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Article *in* Military collector & historian · January 2018

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Sappers, Miners and Pontoniers: Outfitting Company A Engineers in 1846

Ephriam D. Dickson III

On the eve of the Mexican War, First Lieutenant Henry Halleck of the Corps of Engineers delivered a series of popular lectures soon afterward published in his influential book outlining the basic principles of war. Among many topics, Halleck argued for the importance of "sappers, miners and pontoniers," enlisted men who were especially trained to build field fortifications, dig entrenchments and assemble temporary pontoon bridges to span rivers. While praising the effectiveness of such soldiers in the French and British armies, Halleck noted that "in case of war," the U.S. Army's lack of this specialty would leave the service "without the means of executing any military works, or performing any military operations which would require engineer troops."[1]

This shortfall soon became evident as General Zachary Taylor's forces gathered near the Mexican border in 1846. Two days after President Polk's declaration of war with Mexico, Congress finally passed the bill creating the long-requested company of enlisted engineers. Their unique role and specialized skills were reflected both by their higher pay as well as by their distinctive uniform. This article outlines the logistical efforts required to initially clothe and equip the U.S. Army's first company of engineers in time for its deployment to Mexico in 1846.

Organizing the Company

Since his appointment as the Army's Chief Engineer in 1838, Colonel Joseph G. Totten had been advocating for the establishment of a company of sappers, miners and pontoniers. Totten envisioned that during peacetime, this company would be stationed at the U.S. Military Academy at West Point where they would be instrumental in demonstrating the basics of field engineering to the young cadets. Such training he hoped would help to diffuse this important military knowledge throughout the Army. "Let this company be increased in number to one hundred, and be permanently attached to the corps of engineers…" Totten wrote in his annual report for 1839. "Officered from the corps of engineers, this company should be instructed in all the practical labors appertaining to sapping, mining, and bridging; and should receive, moreover, a school instruction that would qualify them to direct the labors of others as well as apply their own."[2]

The U. S. Senate's Committee on Military Affairs immediately took up Totten's recommendation, however, the draft bill stalled on the senate floor. Each year after this, Totten continued to call for the establishment of the company in his annual reports and twice more, in 1843 and 1845, Congress began work on the proposal, only to have it stall again as legislators debated concerns over increased spending and an expanding federal army.[3]

FIG. 1. *As Chief Engineer, Colonel Joseph G. Totten successfully advocated for the establishment of a company of sappers, miners and pontoniers, the only enlisted engineers in the U.S. Army from the Mexican War until the beginning of the Civil War. Portrait by Robert W. Weir. (West Point Museum)*

In 1846, with the Mexican War looming, Totten's proposal found new life. Captain John Sanders, one of two engineer officers with Taylor's "Army of Occupation" at Corpus Christie, Texas, outlined the command's urgent need for equipment, funds and "a company of Engineer troops composed of skillful and active artisans." Totten endorsed Sanders' letter as it passed to the Secretary of War, noting that he had already requested the equipment and he again urged the immediate passage of the stalled bill for engineer soldiers. When Representative Armistead Burt, a member of the House Committee on Military Affairs, wrote an urgent letter to the Corps of Engineers inquiring about what could be done to reinforce Taylor's position, he received a similar reply from Totten's assistant restating the importance of skilled enlisted engineers.[4]

Congressman Burt finally succeeded in pushing forward the bill for the engineer company. In the wake of President Polk's declaration of war against Mexico, Congress took up several pieces of legislation to support the military, calling up state volunteers to serve, expanding the size of companies in the Regular Army, and establishing one regiment of Voltigeurs and one of Mounted Riflemen. Despite the provocative speech of Representative J. R. Giddings decrying the country's rush into this "war of conquest," the engineer bill passed easily with an overriding majority. On 15 May 1846, President Polk signed the bill into law, authorizing one company of sappers, miners and pontoniers, soon known as Company A Engineers. From the Mexican War until the start of the Civil War, this company was the only enlisted engineers in the U.S. Army.[5]

Colonel Totten appointed Captain Alexander J. Swift (FIG. 2) to organize and command the newly authorized company. The son of the U.S. Military Academy's first graduate who later went on to serve as the Army's Chief Engineer during the War of 1812, the younger Swift followed in his father's footsteps, graduating from the Academy at the top of his class in 1830 and was likewise assigned to the Corps of Engineers. He initially worked on permanent fortifications in North Carolina and Rhode Island, but then in 1840, he was selected to attend the French army's engineering school at Metz, France. The young officer returned from this temporary assignment with detailed notes, a French manual, and practical experience on field engineering that would now aid in the development of an equivalent unit in the U.S. Army.[6]

FIG. 2. *Captain Alexander J. Swift was the first commander of Company A Engineers and contributed to the design of their uniforms. (Special Collections, U.S. Military Academy Library)*

Both Totten and Swift believed that only the best individuals should be recruited for the company. "Our men should be of good character, healthy, active, not less than five feet six inches in height," Swift recommended, "intelligent and able to read, write and perform the simple operations of arithmetic." He also suggested that they should be native-born Americans, between the ages of 18 and 30, and led by several experienced non-commissioned officers. Colonel Totten molded Swift's recommendations into a letter of requirements that he distributed to recruiting officers.[7]

"I suppose that it is desirable to organize our company as soon as possible," Captain Swift concluded, "and enable them to take the field, should the war with Mexico continue, as early as the 1st October." Since bridging rivers in advance of the marching army would probably be their most needed service, Swift quickly focused on procuring the required equipment and pontoons. In late May, he made a short trip to Boston and New York to meet with several manufacturers and he worked with Captain George Cullum to identify the best design. In early June, Colonel Totten visited West Point to discuss Swift's progress and he appointed Second Lieutenant Gustavus W. Smith as the company's junior officer. The following month, he rounded out the command by also assigning brevet Second Lieutenant George B. McClellan, a new graduate from the Academy.[8]

First Clothing Issue

To communicate the company's status as elite soldiers and to help build esprit de corps, Totten and Swift proposed that their enlisted engineers be provided with a distinctive uniform. The uniform coat would be based on the dark blue coatee already being issued to Ordnance soldiers and dragoons for dress wear but with its own distinctive facings, including a black velvet collar trimmed with wide gold lacing and red welting. The cuffs and coat tails would also have black velvet and red cord details (FIG. 3). The trousers were to be made of the same light blue wool mixture issued to the infantry and artillery, but with a black welt along the outer seam for privates and corporals or a black velvet stripe for sergeants. The fatigue cap would include a black velvet band with the Corps of Engineers' castle insignia and the dress cap would have a black pompon.[9]

In addition to the normal clothing allowance, the proposed design also included white canvas overalls "to be drawn over the other trousers for working in." Captain Swift asked that these overalls extend up to the chest of the soldier, similar to later bib overall designs, with straps or suspenders to hold them up. This garment would help protect an engineer's uniform while engaged in his specialized labor.[10]

FIG. 3. *Design drawing for the new dress uniform coat of Company A Engineers, May 1846. (National Archives)*

This new uniform design was approved by the Secretary of War on 23 May 1846 and forwarded to the Quartermaster General, Thomas S. Jesup, who was responsible for Army logistics including the provision of soldiers' clothing. Jesup quickly sent these designs on to Colonel Henry Stanton, his senior officer in charge of the Office of Clothing and Equipage in Philadelphia. "Col. Totton requests that the supply for the whole company be provided as early as practicable and sent to West Point, N.Y.," Jesup wrote.[11]

The approved design included a new pattern button for the engineer uniforms. Since 1840, commissioned officers in the Corps of Engineers had been authorized their distinctive "essayons" button, though some evidence suggests that this directive may have simply codified a design that had already been in use for some years. Totten proposed however that enlisted soldiers be authorized a different button design, featuring the engineer castle symbol over a background of parallel lines (FIG. 4). With Colonel Stanton temporarily absent from the Office of Clothing and Equipage, Major D. D. Tompkins forwarded a sketch of this new design to Scovills & Company in Waterbury, Connecticut, one of the country's largest manufacturers of brass buttons. He insisted on inspecting the sample dies prior to production and asked how quickly the buttons could be provided. "As the Corps is only to consist of 100 men, a large quantity will not be required."[12]

In addition to the new buttons, the approved uniform design also called for two different sizes of the brass engineer castle insignia: a larger curved pattern to be worn on the front of the cylindrical dress cap (FIG. 5) as well as a smaller straight version for the forage cap (FIG. 6). William Pinchin, a well-known Philadelphia manufacturer of insignia and other military goods, sold the Army 100 examples of both types for the first clothing issues in 1846.[13]

Shortly after returning to the Office of Clothing and Equipage, Colonel Stanton received Captain Swift's official clothing requisition for the new engineer company. Unlike the

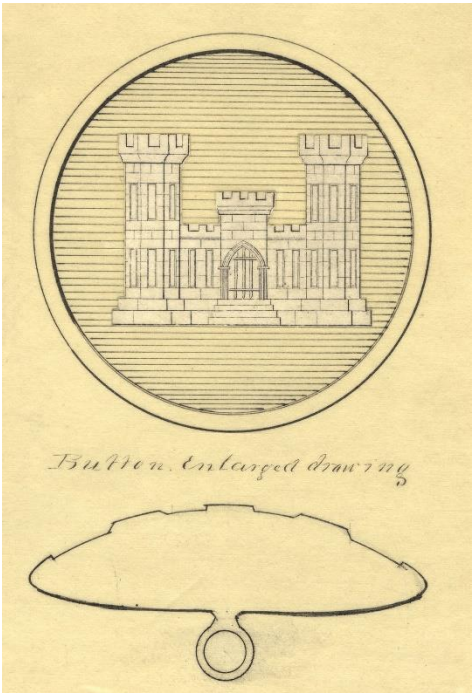
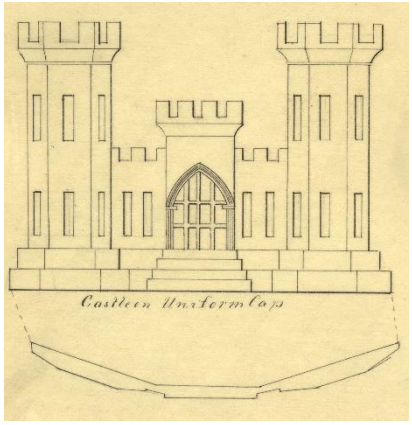


FIG. 4. *The original design (at left) and an original coat button (above) produced by Scovills & Co. of Waterbury, Connecticut of the type first manufactured in 1846 for use on enlisted engineer uniforms. This example has been silver plated, probably for one of the New York militia engineer units. (CCN 235001, Corps of Engineers collection, Fort Belvoir, VA. Photo courtesy Eric Reinhart.)*

Insert image of contractor's label.

Insert image of side button detail

FIG. 5. *This Pattern 1832 dress cap (AF*22736) was originally part of an early exhibit at Schuylkill Arsenal Museum illustrating the first uniform design provided to Company A Engineers. The cap includes the authorized black pompon and the faint outline of the missing engineer castle is still visible. While the cap is original, it was later modified for the exhibit, including the addition of engineer side buttons taken from a Pattern 1881 dress helmet. In September 1846, sergeants were authorized to replace the pompon with a black plume. (Smithsonian Institution)*



Insert image of insignia.

FIG. 6. *The original design (at left) and a surviving example (at right) of the curved 3-inch wide brass insignia worn on enlisted engineers dress cap. (National Archives and [insert source])*

Insert image of inside view of cap.

FIG. 7. *Enlisted engineers were also issued the Pattern 1839 dark blue wool uniform cap. This example (AF*25125.042) was also used in the engineer exhibit at Schuylkill Arsenal Museum. While the cap body is original, it was also likewise modified by the addition of a later period engineer castle insignia with a screw-back. This cap also lacks the authorized black velvet band. (Smithsonian Institution)*

FIG. 8. *This silver castle insignia, originally produced about 1841 as a pattern piece by John Smith Fraser for engineer officer's epaulettes, was forwarded to William Pinchin in Philadelphia to serve as the pattern for the enlisted men's forage cap insignia. The new insignia was to be produced in brass with "the door & windows pierced through showing the cloth." (National Archives)*

Voltiguers and the Mounted Rifles who were being restricted to only fatigue uniforms as they prepared for service in Mexico, Swift requested the full clothing allowance for the Engineer company, including the dress uniform as well as both the summer and winter fatigue uniforms. Swift followed up with a private letter to Stanton requesting that this clothing be forwarded as quickly as possible, as he had new recruits arriving daily at West Point. With the new buttons and cap insignia not being ready for at least thirty days, Stanton instructed nearby Schuylkill Arsenal to send a partial clothing order to include white cotton fatigue jackets with artillery buttons, white cotton trousers, cotton shirts, leather stocks, and dark blue wool forage caps. Blankets and double bed sacks were also to be sent for use in the barracks. On 23 June, the warehouse staff at Schuylkill Arsenal finished packing the first clothing order for the enlisted engineers into wooden crates and turned the materials over to the transportation officer for shipment to West Point.[14]

Arms and Accoutrements

At the same time he had requested clothing for his company of enlisted engineers, Captain Swift also submitted a requisition to the Ordnance Department for weapons and accoutrements. Noting that the British Army engineers were issued carbines and the French Army engineers carried their light infantry model, Swift recommended that his men receive the new rifled muskets, "provided it be lighter." The Ordnance Department soon began work on a model or prototype for what became known as the sappers musketoon, a .69-calibre smooth-bored weapon 16½ inches shorter than the standard infantry musket of the period. Swift also requested the new weapon be designed to accommodate a bayonet. "Each private should have an artillery sword [bayonet] and the sergeants a long sword," he wrote. "I have heard it suggested that it would be well for the sword [bayonet] of the privates to be toothed on one side as a saw." The leather accoutrements were to be the same as that issued to infantry soldiers. Until these new musketoons and accoutrements were ready for issue, Swift requested to borrow one hundred regular percussion muskets to train his men with.[15]

By mid-July 1846, forty-four newly enlisted engineers were drilling at the Military Academy, with additional men arriving regularly. "Without Lieut. Smith to drill them, I do assure you that I could not get along one day," Swift admitted to Totten as he struggled to arrange barracks for the men, corresponded with recruiting officers, and continued his efforts with manufacturers to develop the needed bridging equipment. The engineer company would also require hand tools such as picks and shovels as well as a wagon train to carry their equipment and pontoons once in the field. Lieutenant Smith noted that he and McClellan spent a portion of their off-duty time at Captain Swift's quarters being instructed "in the rudiments of practical military engineering which he had acquired at Metz." While the company was

FIG. 9. *The first engineer recruits were initially issued one white cotton fatigue jacket and trousers in 1846, however, these soon became soiled, leading many of the men to train in civilian attire. This fatigue jacket from the Schuylkill Arsenal collection has the "essayons" pattern engineer buttons, not authorized for enlisted uniforms until 1851. (AF*25044.02, Smithsonian Institution)*

making steady progress, Capt. Swift expressed concern that his men had not yet been able to train with weapons, except for a small handful of old muskets he had borrowed from the Academy.[16]

During his second trip to Boston to secure the needed pontoons, Captain Swift made a quick side trip to Springfield Arsenal to check on the status of the sappers musketoons and accoutrements. The commander of the arsenal, Major James W. Ripley, was temporarily absent when Swift arrived but he soon learned that the gunsmiths were still hand crafting the prototype model and then it still had to go before the Ordnance Board for review and approval prior to manufacture. Major Ripley soon wrote to Swift that the armory could not possibly produce the required musketoons before his company's departure for Mexico that fall, "and I would hardly venture to promise to have them in readiness in less than six months." In late July, the Ordnance Department shipped 100 smooth-bore muskets to West Point with which to arm the engineer company.[17]

While in Springfield, Swift also met with the Ames Manufacturing Company who had the contract to develop the bayonet for the sappers musketoon. "Mr. Ames said that they were at work on our sword bayonet [prototype] which they would soon have finished," Swift wrote. He also discussed

with Ames the possibility of producing fifteen sets of body armor similar to that worn by French sappers, including a breastplate that wrapped around their chest to offer some protection for engineers working under fire. Ames explained that he could not complete such an order in less than six months, at the earliest. Colonel Totten recommended Company A prepare to take the field without any body armor.[18]

Capt. Swift also requested 15,000 percussion caps for blank firing as well as "exercising the men in snapping caps as necessary as otherwise the cones would be injured." The Ordnance Department however argued that they did not provide caps "to be snapped away during the drill of the Company." Instead, they recommended that the men recycle used percussion caps, pressed back into shape, and that a piece of leather be fit over the musket nipple to protect it from damage. Swift was told he would have to resubmit his requisition for blank cartridges and the Ordnance Department would then supply just a sufficient number of percussion caps to fire them.[19]

Second Clothing Issue

In July 1846, Captain Swift expressed his growing concerns about not having received the remainder of his clothing order from Schuylkill Arsenal, noting his men were wearing only the white cotton jacket and trousers sent previously. "This soon gets dirty & then they are compelled to wear a citizen's dress," he explained, presenting "a motley appearance to the injury of discipline, drill and spirit." Three weeks later, Swift again wrote of his urgent need for clothing.

FIG. 11. *The Schuylkill Arsenal collection includes three examples of first pattern dress coatees for enlisted engineers (left to right: AF*22739, AF*22738 and AF*24993). The use of later pattern buttons and the inclusion of chevrons on the dress coats (not authorized until 1851) suggest that these are early reproductions or original coats later modified for the uniform exhibit at the arsenal. (Smithsonian)*

FIG. 10. *Engineers wearing their authorized white canvas overalls are seen here assembling a pontoon bridge across the east branch of the Potomac River near Washington, D.C. in September 1863. (AHEC)*

"Nothing has tended so much to produce dissatisfaction among them [his men] as the delay in providing their clothing." To help push efforts forwarded, he decided to make a quick trip to Philadelphia to personally check on the status of his clothing orders.[20]

Captain Swift had good reason for concern. The design drawings for the new uniform had been forwarded to Schuylkill Arsenal in late May with instructions to prepare clothing for 100 privates "as soon as possible." Swift had forwarded his formal requistion of clothing two weeks later. The first batch of engineer buttons finally arrived on 4 July and yet production of the uniform jackets still had not yet begun, as the arsenal's seamstresses busily worked that month on new uniforms for an entire regiment of dragoons.[21]

Prompted by Swift's letters, Colonel Stanton sent a note on 24 July to William C. Irvine, superintendent of clothing production at Schuylkill, ordering him to give the "earliest attention" to the engineer order. Within a week, Irvine's seamstresses had completed a set of pattern pieces for Stanton's inspection and approval. Captain Swift arrived at Schuylkill Arsenal on the evening of July 31, just in time to also review the pattern uniforms.[22]

Captain Swift brought also an example of the knapsack used by the French Army engineers that allowed each soldier to carry a tool or implement. He and Stanton discussed whether they should duplicate the French model or simply modify the current U.S. Army knapsack. Swift proposed that a hole should run through the knapsack from top to bottom, into which a pick, shovel or ax could be passed to carry. Ultimately, the two officers decided to modify the current U.S. design and to produce the knapsacks as well as the haversacks from waterproof India rubber cloth. Gamaliel Gay in New York City, a noted Indian rubber manufacturer, was hired to manufacture the items. No original example of these first engineer equipment are known to have survived.[23]

By the time Captain Swift departed Schuylkill Arsenal to return to West Point, full production of the needed engineer clothing was now underway. On the second floor of the

Insert angled photo with detail of collar.

Insert detail photo of cuff.

Insert detail of button.

FIG. 12. *Insert text. (Smithsonian)*

arsenal's west building, men employed as "cutters" rolled out the bulk cloth on large tables and used patterns to mark and cut out each of the required pieces. The pieces were then tied up into bundles in preparation the next step in the manufacturing process. Instead of regular wages, these men were paid for each bundle completed. For example, Patrick Campbell received 7 cents for cutting out all the pieces required to produce each engineer dark blue wool dress jacket and 2 cents for each pair of wool trousers that month. Other cutters received 3 cents for wool fatigue jackets, 5 cents for greatcoats, and 2 cents for the white canvas fatigue overalls.[24]

Superintendent Irvine then oversaw the distribution of these bundles to seamstresses in the area. Three times each week – Mondays, Wednesdays, and Fridays – women in the surrounding area arrived at the arsenal to pick up the new clothing orders. After signing receipts for the items, they worked at home sewing each clothing item by hand. The completed garments were then brought back to the arsenal where they were inspected and if the quality of the work was acceptable, the women were paid. A good seamstress could earn $1.35 for each engineer dress coat sewn and 50 cents for each wool jacket. Trousers were paid at 22 cents each, great coats at 75 cents, and the white canvas overalls at 15 cents each.[25]

On 4 August, the warehouse staff shipped out the needed leather bootees for the engineer company and on 15 August, forwarded 24 wooden boxes and tierces packed with the remaining uniforms and other clothing items. This included dress uniforms, wool and cotton fatigue uniforms, the work overalls and greatcoats. Extra engineer buttons were included to replace the artillery buttons on the cotton clothing sent previously as was the new brass insignia and black velvet for creating the bands on the forage caps. The Quartermaster Department also provided a wide range of other needed equipage, including tents, camp kettles, mess pans and tin canteens. The department also paid for two key bugles, instead of the approved pattern bugle.[26]

Soon after the new clothing arrived at West Point and was issued to the company, Captain Swift heard numerous complaints. One soldier described the uniforms as "coarse and not half made" while others argued that the lace was of poorer quality than that used on similar artillery uniforms. The collar of the dress coat especially drew criticism. "It is so wide that on most of the collars the velvet scarcely shows between and the collar appears in front to be entirely yellow," Swift wrote. While the various details he listed might seem trifling, Swift explained that the men viewed the quality of their uniforms as "an indication of the estimation in which they are to be held in the army, and on this point they are very sensitive." He recommended a number of changes, even offering to personally pay for the alterations of the collars. "Only enable me to state to the men then that this next supply shall be of better cloth and make the changes suggested as to the quality of the lace and it will brighten them up at once."[27]

An unidentified officer responded to a published complaint of the engineer uniforms. "The clothing is not

FIG. 13. *Military artist Don Troinni painted this accurate depiction of an enlisted engineer in Mexico, wearing his dark blue wool fatigue jacket and fatigue jacket. Describe accoutrements. (source)*

magnificent, but it is good and comfortable," he countered, noting "the government have an idea (erroneous possibly) that in the organization of their army, they are to look principally to utility, and provide men who are to work and fight with clothes that are good to work and fight in." Colonel Totten did persuade the Secretary of War to approve most of the requested changes for the sergeant's dress uniform but he disagreed with Swift's assessment of the collar design. While the lace should be of the same quality as that furnished for the artillery, Totten stated that no changes to the color or dimensions of the collar lace would be authorized.[28]

As Captain Swift made his final preparations for deployment to Mexico, he suggested that the controversial dress uniforms be packed up and left at West Point, the men taking their more durable fatigue uniforms and the canvas overalls. "I cannot say that I am struck favorably by the idea of leaving the dress coats behind," Totten replied. "On the contrary I think the pride, not to say reputation, of the company may often, when you are in the field, be much concerned in making an appearance not less imposing than any." Despite Totten's initial concerns, the dress coats were left at West Point and Swift submitted one final clothing requisition for an extra supply of fatigue clothing to be stored in depot in Mexico. "May I request the [Quartermaster] Department to attend particularly to the matter, especially the changes recently made in the Sergts jackets and directions as to the quality of the cloth of the privates jackets?"[29]

Conclusion

In early September 1846, Captain Swift reported that Company A Engineers was finally ready to join General Taylor's forces in Mexico. "Besides the company, its arms, clothing, &c, there will be two officers' servants, 1 horse, 22 six horse wagons, 22 sets of six-horse harness, ten pontoons with balks, chesses, anchors &c and all the tools &c of the sappers and miners train." He estimated the weight of their supplies at about fifty tons, requiring stowage of about 4,500 cubic feet.[30]

On September 19, Colonel Totten traveled to West Point to conduct a final inspection and review of Company A Engineers. He praised the efforts of Captain Swift and his two junior officers for transforming 72 raw recruits into professional soldiers in such a short time and for constantly striving to ensure the men were properly uniformed and equipped. Five days later, the company departed West Point bound for New York Harbor, from where they then sailed for Texas. One newspaper noted that "it speaks highly of his zeal and energy in the discharge of the duties assigned him, that the company thus authorized in May was on ship board for the seat of war in September."[31]

For the next year, Company A Engineers participated in a number of campaigns and battles; list some examples. Tragically, Captain Swift died of cholera in [date]; Lieut. Smith assumed the role of company commander. By February 1848, the company in Mexico City reportedly "this clothing is much needed." Lt. Smith authorized the men to purchase better quality cloth and trimmings and to have good tailors produced "handsome, well-fitting uniforms." Pride of the company.[32]

The first uniform for enlisted engineers introduced in 1846 remained the authorized dress for the next five years, until the new uniform regulations were propagated in 1851. [insert closing comment]

Endnotes

[1] H. Wager Halleck, *Elements of Military Art and Science; or Course of Instruction in Strategy, Fortification, Tactics of Battles, &c* (New York: Appleton & Co., 1846), 305-306. Returning from a study of fortifications in Europe, this book was produced from a series of lectures that he gave at the Lowell Institute in Boston.

[2] Totten to Poinsett, 29 Nov 1839, published in: *Annual Report of the Secretary of War*, S. Doc. 1 (26 Congress, 1st session) serial set vol. 354, p. 174.

[3] Totten to Poinsett, 3 Dec. 1840, in: *Annual Report of the Secretary of War*, p. 110-112; Totten to Spencer, 19 Nov. 1841, p. 139-145; [find citations for annual reports for 1842-45]

[4] Sanders to Taylor, 15 Feb. 1846, document S-66, Letters Received, Adjutant General's Office (AGO). Totten to Sanders, March 18, 1846, CoE LS by Totten, __:242-243; Welcker to Burt, May 2, 1846, Coe LS to Sec. War and Congress, 5:462-464. Find records for House Committee on Military Affairs (RG233).

[5] 9 Stat. 12 in George Minot (ed.), *The Statutes at Large and Treaties of the United States of America from Dec. 1, 1845 to March 3, 1851* (Boston: Little, Brown & Co., 1854), 9:12-13. General Orders No. 14, AGO, ___, 1846. G. A. Youngberg, *History of Engineer Troops in the U.S. Army, 1775-1901* (publisher). Find: History of the U.S. Corps of Engineers. Stephen R. Riese, "Company A, Corps of Engineers, in the Mexican War," Thesis, U.S. Army Command and General Staff College, 1995.

[6] Cullum, 1:448. Swift used Joseph Laisne, *Aide-Memoire Portatif a l'usage des Officers du Genie* (Portable Checklist for use of Engineering Officers) as his main guide for

[7] Totten to Swift, May 19, 1846, McClellan Papers, Roll A-1 index 59; Totten to Swift, June 1, 1846, CoE LS to Engineer Officers, 15:240-241.

[8] George W. Cullum, *Description of a System of Military Bridges, with India-Rubber Pontons prepared for the use of the United States Army* (New York: D. Appleton & Co., 1849).

[9] "Regulation, Uniform of the Engineer Soldier," May 21, 1846, enclosed with Jesup to Stanton, May 22, 1846, Doc. Q-557, OQMG LR (RG92 Entry 225 Box 1169). This uniform regulation was officially published in GO 18, Army Headquarters, June 4, 1846.

[10] Jesup to Stanton, June 11, 1846, C&EB LS 9:159; Stanton to Fayssoux, June 13, 1846 (OC&E LS to MSK, 1:4.

[11] Jesup to Stanton, May 22, 1846, C&EB LS 9:145.

[12] Tompkins to Scoville, May 25, 1846, OC&E LS Misc. 1:74. In his detailed book on uniform buttons, Albert did not record this design under the Corps of Engineers; rather he listed it under New York, one of the few states that fielded enlisted engineers during the Civil War. The Schuylkill Arsenal records however clearly show that this design originated with Company A Engineers in 1846, manufactured by Scovills & Co. The buttons were produced in two sizes, a coat button at $1 per gross and a vest button at 75 cents per gross. Alphaeus S. Albert, *Record of American Uniform and Historical Buttons* (reprinted Oakpark, VA: SCS Publications, 2006), 70, 204. Raleigh B. Buzzaird, "Insignia of The Corps of Engineers," *The Military Engineer*, Vol. XLII, No. 286, 101-105.

[13] While the outgoing letter requesting these insignia could not be located, the receipt of the insignia from Pinchard and their inspection at Schuylkill arsenal is recorded. Insert source

[14] Swift to Jesup, June 10, 1846, C&EB RegLR 4:436. Jesup to Stanton, [insert date and source]. Swift to Stanton, June 13, 1846, insert source. Stanton to Swift, June 15, 1846, OC&E LS Misc 1:285, 289. Swift to Stanton, June 17, 1846, OC&E RegLR 2:135. Voucher 117, June 20, 1846, vol. 34, receipted invoices (e. 2117 RG92).

[15] Swift to Totton, May 18, 1846, CoE LR. George D. Moller, *American Military Shoulder Arms* (Albuquerque: University of New Mexico Press, 2011), 3:234-238.

[16] Swift to Totten, June 27 and July __, 1846, CoE LR. Smith, Company A Corps of Engineers, p. 2.

[17] The company did not receive its first musketoons until late 1847 or early 1848. Smith to __, Mar. 31, 1848, Box 177, OCO LR (Box 177 Entry 21 RG 156).

[18] Swift to Totton, May 18 and July 11, 1846, CoE LR. Totten to Swift, July 13, 1846, CoE LS to Engineer Officers, 14:__.

[19] Swift to Totten, 30 July 1846, CoE LR. Totten to Swift, Aug. 1, 1846, CoE LS to Eng Officers, 14:358-359.

[20] OC&E RegLR 2:166. Swift to Totten, July 14, 1846; Swift to Stanton, July 15, 1846; Swift to Totten, July 19, 1846; Swift to Stanton, July 22; Swift to Totten, July 22, 1846, CoE LR. Swift to Totten, Aug. 9, 1846

[21] Tompkins to Irvine, May 25, 1846, OC&E LS Misc. 1:75.

[22] Stanton to Irvine, July 24, 1846, LS to MSK 1:__. Sums Paid Cutters & Seamstresses, vol. J [page?]. Irvine to Stanton, July 31, 1846, OC&E RegLR 2:183.

[23] Totten to Jesup, May 26, 1846; Swift to Totten, July 30, 1846

[24] Sums Paid Cutters & Seamstresses, vol. J [page?].

[25] Sums Paid Cutters & Seamstresses, vol. J [page?].

[26]

[27] Letter dated Nov. 10, 1846, published in *Morning News* (New London, CT) Dec. 10, 1846, vol. 3 no. 27 p. 2; reprinted in *Niles Weekly Register*, Jan. 9, 1847, p. 304.

[28] *People's Advocate* (New London), Jan. 13, 1847. General Order __, 3 Nov 1846. Totten to Swift, 1 Sept, 1846, CoE LS to Eng Officers, 14:403-404.

[29] Totten to Swift, 1 Sept 1846. These additional uniform items took another month to produce and were forwarded after the company had departed for Mexico

[30] Totten to Marcy, Sept. 10, 1846.

[31] Regimental Return, Sept. 1846, M690 Roll 1. New Orleans Times-Picayune, April 28, 1847.

[32] Smith, *Company A*, p. 65.