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DISUNION

The Civil War's Environmental Impact

By **Ted Widmer** November 15, 2014 2:30 pm

Disunion follows the Civil War as it unfolded.

The Civil War was the most lethal conflict in American history, by a wide margin. But the conventional metric we use to measure a war's impact – the number of human lives it took – does not fully convey the damage it caused. This was an environmental catastrophe of the first magnitude, with effects that endured long after the guns were silenced. It could be argued that they have never ended.

All wars are environmental catastrophes. Armies destroy farms and livestock; they go through forests like termites; they foul waters; they spread disease; they bombard the countryside with heavy armaments and leave unexploded shells; they deploy chemical poisons that linger far longer than they do; they leave detritus and garbage behind.

As this paper recently reported, it was old rusted-out chemical weapons from the 1980s that harmed American soldiers in Iraq – chemical weapons designed in the United States, and never properly disposed of. World War II's poisons have been leaching into the earth's waters and atmosphere for more than half a century. In Flanders, farmers still dig up unexploded shells from World War I.

Now, a rising school of historians has begun to go back further in time, to chronicle the environmental impact of the Civil War. It is a devastating catalog.

The war may have begun haltingly, but it soon became total, and in certain instances, a war upon civilians and the countryside as well as upon the opposing forces. Gen. William T. Sherman famously explained that he wanted the people of the South to feel “the hard hand of war,” and he cut a wide swath on his march to the sea in November and December 1864. “We devoured the land,” he wrote in a letter to his wife.

Gen. Philip H. Sheridan pursued a similar scorched-earth campaign in the Shenandoah Valley in September and October 1864, burning farms and factories and anything else that might be useful to the Confederates. Gen. Ulysses S. Grant told him to “eat out Virginia clear and clear as far as they go, so that crows flying over it for the balance of the season will have to carry their provender with them.”

But the war’s damage was far more pervasive than that. In every theater, Northern and Southern armies lived off the land, helping themselves to any form of food they could find, animal and vegetable. These armies were huge, mobile communities, bigger than any city in the South save New Orleans. They cut down enormous numbers of trees for the wood they needed to warm themselves, to cook, and to build military structures like railroad bridges. Capt. Theodore Dodge of New York wrote from Virginia, “it is wonderful how the whole country round here is literally stripped of its timber. Woods which, when we came here, were so thick that we could not get through them any way are now entirely cleared.”

Northern trees were also cut in prodigious numbers to help furnish railroad ties, corduroy roads, ship masts and naval stores like turpentine, resin, pitch and tar. 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.

When the armies discharged their weapons, it was even worse. In the aftermath of a great battle, observers were dumbstruck at the damage caused to farms and forests. A New York surgeon, Daniel M. Holt, was at the Battle of Spotsylvania Court House in 1864, and wrote, “Trees are perfectly riddled with bullets.” Perhaps no battle changed the landscape more than the Battle of the

Crater, in which an enormous, explosive-packed mine was detonated underneath Confederate lines and left 278 dead, and a depression that is still visible.

Still, the weapons used were less terrible than the weapons contemplated. Chemical weapons were a topic of considerable interest, North and South. A Richmond newspaper reported breathlessly on June 4, 1861, “It is well known that there are some chemicals so poisonous that an atmosphere impregnated with them, makes it impossible to remain where they are by filling large shells of extraordinary capacity with poisonous gases and throwing them very rapidly.” In May 1862, Lincoln received a letter from a New York schoolteacher, John W. Doughty, urging that he fill heavy shells with a choking gas of liquid chlorine, to poison the enemy in their trenches. The letter was routed to the War Department, and never acted upon, but in 1915, the Germans pursued a similar strategy at Ypres, to devastating effect.

But the land fought back in its way. Insects thrived in the camps, in part because the armies destroyed the forest habitats of the birds, bats and other predators that would keep pest populations down. Mosquitoes carried out their own form of aerial attack upon unsuspecting men from both sides. More than 1.3 million soldiers in the Union alone were affected by mosquito-borne illnesses like malaria and yellow fever. An Ohio private, Isaac Jackson, wrote, “the skeeters here are – well, there is no use talking ... I never seen the like.” Flies, ticks, maggots and chiggers added to the misery.

The army camps were almost designed to attract them. Fetid latrines and impure water bred disease and did more to weaken the ranks than actual warfare. Some 1.6 million Union troops suffered from diarrhea and dysentery; Southern numbers were surely proportional. Rats were abundantly present on both sides, carrying germs and eating their way through any food they could find.

Probably the worst places of all were the prisoner camps. A Massachusetts private, Amos Stearns, wrote a two-line poem from his confinement in South Carolina: “A Confederate prison is the place/Where hunting for lice is no disgrace.” Some Alabama prisoners in a New York prison made a stew of the prison’s rat population. (“They taste very much like a young squirrel,” wrote Lt. Edmund D. Patterson.)

Smart soldiers adapted to the land, using local plants as medicines and food and taking shelter behind canebrakes and other natural formations. In this, the Southerners surely had an advantage (a Georgia private, William R. Stillwell, wrote his wife facetiously of Northern efforts to starve the South: “You might as well try to starve a black hog in the piney woods”). But the better Northern soldiers adapted, too, finding fruits, nuts and berries as needed. A Vermont corporal, Rufus Kinsley, making his way through Louisiana, wrote, “not much to eat but alligators and blackberries: plenty of them.” Shooting at birds was another easy way to find food; a Confederate sergeant stationed in Louisiana, Edwin H. Fay, credited local African-Americans with great skill at duck-hunting, and wrote his wife, “Negroes bring them in by horseback loads.”

Nevertheless, the Northern effort to reduce the food available to Southern armies did take a toll. In the spring of 1863, Robert E. Lee wrote, “the question of food for this army gives me more trouble than anything else combined.” His invasion of Pennsylvania was driven in part by a need to find new ways to feed his troops, and his troops helped themselves to food just as liberally as Sherman’s did in Georgia, appropriating around 100,000 animals from Pennsylvania farms.

While the old economy was adapting to the extraordinary demands of the war, a new economy was also springing up alongside it, in response to a never-ceasing demand for energy – for heat, power, cooking and a thousand other short-term needs. As the world’s whale population began to decline in the 1850s, a new oily substance was becoming essential. Petroleum was first discovered in large quantities in northwestern Pennsylvania in 1859, on the eve of the war. As the Union mobilized for the war effort, it provided enormous stimulus to the new commodity, whose uses were not fully understood yet, but included lighting and lubrication. Coal production also rose quickly during the war. The sudden surge in fossil fuels altered the American economy permanently.

Every mineral that had an industrial use was extracted and put to use, in significantly larger numbers than before the war. A comparison of the 1860 and 1870 censuses reveals a dramatic surge in all of the extractive industries, and every sector of the American economy, with one notable exception – Southern agriculture, which would need another decade to return to prewar levels. These developments were interpreted as evidence of the Yankee genius for industry, and

little thought was given to after-effects. The overwhelming need to win the war was paramount, and outweighed any moral calculus about the price to be borne by future generations. Still, that price was beginning to be calculated – the first scientific attempt to explain heat-trapping gases in the earth’s atmosphere and the greenhouse effect was made in 1859 by an Irish scientist, John Tyndall.

Other effects took more time to be noticed. It is doubtful that any species loss was sustained during the war, despite the death of large numbers of animals who wandered into harm’s way: It has been speculated that more than a million horses and mules were casualties of the war. But we should note that the most notable extinction of the late 19th century and early 20th century – that of the passenger pigeon – began to occur as huge numbers of veterans were returning home, at the same time the arms industry was reaching staggering levels of production, and designing new weapons that nearly removed the difficulty of reloading. The Winchester Model 66 repeating rifle debuted the year after the war ended, firing 30 times a minute. More than 170,000 would be sold between 1866 and 1898. Colt’s revolvers sold in even higher numbers; roughly 200,000 of the Model 1860 Army Revolver were made between 1860 and 1873. Gun clubs sprang up nearly overnight; sharpshooters become popular heroes, and the National Rifle Association was founded by two veterans in 1871.

History does not prove that this was the reason for the demise of the passenger pigeon, a species that once astonished observers for flocks so large that they darkened the sky. But a culture of game-shooting spread quickly in the years immediately after the war, accelerated not only by widespread gun ownership, but by a supply-and-demand infrastructure developed during the war, along the rails. When Manhattan diners needed to eat pigeon, there were always hunters in the upper Midwest willing to shoot at boundless birds – until suddenly the birds were gone. They declined from billions to dozens between the 1870s and the 1890s. One hunt alone, in 1871, killed 1.5 million birds. Another, three years later, killed 25,000 pigeons a day for five to six weeks. The last known passenger pigeon, Martha, died on Sept. 1, 1914.

That was only one way in which Americans ultimately came to face the hard fact of nature’s limits. It was a fact that defied most of their cultural assumptions about the limitless quality of the land available to them. But it was a fact all the

same. Some began to grasp it, even while the war was being fought. If the fighting left many scars upon the land, it also planted the seeds for a new movement, to preserve what was left. As the forests vanished, a few visionaries began to speak up on their behalf, and argue for a new kind of stewardship. Though simplistic at first (the word “ecology” would not be invented until 1866), it is possible to see a new vocabulary emerging, and a conservation movement that would grow out of these first, halting steps. Henry David Thoreau would not survive the war – he died in 1862 – but he borrowed from some of its imagery to bewail a “war on the wilderness” that he saw all around him. His final manuscripts suggest that he was working on a book about the power of seeds to bring rebirth – not a great distance from what Abraham Lincoln would say in the Gettysburg Address.

Another advocate came from deep within Lincoln’s State Department – his minister to Italy, George Perkins Marsh, a polymath who spent the Civil War years working on his masterpiece, “Man and Nature,” which came out in 1864. With passion and painstaking evidence, it condemned the unthinking, unseeing way in which most Americans experienced their environment, dismissing nature as little more than a resource to be used and discarded. Marsh was especially eloquent on American forests, which he had studied closely as a boy growing up in Vermont, and then as a businessman in lumber. With scientific precision, he affirmed all of their life-giving properties, from soil improvement to species diversification to flood prevention to climate moderation to disease control. But he was a philosopher too, and like Thoreau, he worried about a consumerist mentality that seemed to be conducting its own form of “war” against nature. In a section on “The Destructiveness of Man,” he wrote, “Man has too long forgotten that the earth was given to him for usufruct alone, not for consumption, still less for profligate waste.”

Slowly, the government began to respond to these voices. After some agitation by the landscape architect Frederick Law Olmsted, then living in California, a bill to set aside the land for Yosemite National Park was signed by Abraham Lincoln on June 30, 1864. The land was given to California on the condition that the land “shall be held for public use, resort, and recreation” and shall, like the rights enshrined by the Declaration, be “inalienable for all time.” In 1872, even more land would be set aside for Yellowstone.

Southerners, too, expressed reverence for nature. On Aug. 4, 1861, General Lee

wrote his wife from what is now West Virginia, “I enjoyed the mountains, as I rode along. The views are magnificent – the valleys so beautiful, the scenery so peaceful. What a glorious world Almighty God has given us. How thankless and ungrateful we are, and how we labour to mar his gifts.”

But neither he nor his fellow Southerners were able to resist a second invasion of the South that followed the war – the rush by Northern interests to buy huge quantities of forested land in order to fill the marketplace for lumber in the decades of rebuilding and westward migration that ensued, including the fences that were needed to mark off new land, the railroads that were needed to get people there, and the telegraph lines that were needed to stay in communication with them. Railroad tracks nearly tripled between 1864 and 1875, to 90,000 miles in 1875 from 32,000 miles in 1864. Between 1859 and 1879 the consumption of wood in the United States roughly doubled, to 6.84 billion cubic feet a year from 3.76 billion. Roughly 300,000 acres of forests a year needed to be cut down to satisfy this demand.

The historian Michael Williams has called what followed “the assault on Southern forests.” As the industry exhausted the forests of the upper Midwest (having earlier exhausted New England and New York), it turned to the South, and over the next generation reduced its woodlands by about 40 percent, from 300 million acres to 178 million acres, of which only 39 million acres were virgin forest. By about 1920, the South had been sufficiently exploited that the industry largely moved on, leaving a defoliated landscape behind, and often found loopholes to avoid paying taxes on the land it still owned. In 1923, an industry expert, R.D. Forbes, wrote, “their villages are Nameless Towns, their monuments huge piles of saw dust, their epitaph: The mill cut out.”

Paradoxically, there are few places in the United States today where it is easier to savor nature than a Civil War battlefield. Thanks to generations of activism in the North and South, an extensive network of fields and cemeteries has been protected by state and federal legislation, generally safe from development. These beautiful oases of tranquility have become precisely the opposite of what they were, of course, during the heat of battle. (Indeed, they have become so peaceful that Gettysburg officials have too many white-tailed deer, requiring what is euphemistically known as “deer management,” as shots again ring out on the old

battlefield.) They promote a reverence for the land as well as our history, and in their way, have become sacred shrines to conservation.

Perhaps we can do more to teach the war in the same way that we walk the battlefields, conscious of the environment, using all of our senses to hear the sounds, see the sights and feel the great relevance of nature to the Civil War. Perhaps we can do even better than that, and summon a new resolve before the environmental challenges that lie ahead. As Lincoln noted, government of the people did not perish from the earth. Let's hope that the earth does not perish from the people.

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Sources: Joseph K. Barnes, ed., "The Medical and Surgical History of the War of the Rebellion"; Andrew McIlwaine Bell, "Mosquito Soldiers: Malaria, Yellow Fever and the Course of the American Civil War"; Lisa Brady, "The Future of Civil War Era Studies: Environmental Histories"; Lisa M. Brady, "War Upon the Land: Military Strategy and the Transformation of Southern Landscapes During the American Civil War"; Robert V. Bruce, "Lincoln and the Tools of War"; Eighth Census of the United States (1860); Drew Gilpin Faust, "This Republic of Suffering: Death and the American Civil War"; Paul H. Giddens, "The Birth of the Oil Industry"; Frances H. Kennedy, ed., "The Civil War Battlefield Guide"; Jack Temple Kirby, "The American Civil War: An Environmental View"; David Lowenthal, "George Perkins Marsh: Prophet of Conservation"; Manufactures of the United States in 1860, Compiled from the Original Returns of the Eighth Census; George P. Marsh, "Man and Nature: or, Physical Geography as Modified by Human Action"; Kathryn Shively Meier, "Nature's Civil War: Common Soldiers and the Environment in 1862 Virginia"; Megan Kate Nelson, "Ruin Nation: Destruction and the American Civil War"; Kelby Ouchley, "Flora and Fauna of the Civil War"; Jennifer Price, "Flight Maps: Adventures with Nature in Modern America"; Jeff L. Rosenheim, "Photography and the American Civil War"; Henry D. Thoreau, "Faith in a Seed: The Dispersion of Seeds and Other Late Natural History Writings"; Michael Williams, "Americans and their Forests: A Historical Geography"; Harold F. Williamson, "Winchester, the Gun that Won the West"; R.L. Wilson, "Colt: An American Legend." Thanks to Sam Gilman for

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Correction: November 15, 2014

An earlier version of this post misstated the year of Gen. Philip H. Sheridan's campaign in the Shenandoah Valley. It was in 1864, of course, not 1964.

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