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Battle Cry

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President's Message:

Nancy Samuelson presented a thorough analysis of the difficulties of reconstruction after the Civil War. Her introduction included major facts pointing out the differences between North and South prior to the war. She covered the devastating effects on the south's recovery and the plight of the ex-slaves. The many resulting tragedies were apparent. It was a difficult time in our history and the subsequent problems are still with us. It was pleasant to have one of our members bring her knowledge and insight to us. Thank you, Nancy, for a splendid presentation.

Today our board met with ex-congressman Doug Ose who has a proposal which offers some hope to the prospect of keeping the Gibson Ranch operation alive. We were left with some ideas which we will briefly bring up at the next business meeting. Mr. Ose is well informed on the issues and problems and motivated to keep those services available to the community.

Please remember we are searching for an editor for the Battle Cry. I have not been deluged with applicants and urge someone to come forth willing to devote a few hours each month providing a much needed service.

November is rapidly approaching so consider attending the San Francisco West Coast Civil War Conference the second weekend. See the information and registration form attached.

Next meeting, Wed. August 11th, we welcome Jim Stanbery, Professor of Civil War History at Harbor College in L.A., who will tell us the story of the strategy used at Chattanooga to withstand the siege. Jim gave a version of this last Nov. which covers the Cracker Line. This is not the same talk and is entitled *Game of Doors*.

Don Hayden, President

MINUTES
Sacramento Civil War Round Table
Wednesday, July 14, 2010
ATTENDANCE – 21

MEMBERS – 16

Don Hayden, President
 Silver Williams, Vice-Pres
 George Beitzel
 Joan Beitzel
 Roy Bishop
 Fred Bohmfalk
 Rose Browne

Jerry Cress
 Fred Ellenbaas
 Bob Hanley
 Scottie Hayden
 Nina Henley
 Wayne Henley
 Dennis Kohlmann

Lowell Lardie
 Anne Peasley
 Paul Ruud
 Nancy Samuelson
 Richard Sickert
 Bob Williams
 John Zasso

GUESTS - 5

Gail Cretcher
 Keith Cretcher
 Caitlin Mee
 Robert Schroeder
 Wayne Wash

1. The meeting was called to order at 7:00 PM by President Don Hayden who welcomed members and guests.
2. President Hayden expressed concern over the threats from casinos and box stores to the battlefields at Gettysburg and in the Wilderness.
3. Fred Bohmfalk repeated the administrative details related to the West Coast Civil War Conference to be held in San Francisco November 12-14, 2010. Details are available the **Friends of Civil War Alcatraz website** or by calling any SCWRT Board member.
4. President Hayden introduced SCWRT member, Nancy Samuelson, who gave a very informative presentation covering the Reconstruction period following the war. Lincoln's assassination complicated matters, but there were no plans in place to provide for the suddenly freed 4,000 slaves. Where do they work, live or eat? Maybe the South did win the war – at least after some initial flurry of ideas since for the next decade, things pretty much settled back to the way they were before and during the war. The slaves were free, but their options little better. Nancy had researched her topic very well and gave an outstanding presentation.
5. The meeting adjourned at 8:20 PM which started John Zasso selling more raffle tickets and reading lucky numbers.

Paul Ruud substituting for Edie Keister.

Coming Programs 2010		
Aug. 11 th	Jim Stanbery	Game of Doors
Sept. 8 th	Tom Lubas	Kansas/Missouri Border Wars
Oct. 13 th	Ray Cosyn	Lincoln's Funeral Train

The Role of Military Engineers in the U. S. Civil War Part Two: Case Studies

Case Studies: Three case studies will be used to illustrate where engineers were used, and where the engineer skills were, or were not, sufficient. The case studies are Fredericksburg, specifically examining the Union use of its pontoon bridging, Vicksburg, where classical siege warfare was the order of the day, and the extraordinary measures taken by the Union to repair railroads as they advanced. One case study is in the east, one in the west, and one was applied to both theatres.

1. Battle of Fredericksburg: The Fredericksburg Campaign took place in the early winter of 1862, and was the first time that specialist engineers were used in an assault. Burnside decided to cross the Rappahannock by means of pontoon bridges, constructed by specialist engineer units. There were fords available upstream from Fredericksburg, but Burnside was reluctant to use them in case the water level rose suddenly and cut off part of his army from the main body. Unfortunately what began as a good plan, of outflanking a smaller enemy force, provided the plan was put into effect quickly, was so delayed that it turned into an opposed frontal assault against an enemy in prepared positions. A major factor in the delay was the time it took to concentrate, fully equip and move up the pontoon bridging. The pontoon bridge unit was ordered to move from where it was using the bridging at Harper's Ferry to Washington on 6th November, and took more than a week to get there. There was then a delay of several days while the onward

movement was prepared, with the move south from Washington beginning only on 19th November. The bridge train arrived in the Fredericksburg area on 27th November, having taken eight days to move the 50 miles, using a mixture of road movement and of floating the pontoons to where they were needed. There was then further delay while Burnside issued orders and adjusted the position of the various elements of his army, before the assault river crossing was launched on 11th December. What would have been an unopposed crossing at first, and a lightly opposed crossing in late November, was a crossing in the face of a well-prepared and entrenched enemy when it was eventually carried out. Meanwhile, on the Confederate side, Longstreet ordered the already good defensive position that he occupied to be improved. Located so as to dominate the roads and open ground, the fieldworks had been designed for use by a skeleton force which could hold them against a surprise attack until reserves arrived. The innovation was the traversed trench. Longstreet's engineers had broken the long ditches into quite short, squad-sized rifle trenches, staggered in depth, disposed for mutual support, and connected by traverses which could be used against flank attacks and afforded solid protection from all but direct artillery hits. The Rappahannock River at Fredericksburg is around 400 foot wide, a formidable wet gap at any time. The Union assault crossing plan called for the construction of six bridges, three opposite the town inside direct rifle fire range, and three well south of the town, well out of direct range of the nearest Confederate positions. Bridge construction began at 3 am and when day broke there was a

light morning mist; this reduced visibility enough to hamper the Union supporting artillery, but not so thick that it made the bridge builders invisible to enemy sharpshooters in the outskirts of the town. The engineers building the northern bridges were exposed to the fire of the Confederate pickets located close to the river. The engineers took substantial casualties and were forced to abandon their work. After a delay of around four hours the situation was retrieved by some valiant infantry crossing using the pontoons as boats (but which were paddled by the engineers); they established a bridgehead and drove the Confederates back from the bank of the river. Overall, the three bridges that were not subjected to fire were completed in eight hours, while the three opposite the town were completed in twelve hours. The engineer challenges did not finish there, as there was one further obstacle for the Union to overcome, of which they were unaware. Between the town and the Confederate position there was a man-made water channel, designed to drive a mill. This spillway was 30 feet wide and 6 feet deep, and was bridged in only three places. The obstacle was undetected by the Union attackers until after the attack had been launched. The effect of the spillway was to slow down and disrupt the attack, causing bunching at the crossing points and providing a dense target for artillery fire. The lengthening of the time during which the attackers were exposed to fire was certainly a key factor in the excessive casualties suffered by the attackers; while the defenders' entrenchments substantially reduced the casualties they suffered. The overall exchange rate, some 9,000 Union casualties inflicted for the loss of just 2,000 Confederates, was an

extremely vivid illustration of the power of a well-protected defence. It was to influence Longstreet deeply and certainly contributed to his strong conviction that the Confederates should maneuver into a defensive position at Gettysburg so that the Union would be compelled to do the attacking.

2. Vicksburg: The Union side of the Vicksburg Campaign can be seen in hindsight as a relentless advance, with many successful improvisations. But at the time any one of the improvisations, had it not worked, could have led to the campaign dragging on for many more months, possibly into the winter of 1863/64. Vicksburg occupied a naturally strong position, with forts dominating river traffic on the River Mississippi. In the six months between November 1862 and May 1863 Grant attempted to get to within assaulting distance of Vicksburg using the eastern bank of the river. Eventually he switched his efforts to the low-lying and flooded west bank of the river. In doing so he committed the only engineer unit he appears to have had to constructing bridges and improving tracks on the western flood plain of the Mississippi. His crossing of the river, well to the south of the Confederate defences, was a major operation. The river was around half a mile wide and the current was extremely swift. The combination of width and current speed meant that a pontoon bridge was out of the question, so the crossing had to be a Navy-run assault landing. The poor infrastructure of the whole region hindered both the attacker and the defender. Until Grant had a foothold on the eastern bank of the river, the difficulty of the terrain favoured the defender. However, once Grant was across the river, he was able to build up

his forces faster than the Confederates could assemble forces to attack the incursion. Moreover, the decision by the Confederate defenders of Vicksburg to construct defences on the landward side of the city committed the defenders to garrisoning the defences. Thus, when Pemberton decided to take to the field to confront Grant, he divided his forces, leaving two divisions, some 40% of his strength, holding Vicksburg. His decision on where to offer battle was not assisted by a better knowledge of the ground than Grant had. Pemberton does not appear to have made much effort to map the approaches to Vicksburg in the months that Grant was hovering in the vicinity. Once Grant had made his successful landfall he was able to find out where all the roads went to from sympathetic inhabitants, and succeeded in keeping a substantial river, the Big Black, on his open flank between the Union forces and the Vicksburg defenders. His successful battle at Champion Hill was innocent of any engineer effort on either side, and both sides were equally ignorant of the terrain. Grant only seems to have become aware of the formidable nature of the Vicksburg defences when he arrived in front of them. He gambled that the defenders were still disorganized after their retreat, and ordered two assaults against the defences in quick succession. Both assaults bounced off, with the defender inflicting far more casualties than they suffered. Grant then was forced to resort to a formal siege, for which he was not well prepared. Indeed, he was extremely short of engineer officers, and appears not to have had any engineer units. Hence the siege techniques had to be learned from scratch, but luckily for the Union their Western units contained a

lot of skilled workmen, and the requisites for a siege were rapidly improvised. Gabions were constructed to reinforce approach trenches, sap rollers were put together, scaling ladders were built, and miners came forward to dig mines under the Confederate strong points. The descriptions of the siege operations are very reminiscent of siege operations by the British in Spain more than 50 years earlier. The siege of Vicksburg was a testament to the native wit of Grant's rugged army, but it was achieved despite the lack of engineer units, and the conclusion could well have been hastened with some dedicated engineer assets. All in all the campaigns in the west are a triumph of improvisation.

3. Repair of Railroads by the Union:

Both sides used railways strategically for rapid movement of large forces, and for logistics. Indeed, both sides tended to be very dependent upon the railways for supply of the large armies that were often operating in uninhabited and barren areas. This dependence made the railways a prime target for raids, and both sides became increasingly adept at wrecking the railways of the other side. However, the Confederates were not able to restore wrecked lines to use rapidly. On the other hand, the Union devoted considerable resources to railway repair, so that they were less affected by the temporary loss of a railway line. All in all, the raids damaged the Confederates more than the Union. This was as true in the Western theatre as in the East. In both theatres the Union found a skilled railroad engineer and made good use of his talents. In the East the individual was Herman Haupt, a West Point graduate who had resigned from the Army when still a

young man and had been working before the War on railroad construction as a civilian. In the West it was Grenville Dodge, a civilian railroad engineer with no formal military background, but who rapidly rose to command an infantry division. Herman Haupt came to the fore when he was appointed to repair the wrecked railroad behind the advancing Union forces in April 1862. The railway in question was the Richmond and Fredericksburg, and it was very badly needed, especially because it ran through an area which had been foraged bare by the Confederates in the months when they held the line of the Bull Run. Haupt was assigned some assistants and three companies of infantry. He set to repairing the track immediately. Within a week he had re-laid three miles of sleepers and track. Two days later he had bridged an intervening creek with a 150-foot long bridge. His great challenge was to bridge the Potomac Creek, which was in a far more formidable gorge. In 9 days he had constructed the bridge, some 400 feet long and 100 feet high using timber cut locally. Twelve days after arriving at the bridge site the track had been laid and the bridge had been crossed by the first train. It was later described by Lincoln as being "nothing but beanpoles and cornstalks". Grenville Dodge was not offered civilian assistants in the West, but instead Grant simply gave him the task of repairing the Central Alabama Railroad with just the resources of his infantry division. As such, Dodge faced a situation where the railroad was completely destroyed, bridges burned, all rails lifted and twisted. The division had only its own entrenching tools; in addition it had to live off the land and provide its own protection. Dodge brought together all

those with civilian metal working experience. They found blacksmiths' shops and sawmills and dismantled them and moved them to the railway line. The first things the metal workers made were the tools they would need to carry out the railway repairs. Only then could they set about the repair of the line. Forty days after they had been given the task they reported that the line was open, with 102 miles of track replaced, and with 182 bridges and culverts constructed. Perhaps this feat exemplifies the more practical and pragmatic approach of the Western Army, compared to the Army of the Potomac, which had a larger proportion of "townies" in its ranks.

Good and Bad Practice: The year 1863 saw the armies becoming more seasoned. As they did, the moments when engineering opportunities were lost became fewer, and the examples of good use of engineers, and of efficient performance by engineers, became more frequent. The Union saw a real maturing in its use of engineers. When Lee side-stepped west along the Rappahannock and moved north it was several days before Hooker realized that he faced only a screen. But as he moved north to counter Lee he ordered his engineers to construct pontoon bridges across the Potomac so that the Union army could cross into Maryland without delay and confront Lee. The bridges were in position, waiting for the army as it hurried north, indicating that the engineers had improved their ability to be in the right place, at the right time, with the right equipment since Fredericksburg. A few months earlier Grant attempted to use the force of the Mississippi River to outflank the Vicksburg defences. The river described

a U-turn in the Vicksburg area, so Grant ordered the digging of a canal across the neck of land, which would, had it been successful, have allowed river traffic to bypass Vicksburg. When the canal was dug and opened to the river, the Mississippi petulantly declined to flow through the canal to the extent required, and no navigable channel could be produced. Nonetheless, Grant's instinct was correct, for just a few years after the War the river did oblige, and tore through the neck of land, cutting the town of Vicksburg off from the river. One serious error in the way engineer officers were used was the entrusting of the reconnaissance of the Confederate right flank in the early dawn hours of the Second Day of Gettysburg to a junior engineer. Lee had successfully carried out a similar feat as a young officer in the Mexican War, and this may have been a subconscious imitation. But every young engineer officer was not Lee. The hapless captain reported that the area that he scouted was unoccupied by the enemy, and he was then given to Longstreet to guide Longstreet's Corps onto the enemy flank. Whatever the actual state of occupancy of the area in question at the start of the day, the situation could not be guaranteed to remain unchanged throughout the day. Moreover, the engineer was then held responsible for the fact that part of the route crossed an open hilltop exposed to the view of the enemy. The debate then that led to the U-turn and counter-march by Longstreet's Corps appears to have been acrimonious and a serious case of awkwardness by Lee's senior and most experienced subordinate.

The final vignette, where the lack of a few engineers was a factor which may have seriously affected the outcome of

the battle, was on the third day at Gettysburg. The most remembered moment of the battle was the charge, across a wide valley, of Pickett's Virginia Division. In the course of its advance the division crossed a major road which was bounded on both sides by a very substantial post and socket fence. Many of the fences in the battle area were of the zigzag snake rail fence variety, which were held together only by the weight of the fence posts above. However, this fence was stoutly constructed, and could not be pushed over. It could have been chopped down by pioneers with axes, had they been available, but they were not. Therefore the division, in the middle of an advance into the centre of the enemy position, and subject all the while to artillery fire from the front and the flanks, had to stop and climb the two parallel five foot high fences. This action disrupted the formation, slowed down the attack, and lengthened the time that the Virginians were exposed to the galling flanking fire. There are many accounts of troops deciding at this stage that they had had enough and of them electing to shelter in the lee of one or other of the fences. This certainly substantially reduced the number of soldiers who advanced beyond that point to push the charge home. To a modern observer the fence can be seen as having most of the desired effects of an anti-personnel minefield, namely of breaking up an attack formation, slowing down the attack, and lengthening the time that the attack is subject to defensive fire. It is also worth reflecting that, had Meade ordered a counterattack at the moment that the Confederates fell back, and then the counterattacking troops would have been similarly affected by the

same fence when they advanced over the same ground.

Conclusions: In summing up the relative attributes of the two sides, it is apparent that only in the area of the use of field defences did the South perform better than the North. This can be attributed in part to the fact that the South stood on the defensive more than did the North. In almost all other areas, in the use of pontoon bridging, in the ability to rebuild railways, in the construction of corduroy or plank roads, and in providing hand tools, the North was organized more quickly and maintained the lead consistently. Only in the area of mapping does the South approach the performance of the North, but the North eventually developed an ability to reproduce sketch maps photographically in the field. The South got off to a good start in limited geographic areas, but at no stage was there a systematic effort to map all areas of interest in advance of the maps being required. Hence the muddle of the Confederate attempts to outflank the Union in the Seven Days' Battles east of Richmond. There time after time the attacks arrived out of sequence, with one wing or the other getting lost in the maze of byroads, which were no more than a morning's ride from the State Capital. The North tended throughout the War to rely too much on the innate skill of its citizen soldiers, rather than raise specialist engineer units. The North engineers were better though at inventing prefabricated, timesaving solutions. Particularly in the field of railways the North used modern engineering solutions, properly resourced, to sustain their advances. However, to win the war the North had to advance, often over difficult terrain. The ability to do this would have been

greatly enhanced if there had been enough combat engineers properly organized and equipped, to provide permanently assigned engineer support at the corps level. The same criticism, that too much reliance was placed on the innate engineer skills of the soldiers, can be leveled at the South. The South was bound by its diplomatic stance to be on the strategic defensive, and they were much the quicker to realize and harness the power of the defence. However, as a whole the South did not invest many resources in combat engineering, and overall the standard of southern military engineering did not approach the professionalism of the Napoleonic Wars. Given the South's strategy of assuming the defensive and requiring the North to invade the South, it would have been perfectly possible for the southern authorities to have carried out a comprehensive survey of all the limited avenues of approach early in the War. This could have avoided many of the poorly executed attempts to cant' out flank marches early in the War, especially in the 1862 Seven Days Campaign, when southern manpower strength was at an all-time high. The lack of good mapping led to the debacle on Malvern Hill, and in hindsight it is not unreasonable to argue that this may well have cost the South the War.

Note: This article is adapted from a presentation made by [British Major-General](#) & Chief Engineer John Drewienkiewicz, retired, to the UKACWRT in London on 2 April 2004. *Part One* of the material, which provided an Introduction and General Discussion, was included in the July 2010 edition of the *Battle Cry*.

Submitted by Robert Williams, 9 June 2010.