

Witness Trees and Woods of the Civil War

By Gary Strobel

The last word uttered by Stonewall Jackson on his death bed, was—“Trees”

During the battles and other events surrounding the civil war (1861 -1865) in the United States there were trees, buildings and other wooden structures present, that are also present now. They witnessed the war! The most interesting woods are those represented by trees since many are still growing on the landscape. Also, many of these trees witnessed other major events at the time of the war such as the Gettysburg address or the hijacking of the General locomotive on the Western Atlantic Railroad by Jim Andrews in 1862. Of course, trees witnessed some of the major events of American History such of that of Sept 17 at Sharpsburg, Md., also called Antietam, which was the bloodiest day in America (Burnside bridge left- the Burnside bridge sycamore).

Generally, those trees that survived the war have done so in spite of hurricanes and the ravages of disease and insect attacks which brought many of their relatives down over the course of time. Likewise, many witness trees at original civil war sites have been removed making way for modern developments including roads, strip malls and mass housing. Commonly, of the few witness trees that do exist, they have wounds and in some cases house the bullets and shell fragments that flew at them during the war. In still other cases a witness tree may have died and now only a partially rotted carcass remains. Sometimes wood from the dead tree will yield a wonderfully spalded and beautiful product which is well represented in the collection. However, the trees that seemed to best survive all of these years since the war are the **white oaks** of the more northerly areas and the **live oaks** in the deep Southern USA. However, many other species are known as witness trees such as the **Honey Locust** at Gettysburg, and the big **Chestnut Oak** on top of Fisher’s Hill in the Shenandoah Valley.

Yes, if a battlefield pen could write it would tell a story of massive death and unbelievable suffering all around it. In some cases the tree witnessed the killing of the unit commander such as Confederate General Zollicoffer at Mill Springs Kentucky who was shot while on horseback near a white oak tree during the battle. Both of the pens, in the collection, from Antietam witnessed slaughter to the ultimate degree with blood literally running stream like in “bloody lane” near the center of the field of battle. Some woods from hospitals overheard the screams of death and the moans of pain.

Interestingly, those in headquarter buildings heard the plans of war and the anguish and troubles of leadership. One can only imagine what the trees witnessed and what stories they could tell that have never been told before.

In some cases there were no trees that survived the onslaught of the war such as the barren slopes of Vicksburg or the insane fighting that occurred at Chickamauga and the tree harvest for pulp after the battle resulted in broken machinery in mills trying to process the wood due to an abundance of lead and shrapnel. In the case of the battles of Chancellorsville/Wilderness the trees were so thick that entire fighting units got lost, disorganized and rendered ineffective. Sometimes, however, pieces of surviving wooden structures that were there at the time of the battle have been secured and made into pens such as the piece of cypress obtained from the cupola of the Warren County court house in Vicksburg or a portion of the Crib dam at Fredericksburg that played a role in the battle. Also, it has been possible to secure wood from those homes that served as command headquarters or hospitals of either the union or confederate forces.

Obviously, there is something haunting about hand working wood that has come from hallowed ground knowing that the wood represents a tree that was alive during those events that we call sacred. Sometimes unusual and deep feelings play through my soul as a unique piece of wood from a witness tree turns rapidly on the lathe and I begin to form it into a pen. Generally, I have collected the wood myself usually as limb pieces that have fallen from the tree. In other cases, other wood turners in the local area of the civil war site have gifted the wood to me or sold it to me at a small and reasonable price. In still other cases, various rangers of the National Park Service have politely arranged to send me pieces of the more famous witness trees in their area such as the **Burnside Bridge Sycamore** at Antietam by Kirk Kirkman (photo above). This tree is the most famous of all of the civil war witness trees and it is pictured on the commemorative US 1937 -50 cent piece which in mint condition now sells for \$1000 and one is in my collection. The folks at Appomattox, Va have been most kind to furnish wood from the McClean house sycamore as well as the Tibbs house white oak. Every year I have made wooden items from these woods that they sell at the annual auction in December (Ranger -Ernie Price).

Some rangers do quote me the NPS regulations against the harvesting of even dead plant materials from park lands and say –“no.” Interestingly, such woods can be used for local campfires if the area park superintendent indicates that it is acceptable, **but** not to be used by a Montana wood turner who wants to make a pen from a civil war

site and give it to them. Each pen in the collection has a story about how it was obtained and some of the stories are quite interesting and peculiar.

I must say that it has been quite fun to search out witness trees on the internet and locate them on Google Earth and proceed to go these battlegrounds and hike the trails to find the trees. This has been done many times in many locations with great success. Sometimes, the tree has not been noted as a witness tree by the authorities and it is important to size the tree and even take core samples to learn of its age. Usually witness trees, depending upon the species, are in the range of three or more feet in diameter at the minimum and more in the range of 4 -6 feet. In other cases photographs taken at the time of the battle show positive evidence of their presence at the critical time. Sometimes historical evidence has borne out the age of the tree such as the record of the live oaks planted by Mrs Champion whose house served as Grant's headquarters at the battle of Champion hill.

In each case, I have provided provenance for every pen. This is in the form of photos, information from the internet, published facts, or information provided by the park service or local historians. Likewise, each pen is labeled on its end piece with a code that matches that in the appropriate notebook. As one goes through the Strobel pen collection of the Civil War the provenance pages in the corresponding notebook provides not only information on the pen and the tree or structure that provided the wood for the pen, but also notes on the battle or other conditions that existed at the time of the civil war. Each pen is listed with a special letter and number on its distal end with a sharpie pen mark and a black rubber covering indicating the wood and the assigned location number. That pen number coincides with a counterpart page in the loose leaf leather binder called ----**Civil War Pens by Gary Strobel Vols 1, 2, 3, 4 etc.** The pens are arranged in the boxes according to the state from which they were obtained starting with Tennessee since it was at Franklin that my interest in the war first emerged. Likewise, the same arrangement is to be found in the provenance binder.

In most cases, there was a battle raging, or in others, the tree may have been near to a home that served as a hospital or a headquarters of one or more of the generals in charge of the battle. In still other cases, the tree may have played a role in the development of circumstances that led to the war as per the Secession Oak in Bluffton S.C., or the osage orange at Red Hill, Va., home of Patrick Henry, which was contemporary with him at his plantation home site. It is in the collection since he was

one of the earliest to explain that the constitution has inherent flaws that gave the federal government too much power that would ultimately lead to civil war.

Other information is provided about the historical events, or battle events that the tree witnessed and this has been copied from the internet source such as Wikipedia or from the Civil War Trust. Many photos on the provenance pages are those taken by me or my wife Suzan or supplied by local people as well as the internet. Multiple trips have been made to such places in Pennsylvania, Maryland, West Virginia, Virginia, Georgia, Mississippi, Alabama, Kentucky, North Carolina, Tennessee, Arkansas, Oklahoma, Missouri, and Kansas. Other maps, historical photos and illustrations have been borrowed from the internet.

Although a few wood turners do make pens from local known witness trees such as the Jackson Prayer tree in Virginia, or Wm. Hewitt at Gettysburg, there does not seem to be anyone making a concerted effort to produce a wide collection of pens from all of the major civil war sites accompanied with appropriate photos and provenance. All of the pens in the Strobel collection are one style (Jr Gents from Craft Supplies in Provo Utah) but each is made from a different witness wood and thus each one is truly unique.

Besides simply standing at a location and being present as a major event occurred, some of the witness trees actually participated in some manner in the event. The trees did serve to provide shade, or as support trees to keep wounded soldiers above water as in the case of seven pines during a time of flooding, or as a leaning tree for a General as per General Grant in the famous Gardner photograph.. Other trees actually took part in the battle by serving as a lookout tree as per the chestnut oak on Fisher's hill. Some, on the other hand, provided cover and helped hide an entire unit until the attack was eminent as the case of the cedars at Stones River. Others provided cover from shell fragments and bullets flying through the air. Even today there are some trees still bearing the scars of war and do house shell fragments and bullets within them as per the bullet pen actually containing a Sharps bullet obtained from Cold Harbor, Va.

The foliage of some were used to start fires to allow the troops to stay warm and also to cook food. It is also obvious that some were used to provide shelter and even used as a source of bedding materials as per the quote from Charles Wainwright's **Diary of Battle** where he states "We did not put up our tents tonight but slept under some large elms in a valley." At this point in his civil war career he was at Antietam. Trees also served as support tie-line posts for tents and overleaf shelters and as a place to tie in a horse's reins. Rail fences, usually made of chestnut, served as a great source of

firewood since it was dry and ready to burn. During the time that Jackson spent at Moss Neck in the winter of 62-63 at least 60 -70 acres of forest were harvested for lumber, logs and firewood to support his corps.

Trees Used As Abatis, Breastworks and Gabions

One of the most interesting uses of local trees was that at the Battle of Franklin where the limbs of osage orange were piled on each other as *abatis* by the union to protect their works from the frontal attack made by the confederates. The limbs contain many sharp spines (right) and these features helped stop the charging troops. C.S. Lt Patrick Henry writes- "This abatis was most elaborate, the boughs of the osage orange hedge being interlocked; while the sharpened planks , sloped to strike the breast, were set deep in the ground, nailed to crosspieces. It was impossible to get through this hedge... This hedge and abatis were only about thirty feet in front of the enemy's intrenchment, which was protected by head logs"

Furthermore, as the war moved into late "63 thru 65", both sides began the process of tactic of "digging in" with troops trenching soil to provide shelter from in -coming rounds. Usually, "works" were topped with logs laid several deep to provide protection as they placed rifles thru the openings to shoot at the enemy and these were called breastworks as per Fort Edward Johnson in the Shenandoah.

Wicker basket Gabions were used extensively in the defenses at Petersburg Va. They are basically wicker baskets filled with earth, stones, wood etc. and are commonly piled upon one another as in the photo (right) Baskets and basketweaving techniques have been used historically for many purposes including defense and war. Basketry ammunitions containers protected shells while they were being transported, wickerwork gabions reinforced earthwork redoubts, woven willow body armor and shields were carried or worn by soldiers, willow formed the frameworks in the hats of Queen's guards, were used to weave carrier pigeon baskets, officer's kit baskets, observational balloon baskets and basketwork found its way into numerous other aspects of combat. Here in the civil war the baskets were usually made of willow stems and represented a grand eloquent use of tree material for defense of the line.

The Famous Copse of Trees as a Focal Point for Attack.

One of the most interesting uses of trees in the war was that at Gettysburg in which the copse of trees on cemetery ridge served as a focal point in Pickett's charge on July 3 1863. This small clump of trees still survives on the battlefield today and the biggest and oldest of which are chestnut oaks. Some of which are witness trees including the chestnut oak from which wood was obtained by reaching through the iron fence and securing a dead limb.

The Chevaux de Fraise in Several Battles

On the other hand, at Spotsylvania and Atlanta, small trees were cut by the hundreds had their tips sharpened and used as *chevaux de fraise* to repel attacks by the union forces (photo left). Also, in every theatre of the war, troops on both sides felled trees over trails and roads to stop the advance of the enemy. This was especially true in the battle of pea ridge, Arkansas when union troops blocked the Bentonville By Pass (detour road) road north of little sugar creek to prevent a flanking maneuver by the confederates. In addition, thousands upon thousands of trees died when troops cut them down to clear areas in front of defense positions to allow for better vision and sighting of enemy advances.

The Jackson Prayer Tree at Port Republic, Va

One well known tree is the Jackson Prayer tree south of Port Republic, Va., where he and his troops rested in June of 1862 after the valley campaign. Sunday services were under and around this huge old white oak tree that served for shade and a meeting place. The big oak died and was harvested in the early 2000s and a pen made of its wood is in the collection. The loss of witness trees is becoming a frequent occurrence.

Trees used for structural Material and Resin

Trees were also cut in prodigious numbers to help furnish railroad ties, logs for corduroy roads, bridges, tressels, ship masts, forts, and naval stores like turpentine, resin, pitch and tar for uses in the war effort. Logs were also used to stoke the engines

of the trains that serviced the troops both north and south. The historian Megan Kate Nelson estimates that two million trees were killed during the war. The Union and Confederate armies annually consumed 400,000 acres of forest for firewood alone. With no difficulty, any researcher can find photographs from 1864 and 1865 that show barren fields and a landscape shorn of vegetation.

Pine pitch was harvested in the south. Pitch and pitch products including resin, rosen and pitch were used to caulked seams, plug holes and preserve ropes and were a vital part of naval activities without which the navy would not have survived. The big pine forests of the south were the main source of pitch.

Trees as Food and Clothing

Nut trees bearing trees were often laid bare of their fruit during certain times of the year by foraging troops from both sides. Walnuts, pecan and butternuts could be cracked and eaten directly, but beech nuts and chestnuts were commonly roasted before being consumed. For instance, Jedediah Hotchkiss writes on Jan 3, 1863, "In the evening I took General Jackson some apples and chestnuts and read him the news-victory at Murfeesboro."

On the other hand, fruit trees in season were generally harvested by foraging troops from both sides and these include apples, cherries, pears, and peaches. Persimmons were also eaten but only after a frost had occurred since the fruit otherwise has a strong pungent like taste. They were Jackson's favorites. In addition, at places like Gettysburg and Antietam, the low hanging limbs of fruit trees served as cover for troop movements. Interestingly, the butternut clothing worn by confederate soldiers during the war prepared by staining with the hulls of walnut- *Juglans cinerea* (left). Most battlefields were barren of all trees but nearby plantations usually had trees that were not cut by either side as an occupation was established and some of these plantation trees are still with us today.

Tree Trunks as Cannons

Also, of unusual note is the use of shaven tree trunks to make "Quaker guns" when the makers of cannons could not keep up with the demand. These guns, usually of confederate design foiled the enemy in believing that the troops were better armed than they really were. This trick was used at Yorktown by the confederates (Joe Johnston) to fool the union troops as they moved up the peninsula towards Richmond.

Christmas Trees

Certainly, one of the universal uses of trees both in peace and in wartime was the harvest of pines, spruces and firs for the decoration of homes and campsites for Christmas with boughs and Christmas trees. This was also true during the civil war as shown on the left. The soldier is home on furlough for the holiday. However, civil war soldiers in camp and their families at home drew comfort from the same sorts of traditions that characterize Christmas today. Alfred Bellard of the 5th New Jersey noted, "In order to make it look much like Christmas as possible, a small tree was stuck up in front of our tent, decked off with hard tack and pork, in lieu of cakes and oranges, etc." John Haley, of the 17th Maine, wrote in his diary on Christmas Eve that, "It is rumored that there are sundry boxes and mysterious parcels over at Stoneman's Station directed to us. We retire to sleep with feelings akin to those of children expecting Santa Claus."

Wood for building weapons

Trees of various types supplied the wood needed to wage war. The main weapon of the war was the rifle/pistol. The major support for all civil war rifles and pistols was stocks and grips made of wood including walnut (as shown on the Strobel owned Remington contract Springfield. Pikes, as an interesting weapon, were made by the confederacy and they consisted of a sharp knife like metal piece equipped with a long wooden handle. They were used to cut the reigns of on- coming cavalry horsemen but with little effectiveness. Trees were also used as target practice by both union and confederate troops

Notwithstanding, even the artillery needed wood to make the wheels and support beams for cannons, plus the limber chests and portefeus (poles) needed to load (ramrod) and clean the cannon before and after firing. One of the most interesting uses of wood is the sabot or wooden base of the cannon ball.. It allowed the ball to be properly placed in the cannon barrel and assured a proper fit of the round when it was fired. When in transport a wooden tampion was used to protect the barrel and was inserted at its end.

Also, the wheels of the cannon as well as the limber chest and caissons were all made of wood.

Trees Helping the Telegraph Corps

During the civil war the telegraph emerged as the main means of sending messages from one location to another electronically. The telegraph corps followed troops and erected telegraph poles and wires to provide communication from the battle front. The Union forces had about 15,000 miles of telegraph wires whilst the Confederacy had but about 1000. The poles were all made from tree trunks with cross beams to support multiple wires. In April of 1861, the Military Telegraph Corps was formed with the purpose of keeping officials in Washington abreast of developments on the battlefield. Of all the jobs in the Military Telegraph Corps, constructing telegraph lines on the battlefield was the most perilous. Teams of 15 to 150 young men—most of the military telegraphers were 16-22 years of age—would work together to construct the lines. First, a receiving station was set up at the army headquarters. A wagon would then head out, towards the action, functioning as a sending station to construct the lines. Also used were tall signal towers to send messages short distances.

Trees as Anchors

A tree serves as an anchor as confederate troops pull a cannon up Kennesaw Mountain during the Atlanta campaign of Sherman in 1864. According to physicist Greg Francis at MSU, the tree offers no mechanical advantage other than as friction base to stop the cannon from rolling back down the hill. But if the rope were passed through a ring on the trail of the cannon there would be a mechanical advantage. Also, an advantage would be offered if the people on the rope would push on it at a right angle and have the folks at the top, near the tree, take up the slack and hold it. Trees undoubtedly served this purpose in more than one civil war campaign both within the activities of the union and confederate troops.

Sherman's Neckties

An odd use of trees was directed by General Sherman during the Atlanta campaign. It was a method used to destroy railways. Named after Maj. Gen. William Tecumseh Sherman of the Union Army, Sherman's neckties were railway rails destroyed by heating them until they were malleable and twisting them into loops resembling neckties, often around trees. Since the Confederacy had limited supplies of iron, and few foundries to roll the rails, this destruction was very difficult to repair. They were also called Sherman's bow ties, Sherman's hairpins or Jeff Davis hairpins. Although the destruction was ordered by Sherman during his Atlanta Campaign, the "necktie" shape formed by bending the rails around a tree was not; his orders specified a different method of track destruction which was not as popular: **Sherman's neckties** were a railway-destruction tactic used in the American Civil War. Named after Maj. Gen. William Tecumseh Sherman of the Union Army, Sherman's neckties were railway rails destroyed by heating them until they were malleable and twisting them into loops resembling neckties, often around trees. Since the Confederacy had limited supplies of iron, and few foundries to roll the rails, this destruction was very difficult to repair. They were also called Sherman's bow ties, Sherman's hairpins or Jeff Davis hairpins.

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“ In case of the sounds of serious battle [Major-General McPherson] will close in on General Schofield, but otherwise will keep every man of his command at work in destroying the railroad by tearing up track, burning the ties and iron, and twisting the bars when hot. Officers should be instructed that bars simply bent may be used again, but if when red hot they are twisted out of line they cannot be used again. Pile the ties into shape for a bonfire, put the rails across and when red hot in the middle, let a man at each end twist the bar so that its surface becomes spiral. ”

— Wm. T. Sherman, *Special Field Orders*, July 18, 1864.

After three days, only one Confederate railroad line leading into Atlanta remained intact.

Wood for the Navy

There was major action in the civil war on rivers and bays and oceans. The W. Scott Anaconda plan wherein the southern ports would be blockaded was put into effect. The difficulty was that the union was ill prepared to carry out such a blockade. The role of the Federal and Confederate Civil War naval ships in the war is all the more remarkable when you consider the scarcity of battle worthy vessels owned by either side at the start of the war. **At the start of the war all ships were made of wood- usually with the use of pine and oak planks.** Basically, the Confederacy had no navy at all in 1860 and the Union Navy was in dismal shape. The Union's first truly significant victory, Grant's capture of Fort Donelson and Fort Henry in 1862 was enabled by Civil War ships and Civil War marines. Lincoln's order of a naval blockade struck some of his staff as impractical. Most of the Navy's vessels were on duty in foreign waters and only three or four ships were available for active duty.

The **CSS Nashville** was a brig-rigged, side-paddle-wheel passenger steamer that served with the Confederate Navy during the Civil War. Originally a United States Mail Service ship, the USMS *Nashville* was built at Greenpoint, Brooklyn in 1853. Between 1853 and 1861 she was engaged in running between New York City and Charleston, South Carolina. During the Battle of Fort Sumter, the USMS *Nashville* sailed into Charleston without flying the US national standard and was fired upon by the USRC *Harriet Lane* which marked the first shot of the naval war in the Civil War. The *Nashville* raised the American flag, and after the surrender of Sumter, the *Nashville* docked at Charleston..After the fall of Fort Sumter, the Confederates captured her at Charleston and fitted her out as a cruiser-CSS Nashville. Under the command of Lieutenant Robert B. Pegram, CSN, she ran the blockade on October 21, 1861, and headed across the Atlantic to Southampton, England, **the first ship of war to fly the Confederate flag in English waters. On November 19, 1861, near the British Isles, she boarded and burned an American merchant ship, the *Harvey Birch*, the first such action by a Confederate commerce raider in the North Atlantic during the war.** *Nashville* returned to Beaufort, North Carolina on February 28, 1862, having captured two prizes worth US\$66,000 during the cruise. In this interval she was sold for use as a blockade runner and renamed *Thomas L. Wragg*. On November 5, 1862, she was commissioned as the privateer *Rattlesnake*. After she ran fast aground on the Ogeechee River,

Georgia, the monitor USS *Montauk* destroyed her with shell fire from 11-inch (279-mm) and 15-inch (381-mm) turret guns on February 28, 1863. I was able to able to secure a piece of pine that was recovered from the Ogeechee River and sold to Mr. Cary Delery (Historical Shop) of New Orleans, La and eventually given to me as trade for me making pens for his business which I gladly have done. The wood had started to petrify and it dulled every lathe tool used to cut it

Ultimately, the Confederate fleet would never grow as large as the Union Navy, but it was slightly ahead of the North in building the first ironclad (iron plating made over wooden planks). Federal troops had evacuated the Norfolk shipyard when it became apparent that Virginia would secede. Before they left, they set fire to the seven Civil War ships left at the yard, attempting to make them unusable to the enemy. Fire destroyed six ships, but the U.S.S. Merrimac was rescued by the Confederates before it was entirely destroyed. The Confederate Naval department hastened to have it re-outfitted as a Civil War ironclad ship, an armor plated ship and re-christened it the Virginia.

The need for easily manipulated Civil War ships and for ships that could not be easily destroyed prompted much technological growth during the war. The conflict was the last one in which wooden ships would be used. Although the Civil War ironclad ships were unwieldy and flawed, they ushered in the age of the modern steel warship. After the success of the Monitor and the Virginia, navies around the world began to build armored warships.

The war also saw the first use of submarines and torpedoes. For a conflict not known for its naval battles, the American Civil War had made an unforgettable impact on future navies. The war was also remembered for one of the greatest maritime disasters in American history, the sinking of the Sultana in 1865. The sinking of the Sultana was the largest naval disaster during the entire war. The Sultana (left)

The Necessity of Wood in Daily Life

Everything from tent poles to camp furniture including lap desks, stools and tables were made of wood. Not to mention the thousands of wooden boxes made to carry ammo, lead bullets, bread, artillery shells and weapons. Of course trees provided all of the major materials to make these items.

Another New Technology in the Civil War – Artificial Limbs

“It is not two years since the sight of a person who had lost one of his lower limbs was an infrequent occurrence. Now, alas! There are few of us who have not a cripple among our friends, if not in our own families. A mechanical art which provided for an occasional and exceptional want has become a great and active branch of industry. War unmakes legs, and human skill must supply their places as it best may.”

~Oliver Wendell Holmes, M.D., “The Human Wheel, Its Spokes and Felloes”

Many entrepreneurs who developed artificial limbs were Civil War veteran amputees themselves. In fact because of the war this industry got its start. In fact, one of the most successful pioneers in prosthetics was Confederate veteran James Edward Hanger, whose amputation in West Virginia was the first recorded amputation of the Civil War. He was 18 years old at the time. Union surgeons discovered him wounded and performed the amputation, giving him a standard issue replacement leg: a solid piece of wood that made walking clunky and difficult. Hanger’s adjustments included better hinging and flexing abilities using rust-proof levers and rubber pads. He also used whittled barrel staves to make the limb lighter-weight. He won the Confederate contract to produce limbs, and by 1890, had moved his headquarters to Washington, D.C., and opened satellite offices in four other cities. The company he founded — remains a key player in prosthetics and orthotics today.

Wood for the Petersburg Tunnel

Two weeks after Union forces arrived to invest the Confederate defenders of Petersburg, the battle lines of both sides had settled into a stalemate. Since Cold Harbor, Lieut. Gen. Ulysses S. Grant was reluctant to mount a frontal attack against well-entrenched Confederates. By late June, Grant's lines covered most of the eastern approaches to Petersburg, but neither side seemed ready to risk an offensive move. Part of the Union line was held by Maj. Gen. Ambrose E. Burnside's Ninth Corps. Some of

Burnside's men were Pennsylvania miners, and they approached Burnside with a plan. They would tunnel underground from behind Union lines to a point underneath a Confederate position and fill the mine with explosives. When detonated, the resulting explosion would destroy a portion of the Rebel lines that could be exploited by infantry. Grant demurred but the digging began. On July 30th, after weeks of preparation, the Federals exploded the mine beneath a Confederate salient, blowing a gap in the defenses (see the crater that it produced- left above). At that point, everything deteriorated rapidly for the Union attackers. Unit after unit, most of whom were U. S. Colored Troops, charged into and around the crater, where most of them milled in confusion in the bottom of the crater. The Confederates quickly recovered and launched several counterattacks led by Maj. Gen. William Mahone. The break was sealed off, and the Federals were repulsed with severe casualties. Most of the black soldiers were badly mauled. Instead of ending the siege, both sides settled in for eight months of trench warfare. Burnside was relieved of command for his role in the debacle.

This is one of the most interesting uses of wood during the entire civil war. The mine was in a "T" shape. And it was lined with timber and wood pilings to keep it intact. The approach shaft was 511 feet (156 m) long, starting in a sunken area downhill and more than 50 feet (15 m) below the Confederate battery, making detection difficult. The tunnel entrance was narrow, about 3 feet (1 m) wide and 4.5 feet (1.4 m) high. At its end, a perpendicular gallery of 75 feet (23 m) extended in both directions. Grant and Meade suddenly decided to use the mine three days after it was complete after a failed attack known later as the **First Battle of Deep Bottom**. Union soldiers filled the mine with 320 kegs of gunpowder, totaling 8,000 pounds (3,600 kg). The explosives were approximately 20 feet (6 m) underneath the Confederate works and the T gap was packed shut with 11 feet (3 m) of earth in the side galleries and a further 32 feet (10 m) of packed earth in the main gallery to prevent the explosion blasting out the mouth of the mine. On July 28, the powder charges were armed.

The death of Turner Ashby, a rider for Stonewall Jackson

The tree in a drawing by James Taylor marks the place in the Shenandoah valley near Harrisonburg where General Ashby was shot. The tree was marked but by now no

one is sure if it still exists. By the way Turners book was discovered in a trunk in Cleveland Ohio in the mid 20 th century. It was then printed and it represents the best illustrated notebook and text from the entire war. Taylor's drawings are superb. Other trees as markers of the death of important civil war figures are exemplified by the white oak at Mill Spring Ky also in the Strobel collection.

Quinine Tree and Malaria in the Civil War

During the *American* civil war in 1861-1865, malaria accounted for 1,316,000 episodes of illness and 10,000 deaths. It has been estimated that 50% of the white soldiers and 80% of the black soldiers got malaria annually. The discovery of quinine as a treatment occurred about the same time. The source was *Cinchona pubescens* a small rubiaceaceous tree native to tropical Andean forests. In 1862, the second year of the American Civil War, Southerners took satisfaction in knowing that invading Union army troops would succumb to tropical diseases endemic to the South's bayous, swamps, and coastal regions. Just wait until summer, Southern newspapers predicted.

The first test of this theory came in April 1862 in Shiloh, Tennessee, where Union General William T. Sherman's forces met the enemy in a bloody battle. Before and after the fight, typhoid, diarrhea, scurvy, and the fevers associated with malarial diseases ravaged troops on both sides. One physician wrote, "The pestilential atmosphere of the country about Shiloh was producing an amount of sickness almost without parallel in the history of the war." In May, Sherman mustered only half of his 10,000 troops because the other half were sick.

Many Civil War commanders required that their soldiers take quinine prophylactically. A woodcut from the March 11, 1865, Harper's Weekly shows quinine rations being distributed to Union troops. Science History Institute

At Vicksburg, the disease-ravaged Union navy and army failed in its first attempt to capture the strategically important Southern city on the Mississippi River. One soldier observed that the gallinippers—slang for mosquitoes—were so thick about the camp that they "filled the air like rain drops." Mosquito nets, called bars, were not yet widely available, and soldiers exploded gunpowder cartridges in their tents to keep the pests away, unaware that they were the source of much of the illness gripping the

encampments. (It would be another 20 years before doctors began to suspect mosquitoes were to blame for malaria and yellow fever.) Almost three-quarters of the besieging Union troops were dead or too sick to work. Vicksburg's defenders were no better off, described by a Union army commander as "haggard & care-worn." One of the defending officers wrote, "The command suffers greatly from intermittent fever, and is generally debilitated from the long exposure and inaction of the trenches." Quinine is an alkaloid synthesized from the bark of cinchona, a tree native to South America. The Northern blockade of Southern ports made importing quinine difficult, and smuggling from Northern or European sources proved unreliable. Northerners had intercepted quinine in the heads of girls' dolls and found it stuffed within the intestines of slaughtered animals. The need for quinine was desperate. One South Carolinian wrote to her mother, "I write now to beg you to send in your next letter a quarter of an ounce of quinine. You know, in this climate, life depends upon quinine—and though large quantities come in every ship, it is taken up so immediately for the army that it is exceedingly difficult for private individuals to procure it even at a very high price." Confederate Surgeon General Samuel P. Moore, the man in charge of creating an entire medical infrastructure for the South, needed large quantities of quinine to relieve Southern soldiers of fevers, and he needed them fast. A 50-year-old veteran of the Mexican War, Moore knew the success of his army depended at least in part on a reliable supply of quinine. But where could he find it?

Moore's solution was to search for quinine equivalents among the flora of Southern fields and forests. He issued a directive to Confederate physicians to gather specific plants and send them for processing. But what plants native to the South would make good medicines?

In 1862 Moore summoned Porcher, a studious man in his late 30s, from his hospital duties for a special assignment. Porcher had all the credentials Moore needed. He was a descendant of the botanist Thomas Walter, who in 1788 published the first catalog of flowering plants in South Carolina. Porcher had graduated at age 19 from what is now the University of South Carolina with a thesis on botanical medicine, *A Medico-Botanical Catalogue of the Plants and Ferns of St. John's, Berkeley, South Carolina*, and took his medical degree from the Medical College of the State of South Carolina. In his 15 years of doctoring he had studied in France and Italy, founded a medical journal and a preparatory school for medical students, and joined the faculty of the Medical College.

He was fascinated by the medicinal applications of plants, and his wide-ranging experience as a physician equipped him with the analytical skills required for the job.

Although Moore had already put out a call for the collection of medicinally useful plants, he proposed that Porcher survey all Southern plants, shrubs, and trees and document all practical uses. Discovering a substitute for quinine was the priority.

A single female Anopheles mosquito was born in a stagnant pool of water, emerged, and joined millions of others following soldiers in camp and on the march during the warm 1862 summer. She dropped onto a soldier's neck and injected her proboscis into his flesh. Sporozoites (parasites) transmitted from a previous meal—from another soldier's infected blood—entered the new victim's bloodstream, carrying parasites into the liver of the soldier. During an incubation period of one to two weeks the merozoites (transformed sporozoites) grew within blood cells, causing sickness. As the parasites multiplied, they slowed the flow of blood and brought on fevers, profuse sweating, violent shivering, aches, nausea, and chills. Symptoms lasted for many hours and returned periodically, even daily.

Not until 1880 would a physician discover the single-cell *Plasmodium* parasites that cause malaria, and their carrier would not be confirmed as the mosquito until the end of the century. Although malaria was usually not fatal, during the Civil War its symptoms debilitated whole regiments of soldiers, while malaria's perceived close cousin, yellow fever, was deadly.

Just as the war began, *Scientific American* published an anonymous essay on what was then known and unknown about malaria, reflecting both an outlook recognizable to modern eyes and an older medical ideology. The origin of the word *malaria*—bad air—reflects this ideology. The essay observes frankly,

What malaria is nobody knows. It may consist of organisms, either animal or vegetable, too minute for even the microscope to detect or it may be some condition of the atmosphere in relation to electricity, or temperature, or moisture; or it may be a gas evolved in the decay of vegetable matter. The last is the most common hypothesis, but it is by no means proved. . . . There is no doubt, however, that malaria is some mysterious poison in the atmosphere.

The essay describes various types or stages of “malarious disease,” from its mildest symptoms—intermittent fever or “dumb ague”—to its most common, “the ordinary fever

and ague,” which produces violent shivering. The unknown author wrote that two substances had proven effective in either preventing or curing malarious disease: one, “a harmless vegetable substance,” cinchona bark, which has been known for centuries, and its quinine derivative; and the other, “one of the most terrible and deadly of the metallic poisons,” arsenic. Quinine did not cure the disease, but suppressing its symptoms was enough to keep a Civil War army on the march and in combat.

Wooden Grave Markers

A sad but important use of wood was for grave markers used by both the confederates and federals (below). Most of the time these markers were temporary but some were not replaced with stone markers. In the case of the thousands of dead being identified at Andersonville prison, Dorence Atwater was one of the first prisoners there and was given an assignment to identify and keep a record of all who died. He did this by placing a small piece of wood on each corpse carrying an identification number. He actually kept three records including one for the confederacy, one for the union and one for himself which he carried out in a laundry bag when he left Andersonville. In 1805 he returned to the prison with thousands of wooden markers to be placed on the graves of the reinterred. Accompanying him were Ms Barton and Mr. Moore. His efforts had been so well done that only a small percentage of the dead went unidentified when they were buried or sent home. Some examples of wooden grave markers of the civil war era are shown below.

Finally, it is noteworthy that as Thomas Stonewall Jackson lay dying of his wounds and pneumonia at Guinea Station, Virginia (below) in early May of 1862 the last words that he uttered were “ **no, no let us cross over the river and rest under the shade of the trees”**

How I Acquired Civil War Witness Wood

Although most of the wood in the collection was obtained by myself on a series of trips to the various battlefields, some was kindly sent by US-NPS personnel. Other pieces were sent by State park people or from private fields such as that at Franklin, Tn. Invariably the question is asked “How did you convince those people to identify, pack up

and send the wood?" It is to be noted that there are about 10,000 civil war battlefields ranging from California to Pennsylvania.

All of the critical and significant battlefields are represented in this collection and it would take several lifetimes to acquire representatives from all of the battlefields. Gettysburg, Shiloh, Vicksburg, Appomattox, Fredericksburg, Antietam and others in Virginia are considered the main battlefields. I have visited all of these major fields. As for the others in such places as Ft Blakeley in Alabama I would call and indicate that I am a professor at Montana State University. That statement would establish to the listener that I had some degree of knowledge. Then I would blurt out that I had recently visited my sister living in Nashville who took me to see the Carter house at Franklin Tn. I would sincerely tell the listener that it was at that place that I caught a dread disease called "civil war mania." Then I would ask if they knew anything about the disease and on all occasions the listener and I would start laughing. I coursed on with a discussion about how many books have been written about the war and that I had a stack over 40 feet high. I would indicate that I was not about to write another one. But I that I has another approach and that is to obtain witness wood from dead tree limbs or other woods that may have been present at the time of the battle and then I would make a fountain pen from the piece and place it in my collection. I would then indicate that I was willing to make a pen for the contact person, the chief of the battlefield and other pieces to be sold at the gift shop. I volunteered to do this at my expense. Invariably I would get a favorable response and eventually the wood arrived at the home or university address. I did not have success at places in which there were no witness trees or at a few National Park Service battlefields in which I would be quoted or sent the 50 or so pages of general park regulations on keeping the areas pristine but with the caveat that the superintendent had the authority to authorize the use of dead wood for the making of campfires by the visiting public but not a small piece of wood for an old Montana fella who makes pens !!

Costs

To acquire some woods to make the pens in the collection I had to locate and buy pen blanks from reputable sources such as historic woods of Fredericksburg, Va. These ranged up to \$100 per blank. This was also true for woods from Nashville such as Mr. Jim Kay. In other cases, I was sent wood from witness trees by the caretaker of the property such as the Franklin Trust and I promised them that I would make a multitude of

pens from their wood to be eventually sold in their gift shop. Other places for which I make gratis pens for their gift shop include Richmond, Appomattox, Mill Springs, Ky., The Heyward house S.C., Warren county court house, MS., Ft Blakeley in Alabama and Bentonville in N.C. Red Hill Virginia, Avoca, Virginia, and others. Sometimes these arrangements ended up being quite expensive since I have made many pens for their gift shop at my own expense representing a substantial cost especially as they continued to reorder. Literally thousands of dollars in pen sales have been contributed to the preservation of America's civil war battlefield sites and other historic sites (Avoca Va. and Red Hill Va. as a result of pen sales.

In most cases I actually traveled to the civil war battlefield site and located and acquired a bit of the witness tree. The costs of such trips ran into thousands of dollars for which the cost of an individual pen is still in the range of \$100 -\$200 or more. Trips were made to Tennessee, Mississippi, Virginia, Georgia, Alabama, Maryland, and Pennsylvania, Arkansas and Missouri and others. Still other trips are being planned. Since the battlefields sites are so numerous, I don't expect to reach them all but I do intend to have wood samples from the most important and better known locations such as ye ole house oak at Blakeley, Alabama live oak tree

The pen kits used were entirely from Craft Supplies in Provo Utah. The chrome Artisan Jr Gents fountain pen kit was used in all the standard civil war series pens and its cost was in the \$14.00 range per kit. In the revolutionary war period/ overlapping civil war era pens some of them were made from the rhodium Artisan Jr Gents fountain pen kits that range up to \$24 per kit. The pen finish was the Shellawax system in the majority of cases but sometimes I used the acrylic finish when the integrity of the wood was questionable.

Risks in Acquiring the Wood

The first job in getting wood was to locate the target tree in the battlefield area. Sometimes help was provided and other times I located the tree with the help of a dedicated search on Google earth (street view) or by asking questions of the NPS, state park people, or locals who were familiar with the old historic trees in the area. In the case of each tree (pen) a description and a brief story is told on how that individual witness wood was recovered the text page that represents that tree. Invariably, once the tree was located, I would first try to find limbs that had died and been broken off by wind

or other means. If that was not possible I would find lower dead limbs and break, or saw them from the trunk of the tree. Only small pieces were needed but larger samples were taken in case some of the wood had rotted beyond use. This sounds like an easy task but sometimes the target tree was flanked by dense growths of poison ivy or a thicket of briars and brambles which would severely inhibit any forward progress. Most of the time a huge effort would be made only to learn that the targeted sample was in a total state of decay. Although some decay was desirable since having mottled or spalded wood makes a nice final product. In one case, at Wilson' creek Mo, the best known witness tree close to the point where the first Union general of the entire civil war to die –General N. Lyon, the dead chestnut oak had a very active bee hive at about breast high. Trying to even get close to the tree was nearly impossible. I used other dead limbs to pull away intact targeted limbs. At Mine creek in Kansas, the trails that I followed were strewn with spider webs that also hosted their architects. Ants, termites, wasps, ticks and chiggers were also commonly encountered. In fact, the trunk of the car after the Ark, Mo, KS, Ok trip were strewn with ticks of all sizes. Suzan had to do a nightly body check on me. This is not to mention the untold numbers of biting and sucking insects that commonly attacked me including mosquitoes and horse flies. On a trip to NW Georgia we collected wood that was totally infested with termites as well as ants and as they realized their home was endanger they departed the wood and proceeded to infest the car with their bodies. What a problem! Overall, many challenging but rewarding experiences!

Guarantee

Each pen in the collection I hereby attest is from the source and location as indicated on the pen and on the provenance sheet in the corresponding notebook. Each pen was made in its entirety by Gary Strobel. Each pen is not signed but is made distinctly with a slightly protruding top end beneath the pen clip which is a unique Gary Strobel construction.

Professor Gary Strobel

