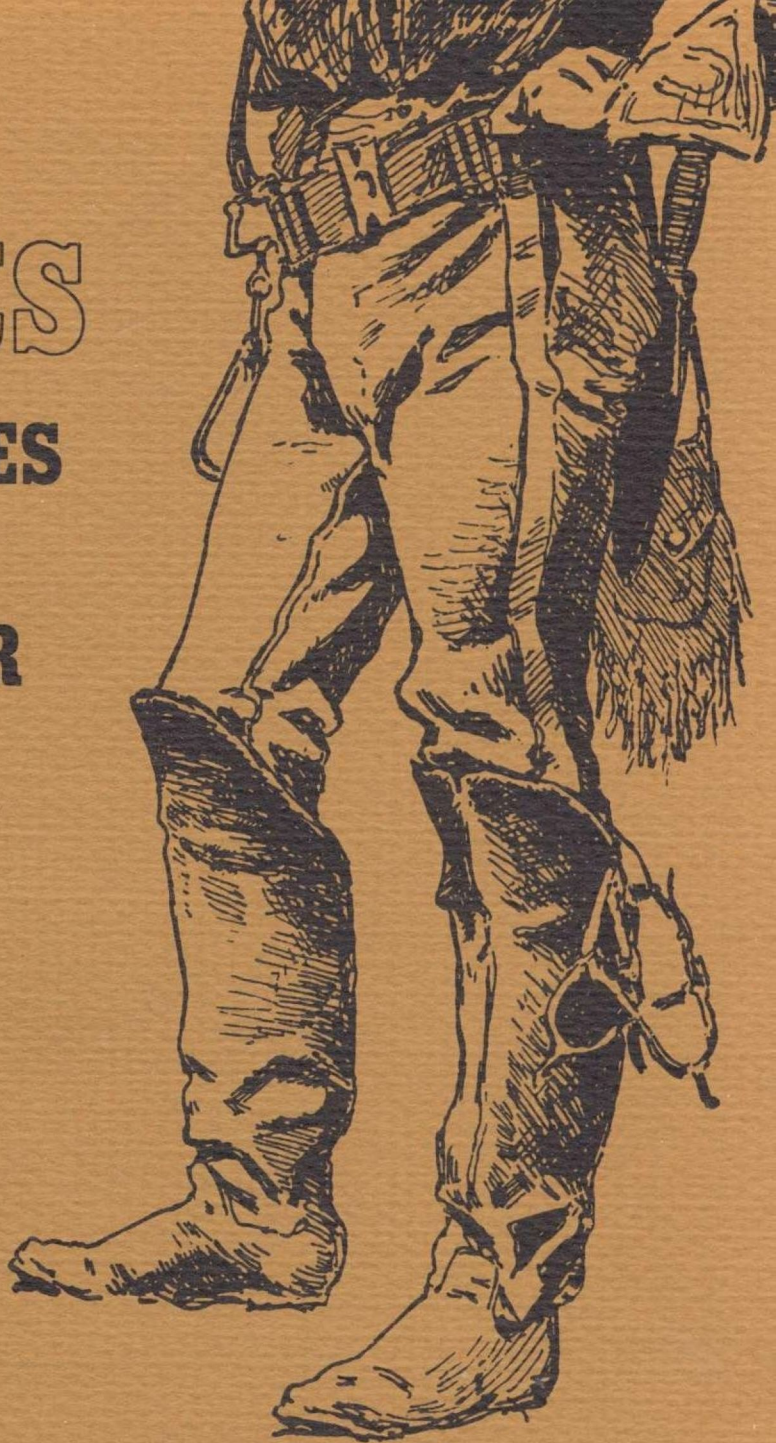


boots

AND SHOES OF THE FRONTIER SOLDIER



BY SIDNEY B. BRINCKERHOFF

MUSEUM MONOGRAPH NO. 7

ARIZONA HISTORICAL SOCIETY

**BOOTS
AND SHOES
OF THE
FRONTIER
SOLDIER**

1865-1893



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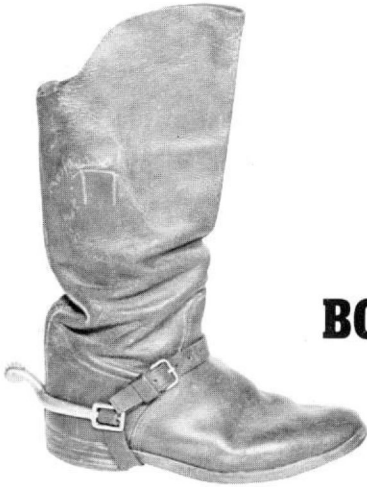
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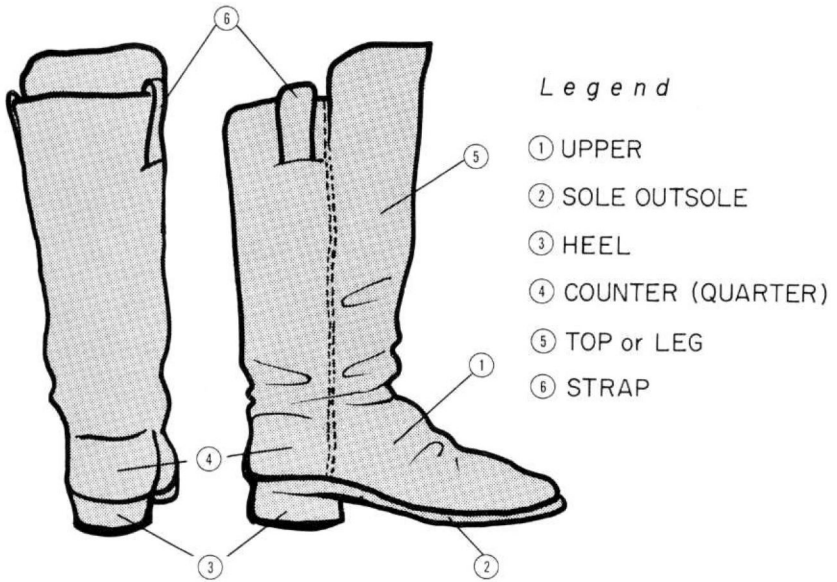
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BOOTS AND SHOES



Shoe nomenclature.

BOOTS AND SHOES

*of the Frontier Soldier
1865-1893*

FEW PIECES OF THE MILITARY UNIFORM were as important to the soldier serving on the frontier as his boots and shoes. Not only was his efficiency as a fighting man in the field affected by the design and construction of his footgear, but the quality of his morale was also influenced by what he wore on his feet. In the years following the Civil War, officers of the Quartermaster Department recognized his need and a great deal of time and money were spent in experimenting with various styles, materials and construction methods of footgear. The problems facing the supply officers were numerous, not the least of which was a chronic shortage of funds for the upkeep of the Army due to small appropriations from the U.S. Congress.

Until the late 1870s the Army procured boots and shoes largely by contract with civilian suppliers. While these items were supposed to be constructed according to specifications provided by the government with design, materials and construction prescribed in detail, there was often considerable variation in the products. Even though each item had to pass through the hands of a quartermaster inspector before being issued to the soldiers, inspection practices varied in efficiency. The result was that soldiers sometimes received boots and shoes made of poor-quality leather and badly assembled. They soon virtually fell apart with even moderate use. Then, of course, there was the continuing problem of correct, comfortable and durable design. Quartermaster officers from the late 1860s onward studied various new civilian designs including lasts, stitching methods, and means of attaching the sole to the upper or body of the shoe. Simultaneously they reviewed the reactions of soldiers in the field to experimental footgear issued to them. All of this was complicated by the varied and rough terrain in which the frontier soldier served. During the campaigns against the Indians in the far West, footgear received hard use in climates which ranged from

*A pair of boots
with hand-sewn soles
manufactured in the 1860s.*



extreme heat to extreme cold, and on ground which was rocky, sandy and dry, or damp and muddy. Despite all these problems, and a constant shortage of funds, the Quartermaster Department continued to experiment between 1865 and 1893 and developed improved footgear which finally gave the American soldier good-quality boots and shoes — footgear which fit well and stood wear.¹

With the end of the Civil War, the government found it had on hand over 1,500,000 pairs of shoes, called brogans or bootees, and 435,000 pairs of boots for mounted troops.² The brogans, also known as Jeffersons, were of black leather, rough or flesh side out, fastened by laces, and built to come up over the ankle. At first, the soles were attached to the uppers by hand-sewn thread, but during the war soles attached by machine-placed wooden pegs and machine-sewn thread were purchased. The boots had soles identically attached, but were provided with legs or tops about eleven inches high in front, different contractors making them in varying heights. By regulation, foot and mounted soldiers were to wear the shoe, but in practice, the boot was also issued to cavalry and mounted artillery units to be worn under the trouser leg.³ In addition, infantry soldiers often were furnished or bought boots in place of the shoes.



The quality of this vast store of boots and shoes varied. Inspection practice during the war was often poor, and with the press of wartime needs, footgear of very poor quality was accepted. Following the war, the size of the Army was drastically cut, as were funds for military purchases, but the footgear supply appeared ample for some time to come. The need for improved boots and shoes, however, soon became apparent.

Service on the frontier quickly showed that much of the footwear was unsuitable for use, being deficient in both material and fit. The quality of the leather was often poor, the upper being made of split hides too thin for durability or good fit. Some shoes were reported to have soles of composition material or pressed paper. Reports indicated that in the hot, dry Arizona country the soles rapidly came off because the sewn threads were soon cut through or the wooden pegs were loosened through contraction. Arizona officers suggested use of the French method of attaching the soles by brass wire screws, but action was delayed for several years.⁴ Despite the introduction during the Civil War of shoes made differently for the right and left feet, frequent complaints about fit were recorded. The footgear was produced so crudely that rights and lefts were almost indistinguishable. Soldiers often

rubbed soap on their feet and socks to avoid blisters when they wore newly issued shoes. Many simply did not wear the government-issue shoes or boots charged against their clothing allowance, buying civilian types instead.⁵

Further difficulties were encountered in design. The infantry shoe did not adequately protect the foot in the winter snows, or in muddy or wet areas. In some cases the foot soldiers stationed in northern latitudes were allowed to buy boots at their own expense. They also could procure, when authorized, buffalo-hide overshoes. Before the Civil War these were purchased out of company funds and thus did not belong to the soldier. After the war they were charged at cost to the individual. Medical officers were concerned about the health problems resulting from inadequate footgear and undoubtedly their negative reports and recommendations helped lead to reform.⁶

By the late 1860s the large surplus had been sizably decreased through issue, sale, and deterioration in storage. Particularly in short supply were the small sizes. Attention was given by quartermaster officers to means of remedying previous problems in the new boots to be purchased. The quartermaster general suggested the addition of iron hobnails to the soles of footgear worn in the Department of Arizona, but this solution was not widely adopted. The idea of using brass or hair-wire screws to attach the soles was implemented, however, and half of the boots and shoes purchased in 1871 were so provided. The other half were purchased with either pegged or hand-sewn soles. The sewed boots were charged to the soldiers' account at \$2.07 a pair, while sewed shoes were charged at \$1.20.⁷

During the spring of 1872 a board of officers, convened to study and make recommendations concerning footgear for the Army, advised that 3000 pairs of boots and 2000 pairs of shoes of a modified pattern be made up for field trial in active service and that serviceability reports be called for with a view to their being adopted as standard. By late 1872 the quartermaster general could report that the new footwear had given universal satisfaction in the trials and that it would be adopted.⁸

The most important improvement in these items seems to have been the use of natural-shaped lasts and attachment of the soles



*The boots are the brass-screwed 1872 pattern;
the shoes are hand sewn and from the pre-1872 pattern.
The photograph was made in 1875.*



*Brass-screwed shoes of the 1872 pattern and
pre-1872 boots with hand-sewn soles.*



*A pre-1872 boot manufactured with wooden-pegged soles.
It was recovered at Fort Sanders, Wyoming.*

by brass “cable screws.” Other changes in the boots were also helpful. The Civil War boots had legs which were considered too narrow and too short to make a good appearance or keep out moisture. While the soldier traditionally wore his trousers over the boots, it was usual to tuck them into the boots in wet weather.⁹ The new standard called for the use of whole hides and heavy, oak-tanned Spanish leather with wider and slightly higher tops, the front portion rising more sharply. By uniform regulation the boots were designed to come above the swell of the calf of the leg. Another obvious change was in the strap, half of which now was sewn to the outside of the leg. Four additional sizes were added, giving a range from 5 through 12. Shoes were also issued to the mounted troops for garrison wear, but the issue of boots to foot troops was prohibited. Procurement and inspection procedures were tightened in the early 1870s, resulting in a better quality and a more consistent product which was generally well received by the troops. Early in 1875 the term “shoe” was officially adopted for designated infantry footgear, replacing the word “bootee,” which had caused confusion in requisitions from the field.¹⁰



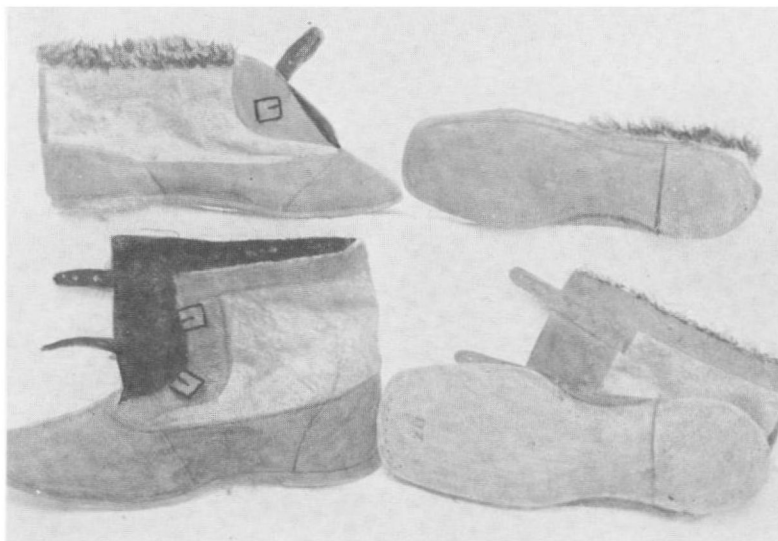
Brogans or bootees — the pre-1872 pattern with wooden-pegged soles, recovered at Fort Sanders, Wyoming.

*Non-regulation boots
dating from the 1870s and
showing a common two-piece
construction of the tops.*



Despite improvement in procurement, however, some of the new boots and shoes were apparently improperly made. In late 1874 reports from Fort Dodge, Kansas, and Fort Concho, Texas, complained that shoes issued there had brass screws which penetrated through the insole and hurt the feet of the wearer. Samples were sent to the quartermaster general for study. Examination indicated that the shoes were fastened by screws which were originally defective, an opinion confirmed by the contractor. All shoes so constructed were ordered to be returned to the quartermaster department, to be replaced by the contractor until the government was satisfied with the product. Other such complaints continued to be made about the shoe in the following years, but these criticisms were few compared with the number of shoes issued.¹¹

Another defect, and one which was not remedied for some time, was the stiffness of the leather. The heavy, coarse South American leather, commonly called Spanish, specified for the body or upper created an unyielding shoe — one which, when new, was hard to fit to the foot. As a result some soldiers continued to substitute civilian footgear or wore Indian moccasins and leggings.



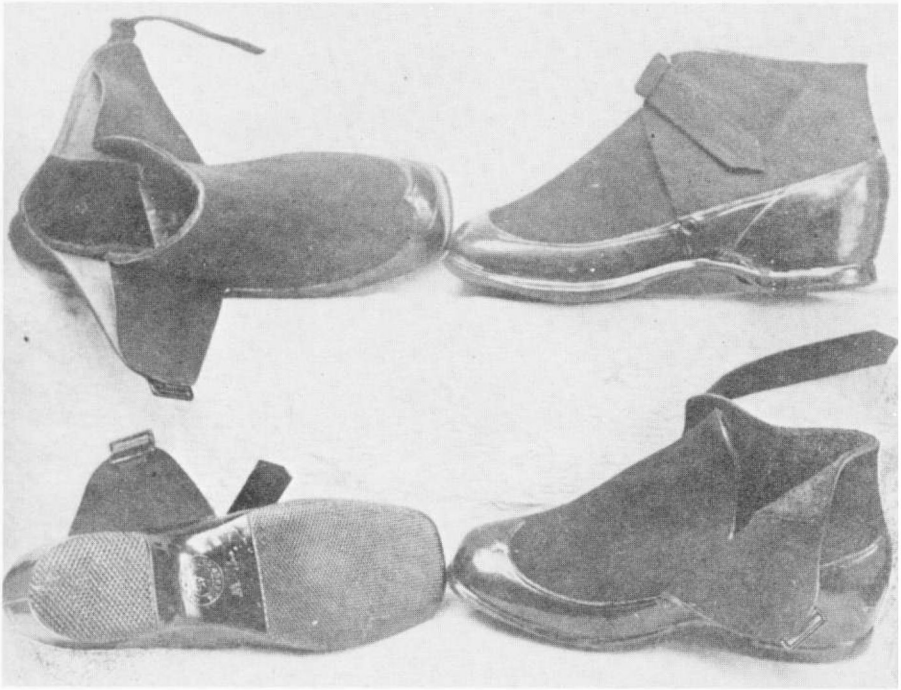
Buffalo overshoes — pre-1872 (top), post-1872 (bottom).

One soldier in the West employed a method which may have been quite common.

These [shoes] were very uncomfortable, but I solved the fit by walking through a creek until the uppers were thoroughly soaked, walked the whole day in them and so got a foot form and comfort.¹²

While there was no immediate change in the leather used, officers continued to investigate methods of tanning, the wearing characteristics of various kinds of leathers, and the most current shoe-construction methods. The able Captain John F. Rodgers, Military Storekeeper, Quartermaster Department, devoted time to studying the results of a congress of tanners in 1876 and published a lengthy analysis of their findings.¹³

The question of winter overshoes for use on the northern plains also received attention. A new pattern of buffalo-hide moccasin or overshoe was authorized in 1873, little changed from the earlier pattern except for a little additional height and an improved method of fastening. In 1874 over 12,000 pairs were purchased and made available for use in Colorado, Wyoming and Montana. During early 1876 an equipment board of officers was convened to study a number of items relating to the uniforms. They recom-



Arctic overshoes. The "snow-excluders" (top) were adopted as standard issue in 1876; pictured below is the "buckle-gaiter."

mended that where "arctic overshoes" were used, the "snow-excluder" pattern, submitted for review by the quartermaster general, should be adopted. It was thought that this pattern was warmer and more serviceable than the lighter buffalo variety. Actually, some overshoes called the "buckle-gaiter" and the "snow-excluder" were purchased in 1874 and issued for trial along with the buffalo skin variety. The response to the new patterns from the soldiers was good, but a few of them continued to call for the older buffalo pattern. The new overshoes were the result of civilian industry, and their quick study by military authorities indicates the continuing attention paid to new ideas. In 1876 the secretary of war approved the findings of the board, and in May of that year specifications for military purchase were defined. The "snow-excluder," as produced by the National Rubber Company, had a height of about $7\frac{1}{2}$ inches, was made of black tweed, waterproofed, and was provided with a coarse gray felt lining. The sole,

heel, and edge of the upper were made of vulcanized rubber. A pair weighed 3 pounds, 10 ounces and was made two sizes larger than the leather shoe. The fastening at the front was by strap and buckle. The tongue was attached on all sides to the upper, thus providing a better seal against moisture.¹⁴

In an effort to develop improved boots and shoes, quartermaster officers continued to test materials and methods submitted to them. In 1875, for example, the subject of shoes fastened with Estabrook and Wise's patent brass clinching screws was brought to the attention of the department. Fifty pairs, offered by the manufacturer, were sent for trial to Fort Concho, Texas, and Fort Dodge, Kansas. The results were considered very satisfactory, and consequently, the specifications for boots and shoes were amended in August of 1876 to allow the suppliers to bid on future contracts. This patented brass serrated device was not screwed in but was driven into the leather with a hammer and clinched over.¹⁵

During the mid-1870s the government made decisions which were especially important to the future production of footwear. In October of 1875 the acting quartermaster general directed the emergency purchase, in open market, of 10,000 pairs of boots at contract rates from four suppliers. Previous contracts had not filled the need, and in order to insure rapid delivery, the officer in charge of the Philadelphia quartermaster depot was directed not to insist on the manner of fastening the soles to the uppers but to see that the boots purchased were as good as the standard pattern. Boots furnished by two of the suppliers were inspected and accepted, but one firm delivered boots which were rejected twice because of their poor quality. The products of the fourth contractor were also refused. A board of officers met to study the matter and decided to acquire the rejected boots but at a ten to twenty-five percent reduction in price. Some of the boots thus acquired were later rejected for use by a board of survey because of their inferior quality and returned to the depot at Philadelphia for storage.¹⁶ This incident and others drew attention to the whole problem of contracting for footgear. From the Mexican War to the Civil War boots and shoes had been produced at a government facility, Schuylkill Arsenal. The Army purchased the leather it needed and the shoes and boots were cut and assembled under

military control.¹⁷ The system had proved inadequate during the Civil War insofar as quantity was concerned. The demands of wartime service required outside contracts. Following the war, attention was directed again to military production, but the contract system continued. Finally, in 1874, Congress passed a law establishing a military prison at Ft. Leavenworth, Kansas, and the law specifically provided for the production of Army shoes by prison labor. Such an arrangement involved the prisoners in useful work, and it appeared that this method would solve the problem of quality control and volume. It was not until February of 1877 that the secretary of war directed that at least seventy-five prisoners in addition to civilian employees be involved in the production of footgear. Materials and machinery were purchased, and by the end of June 1800 pairs of shoes had been produced. The cost of the previous contract shoes had been \$1.86 a pair, and it was hoped this cost could be reduced. Footgear made at the prison was marked M.P. and U.S.Q.M.D.¹⁸

Most of these efforts went unnoticed by the soldier on the frontier, but he benefited from the improvements. Because of the heavy wear on issue equipment during the Indian campaigns, the secretary of war in August, 1876, increased the number of boots and shoes available to the soldier during a five-year enlistment. The cavalry soldier could receive one pair of boots per year and the foot soldier was entitled to two pairs of shoes a year.¹⁹

The most significant change in 1876 was the approval of new specifications for the design and manufacture of cavalry boots and infantry shoes. The new boots were to have legs 15½ inches high in the front and 14 inches high in the back, a width (circumference) at the top of 14¾ inches on the size No. 8, standard, with appropriate variations on the smaller and larger sizes. The boot was to be provided with double soles fastened to the upper leather and inner sole by screws made from 12½ gauge brass wire with five spaces in the threads for every two inches of wire. The upper leather was to be oak-tanned from slaughter or fresh hides, while the sole leather was to be oak-tanned from heavy South American dry hides. No split leather would be used. The most obvious advantage of this new boot was the higher leg, giving the rider greater protection and a wider top for ease of tucking in the pant



The 1876 pattern, officer's quality, with brass-screwed soles and high fronts.

leg. The new specifications were modified in August of the same year so as to allow the use by contractors of the already-mentioned Estabrook and Wise patent brass clinching screw.²⁰ It appears that a large number of boots with soles attached by the clinching screw were purchased and issued.²¹ The changes in the shoe specifications were brought about in part by complaints and suggestions from the field and in part by the recommendations of the quartermaster equipment board which met early in 1876. The major recommendation of the board regarding shoes dealt with the length of the tongue, which was thought to be too short. The board urged that the tongue should be made to extend $\frac{1}{4}$ of an inch above the top of the quarter of the shoe when laced. The new specifications, adopted March 8, 1876, specified that the tongue would rise $\frac{1}{2}$ inch above the top edge of the shoe when worn. This arrangement allowed for greater comfort when the shoe was laced. As already noted, new specifications for winter overshoes were also approved.²²

Manufactured at the military prison, the new boots and shoes seemed to give general satisfaction for a while. As the quartermaster general pointed out in 1878, however, constant changes



*Contract-produced 1876 boots
were manufactured with
wooden-pegged soles
and stamped "US" on the
left inside strap.*



*Non-regulation boots made
on a late-1870s pattern.*

in manufacturing techniques required corresponding changes in the specifications of military supplies.²³ The Army continued to look for improvements in footgear, and the soldiers continued to complain. On December 16, 1878, a board of officers was convened in New York City with Colonel Nelson A. Miles, 5th U.S. Infantry, as president to investigate equipment for the infantry and cavalry. Miles was an experienced field commander, a veteran of campaigns against the hostile Indians on the northern plains. The other four members were equally experienced. The board had not only to study new pieces of equipment submitted for consideration but also to review reports and letters sent from the field describing the shortcomings of existing equipment. The findings and recommendations of the board were published in General Order 76 of July 23, 1879, after a review by the quartermaster general, the chief of ordnance, the commanding general of the Army, and the secretary of war. Shoes, boots and leggings received considerable attention by the board. Commercially produced leggings were recommended for use by foot soldiers after more than ten years of requests for them by soldiers on campaign.²⁴ William Tecumseh Sherman, the commanding general, disapproved the recommendation and suggested that soldiers make their own from old tents and scrap canvas. However, this pressing need would continue to come to the attention of the quartermaster department. Eventually a sample shoe and new last were submitted for review and favorably considered:

In discussing this subject, the board has had in view the experience of the Army, as set forth in the great number of letters and reports before the board. These show that the shoes now issued are the cause of frequent and, it is believed, well-founded complaints. These complaints are due in a measure to the pattern of the shoe, which is made on incorrect principles and is such as to contract the foot and compress the toes to the screw fastenings, which frequently wound the foot, and as conductors of heat and cold, subject the wearer to annoyance and at times great suffering.

The present shoes are no doubt the most durable that have been issued for many years, but they are objectionable for the reasons herein given, and the board therefore recommends that the shoes be of the pattern known as the English Waukanphast shoe, to be sewed and of black leather, with bellow tongue and eyelets and hooks for lacing; the height of the shoe to be 6 inches and of the heel $\frac{3}{4}$ inch, according to pattern submitted.

A new boot pattern was also recommended.

The boots to be of black leather of same pattern as shoe, the leg to extend well up and cover the knee in front, the top of the leg sloping downward and backward so as not to interfere with the motion of walking. To overcome in a measure the inconvenience of wet boots, it is suggested that the front of the boot-leg have a gusset of soft leather to extend from the instep to a point five inches above; this part of the boot to be laced by means of eyelets.²⁵

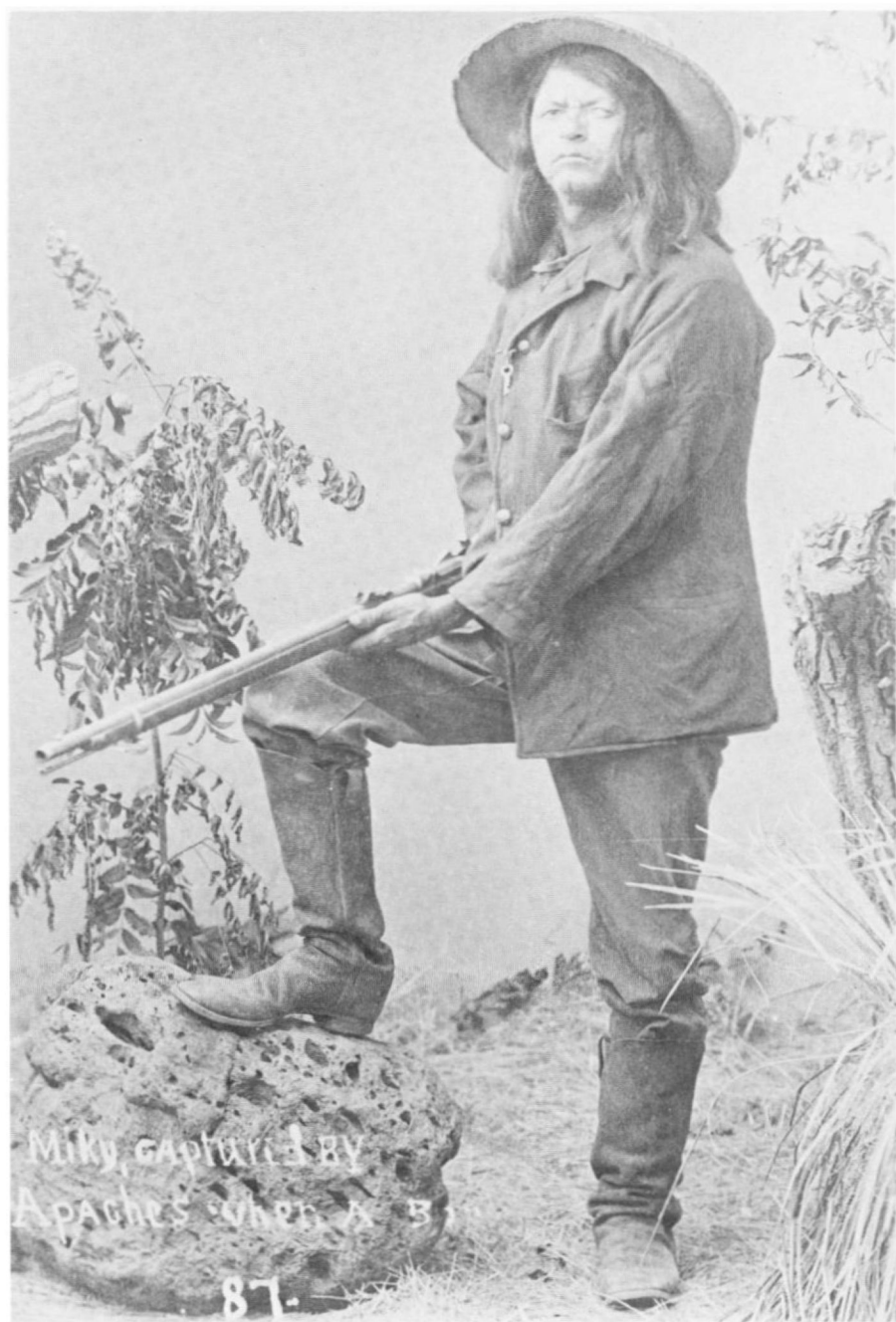
Both the new shoe pattern and the Waukanphast lasts had been obtained from England, again revealing the continuing search by the quartermaster general for new and improved products of private industry.

After reviewing the findings of the board, the commanding general concurred in its conclusions. He recommended that the shoes be manufactured at the Leavenworth prison for experimental trial by marching troops. He expressed the belief that no article of dress was so valuable and material to the soldier as the shoe or boot and indicated, significantly, that he did not deem it wise to prescribe any fixed pattern. The quartermaster's department was to manufacture the shoes for the Army of the very best materials and of the best patterns possible, almost regardless of cost. He wrote:

There is no necessity of adopting any shoe as *uniform*. Soldiers should be permitted to buy any kind of shoe they please with their own money.²⁶

This ruling held as regulation for shoes and boots until after the end of the frontier period. In a sense, it reflected the inability of the Army to come up with acceptable standard footwear, and it caused considerable confusion among officers at posts throughout the West.²⁷

Now that a major decision had been made on new boots and shoes, the Army seems to have taken some time in developing them. During the fiscal year 1880–1881, over 34,000 pairs of shoes and almost 26,000 pairs of boots of the 1876 pattern, provided with an insole of white sheepskin to guard against the ends of brass screws, were produced at the military prison.²⁸ If the pattern boot and “English walking shoe” recommended by the board of 1879 were ever produced and issued for trial is uncertain. The Waukanphast last was later introduced at the prison, however. The



*Mickey Free, Apache scout for the Army, wears a pair of 1872-pattern boots.
The photograph was made at San Carlos about 1886.*



Scout Riley, photographed at Fort Apache about 1886 in 1876-pattern shoes.

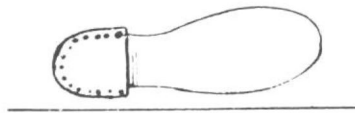
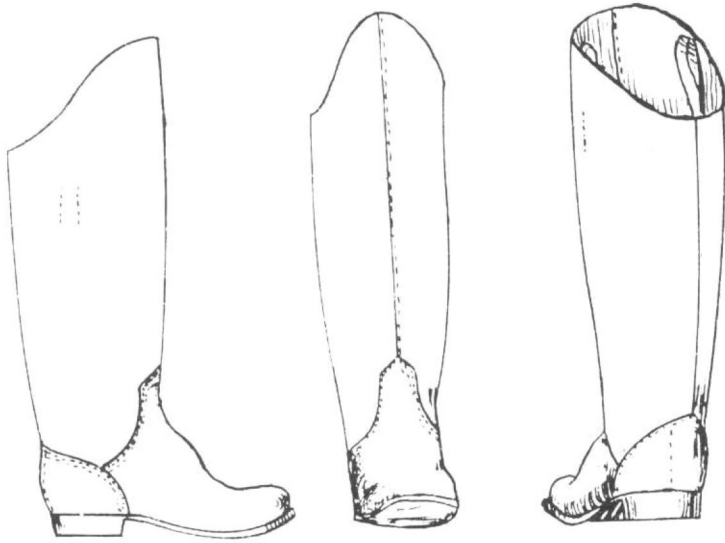


Brass wire screws, uncovered at Fort Bowie, Arizona.

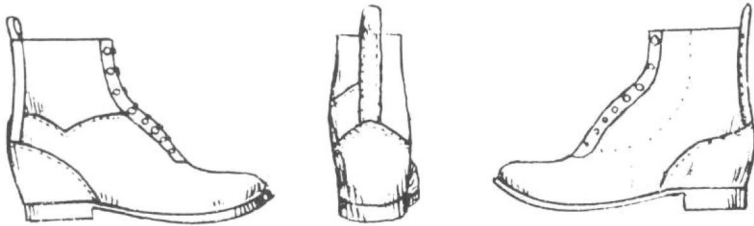
dislike for the brass-screwed footgear continued to grow, particularly by troops campaigning in the Southwest against renegade Apaches. Inspections at Fort Lowell, Fort Huachuca and other posts in the Arizona Territory revealed that many soldiers were wearing a variety of civilian shoes, many of them totally inappropriate for military service and frequently causing sore feet.²⁹

In April of 1883 Captain John F. Rodgers filed a report with Quartermaster General Rufus Ingalls which contained drawings showing patterns of shoes with sewn soles recommended for trial. The recommendations resulted from a broad opinion survey made among officers and men in the field. The Rodgers report, approved by the secretary of war, was to lead to significant changes in Army boots and shoes. It showed clearly that the present footgear was inadequate, but not everyone agreed on the solution. Major General John Irvin McDowell, formerly commander of the Division of the Pacific, reported for troops in Arizona that in his opinion if the boots and shoes were to have soles sewn to the uppers, they should be provided with hobnails. Shoes were quickly cut up by the rough country. Other reports from Arizona urged hobnails and brass screws in addition to sewn soles. Lieutenant Colonel Henry C. Merriam, 2nd U.S. Infantry in Idaho Territory, indicated that some of his men were found wearing boots and shoes, not regular in pattern and of a narrower last, provided by local merchants. Colonel Frank Wheaton of the same regiment complained, as did many others in the survey, that the

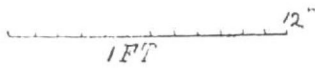
— BOOTS —



— POST SHOES. —



— SIZE NUMBERS FROM 5 TO 12. —

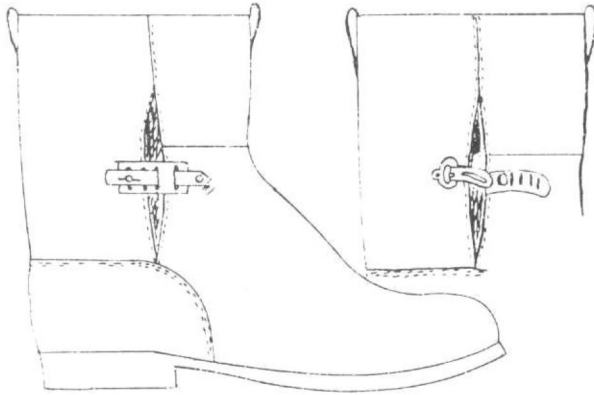


1884-pattern footgear sent out for trial: cavalry boots and "post shoes."

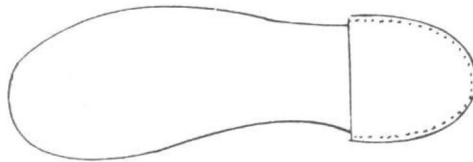
leather in the issue footgear was too stiff and unyielding. Colonel Adna R. Chaffee, 6th U.S. Cavalry in Arizona, asked for boots with higher tops or legs and the issue of a light garrison shoe. Most of the officers and men agreed that the brass screws tended to hurt the feet; that the leather used was stiff; that shoes with sewn soles were better; that a light garrison shoe was desirable; and that the men would pay more money (against their clothing allowance) for a better type. Captain Rodgers therefore proposed two new shoe patterns. An English-pattern light walking shoe, similar to the one proposed by the 1879 board, made with a pliant, light wax upper leather, was suggested for garrison use, and a bootie with a leg eight inches high was to be provided for field use by foot soldiers. Both had the sole attached to the upper by machine-sewn thread. General Ingalls recommended that 500 pairs each of these be manufactured for trial. If favorably received, they were to be made standard. The secretary of war concurred on May 9, 1883.³⁰ The "post" and "field" shoes sent out for trial were apparently well received, but more changes were to come. Captain Asa P. Blunt, commanding the military prison at Fort Leavenworth, suggested an alternate design for the service or "campaign" shoe. Five hundred pairs of these were manufactured in 1884 and issued for trial in 1885. During 1884 a new pattern boot with a higher leg and machine-sewn sole was also authorized. With the issuance of this new design, boots were no longer to be made available to all arms of the service. The proposed field shoe was considered to be high enough to cover and protect the ankle of the foot soldier, and thus boots could be made with a higher leg exclusively for mounted troops. The new sewn boots were not supposed to be issued until the existing supply of brass-screwed boots was exhausted.³¹

Specifications for the new boot were adopted on April 24, 1884. The leg on the standard size-8 boot was to be 20 inches in the front and 14½ inches in the back, made of pebble-grained leather in two halves with a front lap seam and a seam at the back. The width of the leg at the top was 16 inches. The size-8 sole across the ball of the foot was 3⅞ inches. The boot was produced in sizes 5 through 12 and in two widths at a cost per pair of \$4.21 as opposed to the brass-screwed boot cost of \$2.73. Distribution

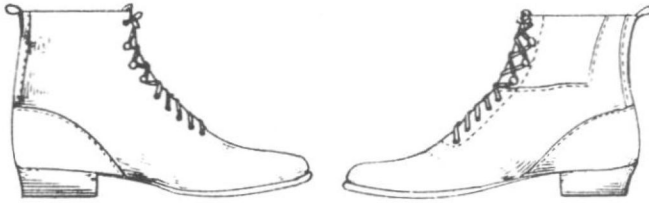
FIELD SHOES.



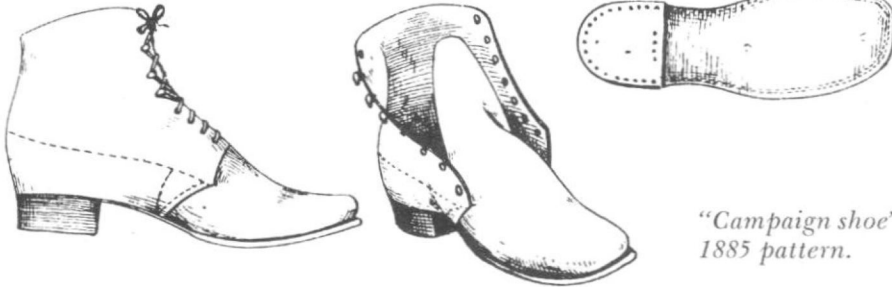
SIZE NUMBERS FROM 5 TO 12



"Field shoes" of the 1884 pattern.



*"Post shoe,"
the 1884 pattern,
as it was produced
and issued.*



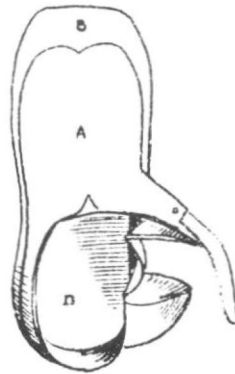
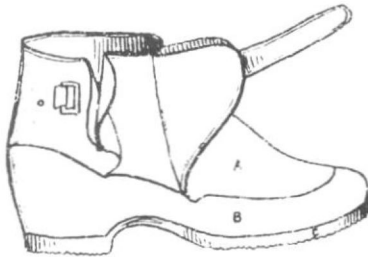
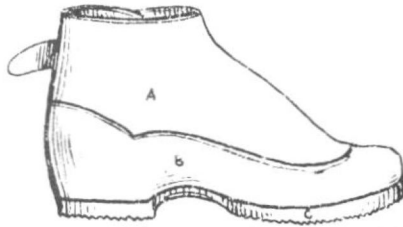
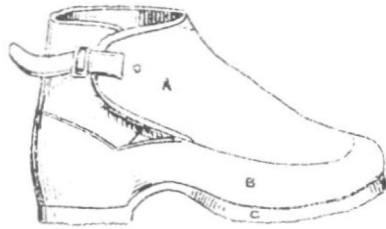
*"Campaign shoe"—
1885 pattern.*

of the new boots to troops began in the summer of 1885, at which time the older brass-screwed pattern was still being issued and continued to be as late as 1888.³²

Despite the initial enthusiasm for the "field" shoe, reports from the trials were not entirely favorable. Although general issuance of the shoe was not to begin until the supply of earlier patterns was exhausted, the military prison had already begun to manufacture them during 1884. On June 30, 1885, almost 26,000 pairs of the older brass-screwed shoes were still on hand. The quartermaster general authorized instead of the "field" shoe the production of the "campaign" shoe, also previously sent out on trial. The "campaign" shoe and the "post" shoe became standard patterns and were in use in the field by the summer of 1885.³³

Both types of shoe were modeled after English examples and both represented a marked improvement over earlier patterns. The "campaign" shoe gave greater protection and support to the ankle; it could be more securely laced, and it was more comfortable because of the machine-sewn soles. The "post" or dress shoes met a need for garrison wear, hitherto satisfied by often inappro-

ARTIC OVER SHOES.



- A, Fronts and quarters, made of black Eweed waterproof with coarse gray felt lining, held together by an inner coating of india rubber.
 B, Vulcanized rubber taping.
 C, Sole and heel.
 D, Gray felt lining.

Size Numbers from 7 to 14.

Scale 1 2 3 4 5 6

Arctic overshoe — 1884 pattern.



*Private Aaron Sullivan,
A Troop, 5th U.S. Cavalry,
wore this short non-regulation
boot in the 1890s.*

private civilian types. Specifications for "post" shoes were adopted April 24, 1884, and provided for a shoe with uppers made of oak-tanned American calfskin. The height of the leg for a size-8 standard was to be $6\frac{1}{4}$ inches. It was provided with five metal-lined eyelets and three hooks for the laces. The "campaign"-shoe specifications were adopted July 14, 1885, and provided for a standard size 8 with a back height of the leg of $5\frac{1}{2}$ inches. It had four eyelets and three hooks for the laces. A modification of the specifications on April 27, 1886, called for partial hand sewing in the attachment of the seam welt to the upper.³⁴

In 1884 a drawing of the then-standard arctic overshoe was published by the quartermaster general. While the specifications were the same as those adopted in 1876, a modification in the method of closing the shoe is apparent in the pattern then being purchased by the government. While the earlier "snow-excluder" was fastened in the front by strap and buckle, the type pictured in 1884 fastened at the right side.³⁵

With the introduction of the new boots and shoes in 1885, the end of a period of trial and difficulty appears to have ended. Indeed, the Indian wars were almost over, and most of the Army was assigned to garrison duty. The Apache campaigns in Arizona,

however, drew a large number of troops into the Southwestern desert, where the new footgear was seriously tested, and problems soon appeared in all the new issues. Soldiers complained that on the “post” shoe the upper was not strong enough and thus broke at the junction with the sole. The quartermaster general in late 1886 pointed out that these shoes were intended as dress shoes only.³⁶ The uppers, being made of calfskin, were not designed for the rough usage of everyday wear and tear on fatigue duty or on the march. Improvements were authorized for stitching the uppers to the soles, and the shoe was further modified by an addition of a cotton-duck lining to the upper in an attempt to add to its strength. Because the “post” shoes were lighter and more comfortable than the “field” shoes, however, the troops continued to wear them for all occasions, and the complaints persisted. Finally, orders were issued to discontinue their manufacture, which ceased as of June 30, 1887.³⁷

Troopers and Indian scouts of the 4th Cavalry pose for a photographer in southeastern Arizona in 1886. Cavalrymen in the center wear boots of the 1884–1886 pattern; the soldier sitting at right wears 1876 boots.



On the new boots, the back seam was sewn on the inside, making a welt which irritated the soldier's leg. The specifications were altered in April, 1886, to provide for a seam on the outside covered by a strip of leather, thus leaving the inside perfectly smooth. The strip was one inch wide at the top and two inches wide at the counter.³⁸ Duty in Arizona created other problems for the new footgear. It was found during the final Geronimo campaign in the spring and summer of 1886 that the machine-sewed soles of boots and shoes would not stand up to the climate and terrain of the area. All boots and shoes on hand in the department were ordered back to the military prison, where they were tapped by brass screws and then returned to the posts from which they had come.³⁹ The report of a medical officer, 1st Lt. Leonard Wood, serving as a commander of infantry during the desert campaign, is worth noting:

The uniform is totally unfit for service in Sonora, or along our southern border. . . . A Cavalry soldier with his heavy clothing, clumsy boots is unable to do more than a portion of the work he can do perfectly dressed . . . [with] a pair of shoes with light uppers coming up to the ankle and having a medium thick sewed sole; with a few hob-nails around the edge . . . he [a cavalryman] would then be in fair shape. . . .

Infantry on this expedition marched in drawers and undershirts. . . . As an indication of what men prefer to work in, a number of men paid a high amount per pair for moccasins. The sewed shoe is totally unfit for field service, at least all we had were and they were a cause of much suffering. Wearing out in six or seven days and in some cases on the second, the stitch seems to have been very poorly done resulting in the whole sole falling off after a short time. The uppers appear to be of good quality. The old brass screwed [shoe] turned out a little better, but is nothing like what it should be. The shoe which gave the best results was a shoe similar to the Mexican shoe or made of American leather. The stitching is done of sinew and passes only part way through the sole, simply picking up a portion of the upper surface and is not at all exposed. The upper was made of light American leather and the sole of an ordinary piece of sole leather. All the tools required are an awl and a knife. It stands water well, is as light as a moccasin, very comfortable and will outwear the ordinary shoe. All the officers and men who wore this shoe were much pleased and preferred it to any other.⁴⁰

Despite problems caused by the Arizona experience and minor construction difficulties, the Army moved ahead to improve the existing patterns. During the fiscal year of 1886, the English Waukanphast lasts were employed at the prison for the produc-



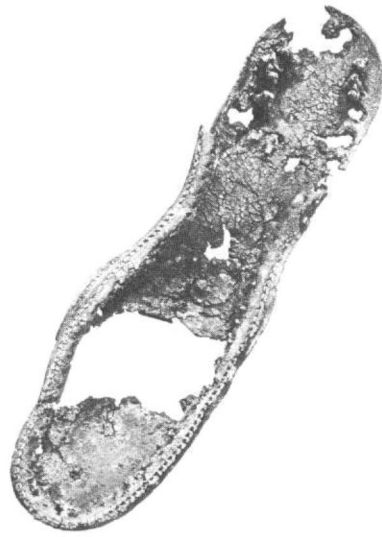
*Cavalry trooper at the Henry Buchman studio in Tucson, late 1880s.
He wears the 1884-pattern boots.*

1887-pattern boots.



tion of boots and shoes. Also, beginning in 1886, the footgear soles were sewn using a new thread known as "metalin." This common machine thread was made with a strand of fine metal wire, apparently brass or copper, in the center. It was believed that this thread would prove much stronger and more durable. During the same year, three widths of boots, rather than two, began to be manufactured.⁴¹ New specifications were again issued for boots on March 14, 1887, when the length of the leg was reduced to nineteen inches in the front and fourteen inches in the rear on the standard size 8. Width of the leg at the top was to be fifteen inches.⁴²

The biggest problem still remaining to be solved in the eyes of the quartermaster general was the best method for attaching the soles to the uppers, and the recent Arizona experience must have aggravated his concern. In order to test the relative merits of hand-sewn as compared with machine-sewn work, civilian bidders were invited to submit proposals for supplying the Army



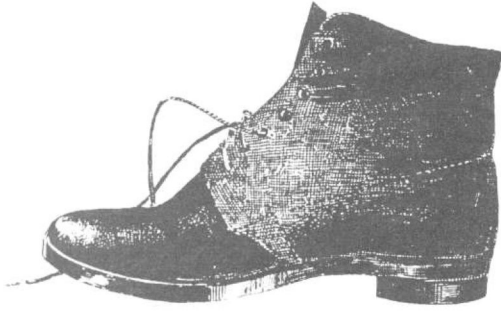
*Sole of a sewn boot recovered
at Fort Bowie, Arizona.
The remnant shows the
use of "metalin" thread.*

with 2500 pairs of boots and 5000 pairs of shoes, all to have hand-sewn soles. The advertisement called on bidders to submit samples of boots and shoes they thought would be best for the military service. The boot would have to be made on the Waukanphast last, but shoes would be made on a new, straighter last recommended by the depot quartermaster at Philadelphia. Contracts were let in the summer of 1887.⁴³ As a result of this experiment, lasting more than a year and a half, a new specification just for the contract boots and shoes was issued in February, 1889. The boots and shoes produced at the military prison would continue to be made with partly machine-sewed soles, but footgear supplied by contract would have hand-sewn bottoms. Boots under contract were to be made with a leg width of $16\frac{1}{2}$ inches, one and one-half inches wider than the government-produced type on size-8 standard. Leg length and width at the top were to be increased or decreased by $\frac{1}{4}$ of an inch for each size above and below the standard. The sole was to be marked with size and width, the boot being one size larger than marked. The lasts used in the construction of the boot were left subject to the approval of the contracting officer. Contract cost per pair was \$3.94, less than the government cost on machine-sewn boots.⁴⁴ The 1889

BOOTS,
SEWED.



Army-specification drawing of the 1889 hand-sewn contract boot.



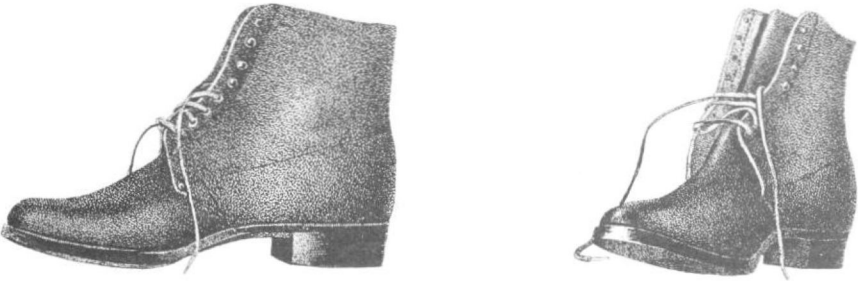
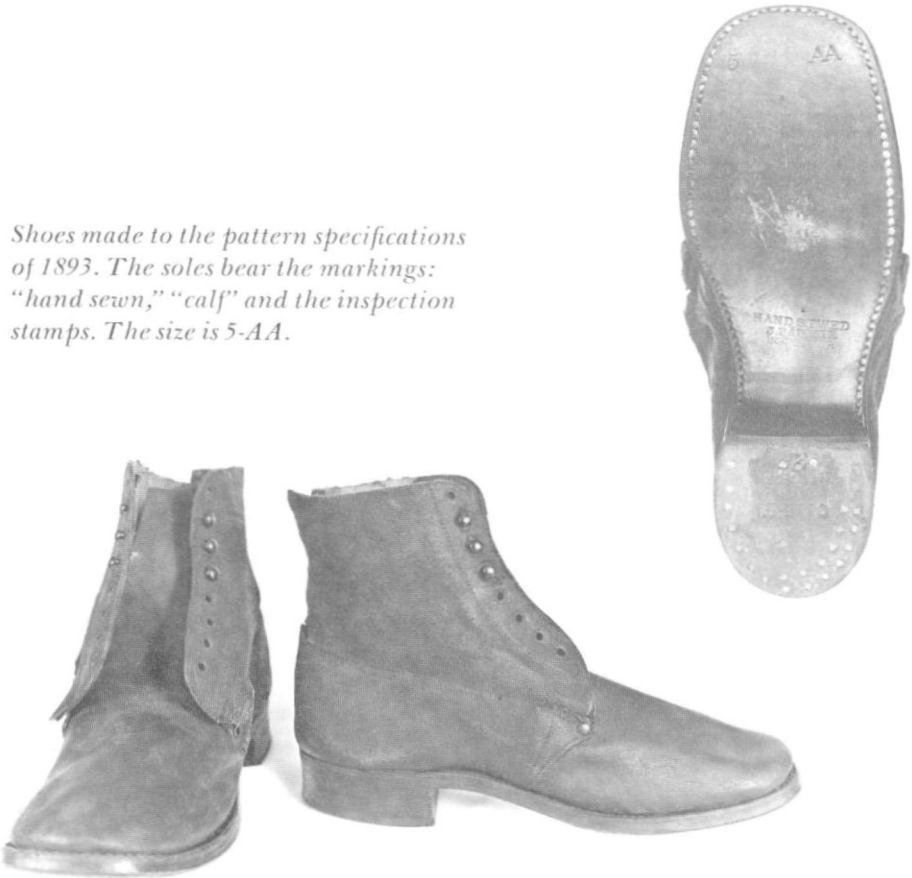
The specification drawing of the campaign shoe, pattern of 1889. The shoes were purchased by contract and featured hand-sewn soles.



contract hand-sewn shoe was similar to the government-produced type but it was provided with three hooks and five or six eyelets depending on the size. In August, 1892, all earlier specifications on the shoes, both government produced and contract, were terminated and one set of new specifications was published for the Army shoe, which was to be produced only with hand-sewn soles. Shoes of this pattern can be recognized by round rivet heads which appear on both sides where the front of the top joins the upper.⁴⁵

As the frontier period drew to a close, other improvements in construction were also introduced. The leather of both the boots and shoes was thought to be too stiff and unyielding, and the boots were hot and cumbersome. Soldiers in the field serving on foot sometimes alleviated the problem of stiffness and heat by turning down the front upper part of the leg. During 1892 the quartermaster department determined to experiment with shoes with uppers made of calfskin, instead of heavy wax leather, and built on new-pattern lasts. One hundred pairs of these shoes were

Shoes made to the pattern specifications of 1893. The soles bear the markings: "hand sewn," "calf" and the inspection stamps. The size is 5-AA.



Pattern 1892 shoes — the specification drawing.

Soldiers under 1st Lieutenant Edward W. Casey, 22nd Infantry, take water at Baker Peak, Arizona, in 1887. The cavalryman in the center foreground has turned down the tops of his boots.

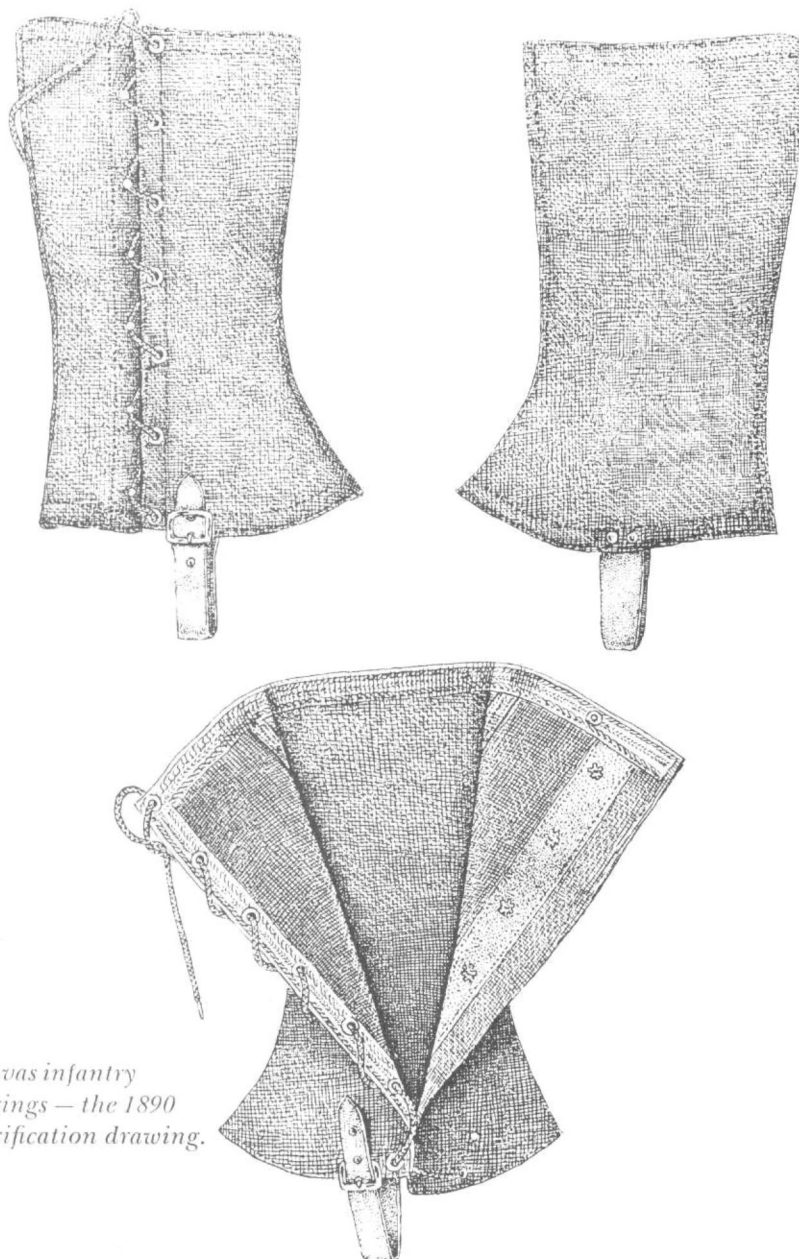


issued to soldiers at three posts, including Fort Leavenworth, Kansas, and the reports were considered most favorable. Late in 1893 the quartermaster general reported that a supply of the new shoe had been secured by contract and that issue would soon begin. The design was essentially the same as that of the 1892 field shoe with the uppers of heavy calfskin and a lining of calfskin and 8-ounce canvas duck. At the same time preliminary steps were being taken for further improvement of the boot. The intention was to introduce a lighter and more pliable material than the wax upper leather and at the same time make the legs of the boot lighter, thus reducing the weight considerably. Samples were field tested in 1893. Such improvements had to wait, however, until the stock of boots on hand was significantly reduced by issue.⁴⁶

The subject of leggings for foot soldiers had been discussed ever since the Civil War. Finally, in 1886, samples were secured from suppliers and the secretary of war authorized the procurement of leggings on an experimental basis. Five thousand pairs were ordered and issued in 1887 for infantry use. Specifications were first published on February 7, 1889, and new specifications were adopted late in 1890. These called for canvas leggings in three sizes, the No. 3 size to be no less than 12 inches high. It is apparent, however, that the methods of fastening the leggings varied, and the Army accepted bids on patterns differing from the standard. As a result of requests from Arizona, 100 pairs of canvas leggings with a longer leg of 15½ inches were purchased and issued in 1891 for trial by cavalry troops at Fort Huachuca. It was thought that these leggings afforded the same protection as the issue boots but were lighter and more comfortable in hot climates. An additional 1969 pairs were purchased in 1891 and 1892 for use of cavalry troops stationed in Arizona and at other posts in southern climates, and it was decided that these cavalry leggings would be thereafter kept on hand for issue.⁴⁷

Two final improvements in shoes were made before the end of the frontier period. In April, 1886, the secretary of war authorized the procurement of canvas barrack shoes. These were another attempt by the quartermaster department to improve the comfort of the soldier and the barrack shoes proved more successful than the ill-fated post shoe. An initial order of 5000 pairs of the

CANVAS LEGGINGS.



*Canvas infantry
leggings — the 1890
specification drawing.*



The Warnock Uniform Co., 19-21 West 31st St., New York.

ARMY REGULATION LEGGINGS.

15 oz. Brown Canvas.



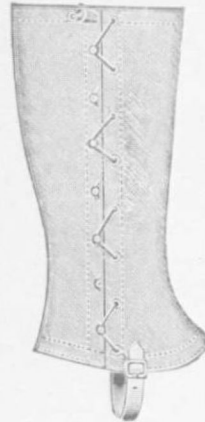
No. 250.

- Size 0 Very small—Fit Men's Shoe, size 4-5.
- Size 1 Small—Fit Men's Shoe, size 5-6-7.
- Size 2 Medium — Fit Men's Shoe, size 7½-8-9.
- Size 3 Large—Fit Men's Shoe, size 10-11.
- Size 4 Extra Large.

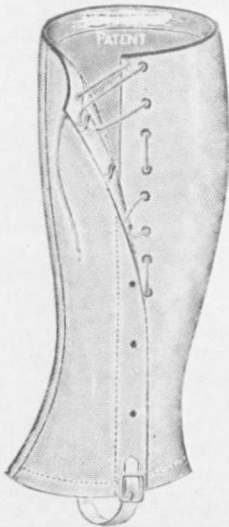
We also make these Leggings of Khaki, White, Tan, Black, and other colors.

Per Pair.
 No. 250 12 inches high.....\$.65
 No. 251 15½ inches high.... .75

Postage, 12 cents per pair.



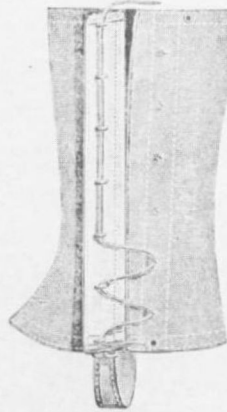
No. 251.



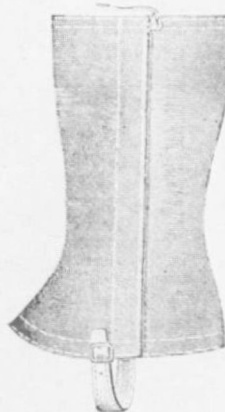
No. 253.

CANVAS LEGGINGS.

No. 253 Concealed Hooks and Laces, 90c.



Open.



Closed.

No. 680 Canvas Leggings, 15 inch. Steel Side Spring. Concealed Laces. Per pair, 85c.

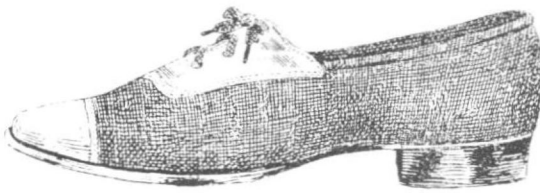
Postage, 15c.

These regulation infantry and cavalry leggings are pictured in the 1901 catalog of the Warnock Uniform Company of New York.



*Private Bent Robertson, 1st Cavalry, at Fort Grant, Arizona,
in 1892. He wears cavalry-length leggings.*

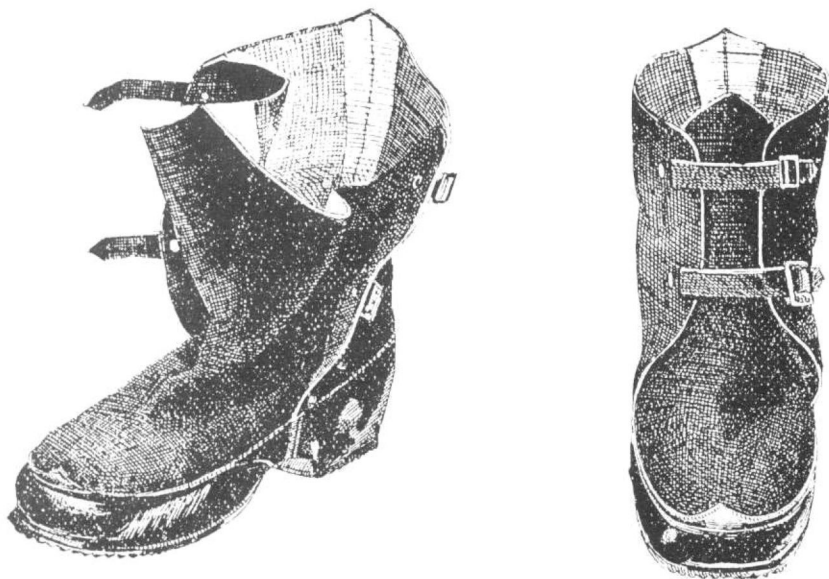
canvas shoe were distributed and proved so well-liked that in May another 30,000 pairs were ordered. General orders were published authorizing a permanent supply and issue to the soldier at cost price one pair per annum.⁴⁸ These shoes, like modern low quarters in configuration, had canvas uppers. The top of the toe was covered in russet calfskin, grain side out. The top of the vamp, around the eyelets, was covered with the same material. Specifications were published in February, 1887, and were slightly modified in the same month two years later.⁴⁹ For duty in cold and wet climates a new pattern of Arctic overshoe was made standard in 1889, replacing the pattern of 1876. The new overshoes somewhat resembled modern galoshes with a leg about 10 inches high from the heel. The front quarters and leg were made of black tweed, waterproofed, with a rubber sole and heel. The inside was lined with scarlet fleece. The leg was fastened in the front by two straps and buckles. The most obvious improvement of this style over its predecessor was the higher leg, creating greater warmth and protection from moisture.⁵⁰



*Barrack shoes —
the 1889
specification drawing.*



ARCTIC OVER SHOES.



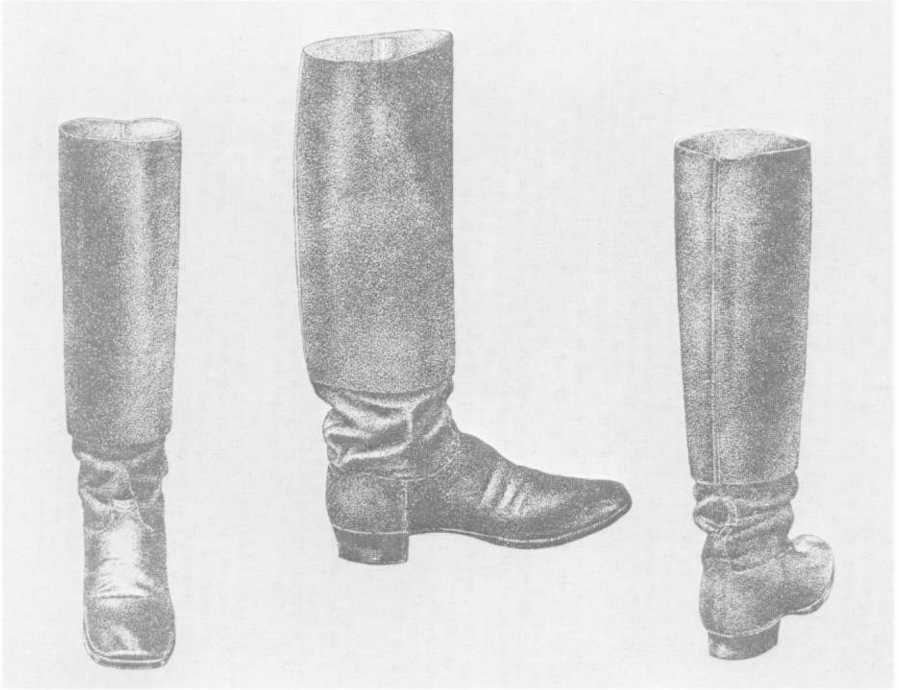
Arctic overshoes — the 1889 specification drawing.





Officer's boots made in the late 1880s.

During the frontier period officers were allowed a great deal of independence in the boots and shoes they wore. They purchased their own uniforms and equipment, with a consequent variety in styles. Graphic evidence indicates that officers often wore patterns similar to those of the enlisted men, but usually of better quality. In 1888 Brigadier General Absalom Baird, the inspector-general, suggested the adoption of a standard top boot for mounted officers, and the quartermaster general responded by ordering the production of four samples which he submitted to a board of officers for study. Their recommendation on pattern was then reviewed by the general commanding the Army and approved in General Order 96 of 1888. Specifications were



The 1889 officer's boot.

issued on January 9, 1889. Much like today's "English" boots in appearance, these had legs of calfskin or enameled leather dyed black and cut in one piece, seamed at the back. The upper part of the leg, about 12 inches, was reinforced with an inside lining of chestnut-colored leather. The straps were made of webbing. With this boot the Army took its first step toward a style for officers which remained very much the same until the end of the mounted service during World War II. The specific pattern of 1888 remained in use until 1905, when the remaining supplies were sold because of the change to russet leather three years earlier.⁵¹



Officers of the 7th Cavalry at Fort Sill, Oklahoma, wearing the 1889-pattern boot. The photograph was taken about 1895.

By the 1890s the American soldier was outfitted in sturdy and reasonably comfortable footgear, much of which had evolved as a result of the frontier experience in the American West. Complaints continued from both officers and enlisted men, but as the technology of shoe manufacturing improved, so did the quality of military footgear.⁵² At the end of the fiscal year of 1894, the manufacture of military shoes at the Fort Leavenworth prison was discontinued, and thereafter boots and shoes were procured entirely by civilian contract.⁵³ The Army had come full circle since the Civil War.

NOTES

1. Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775-1939* (Washington, D.C.: Office of the Quartermaster General, 1962), pp. 360-361, 492-500. For a study of the shoe-manufacturing technology of the period see Adrienne Anderson, "The Archaeology of Mass-Produced Footwear," *Historical Archaeology*, Vol. 2, 1968, pp. 56-65.
2. *Annual Report of the Secretary of War (ARSW), 1866* (Washington, D.C.: U.S. Government Printing Office, 1866), pp. 102, 110.
3. U.S. War Department, *Revised United States Army Regulations of 1861, with an appendix containing the changes and laws affecting the Army regulations and articles of war to June 25, 1863* (Washington, D.C.: Government Printing Office, 1863), p. 468.
4. Shoes with soles machine-fastened by brass-wire screws had been ordered for trial as early as 1862, and field tests brought a favorable response from the soldiers. The continuous-thread, brass-wire screw machine was the patent of Eugene Lemercier of France, dated December 16, 1862. U.S. War Department Office of the Quartermaster General, *Letters Sent (Clothing and Equipage)*, Vol. 20, p. 271, 3 October 1862, National Archives and Records Service, Record Group (NARS, RG) 92; *Report of the Commissioner of Patents for the Year 1862* (Washington, D.C.: U.S. Government Printing Office 1864), Vol. 1, pp. 706-707; U.S. War Department, Surgeon General's Office, *A Medical Report Upon the Uniform and Clothing of the Soldiers of the U.S. Army, 15 April, 1868* (Washington: Surgeon General's Office, 1868), pp. 20-21, hereafter cited as *Woodhull Report*; *Annual Report of the Chief of Ordnance to the Secretary of War for the fiscal year ended June 30, 1878*, Appendix K., p. 76.
5. For typical example of soldiers' reactions see Letter to the Editor, "Soldiers Shoes," signed Marching Regiment, Fort Niagara, N.Y., June 8, 1868, in *Army and Navy Journal*, Vol. 5, July 4, 1868, p. 730. Don Rickey, Jr., *Forty Miles a Day on Beans and Hay; The Enlisted Soldier Fighting the Indian Wars* (Norman: University of Oklahoma Press, 1963), pp. 123-124.
6. Risch, *Quartermaster Support*, p. 503; Rickey, *Forty Miles a Day*, p. 123; *Woodhull Report*, p. 20; Donald E. Kloster, "Uniforms of the Army Prior and Subsequent to 1872," Part II, *Military Collector and Historian*, Vol. 15 (Spring 1963), p. 14.
7. *ARSW, 1870*, p. 148; *1871*, pp. 126-127, 164; *1872*, p. 276.
8. U.S. War Department, Surgeon General's Office, Circular No. 8, 1 May 1875, *A Report on the Hygiene of the United States Army, with Descriptions of Military Posts* (Washington: U.S. Government Printing Office, 1875), pp. Li-Liii. Hereafter cited as Circular 8.
9. Office of the Quartermaster General, *Letters Sent (Clothing and Equipage)*, Vol. 25, p. 461, 16 March, 1865, NARS, RG 92; *ARSW, 1883*, p. 490.
10. Risch, *Quartermaster Support*, pp. 492-492; *General Order No. 92*, Adjutant General's Office, October 26, 1872; Letter to the Editor, "Boots to

Foot Troops," signed "Snow," Sitka, Alaska, October 24, 1873, in *Army and Navy Journal*, Vol. 11 (November 29, 1873), p. 250; *General Order No. 4*, Adjutant General's Office, January 27, 1875.

11. *ARSW*, 1875, pp. 230-231.

12. Rickey, *Forty Miles a Day*, pp. 123-124.

13. *ARSW*, 1878, p. 250.

14. Circular 8, pp. Lii-Liii; Kloster, "Uniform of the Army," p. 14; *ARSW*, 1874, p. 154; 1876, p. 206; 1877, p. 269. The clinching-screw patent was registered by J. M. Estabrook in 1868. *Report of the Commissioner of Patents for the Year 1868*, Vol. 4 (Washington, 1869), p. 1596.

15. *ARSW*, 1876, p. 167; 1877, p. 268.

16. *ARSW*, 1876, pp. 167-168.

17. Risch, *Quartermaster Support*, p. 360.

18. *Ibid.*, p. 499; *ARSW*, 1877, p. 242; *Army and Navy Journal*, Vol. 15 (November 10, 1877), p. 214.

19. *ARSW*, 1877, p. 244.

20. *Ibid.*, p. 268.

21. Archaeological discoveries at five western posts have revealed numerous examples of the clinching screw.

22. *ARSW*, 1876, p. 204; 1877, p. 268.

23. *ARSW*, 1878, p. 261.

24. *Woodhull Report*, pp. 20-21.

25. *General Order No. 76*, Adjutant General's Office, July 23, 1879; *Official Gazette of the U.S. Patent Office*, Vol. 47 (April 16, 1889), p. 276. Waukanphast and Co. of London, England, had used their last since February, 1869. In the U.S., the trademark number 16502 was used for the last known as the "Waukanphast," applied for September 7, 1888.

26. *General Order No. 76*, 1879.

27. Letter to the Editor, "Infantry Uniform," signed Sky Blue, Dark Blue, Black, White and Yellow, *Army and Navy Journal*, Vol. 17 (March 13, 1880), p. 651; miscellaneous reports, letters and endorsements, 1882-1883 in War Department, Office of the Quartermaster General, *Consolidated Correspondence File* - "Shoes," NARS, RG 92.

28. *ARSW*, 1881, p. 307; Brevet Major General S. B. Holabird, Acting Quartermaster General, Washington, D.C., letter to Major J. C. Breckenridge, Assistant Inspector General, San Francisco, April 22, 1882, U.S. War Department, Office of the Quartermaster General *Consolidated Correspondence File* - "Shoes," NARS, RG 92.

29. *Ibid.*, Major J. C. Breckenridge, Assistant Inspector General, San Francisco, letter to Quartermaster General, U.S.A., June 26, 1882.

30. *ARSW*, 1883, pp. 485-490; *ARSW*, 1884, p. 682. Also in 1883 a permanent equipment-review board was established within the quartermaster department in order to secure a continuing, authoritative expression of opinion from experts in the department regarding current inventions, improvements, etc., which would be useful to the Army. This action and others which would directly affect the quality and comfort of uniform materials for the enlisted man were initiated by the new quartermaster general, Samuel B. Holabird. His actions, as well as a movement for general

Army reform and increased funding by Congress in the 1880s, resulted in changes designed "for the welfare of the soldier." Theophilus Francis Rodenbough and William L. Haskin, eds., *The Army of the United States: Historical Sketches of Staff and Line with Portraits of Generals-in-Chief* (New York: Maynard, Merrill, and Co., 1896), p. 66; Jack D. Fone, *The United States Soldier Between Two Wars: Army Life and Reforms, 1865-1898* (New York: Humanities Press, 1970), pp. 83, 85-86.

31. *ARSW, 1884*, pp. 612-613.

32. *Ibid.*, p. 681; *ARSW, 1885*, pp. 557, 604; *ARSW, 1888*, p. 525.

33. Excavated remains of the buckle used on the "field" shoe have been recovered at Fort Bowie (1862-1893) in Arizona. Bob Herskovitz, "Identification and Analysis of Material Culture from Fort Bowie Historic Site, Arizona," Ms, Arizona State Museum, p. 101, fig. 131; *ARSW, 1885*, p. 604; *1886*, p. 514. Even though the 1883 "field" shoe had a short life, almost 25,000 pairs were produced and issued by July, 1886.

34. *ARSW, 1884*, p. 682; *Specifications for Clothing, Camp and Garrison Equipage and Clothing and Equipage Materials* (Philadelphia: Quartermaster General, 1889), p. 167.

35. *ARSW, 1884*, plate 35, following page 691.

36. *ARSW, 1886*, pp. 506-507.

37. *ARSW, 1887*, p. 515; *1888*, p. 528.

38. *ARSW, 1886*, p. 507; *Specifications for Clothing, Camp and Garrison Equipage, 1889*, p. 182.

39. *ARSW, 1886*, p. 507; *1887*, p. 512; *1888*, p. 525. Brass-screwed boots and shoes were continued in limited manufacture as late as 1888 for use in Arizona and in other areas where the terrain was particularly destructive to sewn footwear.

40. Lt. Leonard Wood (Surgeon), "A Report on the Geronimo Campaign, 1886," typescript, Gatewood Collection, Arizona Historical Society, Tucson.

41. *ARSW, 1886*, p. 506; *1887*, p. 512. "Metalin Thread" was the name given the product by Edward I. Brown when he filed his patent on March 17, 1886, No. 342,679. See *Official Gazette of the U.S. Patent Office*, Vol. 35 (May 25, 1886), p. 972; *Specifications and Drawings of Patents Issued by the United States Patent Office for May, 1886*, Part II (Washington, 1886), p. 2338.

42. *Specifications for Clothing, Camp and Garrison Equipage, 1889*, p. 182.

43. *ARSW, 1887*, pp. 512-514; *1888*, pp. 533, 558.

44. *Specifications for Clothing, Camp and Garrison Equipage, 1889*, pp. 253-254; *ARSW, 1887*, p. 513; *1890*, p. 800.

45. *Specifications for Clothing, Camp and Garrison Equipage, 1893*, p. 329; Office of the Quartermaster General, *Proceedings of Equipment Board of the Quartermaster General's Office*, Vol. 1 (1883-1894), February 2, 1892, pp. 73-74, NARS, RG 92.

46. *Proceedings of Equipment Board, 1892*, p. 73; *ARSW, 1892*, p. 256; *1893*, p. 314. The new boot can be distinguished by a leg made of calfskin, about 15 inches high, with no upward slope in the front. It is pictured in Francis Bannerman & Son's catalog of July, 1907, p. 192.

47. *ARSW, 1887*, pp. 514-515; *Specifications for Clothing, Camp and Garrison Equipage, 1893*, p. 302; *1892*, p. 350; *1893*, p. 314.

48. *ARSIW*, 1886, p. 507; 1887, p. 514.
49. *Specifications for Clothing, Camp and Garrison Equipage*, 1889, p. 250.
50. *Ibid.*, p. 246.
51. *ARSIW*, 1889, pp. 649, 656.
52. Captain Henry Romeyn, "Army Clothing and Equipment," *The United States Service: A Monthly Review of Military and Naval Affairs*, Vol. 9 (May, 1893), pp. 450-451.
53. *ARSIW*, 1894, p. 314.

CREDITS AND ACKNOWLEDGMENTS

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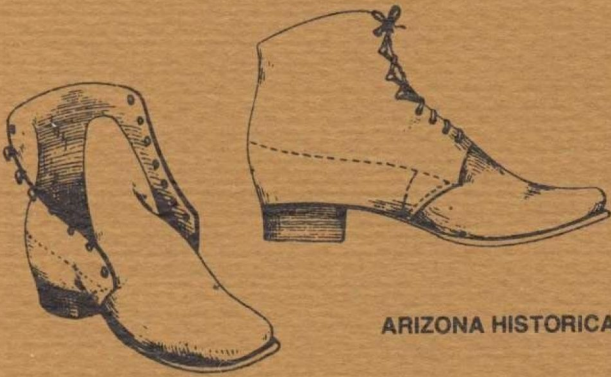
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