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# LANDMINES IN AMERICA'S BACKYARD

Background image courtesy of Thomas Nast, Harper's Weekly, September 20, 1862.

By Kenneth R. Rutherford, Ph.D. [ James Madison University ]



Landmine exploding among Union troops at Yorktown, VA. Sketch courtesy of A.R. Waud, Harper's Weekly, May 24, 1862.

Few realize the world's first widespread deployment of landmines took place during the American Civil War (1860–1865). At the start of the Civil War, the disparity in military manpower, materiel, and weaponry between the North and South was significant. The gap widened in the Union's favor as the war progressed, forcing the Confederate war industry to innovate and improvise. That was especially true with landmines. As the conflict progressed, landmine warfare advanced commensurately, and both tactics and technology evolved to include innovative types of design and deployment. During the war's later years, Confederate soldiers used both command-

detonated and victim-activated landmines more frequently to defend and to protect static positions, including cities.<sup>1</sup>

At the outset of the Civil War in April 1861, the United States war strategy emphasized the occupation of key Southern harbors, the conquest of the Mississippi River to divide the enemy, and the establishment of a naval blockade around the Confederacy. Within a few years, the Union had established a fairly tight blockade along the coast, and it was no longer possible for the Confederacy to export cotton in large quantities. The South's "white gold" failed to produce the income needed to help prevent the depreciation of its currency and fund the war effort.

The South's economy was based on agriculture, and there were few industries capable of producing the war materials the Confederate government needed to fight the war ahead; thus, it had no choice but to seek more creative ways to fight, including leveraging low-cost weapons with minimal material input. One of the solutions to holding key pieces of Southern territory was the development of landmines from a variety of artillery shells, with increased technological ingenuity adapted to local circumstances. Confederate soldiers eventually configured spur-of-the-moment landmines in a relatively ad-hoc manner. Details were rarely written down, and most of what was recorded was destroyed near the end of the war to avoid the possibility of some leading advocates being charged as war criminals. The simplicity and cost-effectiveness of landmines made their continued use attractive. Today we call these buried or hidden artillery rounds improvised explosive devices or IEDs.<sup>2</sup>

Despite the expanding development and use of landmines, many American military officers, both Confederate and Union, looked upon them with intense disfavor. Landmines were disparaged as the "tools of cowards or offenses against democracy and civilized warfare."<sup>3</sup> Opposition within the Confederacy's high command, especially by Gen. Joseph E. Johnston and Lt. Gen. James Longstreet, abated as the war progressed and Confederates became increasingly desperate to defend their shrinking territory. The arguments against landmine use—at least on the Confederate side—dissipated relatively quickly, and mines came to be viewed as a legitimate, highly-effective, low-cost weapon and methodology of war.

In 1863, the Confederate high command and Congress allocated US\$100,000 to establish the Army Torpedo Bureau, which became the world's first institution devoted to landmine warfare. Led by Brig. Gen. Gabriel Rains, a creative and innovative military engineering officer, the bureau offered a new and prophetic philosophy of modern, technological landmine warfare. The organization itself was relatively decentralized. Typically, a single officer (or sometimes two) would oversee

	Command	Trip Wire	Pressure	Nuisance	Delay
Battery Wagner (SC)			X		
Jackson (MS)			X		X
Fort Blakely (AL)		X	X		
Fort Esperanza (TX)			X		
Fort Fisher (NC) <sup>i</sup>	X				
Fort Gilmer (VA)			X		
Fort Harrison (VA)			X		
Fort Johnson (VA)			X		
Fort McAllister (GA)			X		
Fort McDermott (AL) <sup>ii</sup>			X		
Fort Sumter (SC)			X		
Georgia (southeastern region—late 1864) <sup>iii</sup>			X		X
North Carolina (southeastern region—early 1865)			X		X
Port Hudson (LA) <sup>iv</sup>	X		X		
Spanish Fort (AL)			X	X	
Williamsburg (VA)			X		X
Yellow Tavern (VA)	X	X			X
Yorktown (VA)		X	X	X	X

Table 1. Tactical landmine uses during the American Civil War.

landmine deployment, implementing tactical plans involving the use of home guard units, members of the public, and slave laborers. In such cases, the men of the Torpedo Bureau had wide discretion in how they deployed mines. Once given an order to use landmines, lower-ranking Confederate officers and their troops were able to improvise, usually in a spontaneous act of self-preservation, with adequate time to deploy the mines against often overwhelming Federal forces. The result was the varied deployment of increasingly sophisticated explosive devices and innovative landmine warfare tactics near fortifications and on main invasion routes.

It wasn't until the following year, in 1864, however, that landmines became truly reliable in the field. The Confederacy's efforts were aided by the invention of the Rains fuse, the innovative engineering technology of the Fretwell-Singer torpedoes, the creation of the Torpedo Bureau, and the industrial manufacturing of landmines as opposed to improvising them on the fly.

The Confederates developed two ways to detonate a landmine: victim-activation and command-detonation. Victim-activated (also known as contact-detonated) mines were the easiest to detonate because victims inadvertently triggered them. They were made by coupling a shell and a percussion cap or, later in the war, a purposefully-manufactured detonator. In a postwar memoir about his combat experience, Union surgeon S. W. Gross described the victim-activated landmines as

*simply large shells arranged with levers connected with a percussion fuze and sunk below the surface of the ground in the supposed path of an assailing party. A pressure of the foot upon the concealed lever was sufficient to explode the shell, resulting in effects similar to the bursting of a like projectile under ordinary circumstances.*<sup>4</sup>

As the first and only head of the Torpedo Bureau, General Rains invented a pressure-sensitive fuse that was much more reliable than previous designs. The Rains fuse could be dialed to various pressures but was eventually stabilized at seven pounds.<sup>5</sup> Victim-activated landmines, including many with the Rains fuse, were used to reinforce defensive devices in such fortifications as Battery Wagner, South Carolina; Fort Blakeley, Alabama; Fort McAllister, Georgia; Spanish Fort, Alabama; the forts at Chaffin's Farm, Virginia; and places such as Jackson, Mississippi, and Williamsburg and Yorktown, Virginia. They were utilized less successfully between Kinston and Goldsboro, North Carolina, in March 1865.

The second type of landmine—which was infrequently used—was a command-detonated device (see Table 1). These were activated by human control through a priming charge with an electrical current or pull wires that would cause a friction-sensitive mixture to ignite. This system required some manner of connection between the person firing the device and the device itself. Although they gave the operator more control, use of command-detonated landmines faced several challenges, including a lack of materials, faulty technology, and inadvertent cutting of the wires by artillery fire or other means. In this friction-primer system, a wire was

pulled through a small tube (usually copper) filled with an explosive substance (usually fulminate of mercury) and small grain black powder, which, in turn, created a spark that ignited the powder; the main charge of black powder was then ignited.<sup>6</sup>



Thirty-two lb landmine, Confederate Army, American Civil War, Fort McAllister (GA) State Park Museum, 1864.



**PRISONERS OF WAR**

As a countermeasure to landmines, Union commanders marched prisoners of war (POWs) ahead of their own troops to identify or detonate landmines deployed by other Confederates or Southern sympathizers (see Table 2). Landmine warfare outraged Union generals such as Philip H. Sheridan and William T. Sherman, and Federal officers frequently took revenge by ordering Confederate soldiers to dig up the landmines. If they refused, they risked execution. In at least six post-fighting situations, Federal forces pressed POWs to clear their own landmines, with occasionally fatal results.<sup>7</sup>

One of the incidents where Confederate POWs were forced to clear their own mines took place in Georgia. After capturing Atlanta on 2 September 1864, Union Major-General William Sherman drove deep into Georgia, destroying the state's resources and the will of its people to fight as he made his way to the important coastal city of Savannah. "I can make the march," Sherman wrote, "and make Georgia howl."<sup>8</sup>

Confederate President Jefferson Davis pressured his generals in Georgia to use landmines as way to obstruct "roads by every practicable means" to delay Sherman's march for as long as possible.<sup>9</sup> As a result, many of Sherman's soldiers "were killed or horribly mangled, or both, by torpedoes [victim-activated landmines] buried near the surface of the roads, railroads and paths, and at all places where men were likely to march."<sup>10</sup>

The manner of the wounds enraged Sherman. "This was not war," he fumed, "but murder." He ordered Confederate prisoners brought up "from the rear of the brigade," told his "soldiers to get a proper distance away," and "directed the prisoners with picks and spades to find the other torpedoes." According to Sherman, he "made them march in close order along the road, so as to explode their own torpedoes, or to discover and dig them up. The Rebel prisoners, he wrote, "begged hard, but I reiterated the order, and could hardly help laughing at their stepping so gingerly along the road, where it was supposed sunken torpedoes might explode at each step, but they found no other torpedoes till near Fort McAllister [near Savannah]."<sup>11</sup>

**UNEXPLODED LANDMINES AND CIVILIAN CASUALTIES**

Throughout the long war, Confederate soldiers seized stockpiles captured on battlefields or collected unexploded ordnance (UXO) from within their own defensive perimeters in order to use the material as their own ordnance or to convert it into landmines. Sometimes these unexploded shells were "shipped to an arsenal for refitting with copper time fuse adapters and sometimes resorted and/or converted from shell to case shot."<sup>12</sup>

Surprisingly, few civilian casualties were caused by landmines, either during or after the war.<sup>13</sup> A possible reason is that most landmines were laid away from crowded inhabited areas.<sup>14</sup> In fact, most Civil War landmines were used at forts that are some distance from today's urban areas. Many of the forts were purposefully constructed away from the cities they were used to protect—they were designed to provide a first-tier defense so cities could buy time "for the transportation of more defensive forces and/or the 'calling out' of a militia defensive force."<sup>15</sup>

Location	Confederate POWs forced to clear landmines immediately after the fighting ended	Confederate POWs forced to march at head of Federal columns on known landmine infested roads
Jackson (MS)	X	
Fort Blakeley (AL)	X	
Fort McAllister (GA)	X	
Georgia (southeastern region—late 1864)	X	X
Port Hudson (LA)	X	
Spanish Fort (AL)	X	
Yellow Tavern (VA)	X	X
Yorktown (VA)	X	

Table 2. Prisoners of war clearance operations chart.

Some of the unrecovered UXO inflicted civilian casualties. A Union prisoner being held in a Charleston jail, for example, witnessed UXO clearance casualties:

*I saw two men and a Negro boy who had been killed while unearthing one of our shells. They tried to break off the copper ring with an axe! The thing burst, tearing them to pieces. I hear that several boys have been killed in this way—they pay dearly for their stupidity.<sup>16</sup>*

For a few decades after the war, landmines killed and injured Southerners as they walked through woods or flower-filled fields once defended by Confederate infantry.<sup>17</sup> Thankfully, civilian casualties from this type of ordnance and landmines were low during and after the Civil War. From 1958 through 2006, for example, there were only two known fatalities due to disarming Civil War ordnance.<sup>18</sup>

After the American Civil War ended in 1865, Americans would not deploy landmines on a widespread basis for seventy-six years until World War II. Unfortunately, the deadly legacy of landmines would become a global humanitarian crisis by the end of the 20th century, killing or maiming more than 26,000 people per year, primarily civilians.<sup>19</sup>

**INSURGENCY**

One of the notable aspects of landmine use during the Civil War was their lack of employment by guerilla or insurgent forces (although



Plaque commemorating Confederate landmines near Fort McAllister, Georgia Historical Commission.



A Rains Fuse, Richmond (VA) National Battlefield Park Headquarters.

some may well have wanted to use them). Most likely this was because the Confederate Army kept the limited number of landmines solely for its own purposes. Improvised landmine production involving the conversion of artillery shells was simply too time consuming and burdensome for guerilla forces, who were usually on the move.

### MINE WARFARE: A LASTING LEGACY

By the end of the Civil War in 1865, the Confederates had developed the technical forerunners of many modern landmine and fuze types. Other landmine-related innovations included their deployment to cover retreating forces, the use of nuisance mines to inflict casualties behind enemy lines, and the creation of various types of improvised and manufactured landmines.

Despite the Confederacy's efforts, landmines did not change the outcome of a single major battle, although they did delay pursuing Federals and gave Confederates time to escape at Yorktown and

Williamsburg, Virginia, and Jackson, Mississippi. Even in the presence of minefields, Union troops managed to carry out several successful assaults by digging trenches across the fields, including at Battery Wagner outside Charleston, South Carolina.<sup>20</sup>

This article is based on my book, *America's Buried History: Landmines in the Civil War*, which further details how landmine development and the tactics of employing them began and evolved during the Civil War, and how the war's progression mirrored mine development on land and sea. As strange as it sounds today, it was an alliance of a few professionally trained soldiers, ill-equipped home guard units, businessmen, and Masonic members who developed and improved the use of landmines across the Confederacy—a harbinger of future warfare in countries around the world.

Landmines and their antecedents, especially those with origins in the American Civil War, have been widely used through both world wars and in many modern conflicts. After the American Civil War ended in 1865, Americans would not deploy landmines on a widespread basis for seventy-six years until World War II. Their prolific use continues to kill and maim thousands of innocent victims every year. In 2019, according to the *Landmine and Cluster Munition Monitor*, fifty-nine countries—each having more than 100 square kilometers of contaminated land—still reported having landmines: Afghanistan, Angola, Bosnia and Herzegovina, Cambodia, Chad, Croatia, Iraq, Thailand, Turkey, and Yemen.<sup>21</sup> Those used in the 20th and 21st centuries have caused tens of thousands of civilian casualties. The resulting international outrage transformed into a highly-effective global movement to ban landmines and made finding, clearing, and destroying mines a multimillion-dollar business. ©

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**Foreground:** Confederate Percussion Mine. Five percussion primers. Conical tin case, 17.25" long. Captured by Federal forces in Richmond, VA, in April 1865 during the Confederate evacuation of its capital city.

**Middle:** Confederate Percussion Mine. Fretwell-Singer type. Tapered tin case, 13.5" x 0.48". Spring loaded hammer on rod at top. Acquired in operations against Richmond and Petersburg, May 1864–April 1865. Presumably made in the Confederate mine factory in Richmond, VA.

**Back Right:** Confederate Friction Mine. Tin cylindrical case, 17" x 11" pierced by iron rod through axis terminate by ring bolts at either end. This specimen captured at Richmond during Confederate evacuation of its capital city. April 1865. Image taken in the basement archival storage at West Point Military Museum.

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has published five books, including his most recent, *America's Buried History: Landmines in the Civil War* (Savas Beatie, 2020). He was recipient of a U.S. State Department Fulbright Fellowship to Jordan, where he was appointed to the faculty of the University of Jordan. He is included among the "one hundred most influential people in armed violence reduction" by the London-based organization Action on Armed Violence, and the recipient of numerous awards, including the Leadership in International Rehabilitation Award (Northwestern University), the Humanitarian Award presented by Sir Paul McCartney (UNA-USA), and the Human Security Person of the Year Award (University of California-Irvine). He holds a doctorate in government from Georgetown University, as well as a bachelor's degree and master of business administration (MBA) from the University of Colorado, where he was inducted into the Hall for Distinguished Alumni.