Observations on Federal Trowsers

Federal foot trowsers are a rather overlooked aspect of today's interpretative historian's impression. I believe one reason for this is that one can "get away" with a poorly reproduced garment of this sort without too many dirty looks because there aren't many reenactors who are familiar with the details of original Federal civil war trowsers. My purpose here is to try to share the observations I have compiled over twenty odd years of research. Others like Paul McKee, Nick Nichols and Ken Smith have done more detailed works on Federal trowsers and I refer and highly recommend the student to the sources listed below for further research.

In this article we will look at characteristics in cut, style, assembly and materials I have found in first hand examination of seventy-seven original pair. About sixty percent were foot trowsers and they were divided about evenly between arsenal and contractor produced. Also I will consider certain characteristics I believe can be consistently attributed to specific arsenals and makers. I must state here however, that any work of this type must be read with the understanding that we have only a small percentage of the garments produced for the Army during the period considered. Any extrapolation from the specific to the general is risky and must be taken at face value. As Paul McKee said, "The very fact these items have survived makes them exceptional." The more we learn the more we realize how much we do not yet nor may ever know.

Materials

Regulations specified that kersey be used in the manufacture of trowsers. All examples but one I have examined were made from kersey that varied in weight from twelve to fifteen ounces. Variations in weight can be accounted for when one notes the number of suppliers of woolen goods (one in 1857 and eighteen by the middle of 1861 alone) to the government Kersey is woven in a twill weave almost always 2/2. It is by definition a heavier cloth and lightly napped which tends to hide the twill until wear exposes it. This nap is apparent on all of the un-issued trowsers I have examined and on the heavily used examples the nap is gone and the twill weave is readily apparent.

The regulations were very specific that the goods supplied be dyed using indigo and no other blue dye. Indigo was the most expensive of blue dyes. In the 1860s it was almost completely imported from India and the Orient. Not only was the dye itself expensive (and still is, wholesale it will run you upwards of $3 per ounce!) but the dying process is very labor intensive. Depending on which process used the vat may need up to one week to be prepared. Pieces of cloth (they were usually anywhere from ten to twenty yards in length) had to be successively dipped and aired to achieve the desired shade of blue. Depending on the concentration of indigo in a vat and the length the piece is left submerged; sky blue can be achieved in three to five dips. Dark blue can take as many as thirty dips for the very dark blue-black colors found in some officer's uniforms.

Dyeing with indigo is also very imprecise. A multitude of factors, from the pH of the water, to the metal the vat is made out of, to the quality of the indigo used can have an effect on how the color comes out. I have yet to run two pieces of wool in an indigo bath and have the results be identical, especially with light blues. In fact, many of the originals I have handled have pieces that have obviously come from different dye lots, as the colors do not match exactly. In one example in particular the waistband was pieced with half of the waistband several shades lighter than those used on the rest of the garment. I have examined trowsers that certainly look as if they were left in the vat for about one thirty second dip and others that border on a dark royal blue and everything in between. While we are on the subject of color I need to add that the alkali found in indigo vats gives the finished product an almost imperceptible greenish cast. This is not, as some suppliers of reproduction clothing have claimed because of the "copperas used as a mordant in the indigo dyeing process." Indigo uses no mordants, but rather it is due to the high alkali content in the indigo dye bath. Look for this in reproduction blue woolen goods. So, and I've been wanting to say this in public for years, those who espouse a "correct" shade of sky blue kersey are simply off their rocker. Look more into the weave (a 2/2 twill with a distinct diagonal weave) than the color. If it is blue with an ever so faint green cast, it is absolutely right no matter how light or dark it is. You many not fancy the shade but that does not mean it is incorrect.

All this being said, I wondered for many years why on earth the government would be so picky as to insist on an expensive and cumbersome dye for the uniforms of it's armies. I found the answer as I dyed the cloth myself using natural dyes including indigo and used uniforms made from them in the field. First of all indigo is completely light fast. It will fade slightly with hard use due to "crocking" (a term describing the loss of color particles adhering to the fibers of the cloth by the friction of normal use) but will not fade in even direct sunlight. Those who have heard the stories of logwood based blues fading to brown in a few weeks use will appreciate this. Second, as stated above it is very durable. It will crock only slightly and even after 130 odd years the loss of color, as far as can be discerned, is very slight. There are modern green based blue dyes that will mimic indigo very well without the cost of natural indigo and are relatively light fast. Red-based blue dyes are less light fast and do not have the green cast we desire. They will also have a purple cast and will turn bright purple with heavy exposure to the sun. Avoid them like the plague.

In addition to the woolen parts, trowsers used cotton lining materials for the fly, waist linings and for the pockets. Generally, unbleached cotton drilling of about eight to ten ounces is found on most of the originals I have handled. One had lightweight muslin for the pockets. Contractor variations often used a brown polished cotton-like material as the lining on one, or all, of the fly pieced for reasons unknown. In addition there was sometimes found a small piece of drilling about one inch wide as a reinforcement on the inside of the cuff facings. Often this piece made from a piece of kersey was omitted entirely.

The thread used on the originals in my group varies. Both

cotton and linen thread is found with linen being the most common. The colors were either dark blue (most common by far), dark gray or black (only found on three pair). Many seemed to be dyed with a logwood dye and have faded to brown. A good number, about 30 percent, exhibited dark to medium blue thread that though the garments showed considerable wear the thread has not faded which would indicate a light fast dye other than logwood, possibly indigo.

About 90 percent of the originals I have examined had paper-backed tin buttons. Some examples utilized stippled black japanned-back tin style; while a few had rubber or gutta-percha buttons. These may have been replacements. All trowsers utilized larger (about 5/8 inch, though the width varied) buttons on the waistband and smaller (about 3/8 inch) on the fly. By far most examples (about 75 percent of what I have looked at) had only four suspender buttons. Since suspenders were not items of issue in the Civil War there is some question as to whether the suspender buttons are original or post issue additions. My observations have proven inconclusive. I went looking for evidence such as different thread types or color used on the suspender buttons but I found differing thread on many buttons including fly buttons indicating possible replacement by the soldiers in the field. I did find many differing types of suspender buttons including civilian types on heavily worn examples. It looks as if they popped suspender buttons in the field just as we do now. Go figure.

Finally, almost all of the trowsers I have examined were without the 1/4 inch twill tape that was supposed to occupy the split in the back yoke seam. Whether this was removed by the soldier or lost in the years of storage is unknown. Several pair utilized a small piece of leather thong identical to a piece of shoelace from a pair of brogans in my collection. It is pure supposition and speculation that soldiers used shoelaces when the twill tape was gone/lost but it stands to reason and makes for good lore.

Style and Construction Techniques

Don Kloster of the Smithsonian Institute has grouped Federal trowsers into three distinct categories based upon the shape of the yoke. They are:

Type 1: These trowsers have a triangular yoke. Schyukill Arsenal trowsers are always Type 1.

Type 2: These have a trapezoidal yoke with the yoke seam running into the pocket facing at the side seam. I have heard some sutlers state that how far down the yoke meets the pocket opening correlates to the size of the trowsers. If this is so I have found no evidence to support it. I found no relationship between the size of the trowsers and the size of the yoke in any trowsers. Type 2s are often contractor trowsers, though arsenal produced examples do exist. Deering trowsers are always Type 2s.

Type 3: These trowsers incorporate a yoke insert, often pentagon shaped. This practice dates back to the eighteenth century and was most likely a simple incorporation of civilian patterns into military garments. A pair of 1820s dated trowsers from the author's collection had an almost identical yoke insert. Many reenactors have mistakenly assumed that since a large number of surviving late war contract trowsers went through the Cincinnati arsenal and had a western provenance that this type of trowser was strictly related to the western theater. Nothing could be further from the truth. The firm of Anspach & Stranton that produced the trowsers for the contract mentioned was located in Philadelphia and provided uniforms to both theaters of war. It just so happened we have a large number of surviving trowsers from that particular contractor. Take for instance a pair of Type 3 trowsers held in a private collection in Doylestown, PA. They are identified to a private from the 104th Pennsylvania, wounded at Seven Pines…definitely Army of the Potomac and definitely Eastern theater.

Construction Techniques

Federal trowsers vary from being 100 percent hand sewn to being *almost* completely machine sewn. To the best of my knowledge no surviving example exists that is completely machine sewn. Of the trowsers in my study group all but one had the fly, fly extension (the part of the fly on the right hand of the trowsers) and the facings set in by hand with a tight even whipstitch. By this process none of the lining material is visible from the outside. On the single exceptional example, which was contractor produced, the fly extension only was set by machine with the fly proper set by hand. Contractor produced specimens generally exhibit the most machine sewing while some arsenal produced examples, most notably those from the Schyukill Arsenal in Philadelphia, are entirely hand sewn. This is not a hard and fast rule however. There are contractor examples that are entirely handsewn and arsenal examples that are heavily machine sewn. In the Schyukill Arsenal's case one reason for their relying on only hand sewing was to provide employment for indigent families of soldiers and veterans. Experienced tailors would cut the trowsers at the arsenal and provide the "kits" to women to assemble at their homes. The women would bring the finished product back to the arsenal for inspection and payment, if it passed. In this manner the government provided needed cash to soldiers' families. The Schyukill Arsenal alone employed tens of thousands of women and girls throughout the war.

Raw edges were found on all examples inspected, but were limited to the pocket facings on most examples. On a few raw edges were found on the fly extensions and pocket openings. One pair is said to exist (I have not personally viewed this pair) with the top edge of the waistband left entirely raw. While I cannot be sure, I suspect this may be a post production alteration of some kind.

Piecing of one kind or another was found on a whopping 72 percent of the trowsers viewed. Piecing is where the tailor economizes by using multiple pieces of cloth to make one large trowser piece. It was said of cutters that a good one could pay for himself in a year by economizing on fabric in this and other manners. Because of this one finds a great variation on how the grain of the cloth matched up on the trowsers. Piecing was commonly found in the crotch, waistband, cuff facings and the seat reinforcements on mounted trowsers.

The waistbands measured from 1 1/2 to 2 inches at the front

to ¾ to 1 inch at the back split. There was a noticeable taper on this piece in all specimens. The waistband lining usually extended below the waistband on the inside about ½ inch and was always whipstitched in place. No stitching showed on the outside of the waistbands. The front on the waistband where it met the fly was usually square. Two examples were rounded however. The back ends were divided about evenly between square and rounded styles. The front buttonhole was set somewhat lower than halfway down from the center of the waistband in front of every example viewed. It is not known why as this does not conform to any civilian fashion of which I am aware. Perhaps some reader can shed some light on this mystery.

Trowser flys were set with four, five and sometimes six buttonholes in addition to the single one in the waistband. The number of buttonholes did not show any correlation to size. A brown polished cotton-like material was used on a number of contractor examples on the fly or fly extension. Arsenal produced goods always had unbleached cotton drilling or, less often, duck. Fly linings were almost always set by hand, even on heavily machined examples.

Cuffs were faced with a separate piece of kersey and had a 1 to 1¼ inch vent placed in the outseam. This vent and facing are commonly misrepresented on reproduction trowsers. The vent is not a simple split, but is set so as to overlap and show no real break when the trowsers lay over the boot or bootee. The facing pieces or pieces ranged from 1 to 2 inches in width and had the upper raw end whipstitched in place. Some examples had both upper and lower sides of the facing left raw and whipstitched, but this was rare. The bottom end of the cuffs was topstitched on every piece examined. On the inside of the cuff vent there was often a piece of drilling or kersey whipstitched into place as reinforcement. The use of kersey to drilling was split 50/50 with about 6 percent omitting the piece altogether.

Pockets were sideseam on all pieces examined. All examples had topstitching on the front side of the opening and bar tacks to reinforce the opening. The Marine Corps was issued trowsers with *French* or "mule ear" pockets, but there is no evidence of their issue to land troops. I have, however, seen images of infantry and mounted soldiers with this type of pocket and variations. I attribute this to private purchase garments and company tailors busily filling orders to alter the issue garments to fit the individual soldiers' tastes. A problem existed with the foot pattern trowsers due to the cut of the pocket. It was that items in the pocket had any annoying way of falling out when one sat or reclined in any way (incidentally I found the same problem with the OD green army fatigues I wore while in the Army). There are examples of foot trowsers with the pockets fixed to remedy this problem. Pockets would either have the opening made smaller or the entry made to come from the top instead of the side.

The general cut of the trowsers conformed closely to period style, which shouldn't be surprising. The legs were cut full and straight, the waist set high and the seat was baggy which made them particularly comfortable to wear. For the most part they were only supplied to the troops in four sizes. However, company tailors were designated to alter the men's uniforms to achieve a smarter fit at a supposedly nominal fee that would come from the soldier's pockets. These tailors were designated as "special duty" and were exempt from certain fatigue duties. One can imagine the workload a company tailor would have had immediately following a general reissue of clothing after a campaign. They would sometimes take advantage of their captive market and charge exorbitant fees. Twenty-two of the seventy-seven originals viewed showed some signs of alteration, either by a company tailor or the soldier himself. The most common alteration was in the length, though it was common practice to simply roll up the excess length, as period images confirm. Several examples were taken in at the waist at either the side seams or more commonly the back seam. Several examples also exist with back belts that appear to be post-production.

Size

The Quartermaster Department established sizing norms for trowsers that gave specific measurements for inseam, outseam and waist size. Trowsers came in four sizes for most of the war, with several sizes being added very late in the war. The sizes, 1 through 4 ran as follows (all dimensions are in inches):

SIZE	INSEAM	OUTSEAM	WAIST
1	31	41.5	32
2	32	42.5	34
3	33	43.5	36
4	34	44.5	38

It is my considered opinion, however, that the Federal sizing system should be taken only as a general guide in appraising reproduction garments. Research shows that either the measurements provided by the government were used only as a guide or makers simply disregard the system altogether. Whether this was by design or accident is open to debate, but the simple fact remains that, based upon the examples left available to us, there seems to have been a general disregard for the specifications. This includes items with a pre war provenance.

An experience of my own may shed some light on what I believe may have taken place in the halls used by the inspectors some 130 odd years ago. I was in the process of filling an order for a large group of reenactors that was placed all at one time. There were twenty-one pair of Federal foot trowsers and twenty-seven unlined (and hence unmarked) fatigue blouses. The size of the order, by far the biggest I had ever filled, necessitated my using an assembly line approach rather than concentrating on one garment at a time as I normally do. As the order neared completion I found that the tags I placed on garments noting the customers name and information had become detached from most of the blouses as I moved the huge mound from one part of my workshop to another to make room for the trowsers. I had twenty-three blank sack coats staring back at me defying me to identify their size and owner. The best I could do was try them on myself and match them to the correct size by eyeball and experience. I thought I had done OK. The group's commander later informed me they had their own unexpected historical experience when at a meeting they rolled out the bundle and had to swap and switch until everyone found a coat that fit them, just as the troops did in the 1860s. My point is that it is very difficult, even for someone with experience, to judge exact size by look alone. I find it hard

to believe the inspectors measured each piece of the finished garment as it came from contractors, etc. and rejected a perfectly good pair of pants because the inseam was two inches too long or the fly had one buttonhole too few. My personal belief is that they gave the garments cursory glances (lasting say thirty to sixty seconds) and if no glaring defect that would render the garment unusable presented itself, they smacked their stamp on it and moved on.

Take into account the following observations of a sample of five pair of foot trowsers, all produced by the Schuyukill Arsenal, unaltered, Size 2 marked "2" over a *sanserif* "SA" (all dimensions are in inches):

SAMPLE	INSEAM	OUTSEAM	WAIST (APPROX.)
1	30	40	33
2	33	41	30
3	30	39	31
4	29.5	41	34
5	34	43	33.5

Note that not one sample adheres to the regulations exactly. Some come close but several are way off. There does not appear to be any rhyme or reason to the variances.

And Finally...

I'll conclude with my advice on judging reproduction Federal trowsers for your own purchase. Appraisals should be based primarily upon garment materials, cut and methods of construction. There are certain characteristics common to every original I have examined. Some of them are:

1. Waistband buttonhole set slightly below center on left waistband.
2. Waistband tapers to the rear becoming noticeably narrower.
3. Pocket openings are set below the waistband. They do not meet or run into the waistband.
4. There is a significant rise of two to three inches in the back.
5. The only topstitching found is on the cuffs, pocket openings and bags and watch pocket.
6. The front pieces exhibit a characteristic curve at the outseam.
7. Fly/waistband are almost always set by hand, regardless of the amount of machine work on the trowsers.

...and so on. And finally, go look at some originals yourself! Books and photographs don't quite do it when it comes to clothing. There are many museums and collectors that are more than willing to let serious students in to examine and handle original garments. After a while you'll get a feel for what is right and what is wrong. A list of collections holding Federal trowsers that are generally willing to let individuals see and handle originals can be had from the author through the editor of this publication.

Patrick Brown

FOR FURTHER READING:
McKee, Paul, "Four Sizes May Fit All...But Stylish They Ain't. *The Company Wag* No. 5 March 1991
Nichols, Nick & Smith, Ken, "The Great Trowser Hoax," *Civil War Cavalry Review*, Nos. 1-3, 1989

Patrick Brown is a tailor and the owner of Goldberg & Co. The Goldberg & Company has been offering reproduction Civil War uniforms (CS depot jackets and trowsers, US sack coats and trowsers, shirts and other items) since 1992.