's own spelling of his name. *Official Register of Rhode Island Officers and Soldiers Who served in the United States Army and Navy, from 1861 to 1866* (Providence, RI: General Assembly, 1866), p. 83.

<sup>32</sup> These collections are located in Washington, DC; Madison, Wisconsin; Richmond, Virginia; Atlanta, Georgia; and Harrisburg, Pennsylvania respectively.

<sup>33</sup> In my study of Civil War sewn materials, I classify artefacts as hand-sewn, partially machine-sewn, and completely machine-sewn. It should be noted that some garments that I classify as

‘partially machine-stitched’ based on visual evidence may actually have been made entirely by machine. Usually, unless the garment were falling apart in some way so that its seams were exposed, it was impossible to determine by visual inspection alone how every single seam was stitched. Also, I count as ‘completely machine-stitched’ goods in which all the major sewing was done by machine but that might have had buttonholes or other finishing work done by hand. I did not include items in my data if it was impossible to determine the stitching method due to lack of exposed seams.

<sup>34</sup> I did not include in my study the rare samples of Confederate clothing that were machine-sewn but imported from Ireland. My primary interest is in pursuing the history of sewing-machine use within the United States. To date I have included in my study only items that were made within US borders according to archivists’ and curators’ knowledge.

<sup>35</sup> A sewing machine would never produce weak running stitches such as I observed in many hand-sewn garments.

<sup>36</sup> For example, the Wheeler & Wilson Sewing Machine Co. conducted a timed experiment with skilled seamstresses in 1861 and reported that 14 hours 26 minutes were required to produce a man’s shirt sewn by hand, but only 1 hour 16 minutes to make one by sewing machine. I conducted my own study as an unskilled seamstress and made a machine-sewn shirt in 8 hours and a hand-stitched shirt in 26.5 hours. For the Wheeler & Wilson study, see NMAH, G&D Cook & Co.’s *Illustrated Catalogue of Carriage* (New York: Baker & Goodwin, 1860), p. 26. Also Cooper, *The Sewing Machine*, p. 58.

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