The American Civil War transformed the nature of armed conflict. Its opening salvos harked back to Waterloo; its end anticipated the industrial warfare of the 20th century, writes David White.

Born in the USA: A New World of War
The American Civil War became the first modern conflict. It opened with sabre-wielding cavalry charges and lines of infantry advancing in close-packed rows armed with smoothbore muskets. The first engagements would not have looked out of place in the Napoleonic wars. Yet within three and a half years the appearance of over 50 miles of trenches around the Southern capital, Richmond, as both armies dug in for months, unable to launch a decisive attack, was a clear forerunner of the First World War.

For more than two centuries infantry had advanced in close-order formations, shoulder to shoulder. Armed with smoothbore, muzzle-loading muskets, they would fire in unison. Until the 1850s, 55 to 90 yards was the effective range: 270 yards was the maximum, if random, range. Then a Frenchman, Claude-Etienne Minié (1804-79) invented a hollow-bodied bullet which expanded upon firing and gripped the inside of the barrel as it left the musket. A spiral groove was carved into the barrel which imparted a spin to the bullet which increased the maximum range to over 1,000 yards and the effective range to more than 250 yards. With the introduction of machine-tooling in the 1850s and 1860s and the first manufacture of standardised, interchangeable parts, rifled muskets became one of the earliest mass-produced products.

By early 1863 both sides in the American Civil War had equipped their armies with rifle muskets. This changed the face of the battlefield. Armies were forced to line up further apart and when one side advanced it had to begin its charge from over 250 yards – a long way to run with 40 pounds or more of equipment. Whereas previously the charge had begun at a little over 80 yards from the enemy lines and took less than 25 seconds (also the time it typically took to load and fire a smoothbore), now soldiers were faced with a full minute and a half to complete their run. The defenders could fire many more volleys before both sides closed. Often the attackers never made it that far: at Fredericksburg (December 13th, 1862), during Pickett’s Charge on the last day of the battle of Gettysburg (July 3rd, 1863) and at Cold Harbor (June 1st-3rd, 1864) the advancing ranks were scythed down before they reached enemy lines. Throughout, close-order frontal assaults continued to be launched in
American Civil War

General George B. McClellan's Union artillery at Yorktown, Virginia after the town had been taken from Confederate forces, May 1862.

The face of the increased accuracy, distance and rate of fire arising from the advance in musket design, resulting in fearfully high casualty rates.

The strategic potential of railroads in the mid-19th century enabled armies to increase greatly in size without becoming as unwieldy as Napoleon's Grande Armée of 1812. The Confederacy in particular made effective use of its limited rail network to move troops between theatres. The first battle of Bull Run on July 21st, 1861 was won by the Confederates because they managed to bring an entire army of 12,000 reinforcements 70 miles by rail from the Shenandoah Valley to the battleground south of Washington. Even more spectacularly, in 1862 the Confederate army operating in northern Mississippi suddenly disappeared, only for 34,000 men to pop up again 200 miles away in Tennessee after an 800-mile railway journey that took them all the way down to the Gulf of Mexico then back up through Alabama and Georgia before launching a surprise offensive into the border state of Kentucky.

One of the North's most effective innovations was US Military Railroads (USMR). Its function was to build new track and repair old lines to keep the flow of supplies moving to armies in the field. On one occasion a rail line was swiftly laid to supply General George Meade's Union army as it assembled at Gettysburg. The USMR operated mostly on occupied Confederate terrain in areas devoid of rail links and by 1865 it was running 400 locomotives and 6,000 cars, having constructed 650 miles of track and 26 miles of bridges. It built and ran the tracks which sustained Sherman's advance on Atlanta and, with a light railroad following in his wake, Sherman was able to dispense with large baggage trains and undertake a campaign of rapid advance through Georgia.

The Civil War quickly demonstrated that technology had also changed the nature of war at sea. In the spring of 1862 a Confederate gunship built upon the charred remains of a burnt wooden warship, clad completely in iron plating down to the waterline, powered by steam and bristling with cannon, sailed straight into the heart of a blockading Union fleet at the mouth of the James river in Virginia. With a rain of shells simply bouncing off its armour or exploding ineffectually, the ironclad...
Proceeded to destroy the finest wooden-walled sailing warships of the Northern navy. The US flagship and its two largest men-of-war were sunk or blown up with negligible damage done to the Confederate gunboat, the Merrimac. Only the arrival of a Northern ironclad, the Monitor, prevented the sinking of most of the rest of the US fleet the next day. These two cumbersome, unseaworthy vessels then fought out an inconclusive slugging match for several hours as their shells and shot bounced off each other’s thick armour plating. It may have ended as a tie, but overnight every wooden-walled warship in the world became obsolete.

The first steamships were built at the turn of the 19th century, but it was only with advances in engine design and efficiency from the 1840s that they became practicable as an alternative to sail. Most progress occurred in the merchant marine and the most striking example of this type of ship seen in the Civil War was among the blockade-runners employed by the South. Many of these were the fast commuter steamers that operated on Scotland’s River Clyde, which were bought by the Confederacy, stripped of their luxurious panelled interiors and crammed with cargo. These would run the blockade using speed, cover of darkness and smokeless anthracite to avoid detection and interception. On the whole they were about 80 per cent successful in their endeavours, such was their superior performance capabilities over the more traditional sailing ships of the Union navy.

**Remarkable invention**

The man responsible for the commissioning of the Merrimac was the Confederate Secretary of the Navy, Stephen Mallory. Since the South had no warships when the conflict began, no engineering works capable of building steam engines and no shipyards after 1862, he was forced to be remarkably inventive. He developed the new technology of floating mines (known at the time as torpedoes), which he used to defend river mouths and harbours. Some mines used percussion caps, which set off an explosion when a ship struck the device, there was also an electrically operated mine, which was connected by insulated wires to the shore and detonated by an operator when a target passed over it. Some mines were also placed on rafts and floated among enemy shipping, primed to explode by clockwork timers.

A more sophisticated version of this type of warfare was Mallory’s introduction of the first torpedo boats, small, half-submerged, cylindrical vessels that carried a torpedo on a long spar protruding from the vessel’s bows. The tactic was to sneak up on an enemy blockade ship and either to attach a timer-operated mine to it and beat a hasty retreat, or simply to ram it with a contact mine and pray you didn’t go up with the enemy vessel.

If the torpedo boats were dangerous, the development that followed on from them was virtually suicidal. These were three fully submerged torpedo boats, the world’s first combat submarines. The best known of these vessels was called the H.L. Hunley, after its inventor. This boat sank three times during trials, killing its entire crew on each occasion. On its fourth voyage it successfully attached a floating mine to a blockade vessel and sank it. However, on its way back into port, it too foundered and was lost for good with all hands (including Hunley). These submarines were peculiar craft – diesel engines and battery power storage had not yet been invented, so they ran on steam power, burning coal underwater. This meant that a slim funnel still had to protrude above the surface and, although the coal used was smokeless anthracite, they were therefore not wholly invisible. Nevertheless, they presented a difficult target for naval gunners to hit.

In January 1862 the US War Department decided to rely wholly upon weapons and ammunition manufactured by domestic suppliers. The Federal arsenal at Springfield, Massachusetts turned out the majority of the one-and-a-half million muzzle-loading, single-shot rifles...
with which the Northern armies were predominantly equipped throughout the war, but hundreds of small- and medium-scale private arms producers also supplied not only the component parts of these weapons, but also their own finished products, such as Samuel Colt's revolvers and guns from Smith and Wesson and Remington. Most of the innovative weaponry of the war came from private firms, with the federal plants concentrating on turning out volume rather than new products. While the South's economy suffered drastically as a result of the conflict, the North received a boost to production not matched again until the build up to the Second World War. Apart from cotton supply, the North suffered almost no shortages and its large industrial sector responded eagerly to the challenge of war production. From 1862 the Union army was the best-supplied, most well-fed and well-equipped army the world had ever seen. Advances that took place in the fields of engineering, weapons manufacture, telegraphic communications and railway building were but a few of the industries which benefited. The system of turning out uniforms in mass quantities for the Union army led to the introduction of standard graduated sizes in men's clothing (including, for example, collar sizes), which was carried over into civilian production after the war.

The labour shortages resulting from the enlistment of so many men into the army meant that mechanisation spread more rapidly than before. The recently invented sewing machine was adopted by the garment industry. In the footwear sector, the Blake-McKay machine for stitching uppers to the soles of shoes reduced the time consumed in that process to a fraction of that previously taken. The disproportionate number of farm workers who joined up resulted in a huge increase in the production of mechanised reapers and mowers. The war accelerated the speed at which the United States became the world's number one industrial power by the early 1890s.

It was an expensive business keeping a million men mobilised. In the North new taxes were introduced—excise tax, inheritance tax, value-added tax, stamp tax, tobacco tax, luxury goods tax and the first-ever American income tax, which was set at the modest rate of three.

The Cumberland is sunk by the Confederate ironclad Merrimac, Newport News, Virginia, March 8th, 1862.

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per cent and levied on incomes over $800 per annum—well above any farming or industrial worker’s pay. But tax returns tended to come in slowly and only ever produced about 20 per cent of the funds needed. In 1862 Congress authorised the printing of paper money, the first appearance of ‘greenbacks’, federally issued dollar bills. The total, $450 million, was strictly controlled and they were declared legal tender; everyone, including the government, was obliged to accept them in payment of debts and contracts. By the war’s end, the paper currency was still worth about 50 cents in gold.

By contrast, the Confederate ‘greyback’ dollar was worth about one cent by 1865. The Southern government printed more than $1.5 billion worth of notes and the individual Southern states also poured out a torrent of local paper currency. Almost all of the Confederate bills were poorly printed and easily forged. A century after the war ended there was still so much of this paper money around that hundreds of dollars worth of Confederate currency could be bought for a few cents and was used by children as play money as late as the 1960s.

Yet the South had embarked early upon a promising scheme for raising war revenue. In the same way as the North, which eventually raised the major part of its war finance this way, the South issued war bonds, in particular the ‘cotton bond’. Offering a generous annual return of seven per cent, you could redeem them in raw cotton bales rather than in cash. Why was that attractive? Because they were to be redeemed at the prewar cotton price of six cents per pound and, because of the restriction of supplies owing to the conflict and the naval blockade, the price of cotton quickly doubled then trebled within a year of the war’s outbreak.

But then the Confederacy overplayed its hand. In an attempt to drive up the price still further and with the hope that the lack of supplies to Britain’s enormous cotton industry would induce her to recognise the Confederacy’s independence, the Southern government imposed an embargo on its own cotton exports. This did indeed force up the export price to nearly five times its prewar level, but it also had the effect of making foreign investors doubt whether they could actually get their hands on the
collateral supporting the interest and redemption payments. When the port of New Orleans fell to the Union in 1862, it became clear that supplies were not going to continue at other than a tiny fraction of the prewar levels. Investors backed away from buying the bonds and began to look to sources of cotton elsewhere, such as Egypt and India which were subject to British imperial control. With this, the Confederacy's finances spiralled into a steep decline from which they never recovered.

In the early months of the war, both armies were overwhelmed by those volunteering to serve. However, by late 1861 the enthusiastic first flushes of patriotism and romanticism had worn off and conscription became an unwelcome necessity. In April 1862 the Southern Congress passed a conscription law which was simplicity itself. All white men aged between 18 and 35 were declared to be in the Confederate army. All would be liable for call-up if state quotas were not made up by volunteers. There were, however, exemptions from service for various categories: clergymen, teachers, civil servants, those in war production occupations and militia officers. Then there was the exemption which was most bitterly resented among ordinary Confederate soldiers, that of one white man for every 20 slaves on a plantation. This favoured the wealthy planter classes and their sons and created the saying that this was 'a rich man's war but a poor man's fight.' Additionally, the substitution system allowed drafted men to hire a replacement to serve in their place. The going rate for this was around $300 at the start of the war, already out of the reach of dirt farmers and wage labourers. By the end of the war it had reached $6,000.

In the North, Congress passed the Federal Enrolment Act in March 1863 which made every able-bodied male citizen aged 25 to 45 liable for conscription. Its purpose was to stimulate volunteering by threatening a draft. Actual conscription would only be used when a district fell short of its assigned quota of recruits. Although it seemed a fair system in principle, one which employed a judicious amount of carrot in order to avoid the stick of compulsion, it was in fact a near-perfect model of how not to conduct a draft in future wars.

The principal method of encouraging volunteering was the bounty system. As the supply of recruits dwindled and the demand for men continued to rise inexorably, competition for volunteers between districts anxious to avoid the stigma, unpopularity and uncertainty of a draft resulted in a bidding war to attract men, usually from outside the district. This meant that wealthy areas could outbid poorer ones and protect their well-off residents from compulsory military service. In 1863 the Federal government itself offered a $300 bounty for enlistment, so that by judicious means it was possible for some recruits to combine local, state and Federal bounties to receive $900 for signing up. So lucrative did this business become that a small industry of bounty brokers actually emerged, men who took a percentage of the incentive payments they negotiated for individual volunteers.

During the war 774,000 men were selected by the draft. But of these, 305,000 were declared unfit or else exempted on the grounds of being the sole support for a widow, an orphan sibling, a motherless child or an indigent parent. A further 75,000 were sent home because quotas had been filled and 161,000 'failed to report', generally fleeing to Canada or the wide-open spaces of the West.
That left 207,000 who were actually drafted. Of these, another 74,000 provided substitutes (including Abraham Lincoln) and here again a sector of opportunistic 'substitute brokers' emerged to profit from the system. Yet another 87,000 got out of military service by paying a $300 'commutation fee'. This exemption caused as much bitterness in the North as the 20-slave exemption prompted in the South. Yet there was little correlation between wealth and commutation despite contemporary perceptions to the contrary. Roughly the same proportion of unskilled workers, skilled workers and middle-class men utilised the commutation option. So how could the poor and working classes come up with the cost of the fee when it was set so high? Many cities and counties appropriated funds by raising property taxes to pay for their citizens who could not afford the $300. This was especially the case where political machines dispersed favours in return for votes – the most conspicuous being Tammany Hall which ran New York City for the Democrats. Businessmen and factories also put up the money, especially for their key or skilled workers, because there was no occupational exemption. Finally, insurance societies mushroomed, offering, for a few dollars per month, a $300 policy redeemable in the event of being drafted. These companies made a handsome profit out of their questionable entrepreneurial acuity: So, in the end, only 47,000 men were actually conscripted into the Union army out of the original selected 774,000.

**Positive steps**

In the summer of 1862, when major battles were taking place on Richmond's doorstep, there were insufficient medical facilities and premises to deal with the 21,000 wounded men brought into the city in just four weeks. Many of them died on its streets because there was nowhere to put them despite churches, shops, barns, private homes and warehouses being pressed into service as temporary hospitals. This was a spur to speeding up the provision of general hospitals, as opposed to field hospitals. The setting-up of a dedicated and trained ambulance corps, instead of the previous practice of leaving the removal of the wounded to bandsmen, boy soldiers and civilian teamsters, made such an impression on observers that most countries in Europe quickly adopted the American model for their own armed forces. Additionally, the role of women in taking on the tasks of nursing in both field and general hospitals was advanced by determined campaigners, such as Sally Louisa Tompkins in the South and Clara Barton in the North, who fought against ingrained sexist prejudice in the army and the medical establishment. In a short time their efforts came to be appreciated by the rank-and-file soldiers who received their care and by presidents Abraham Lincoln and Jefferson Davis. Both pressed the case for greater women's involvement, Davis even going to the unprecedented length of commissining Tompkins as an army captain so that her infirmary could qualify as an army hospital and she could claim all the rights and powers of a Confederate officer.

This was a time when many new sciences were coming into being, including neurology. During the Civil War, the physician S. Weir Mitchell (1829-1914) began the study of phantom limbs, the perception of a missing arm or leg as present and painful. He was also one of the first to recognise the phenomenon of shell shock or post-traumatic stress syndrome. Previously, men who froze in combat or developed uncontrollable shaking tended to be labelled as cowards or malingerers. Mitchell recognised that he was dealing with a mental condition. A similar conclusion was reached by Jacob Mendes da Costa (1833-1900), who realised that the increased number of soldiers who presented with symptoms resembling heart disease were suffering from psychological stress, a phenomenon so widespread that it became known as 'soldier's heart'. Both men came to the same conclusion: that rest and removal from the source of stress were the way to treat the victims. Their pioneering studies influenced more humane practices which emerged gradually in the First World War.

The Civil War was contested between two democracies where freedom of speech was considered a basic right. On both sides, Congressional elections took place during the war and in the North there was even a presidential election in 1864. During that election, the Democrat opposition initially ran on a ticket of ending the conflict, something impossible and treasonable in many contemporary European countries at war. It is true that in its first few months several hundred pro-peace and pro-Confederacy politicians, newspapers and prominent citizens were rounded up and thrown into Northern jails. But by early 1862 almost all of them had been released. For the duration of the war many Northern newspapers continued to publish anti-government, pro-peace and pro-slavery editorial lines. There was less overt opposition expressed in the press and among the politicians of the South, but even here, in this highly conservative, embattled society, few newspapers were closed down for expressing opposition to the government.

Finally, an event which happened shortly after the war ended bears comparison with a much later age. Prisoners of war fared exceptionally badly during the conflict, especially in the South. The overall mortality rate in Northern prisons was 12 per cent, while in the South it was around 20 per cent. But one prison in particular became a byword for suffering and death: Andersonville in Georgia, where 13,000 out of a total of 45,000 inmates died of disease, exposure and malnutrition. Arrested in May 1865 by a contingent of US cavalry, the commandant of the camp was taken to Washington, put on trial and, after two months of evidence and saturation newspaper coverage, was convicted, sentenced to death and publicly hanged. This was the first-ever war crimes trial in the United States and possibly in the world. The name of the commandant was Heinrich Wirz, a German who had emigrated to America in 1849.

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