“The Shirts off their Backs and Boots off their Feet”
Stories of Logisticians in America’s Wars

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Title Page Photo Caption – Boots were displayed in selected locations ranging from th Capitol Rotunda to college campuses across the United States in representation of Soldiers who have died in Operation Iraqi Freedom and Enduring Freedom. The pictured boots represent Corporal Timothy D. Ross, amongst more than 3400 pairs of combat boots, one pair for every U.S. Soldier/military personnel killed in the War at the time of the photograph.

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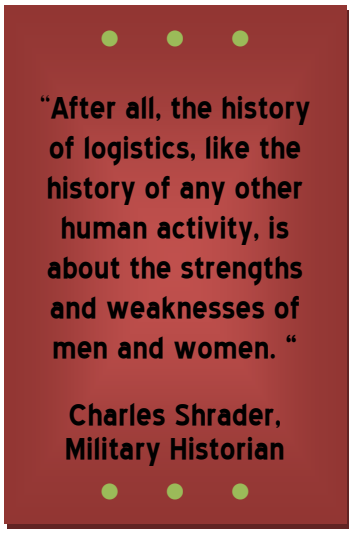
Introduction

Logisticians have provided the silent power behind supply and transport support during every major American war. America's combat power was directly dependent upon the Warfighters, logisticians, administrators, quartermasters, civilians, and contractors who worked through the challenges of supplying the troops. Military Historian, Charles Shrader wrote, "After all, the history of logistics, like the history of any other human activity, is about the strengths and weaknesses of men and women. Individual human beings, not offices or organizations, make the decisions and develop the concepts" for supplying our armed forces.[1]



Historians have placed more emphasis on the importance and study of logistics across time. In the 1800s, Famous French General Antoine-Henri, baron Jomini, defined logistics as the art of moving armies and keeping them supplied.[2] Today the definition of logistics has expanded and encompasses planning, production, procurement, administration, readiness, maintenance, transport, base support and much more. Historical study and analysis has demonstrated the administration of and execution of logistics, often means the difference between victory and defeat in times of conflict.

The purpose of this paper is to explore the challenges, sacrifices and success of logisticians from the American Revolutionary War to current operations Operation Iraqi Freedom and Enduring Freedom. Stories of notable, yet often unrecognized logisticians will be presented. Through discussion of their experiences we can broaden appreciation for those who worked through logistics challenges and for those who sacrificed to accomplish logistics and sustainment missions for the military.

The impact of war on society must also be remembered. Direct sacrifice was much more in the forefront of the American mind during earlier wartime periods, when the demands of war affected were felt widespread. Each war has affected citizens differently. Throughout history, Americans have experienced scarcity of household goods and often rationed to support the country. Today, particularly in the form of heightened oil prices and a wavering economy, Americans feel the effect of war. Simply put, the people always contribute to the military cause. Average citizens, Soldiers, and government officials have gone beyond what was expected of them – when common people showed uncommon selflessness and courage in support of the military quest for freedom and unity. This tendency – the willingness to give 'the shirts off their

[1] Charles R. Shrader, *U.S. Army Logistics, 1775-1992: An Anthology, Volume 1* (Washington, D.C.: Center of Military History – United States Army, 1997), 3.
[2] Martin Van Crevald, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge, MA: Cambridge University Press, 2004), 1, 240.

backs and the boots off their feet' – reveals the essential character of the American people, exhibited through the actions of largely unsung heroes of every stripe.

This paper was completed in response to Joint Munitions Command, Commanding General, Brigadier General Wyche's request to compile stories of Warfighter Logisticians who served the military selflessly in support of supply missions. His dedication to Soldiers and those who support them is sincere and demonstrated through the message he spreads everywhere to define what supplying Soldiers selflessly means, "If you are in the Korengal Valley of Afghanistan, 10,000 feet above sea level, and you as a logistician and supporter have to get ammo, food, water, etc, to our Warfighters, and it requires you to take the shirt off your back or boots off your fee to get him or her what they need, you will do so without hesitation." To help emphasize his message, these are stories are of those who sacrificed in some way to make sure the troops had everything they needed, of those who improved the logistics structure of our military, and who gave everything to accomplish the logistics and sustainment missions of the United States military. Though this paper may not do justice in honor of the countless number of men and women logisticians who contributed to logistics throughout history, it is a beginning to recognizing the critical impact logisticians have put forth and sacrifice they have made in defense of the United States.

The Revolutionary War

By the time the first shots were fired at Lexington and Concord in 1775, it was clear that a portion of the American colonial population would no longer standby while Britain exerted authority from afar by use of military force. The colonists were sharply divided about the cause of American Independence: 40% supported the cause, 40% were neutral, and 20% opposed it. In the Revolutionary War, more than any other American conflict, the challenges of logistics and supply were profound. British and Colonial militaries faced unique obstacles in terms of supply. The colonists had short supply lines. England supported 25,000 British troops and 8,000 Hessian mercenaries and had long supply lines. More than 250,000 citizens served active duty in the Continental Army, including members of the Colonial Army and state militias. Funding was intermittent, travel was routinely difficult, and communications were sporadic at best. Horse-drawn wagons made slow progress over poor roads, and those drawn by ox teams moved even slower. Snow-packed roads brought transportation of supplies to a halt until sleds could be substituted for wagons. Spring thaws caused wagons to become stuck in mud. As such, it became difficult to keep the Continental Army adequately provisioned. This was a critical factor in the war, for – as German Field Marshall

Revolutionary War Painting
Hauling guns by ox teams from Fort Ticonderoga for the siege of Boston, 1775.

Erwin Rommel once noted - "before the fighting actually begins, battles are often won or lost by quartermasters." It has likewise been noted that "an Army, to be an effective fighting force, must be adequately fed, clothed, housed, transported and serviced generally" because "the fighting efficiency of an army is very often a function of its logistical efficiency." [3]

At the start of the War, colonies did not have permanent commissary generals or quartermasters to look after supplies of food, camp equipment, clothing or transportation modes. The first semblance of a general staff officer for supply was found in Massachusetts, and was titled the Surveyor or Ordnance. The office was filled by a civilian, military officer, and by a commission. They were responsible to the General Court of the colony for delivering powder and ammunition to the towns.[4] General George Washington appointed the first Continental Army Quartermaster, Adjutant General, a Commissary General of Stores and Provisions, Paymaster General, Chief of Engineers and other critical positions in June of 1775. The American logistical system was modeled after the British Army with the commissary general and a quartermaster general responsible for distribution of supplies, camps, and movement of troops.

Quartermasters struggled to adequately supply the Continental Army for several reasons. Soldiers came from the colonial militia system and states often required men to arm themselves. For example, cavalry troops had to supply their own horse, bridle, saddle, sword belt, rifles, etc. [5] The task to centralize colonial minded troops was expected to be difficult. When the colonies united to take arms against Britain, essentially 14 different supply systems surmounted. Congress declared it the responsibility of all states to furnish supplies or funds for the support of all troops in the Continental Army regardless of their state origin. However, some States resisted cooperation and held parochial views and directed that supplies from their state only be distributed to units from their state. Other States sent forward nothing for belief that supply of a Continental Army was Congress's responsibility. Washington treated the troops as a unified command, spreading supplies over the entire army regardless of their origin. Either way, this resistance impeded the speed needed to supply troops with requirements quickly.

Raw materials and finished goods were consistently in short supply. For example, tentmakers could not acquire enough twine or canvas to repair tents, not to mention fill requisitions for new tents. The ability to supply the war was heavily linked to the economic situation and improper funding directed down from Congress restricted the ability to fully supply the Army. Contractors producing items such as wagons often faulted on delivering products when they saw no prospect for receiving payment. Quartermaster General and other appointments sat vacant for too long or reorganizations of Departments at the height of the war caused further delay. Sometimes the hope for peace in the new year led to premature cancellation of contracts. The subsistence or food supply situation was ironic. Although food production increased nationally, the Army typically was short of what it needed. Farmers were reluctant to exchange goods for a depreciating currency. Many times, Washington had to seize food supplies from farms in the vicinity of camps or risk losing his Army. Depreciation also affected pay and teamsters, artisans, and laborers were not providing services needed to support troops.

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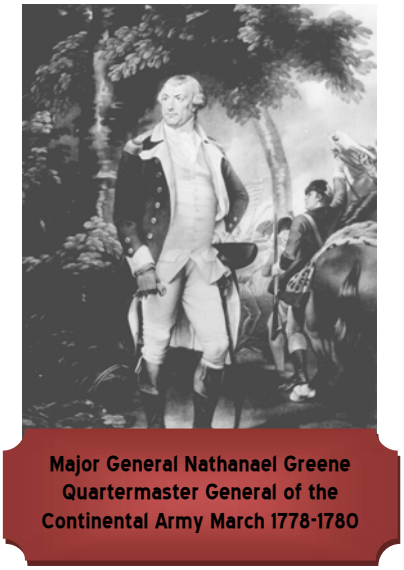
[3] Shrader, 50-51.
[4] James Huston, *Sinews of War - Army Logistics: 1775-1953* (Washington D.C, CMH: 1966), 5.
[5] *Ibid*, 6.

More often than not, purchases of cloth, arms, clothing, gunpowder, ammunition and more were all made abroad to supply troops. Benjamin Franklin is credited with opening negotiations for the shipment of munitions to America with merchants in England, France and Holland. Several agents traveled to other European nations to secure loans and supplies. French Aid was critical in the victory of several battles. French Foreign Minister, the Comte d'Vergennes, established a dummy corporation, Roderique Hortalez et Cie., to funnel arms to America in June 1776. In the first months of 1777, the Hortalez Company sent out eight ships via Martinique, with 200 brass cannon, 300 flintlock muskets, 100 tons of gunpowder, 3000 tents, ammunition, and clothing for 30,000 men.[6] By early 1781 the French had provided over 4.5 million livres or $18 million dollars in American currency in supplies to the Army.[7] In turn, the reliance on foreign sources impacted the effectiveness of supply, as ships were captured by the British, lost at sea or arrived empty.

With or without equipment and supplies, troops took the battlefield with the best they had. Commanders often maneuvered and delayed until cold weather or supplies could be acquired, hoping spring would bring more adequate supplies. At times Washington cancelled planned battles because "the means were inadequate to the end."[8] One of the most critical requirements during the war was gunpowder, and shortages were often then cause for several modifications to military operations. Vital elements for ammunition were often lacking and the men who could make them were even fewer. Despite shortages, many battles were not lost on account of logistics. The very center of the logistical problems of the Revolution lay in the transportation of men and supplies.



Major General Nathanael Greene
Quartermaster General of the
Continental Army March 1778-1780

General Nathanael Greene became America's second Quartermaster General of the Continental Army in the wake of Valley Forge in March 1778. His performance in this position has been characterized as being "as good as was possible under the circumstances of that fluctuating uncertain force." Upon resignation as Quartermaster General in 1780, Greene protested that there were plenty of resources to supply troops, but the money situation was so dire, that farmers and businesses would not sell to the Army. Andrew Stough pointed out that despite his efforts, no amount of efficiency and industry could overcome the lack of money to purchase supplies.[9] The success or failure of the Quartermaster General was in part judged by the ease with which he enabled the troops to take the field and by his ability to keep them supplied during a campaign and how troops fared after settled in winter quarters. One of the rare occasions when Washington found the transportation provided for his army satisfactory was in the campaign of 1778. He praised Quartermaster General Nathanael

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[6] Timothy Neeno, "War Comes to the Islands: The American Revolutionary War in the Caribbean." 11 December 2005. http://www.militaryhistoryonline.com/revolutionarywar/articles/caribbean.aspx**.** Accessed 23 June 2010.

[7] On average, websites estimate that 1 French livre was estimated at around $4 US dollars during the Revolutionary War. Huston, 18-20.

[8] Huston, 47-50.

[9] Andrew Stough, "The American Revolution Month-by-Month January 1778." *Sons of Liberty Online Journal*. Journal Article. http://www.revolutionarywararchives.org/49january1778.html. Accessed 21 June 2010.

Greene for the "great facility" with which he had enabled the main army and its baggage to move from its winter quarters at Valley Forge in pursuit of the enemy and, after the battle of Monmouth, to march to the Highlands of the Hudson.[10]

> "Logistics is the stuff that if you don't have enough of, the war will not be won as soon as."
> -- *General Nathaniel Green, Quartermaster, American Revolutionary Army*

General Henry Knox was chief artillery officer of the Continental Army and later the first United States Secretary of War. During the Revolutionary War. Accumulating, storing and issuing supplies and equipment through Army Depots has been an integral part of the Army operations since 1775. In November 1775, General Henry Knox selected Carlisle, Pennsylvania as the site for the first Continental Army Depot Arsenal. Carlisle, along with approximately 27 other depots and arsenals, stored and maintained supplies for the Continental Army during the Revolutionary War.[11] Knox's contributions to establish this system was fundamental to the effective supply of the Army. Washington also relied on Knox to find a way to transport sixty tons of cannon from Ticonderoga over the mountains and across the frozen Delaware River to what would be the Battle of Trenton.[12] Knox planned the crossing tediously and obtained a number of Durham boats, long barges with running boards on the outside for men to stand on and use poles to push forward thorugh the ice and mariners to guide them across. Horses, field guns, and ammunition were loaded onto flat bottom barges, cannons on the durham boats. Knox also acquired mariners to pilot the boats. As the men arrived on shore, Knox expedited the deembarkation on the New Jersey Shore. After a fifteen mile march to Trenton in a freezing rain blizzard, the British were caught by surprise when troops arrived. According to Colonel Knox, the destructive power of the cannons at close range, "provided a scene of war I had often conceived of, but never saw before. The hurry, fright, and confusion of the enemy was not unlike that which will be when the last trump shall sound. They endeavored to form in the streets, but the cannons in a twinkling of the eye, cleared the streets."[13] Knox was critical in ensuring that his men, cannons and equipment crossed the Delaware to win the Battle of Trenton.

Major General Phillip Schuyler of New York, Commander of the Northern Army in 1775, had to organize a military force and the logistic facilities to maintain them. Historians describe his attention to logistical detail as superior during the timeframe, despite defeat by British. He anticipated requirements and challenges that would be faced months in advance. He actively pursued solutions to the complaints issued to Congress, and did not wait around idly for results. He formulated detailed plans with specific steps at how to accomplish the supply of his

[10] Huston, 11, 12, 62.
[11] Noah Brooks, *Henry Knox: A Soldier of the Revolution Major General in the Continental Army and Washington's Chief of Artillery* (New York: Cosmios, Printed in 1900 and Reprinted in 2007), 27-49.
[12] Mark Puls, *Henry Knox: Visionary General of the American Revolution* (New York, Palgrave MacMillan: 2008), 1.
[13] Puls, 77.

troops. Ultimately Congress approved his plans but he had to take his own initiative to get things started. Schuyler went directly to eastern states for artillery and ammunition, building materials and for skilled carpenters amongst much more. Schuyler wanted to strengthen key positions in Ticonderoga and at Fort Stanwix. In November he urged supplies be shipped before the battle began. Despite detailed preparations, troops were still unprepared to defeat the British when the attack began. Schuyler, however, had tremendous appreciation for logistics, and he "refused to despair" after the loss of Ticonderoga. Instead, he adopted tactics that he knew would exacerbate the supply difficulties that the British already were experiencing. As his men withdrew to the south, Schuyler ordered them to fell trees across the roads and into Wood Creek to inhibit the British advance. Furthermore, he adopted a "scorched earth" policy, ordering all "crops burned, bridges destroyed, and all possible horses, cattle, and wheeled vehicles moved out of General John Burgoyne's reach." When General St. Clair surrendered Fort Ticonderoga in July, Congress replaced Schuyler with General Horatio Gates, who had accused Schuyler of dereliction of duty. Despite Schuyler's capabilities he did pay very close attention to logistics details and advocated for the Soldier. He payed special attention to the health of his Soldiers and enforced personal cleanliness and the strict supervision of food preparation. He did not agree with the use of Soldiers for labor, and thought their purpose was to provide combat power. Schuyler personally sacrificed and did anything in his power to adequately supply his force.[14]

Supply train en route to Valley Forge

[14] Huston, 47-50.

In response to problems involving logistics and supply, many quartermasters worked with vigor in service to the Soldiers in the field. While there was malpractice, fraud, and inefficiency on the part of many government officials, the best supply masters saw their tasks as patriotic duties. Along these lines, Deputy Foragemaster Owen Biddle once told his assistant that "you cannot more essentially serve your country than by giving all possible dispatch to the corn you have purchased."[15] Others willingly endured personal hardship rather than allow Soldiers to go wanting. As E. Wayne Carp has noted, "By the end of 1779, military supply officials were deeply in debt: Andrew Bostwick, a deputy forage-master, alone owed $2,162,405, and deputy Commissary General Henry Champion owed more than 2 million. Collectively, the Commissary Department was $22 million in debt."[16]

It is noteworthy to mention those who supported the Revolutionary War outside of the administrative or military ranks. Patriot women from Philadelphia drove ten pairs of oxen to Valley Forge to be slaughtered. They also brought 2,000 hand-sewn shirts that they had smuggled out of the state. Martha Washington also came bringing food and medications, she remained to tend the sick and wounded and to be of comfort to the dying. Patriot farm women brought bread, pies and other foodstuffs when the weather allowed.[17] While such assistance was only a drop in the bucket when spread around thousands of men its morale value was great at a time when it was needed. Several relief associations rose during the War to gather supplies and raise funds for the war effort. One such organization was the Ladies Association, founded by Esther Reed, wife of the President of Pennsylvania. Under Reed's guidance, the Ladies Association collected linen and raised $7,500 in 1780.[18]

After the American Revolutionary War the attention that had been focused on building the administration required to provide proper logistic supply and the manpower to run and accomplish those tasks, began to dwindle. In future wars, the military would find itself unprepared for mobilization and supply of the Regular Army.

The Mexican War

Tensions rose between the United States and Mexico in 1845 over the American annexation of Texas and subsequent border disputes. On 25 April 1846, a large Mexican force attacked a small U.S. patrol in disputed territory on the Texas-Mexico border, leading President James K. Polk to call for a declaration of war on May 11th. Congress obliged Polk on 13 May; and Mexico did not officially follow suit until July 7th. As with earlier wars, the United States was not prepared for a full-scale conflict when the war erupted. However, the industrial base had expanded greatly since the War of 1812 and was better prepared than it had previously been, certainly better prepared than Mexico.

While the voice of opposition to the Mexican War was loud, many eagerly volunteered to fight to expand U.S. borders. Americans were initially outnumbered, with 7,200 active Soldiers

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[15] E. Wayne Carp. *To Starve the Army at Pleasure: Continental Army and Administration and American Political Culture, 1775-1783* (Chapel Hill: University of North Carolina Press, 1984), 160.

[16] Carp,70.

[17] Andrew Stough, "The American Revolution Month-by-Month January 1778." *Sons of Liberty Online Journal*. Journal Article. Accessed 21 June 2010.

[18] Carp, 73.

at the start of the conflict compared to a Mexican Army 32,000 men strong. The harshest enemy would be disease, which took the lives of more than 10,000 men, compared to the 1,500 Soldiers who fell in combat. Soldiers faced significant obstacles: traveling long distances over land, sea and rugged mountains; on few or non-existent roads to reach the enemy.

Transport of supplies was cumbersome to say the least. Moving troops and supplies up the Rio Grande to Carmago caused significant challenges. Ships drawing less than eight feet of water couldn't get closer than four miles to the depot at Carmago. Wagons had to haul supplies overland and across a ford and supplies often waited on the side of the river to be reloaded onto ships. In October 1846, Captain Chance, a regimental quartermaster at Camargo described the chaotic scene of supply as he deployed the remainder of the Georgia Regiment companies to guard a supply train to Monterrey. He later noted that, "this was a busy day - orders and counter orders, 1,500 pack mules being loaded with provisions, flour, sugar, etc., for the Army at Monterrey - 60 wagons with ordnance stores and pork and pack mules with forage. Such a scene, clerks, agents, contractors, dashing about on horseback. Mexicans packing the mules - mules kicking up and running off, ale cider and wine dealt out at the sutler's stores, underlings half drunk and insolent, superiors issuing orders - oaths and profanity on all hands in all languages - one soldier being drunk stabbed a mule with a bayonet from mere wantonness - I was standing not a hundred yards off."[19]

Innovations included the steamboat for faster movement. Railroad and telegraph had not come to the southwest yet, but were further developed in the east. The supply of arms and ammunition were supplied by well stocked armories and arsenal. Many arsenals had ability to expand production capacity, while other items still had to be procured from the market. By April 1847, all payments or exchange of funds for military goods had to be in gold or silver. Assuring contractors and suppliers sound financial backing eased procurement troubles that earlier officers experienced. The variety of infantry weapons used on the field complicated the problems of ammunition supply, maintenance and repair parts supply. The Ordnance Department relied upon purchase or private contractors for artillery, ammunition, and accouterments. [20] Ordnance procurement and production was considered fast and effective. In spite of the longer supply line equipment reached troops fairly quickly. The Quartermaster Department also had to move swiftly to make large procurements of wagons mules, and horses. In addition they needed fuel, building materials, repairs, troop quarters, iron camp kettles, mess pans and housekeeping supplies. They now had the mission to supply clothing as well. A huge challenge for the department was having enough men to apply to the necessary labor required. They had to hire mechanics, teamsters, and laborers at high wages.

General Thomas Sydney Jesup is named the "Father of the Quartermaster Corps" after serving 42 years as the Quartermaster General of the Army. His career spanned from 1818-1860, over a quarter of the time of the department's existence. He supplied and provided transportation to the Army while the country was expanding westward, requiring longer and more dependable modes of transport. Jesup said of his assignment to quartermaster, "one hour

[19] Joe Griffith. "Georgians in the War with Mexico, 1846-1848." *Journal of the Historical Society of the Georgia National Guard* (Vol. 6, No.2, Spring 1997) 1-16. Journal Article. http://www.revolutionarywararchives.org/49january1778.html. Accessed 21 June 2010.

[20] Huston, 129.

before receiving the appointment, I had as little expectation of it as of taking a voyage to the moon. It places me in the second rank in the army; and presents a more extensive field than any other military situation in time of peace."[21] After the Panic of 1837 Congress cut appropriations drastically cutting the activities of the quartermaster, thus causing the total lack of preparedness for war with Mexico. Yet, overnight Jesup was expected to furnish clothing, equipment, and transportation for three widely scattered Armies fighting in semi-desert areas lacking in roads with deep waterways with virtually no potential for acquiring supplies. The Quartermaster Department would be responsible for acquisition and supply of 11,000 horses, 16,000 oxen, and 23,000 mules and 7000 wagons, hundreds of boats, sail and steam vessels.

Jesup was frequently blamed for inadequacy of supply and transport, however he often said it was the inadequacy of the orders presented to him. Jesup proposed setting up office in New Orleans to ensure activities were occurring as directed. He realized there might be some embarrassment because of his senior rank, however he was ready to take orders directly from Generals in the field. After inspection Jesup himself admitted to the inadequacy of proper support from the department, but he attributed it to the lack of manpower and officers failing to anticipate requirements. On eve of Mexican War, Jesup complained to Secretary of War William L. Marcy that he had only twenty-five officers "for the great depots, for service in the field, and for superintending the works being erected." To meet the challenge, supplies were acquired from all over the U.S. Jesup also saw that roads were surveyed and opened to improve transportation. He urged the continued expansion of the railroad to defend the country's territories and recognized that the only way to improve communication was by further expansion of transportation.[22] Jesup also strongly urged the formation of a railroad line connecting the Brazos with the Rio Grande. The construction of the line would have been a logistics revolution, however there wasn't appropriate funding nor time before the declaration of war to complete it. Despite the lack of resources, Jesup provided the framework in order to move supplies, feed, clothe, and serve the Army. His contributions were critical to winning the war and laying groundwork for future improvements within the department. [23]

Colonel Truman Cross, General Zachary Taylor's Chief Quartermaster is credited for pushing the interchangeability of parts during this timeframe. Cross was also instrumental in voicing the need for a creation of a corps of enlisted personnel to perform logistical special functions, though this was not accomplished until 1912. In April 1846, Colonel Cross lost his life while on duty and was killed while horseback riding near an American fort.[24]

General Winfield Scott continually expressed praise for the Corps of Engineers throughout the war. In Mexico, the Corps of Engineers provided reconnaissance and tactical recommendations, planned sieges, repaired roads, built bridges, and fought amongst the infantry when needed. General Persifor F. Smith indicated his appreciation for these specialists when he noted, "Nothing seemed to them too bold to be undertaken, or too difficult to be executed."

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[21] Shrader,141.
[22] Huston, 131.
[23] Shrader, 140-150
[24] No Author. *The Mexican War and It's Heroes: Being A Complete History of the Mexican War, Emracing All the Operations Under Generals Taylor and Scott (*Philadelphia: Grigg, Elliott & Co, 1848), 222-224. http://books.google.com. Accessed 3 July 2010.

General Scott, moreover, believed that success in the war would have been impossible without them.[25]

One of the logistical feats of the War is General Winfield Scott's campaign to Mexico City. Several complications ensued to include icy rivers, fog and windstorms to delay shipments. Not enough wagons and oxen teams arrived. Horses had been lost in storms. Scott moved forward with what he had. The first ten miles to Mexico City was through deep sand through the beach and then on the roads. The sun was hot, and any extra equipment they carried had to be left behind to lighten loads. Teamsters driving wagons, threw away valuable rations. Unskilled drivers caused breakdowns in wagons and transportation equipment. Animals and horses gave out under extreme conditions. Reliable drivers, shortages of wagons, stretch of sandy roads and the threat of Mexican guerrillas added to the challenge and hazard of moving supplies. Despite challenges, Scott and his men captured Mexico City.

Civil War

The most destructive war in U.S. history was the American Civil War (1861-1865). Of the 3.5 million Soldiers who fought, at least 620,000 died in battle or from disease. There were many heroes on both sides of the Civil War, whom went above and beyond the call. Some fought on in the face of serious injuries, like General John M. Course who, during the Confederate assault on at Altoona, Georgia (6 October 1864), remarked to the Aide-de-Camp of General Sherman, "I am short a cheekbone and an ear, but am able to whip all hell yet."[26] Also fighting among the Union ranks were many who – like those who had fought before them in the American Revolution – did not know for certain what role they would play in the post-war United States: 180,000 African American Soldiers, fifteen of whom received the Medal of Honor after the Civil War.

In many ways, the American Civil War was a war of supply and a myriad of problems to accomplish it. There was lack of centralization and coordination within the military and supply departments throughout the Civil War. While both the Union and the Confederacy worked hard to keep their men provisioned, the Union benefitted from better-organized supply lines due to technological advances in communication and transportation. Steamboats and railroad improved mobility. Even so, the Union faced difficulties that strained the patience of Soldiers, commanders, and quartermasters alike. Despite the difficulty of obtaining critical supply, Soldiers often lacked discipline. On hot days they discarded critical supplies from their packs.[27] Supply of arms and ammo was difficult. Forage requirements to feed mules and horses still represented a major portion of all transportation requirements. Daily resupply requirements of the field armies imposed great demand for transportation. The Confederates experienced greater turmoil within the departments and its leaders lacked experience. Both sides had problems finding sufficient men to perform necessary logistical tasks. One reliable source of labor for the Union Army were contraband runaway slaves.

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[25] Justin H. Smith. *The War With Mexico, Volume II* (New York: The MacMillan Company, 1919), 320-321.
[26] *Selected Quotations: U.S. Military Leaders*, (U.S. Army Publication: 1964), 16.
[27] Shrader, 199.

During the Battle of Bull Run logistical problems of transferring the Army of Northeastern Virginia from Washington to Manassas were enormous. Staff officers, who had never before seen any unit larger than a regiment, had to move over 30,000 troops, hundreds of wagons, and thousands of horses thirty miles through hostile territory. Columns were assigned march-routes, timetables were established, and troops were assigned to protect the army's line of communications back to Washington. To provide fresh meat, over two hundred head of beef cattle accompanied the marching columns. Although Brigadier General Irvin McDowell ordered wagons of rations, ammunition, medical supplies, and engineer tools to follow the troops, a shortage of vehicles hampered the operation. In addition, many wagons were not roadworthy, and teamsters were untrained and inexperienced. Yet, with all these difficulties, the Commissary Department was able to issue over 100,000 individual rations to division and brigade commands near Centreville during the campaign. At the lower unit level, however, inexperienced field commanders sometimes failed to reissue rations and ammunition to the troops, or, when these items were issued, the soldiers often tossed them away to avoid having to carry them during the heat of the day.

After the Union defeat, the return of McDowell's Army to Washington is described as a disaster. Many soldiers panicked, threw away their weapons, and sought whatever egress was available, whether roads, woods, or fields. Teamsters cut loose teams from wagons, leaving the vehicles to block the roads. Large numbers of civilian wagons on the road between Centreville and Alexandria added to the bottleneck. By the end of the day, about 4,000 small arms, 25 pieces of artillery, and large amounts of other equipment had been abandoned, much to the benefit of the victorious Confederates.

The Confederates, although in a defensive position at Manassas, had their share of logistic problems. Lack of sufficient staff officers and mismanagement often resulted in Brigadier General Pierre Beauregard's troops going up to 24 hours without rations. Initially, Confederate commissary officers obtained food from the surrounding countryside, but the removal of those officers by the authorities in Richmond just before the battle, forced the soldiers to supply their own food by foraging from local citizens.

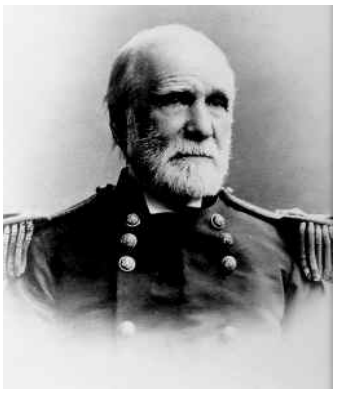
Despite the difficulties, numerous men and citizens showed selflessness and greatness in support of the War and Army. Brigadier General Philip Kearny, Commander of New Jersey Volunteers, strived to overcome poor training and provisioning. Kearny's dedication to the men under his command led them to admire him greatly. In particular, he won "their loyalty and affection for personally looking after them and ensuring that they were properly nourished, uniformed and armed. Any deficiencies in these areas were resolved by him taking action to purchase the necessary goods out of his own pocket."[28]

Motivated by his wife's sympathies and his own intense dislike of abolitionists, Josiah Gorgas chose the Confederacy when the South seceded. In early April 1861 he resigned his commission, moved to Montgomery, Alabama, and was appointed Chief of Ordnance in the Confederate Army. Josiah Gorgas provided outstanding performance in providing arms and ammunition to the Confederate forces. At the outbreak of the Civil War, the

[28] 1st Dragoon's Civil War Website. "The Biography of General Philip Kearny: The Bravest of the Brave," *Life Stories of Civil War Heroes*. Website Article. http://dragoon1st.tripod.com/cw/files/kearny1.html. Accessed 10 June 2010.

South had few modern weapons and virtually no manufacturing facilities for making them. Gorgas simultaneously sought arms from abroad while laying the groundwork for internal production of rifles, small arms, bullets, powder, and cannons. By 1863, Gorgas had several factories producing weapons, mills making powder, and mines supplying needed raw materials. And despite the Confederacy's constant financial and political problems, Gorgas kept the ordnance service running at high efficiency. In recognition of his ability to keep Southern soldiers supplied, Gorgas rose to rank of Brigadier General by the end of the war.

At the outbreak of the Civil War, Major General Rufus Ingalls served as the Chief Quartermaster of the Army of the Potomac from 1862 to 1864 and thereafter as the Chief Quartermaster for all the armies operating around Richmond until the end of the war. He was the mastermind behind supplying the siege around Petersburg, Virginia in the last major campaign of the war. As Quartermaster for the Army of the Potomac he served under a number of leaders to include Generals Burnside, Hooker, Meade and Grant. He received brevet promotions through the rank of Major General during the war. General Grant gave him high praise in his memoirs saying, "There never was a corps better organized than was the Quartermaster Corps with the Army of the Potomac in 1864."[29]



Men serving within the depots were generally lower ranked leadership of Captain of Major, but had significant resources, men, money and materiel under their control. Colonel Daniel Rucker has been identified as a significant logistician figure during the Civil War era. On September 28, 1861, he was promoted to Colonel and appointed as an additional aide-de-camp to General George B. McClellan. During the war years he remained in charge of Washington Depot, through which he passed a major portion of the supplies for the armies at Richmond and the Atlantic Coast.

At the end of the war General Rucker initiated auction sale of surplus animals and equipment, selecting the best of the Quartermaster supplies for storage at various points. He oversaw the post Civil War downsizing of depot operations and personnel. For his contributions to the field he was promoted to Quartermaster General for ten days at the end of his career, in honor of his service in supply. In the decade following the war Rucker was given various assignments before becoming Chief Quartermaster of the Philadelphia Depot in the fall of 1875, a post he retained for seven years.

In April 1860, Ms. Clara Barton, founder of the American Red Cross, emerged as an important figure of the Civil War. She wanted a chance to help wounded soldiers and asked the War Department if she could distribute medicine and food on the battlefield. It was out of the question, but Barton persisted and was granted permission by Colonel Rucker. With six wagons loaded with

[29] Quartermaster Foundation. "Brigadier General Rufus Ingalls: 16th Quartermaster General February 1882-July 1883." http://www.qmfound.com/BG_Rufus_Ingalls.html. Accessed 9 June 2010.

food, medicine, blankets, water, and other supplies, Barton had found a way to serve her country. When people criticized her for helping soldiers from both the North and the South, she replied, "I am a United States soldier." It didn't matter to Barton which side a Soldier had fought for, if he was wounded, he received any help she could give.

Barton often criticized the Army about the lack of food and supplies for the fighting men. She came to be known as a troublemaker among some officials. But in 1864, Secretary of War Edwin Stanton called on her to help his Sanitary Commission on the battlefield. At the time, many families requested Barton's help finding missing family members. With permission from President Lincoln, she became the General Correspondent for Friends of Missing Prisoners. After the war ended, Secretary Stanton enlisted her help to place markers and identify the dead at Andersonville Prison. Barton had placed markers on 12,500 graves by August 1865. During the time spent searching for missing prisoners, Barton had answered over 63,000 letters and identified 22,000 missing men.[30] Many women volunteered their time and risked their safety for a greater cause. Historian Frank Moore noted this tendency and praised the Union women of the Civil War Era when he wrote:

> These are they who followed their husbands and brothers to the field of battle and to rebel prisons; who went down into the very edge of the fight, to rescue the wounded, and cheer and comfort the dying with gentle ministrations; who labored in field and city hospitals, and on the dreadful hospital boats, where the severely wounded were received; who penetrated the lines of the enemy on dangerous missions; who organized great charities, and pushed on our sanitary enterprises; who were angels of mercy in a thousand terrible situations.[31]

On a trip to visit to Boston, Mary Livermore witnessed scenes of chaos prompted by the North's along the railway as the Union mobilized for the war. Soldiers appeared to be inadequately clothed and hungry. Jane Hoge's sons served in the Union Army inspiring her to into volunteer making the plight of Soldiers more tolerable by doing whatever she could to help. Later that year, the government gave its blessing to a privately organized agency called the U.S. Sanitary Commission, designed to coordinate relief efforts. Mary accepted a position in the Chicago office, eventually becoming co-director. She spent the next four years, nursing the wounded, traveling widely, and giving her first public speeches. She and her friend, Jane Hoge worked hastily, soliciting thousands of local aid societies to collecting and forward clothing, medical and hospital supplies, food, and other materials. In December 1862, after attending a general conference of U.S. Sanitary Commission leaders in Washington, D.C., Hoge and Livermore were appointed associate directors of the Chicago branch. In 1863, Hoge made three trips to the front in the Vicksburg, Mississippi, campaign, combining her inspection of the logistics system with the nursing of Soldiers. About that time they also were appointed agents of Dorothea Dix, superintendent of army nurses, to recruit nurses for service in hospitals in the Western Department.

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[30] ABC Teaching. "Clara Barton: American Red Cross Founder." Biography. http://www.abcteach.com/free/r/rc_clarabarton_upperelem.pdf. Accessed 15 June 2010.

[31] Frank Moore, *Women of the War; their Heroism and Self-Sacrifice* (Hartford, CT: S.S. Scranton & Co.,1867), iv-v.

In 1863, they organized the Great Northwestern Sanitary Commission Fair. They began an impressive campaign to solicit donations of food, farm equipment, needlework, china, crystal, and silver. For two weeks in late October and early November, citizens purchased these goods at the fair, attended evening entertainments, and showed their support for the Union cause. It is rumored that, President Lincoln donated his own copy of the Emancipation Proclamation, which brought $10,000 at auction. The fair raised close to $100,000, a large amount for that time. It was the most successful such undertaking of the war and inspired women in other cities to organize similar fairs. Even more astonishing is the estimate that the women raised and donated over $1 million dollars of supplies over the course of the war. Mary and Jane received national recognition for their efforts on behalf of Union soldiers and served selflessly in their plight to provide charity through supply to the War.

Spanish American War

The Spanish American War had its roots in the Cuban struggle for independence from Spain. The Cuban Revolution that began in February 1895 was viewed with great sympathy by most Americans. To show American concern as the situation in Cuba deteriorated, and to protect American citizens and property there, President William McKinley sent the Battleship Maine to Havana in 1898. The "friendly" visit turned into the catalyst for war when the Maine blew up and killed 260 American. The Spanish-American War was the first U.S. war to be fought overseas. The Army's only previous large-scale ocean movement had been 51 years earlier, during the Mexican War.[32]

The Spanish force consisted of 13,000 men to defend Santiago. After U.S. military forces chased the enemy out of Las Guasimas, three miles toward Santiago, a two-pronged attack on the Spanish defensive positions at El Caney and the San Juan Heights began on July 1st. Both objectives were achieved after fierce fighting and the taking of the San Juan Heights, highlighted by the famous charge up San Juan Hill led by the Rough Rider and the African-American 10th Cavalry Regiment, under Theodore Roosevelt. Following these battles, the Spanish retreated to Santiago. The siege of Santiago involved more negotiation over surrender terms than bombardment, but the Spanish surrendered the city on July 17th. `

Before the start of the Spanish American War, Secretary of War Russell A. Alger assessed the United States logistical capability as sufficient to be able to supply a million man force within 30 days. Unfortunately, while American industry surged during this timeframe, the Army was stagnant. Its basic organization had remained fundamentally unchanged since the War of 1812. The Army was unprepared for rapid expansion of men and materiel needed to wage war. The Regular Army on the eve of the war had only 28,183 Soldiers on duty, who were accustomed to fighting Indians in the West. As war fever grew, Congress appropriated $50 million for "national defense," but President McKinley would use the funding primarily for improving coastal defenses and fortifications, not to prepare for offensive operations.

[32] Robert Paulus, "Pack Mules and Surf Boats: Logistics in the Mexican War," *Army Logistician (* November-December 1997). Available from Army Logistician Database online at http://www.almc.army.mil/alog/issues/JulAug98/MS305.htm. Accessed 23 July 2010.

Except for rifles, supplies were inadequate. Determining logistics requirements was complicated without well-developed operational plans. Once war was declared, plans seemed to change almost daily. Tampa, Florida was chosen as the point of concentration for the Cuba expeditionary force. It proved to be a poor choice when battle plans changed from Havana to Santiago. Tampa lacked adequate facilities and equipment for unloading and storing the incoming materiel, and lacked rail capacity. Only the plant line ran on to the port, nine miles from the city. The flood of men and materiel created chaotic congestion. Reports declared that railcars were backed up as far north as Columbia, South Carolina. The problems at Tampa were evidence of the biggest logistics challenge of the war: transportation and distribution, not production. Between May 18 and August 31, the depot at Tampa handled 13,239 carloads of supplies and equipment, as well as railcars transporting 66,000 soldiers and over 15,000 animals. After one failed departure, the expedition left for Santiago in June.[33]

On the way to Cuba, there were plenty of rations, however cooking equipment was not supplied. The Commissary General of Subsistence, Brigadier General Charles P. Eagan, established a subsistence depot at or near each major camp where regulars and enlistees congregated before moving to Tampa or San Francisco. The existing purchasing and depot commissaries at New York, Baltimore, Chicago, St. Louis, Kansas City, New Orleans, and San Francisco bought and shipped to the camp depots enough rations to meet current demands and maintain a 60 days' supply. Subsistence/food supply in the Spanish American War was largely a success in terms of quantity, though there were field distribution problems in Cuba. More serious were the quality problems caused by lack of planning for the tropical climate. In addition, quartermasters couldn't respond quickly enough to the need for appropriate uniforms. Soldiers arrived in theater wearing traditional blue wool uniforms, which were uncomfortably hot for the tropics. The shortness of the war did not permit the Army to make major changes in clothing design. However, troops bound for the Philippines, with fewer numbers and more time to prepare, fared better. They received lightweight clothing, including a white drill suit, in addition to their wool uniforms. Demand for tents exceeded projections, mainly because the large number of sick soldiers meant more tents were needed for field hospitals. [34]

The Army relied on wagons and animals to move materiel because of the novelty and scarcity of motorized transportation. However, no wagons had been acquired in the nine months prior to war. The procurement of animals outpaced that of wagons, causing distribution problems in theater. The poor roads and trails in Cuba—often hilly, muddy, and overgrown with vegetation—hindered movement of supplies to the front. Animals that normally would carry 250 pounds could only manage 100 pounds in Cuba. Sickness among teamsters and packers exacerbated distribution problems. [35]

The task of mobilizing and deploying a largely volunteer force to Cuba**,** Puerto Rico, and the Philippines magnified the need for a separate transportation service within the Quartermaster Department. Army transporters worked with both the civilian railroads and the maritime industry to pull together a successful intermodal operation. Secretary of War Elihu Root

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[33] Robert D. Paulus. "From Santiago to Manial: Spanish-American War Logistics" *Army Logistician (*July-August 1983). Available at: www.almc.army.mil/alog/issues/JulAug98/MS305.html. Accessed 19 June 2010.

[34] *Ibid.*

[35] *Ibid.*

increased control over logistics during the Spanish American War. Root's reform program and the establishment of a War Department General Staff as the central logistical planning and coordination agency, provoked a long quarrel between the advocates of traditional methods of managing Army logistics. [36]

World War I

Following the Spanish American War, planning and procurement didn't keep up with technological advances in the Army equipment machine guns, motor trucks, armored vehicles, and aircraft quantities of other supplies were insufficient quantities. In 1911 steps were taken to establish central depots for general reserve supplies, but stocking them adequately never occurred and artillery and ammunition were shortest in supply. Serious shortages of animals, wagons, ambulances, and other materiel made it clear the National Guard couldn't be relied on to immediately mobilize for war.[37] Strength of the Army reached 1.5 million men within nine months of the declaration of war and is reported at over 3 million men by the end of the war. Not all of the American Expeditionary Forces (AEFs) problems concerned logistics. Colonel (later Major General) Johnson Hagood reported on Soldiers' lack of basic skills training, saying that "there were men who had been in the Army four months and had never fired a rifle, had any gas instruction, or marched a mile in formation…" Yet, the changes in technology and challenge of supplying that many men and Allies changed the face of logistics and military history.

The supply of World War I stretched logistic capabilities. For the first time airplanes, motor transport, signals intelligence and state of the art communications to include field telephones, telegraph, encryption devices, long range radio and interception techniques were used. The industrial undertaking and procurement program was enormous to support the "doughboys." Before the war, standard items numbered 20,000. In 1919, the list grew to 120,000 standard items and many of these stood for large numbers of individual pieces. To meet the demands of supply, inter-allied cooperation and the industrial capacity of France and Great Britain was critical. A U.S Quartermaster Soldier reported:

> "We found that if we followed instructions, supplies were forthcoming. Not a requisition was sent to the base that was not properly acknowledged, with a statement as to the probability of supply. A wire was always received the day before the [rail] car so that preparations could be made to receive it. Carefully checked lists were always found in the cars, showing exactly what they contained, and shortages almost never occurred."

Shipping was a major problem throughout the war, as the tonnage via ships was not available to move everything, sometimes only because of poor prioritization of what left the ports. A Shipping Control Committee was formed to create solutions and move our Army the furthest any army had ever been from home. From entry of war to signing of Armistice the Army shipped over five million tons of cargo across the Atlantic, and another 2 million in 1919.[38]

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[36] *Ibid.*
[37] Huston, 307.
[38] Huston, 309.

The men tasked with moving forces, equipment and supply included the newly formed Services of Supply, the Quartermaster Department and the Transportation Corps, ran by William W. Atterbury, was established in 1918. George Hodges was responsible for movement of troops within the states and was accomplished in phases, but the movement of supplies did not occur as easily. Commercial freight cars were short and there were unprecedented demands on all forms of transportation. Supply bureaus made their own transportation plans, leading to competition amongst one another. Later, the Embarkation Service was formed to organize and manage embarkation. Troop commanders had the daunting task of packing, labeling their unit equipment before leaving home stations. They then would disperse it to the appropriate ports according to its nature, follow it though the ports of embarkation and with good luck, pick it up on the other side of the ocean.[39] Once their shipments made it out of port, on board ships, ship convoys dealt with the threat of German surface raider warships and U-boats patrolling the Atlantic that had been devastating the shipping capabilities of England and France since 1914. [40]

Problems with transportation and vehicles continued to be a major concern. A brigade commander in the 26th Infantry Division said, "With traffic cops on every corner of the training camps at home and thousands of cars and trucks in reserve, we were put to the mortification of having to borrow transportation from the British and the French to keep men from starving to death." The 33d Infantry Division commander sarcastically commented, "that while the streets of Washington, D.C., were filled with Army and civilian cars, his division did not have a single vehicle capable of driving more than 20 miles without breaking down." [41]

During World War I the Quartermaster Corps remained in charge of supplying fuel, oil, paint, clothing, brushes, rolling kitchens, tools and tool chests, shoes, meat cutting supplies, packing, horses, mules and more. The Army required warm uniforms, overcoats, shoes, good socks and underwear. The men needed raincoats and rubber boots for wet and muddy weather. Belts and bandoleers of cotton webbing added to the soldier's efficiency as a rifleman or machine gunner. For the first time, women nurses of the Army were supplied with uniforms. Mobilizing the nation to produce all requirements was a challenge exacerbated by transportation problems.

The rate at which the nation worked, taxed resources. Some textile mills in the south were forced to shut down because of the lack of freight cars for movement of product. The munitions industry was in better shape, as it had mobilized to produce munitions to supply forces deployed to the Mexican border. That deployment provided a glimmer of what was to come with the new challenge of maintaining new technologies like Army vehicles. The American public was constantly informed that fuel would win the war. In this sense there was no commodity more important than coal.

[39] Huston, 346.
[40] Huston, 333.
[41] Huston, 320-350.

Services of Supply doughboys stand in a Luxembourg street during the road march to Germany in 1918.

The U.S. Army Quartermaster Services of Supply (SOS) was the logistics organization formed to support the three million Soldiers deployed to Europe. Major General James G. Harbord, Commanding General, American Services of Supplies, set about creating the SOS. Infantry divisions arriving in France were stripped of Soldiers with backgrounds as plumbers, pipefitters, masons, carpenters, bricklayers, millwrights, wranglers, electricians, blacksmiths, and glaziers.[42] Those Soldiers were sent to build and maintain the logistics bases. The men recruited into the SOS worked hard, day and night. Robert Koehn, an Ohio Soldier in the 83d Infantry Division, wrote to his mother, "Working on a building for a barracks and office room . . . Dear Mother . . . this is Sunday and a day off… first day for 6 weeks . . . So we all went uptown to take a bath . . . first time I been to town for 2 months . . . got a big bunch of American tools in last week . . . Seems good to get hold of them kind of tools . . . Still making windows . . . That's all I have been doing since we came to this camp." The most serious factor with which General Harbord had to contend, was the poor morale in the SOS. There was false perception that SOS officers had been failures at the front, reassigned to duties in the rear. Others found themselves unfamiliar with the skills required of the work: "Ribbon-counter jumpers are found in stevedore regiments; …lawyers appear in engineer units; longshoremen in the forestry regiments; railroad men in labor battalions, etc."[43] Charles Etzweiler, a young doughboy from Red Lion, Pennsylvania, spent the war in a railroad regulating company despite his many attempts to get a transfer to the Tank Corps.

When the AEF arrived in Europe, France was devastated by three years of warfare, and a large portion of the country was occupied by the German Army. With the largest portion of their workforce in military service, the French were struggling to provide food and shelter for their own soldiers so they had little left to offer the Americans. During the peak days of fighting for the American Expeditionary Force (AEF) in the fall of 1918, the SOS operated water ports, ran combat convoys, regulated rail lines, fed the force, fixed automotive and horse-drawn vehicles, maintained hospitals, and milled the lumber required to build the camps to house Soldiers who were arriving from the United States at the rate of 10,000 a day. The SOS supported 43 Army infantry divisions.

The SOS's work is impressive. The forestry units milled 200 million feet of lumber and cut 4 million railroad ties. One bakery produced 800,000 pounds of bread each day. SOS

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[42] A glazier is a construction professional who selects, cuts, installs, replaces, and removes residential, commercial, and artistic glass. Glaziers also install aluminum storefront frames and entrances, glass handrails and balustrades, shower enclosures, curtain wall framing and glass and mirror walls. Available at dictionary.com.

[43] Alexander F. Barnes. "Over There: Army Expeditionary Forces - Logistics in World War I. *Army Logistician* (July 2009). Avalaibale online at: http://www.almc.army.mil/alog/issues/JulAug09/over_there.html Accessed 5 July 2010.

mechanics repaired 30,000 vehicles, and the advanced section depots maintained over 2 million square feet of covered storage space. By the time the armistice was signed in November 1918, there were two million Soldiers in France and 650,000 of them were assigned to the SOS. [44]

In the meantime, General Pershing was able to recruit the services of a number of professional businessmen to assist in the acquisition, production, and distribution of badly needed resources. Everything the Army needed, from lumber to medicine, fresh vegetables, boots, and draft animals, was purchased and turned over to the SOS for distribution and management. For example, Lieutenant Jay Hormel used his background in the family meatpacking business to figure out that deboned frozen meats took up less cargo space than large cuts of meat left on the bone. Hormel's later development of Spam canned meat would have an equally significant effect in World War II.[45]

Battlefield logistics (besides combat) was the hardest test faced yet. Delivering supplies to the units on the field during the Meusse Argonne campaign was arduous. Pershing had stripped the SOS of its trucks and animals, crippling operations at ports and construction projects and he called men out of SOS to run depots, fix vehicles, and build roads. The battlefield and whole area was littered with shell holes and debris. When the division quartermaster for the 29th Infantry Division wrote his after-action report for the Battle of Saint Mihiel, he described in detail the struggles and ultimate success of one specific night convoy in which he traveled nearly impassible muddy roads under artillery and gas attack and endured miles-long traffic jams to get the required supplies to his units.

After the Armistice, supplying of the Army of Occupation was as cumbersome. Germany had been at war since 1914 and under blockade for much of that time. The German people were starving and the country was war-torn. To meet demands, the SOS supplied food and even set up depots to salvage existing clothing and equipment. The SOS was also responsible for sending back home the other infantry divisions that were not going to remain in Europe. By mid-1919, the SOS was able to close down many of its operations. In the end, adaptive leadership and hard work, the U.S., France and Great Britain prevailed. Logisticians of World War I provided incredible support to accomplish the mission of supply. The work of the SOS was praised by MG Harbord. He wrote:

> "By far the great majority of the officers and men who wore the shoulder insignia of the SOS were fresh from civil pursuits. They came from every walk of American life and from every field of its business. The sacrifice at which they served could be measured by the energy and intelligence which they gave to their duties in the knowledge that the more they gave, the sooner the War would be ended. We were engaged in what was relatively a civil task, compared to combat. Far from the sounds of the drums and the guns; unsought by the glory-hunters; absent when promotions were being distributed; ineligible even at the price of life itself for the medals that reward heroism in action; doomed to spend the rest of their lives explaining why they served in the Services of Supply-their equal in trained intelligence and general fitness for their tasks could not have been found in any other land than the one for which they so truly fought. Such men

[44] *Ibid.*
[45] *Ibid.*

may not have been within range of the enemy guns but they did more for their country by living for it than they could possibly have done by dying for it."

Pershing's Pioneer units also played an incredible role in repairing and building roads, thus opening supply lines. Pioneer units of WWI performed an extensive scope of logistic/engineering tasks in support of the Army. Company D of the 59th Pioneer Infantry division was deployed to conduct labors of laying pipe line, build reservoirs, operate pumps, patrol, install water systems, build and repair buildings, salvage ammunition, destroy captured enemy ammunition. All movements were made by foot due to lack of transportation. Continuing to hope for orders to move seaport to go home, the men forged on with their assigned tasks. On November 19th, 1918, the Company departed Buzancy for Verdun by narrow gauge railway and then forward to various locations. By December, they were still traveling, on foot again to Boucq, where they were engaged in salvage and demolition of ammunition. Near Damvillers Meuse, a German mine accidentally exploded and killed seven Soldiers: 1st Class John A. Chandler, Private Howard W. Johnson, Howard Penn, Michael Pattwell, Thomas David, Edward Volk, and Harvey Hadley and injured 2 Privates Clarence J. Riddel and Charles Mosher. With hope of home in the near distance, they gave their lives in support of logistic missions. The rest of the regiment returned home in July. [46]

In addition to the lack of transportation throughout the war Pioneers commented on the modes of travel which were never comfortable. Company I 59th Pioneer Infantry described being transported on the Leviathan ship that left dock at New Jersey. The men recalled being yelled at "get back to your bunks," as they were expected to lay on their backs for the entire voyage, except at meals to avoid blocking narrow aisles. After the uncomfortable boat ride, they were transported in French abbreviated boxcars "a la hobo" for two days.[47]

The Supply Company 54th Pioneer Infantry was formed from the 71st Regiment of the New York State National Guard. Their mission was to keep the other pioneer regiments supplied. Arriving tired, they hiked and then ensured that the regiment was supplied with blankets. After five busy days of rationing, drawing equipment and supplies, issuing gas masks, traveling through mud, they longed for a chance to sleep. Finding quickly that the war was no joke, on a movement by foot they were shelled the entire way. Arriving in Claremont France at 5 AM they watched men sleep against their sacks under blankets while they took two trucks to go back to Fleury and bring back supplies. They worked constantly. They noted the challenge of supplying companies so scattered and the problems with obtaining items or parts that had been stolen or lost. The poem was included in the supply company's history on the mission performed in World War I:

We didn't really fight battles,
Nor really chase the Hun,
Our bit was just to keep on working,
And not to shoot a gun.
But tell your friends and neighbors, lad,
We helped old Bill's retreat,

[46] Moses N. Thisted. *Pershing's Pioneer Infantry of World War I (*California, Alphabet Printers: 1982), 73.
[47] Thisted, 71-72.

For all our boys had beaucoup clothes,
And all there was to eat.

The Pioneers were critical to making sure supplies could move forward. Before Germans retreated they created obstacles by destroying roads and bridges. Pioneers rebuilt roads to move ammunition and other supplies to combatant troops.[48] They worked continuously under shell fire. Many were wounded, and many like, Corporal James M Smith gave their lives supporting the mission. One Pioneer wrote, "As we leave this family, we shall demobilize bigger and better men, because we have been members of an organization that we have learned to love and within which we learned those lessons that we never would have learned had we not been called upon to take part in this great conflict. Above all, we have learned to regard with entirely new aspect, the interest of our brothers."[49]

Without question men in supply convoys faced dangers and risked their lives to support Allies and troops. In Volume II of *The American Field Service in France* ambulance drivers who followed the French Albanian offensive provide a glimpse of the challenges faced in transportation.[50] The drivers of these sections account for the difficulties in performing convoy missions to transport the wounded, but traveled the same roads as logisticians. Their stories reveal the raw nature and reality of war. They remember scenes where wounded were dumped down on straw in "fearful pain." They discuss getting stuck in mud and veering into ditches. They climbed mountains in their vehicles so steep that it required cars and pushing to push them the last segment to the top. Temperatures were freezing and at times seemed unbearable

They experienced the constant fear of bombs falling from the air as planes flew over and were subject to attacks and combat. Henry M. Suckley served bravely in Section 10 and documented his experiences during the mission. Suckley heard a plane and ducked outside to look up at the sky when a bomb landed fifteen yards from him. He was terribly injured and remained conscious throughout the day, chatting and smoking with his comrades, but passed away in the early morning. The men he served with were saddened by the fact they could not attend his funeral and work "had to be carried on just the same as if he were alive, which was what he would have wished."[51] He was buried with full military honors.

James W. Harle explained an attack on drivers that seemed more like a "dream." In 10 days he drove over roads in indescribable condition. He made 11 trips over 750 miles on stretches of road that were knee deep mud, driving back and forth from 7 AM to 2 AM in the morning. He described running up and down hills to ensure he was awake before long stretches, as others had recently driven over walls and flipped their vehicles. He describes the fatigue and hallucinations he sees when growing fatigued after sometimes driving up to 35 hours and explains the measures he takes to keep himself alert.[52]

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[48] Thisted, 85.
[49] Thisted, 90.
[50] Members of the Field Service in France. *History of the American Field Service in France: Friends of France 1914-1917 Volume II* (Boston: Houghton Mifflin Company, 1920), 1.
[51] William Dennison Swan, Jr. *History of the American Field Services in France,* 15.
[52] James W. Harle. *History of the American Field Services in France,* 20.

The men described narrow escapes. I feel it took a special caring soul to be on these ambulance convoys. The men described driving as carefully as possible while caring for the wounded they carried and wincing at hitting rough patches of road as the men in back toiled and moaned in aches. They described the wounded's agony and suffering and their bustle to lift men back to field hospitals as carefully but quickly as possible. John M. Grierson wrote, "men don't go down a road where they see shells landing in order to admire a chateau at the other end, or to show how smoothly their car rides, but if there is something to be done at the end of that road, there has never been a man in the Section who balked at his turn."[53]

The Quartermasters of the War played equally important roles in the job of supply. The Quartermaster service in the American Expeditionary Forces was set up under Major General Harry L. Rogers. Under his command, in little more than a year from the date on which American headquarters entered active operations, the Quartermaster Corps in the AEF grew from 57 officers and 1,268 enlisted men to a complex organization comprising 4,665 officers and 96,066 enlisted men by the end of the war. The Quartermasters supplied the soldier with food, clothing, personal and housekeeping equipment, and performed services closely related to those supplies: laundry and salvage, bathing and disinfection. Identification and care of the fallen were Quartermaster functions in both wars. Transportation of men and materials, originally the Quartermaster Corps' prime function, was in both wars removed from Quartermaster control for separate administration, but supply of fuel, for mechanical transport, and of horses and mules and their forage and equipment, for animal transport, remained a Quartermaster responsibility. Paying Soldier was a function in World War I.

If you are like me, you like food, and it must have been a relief to Soldiers that the supply of food improved significantly. Fresh bread, potatoes, and vegetables reached up to the front lines and, in quiet sectors, into the trenches; where these fresh foods could not be served there were hard bread and canned vegetables, usually beans, tomatoes, or peas. Only when cut off by enemy fire or advancing over broken ground too rapidly for supplies to keep up was the front line soldier forced to fall back on his iron ration of canned corned beef and hard tack. Quartermaster Major, Otto H. Goldstein had been a wholesale grocer in Chicago and built a plant near Paris for roasting and grinding coffee which was turning out 90K lbs a day. By 1919 they would have been able to supply the entire coffee requirement for the AEF. He proceeded to create factories to make chocolate, bread and designed a process to make macaroni.

Tens of thousands of African-American Soldiers labored in France, while they were treated in second-class fashion. Nevertheless, the majority of blacks rallied to the nation's defense. Though the majority of black men were relegated to the Services of Supply, mainly serving as laborers and stevedores, there were some black combat units like the 369th Infantry Regiment, a National Guard outfit also known as Harlem Hellfighters. They faced continuous combat for 191 days, longer than any other American Unit.[54] One of the men of the 369th, Sergeant Henry Johnson, became the first American to win the French War Cross, the Croix de Guerre. In May 1918, Johnson and Private Needham Roberts valiantly fought off a vicious

[53] John M. Greirson. *History of the American Field Service in France*, 79-80.
[54] Ulysses Lee. *Summary of Operations in the World War: The Employment of Negro Troops* (Washington, D.C.: Center of Military History, 1966). http://www.history.army.mil/books/wwii/11-4/index.htm. Accessed 10 June 2010.

attack by a large German raiding party that appears to have numbered over 30 men. They killed at least four Germans and wounded ten. (Sowers 2003)

It is not until WWI that the U.S. officially allowed women to join the armed forces, wear the uniform, and participate openly as women. Globally, WWI generated an unprecedented demand for manpower, and subsequently created new opportunities for women to serve in the military. The use of women to support the war effort varied greatly from one nation to another.[55] Women went to work during World War I. They made munitions and many factories relied 95% on a female labor force. Munitions workers endured loud machines running full speed and risked serious accident. Women of color, despite discrimination, found ways to organize and help. They formed auxiliary branches of the Red Cross and sent thousands of knitted items. From every nation fighting in the world, sentiments were expressed at the women's contributions. The Earl of Duke said, "Because of the services of the women they have become part and parcel of our great army. Without them it would be impossible for progress to be made, but with them I believe that victory can be assured."[56] Former President Woodrow Wilson echoed his words and called upon the Nation to give women a voice in their government. He said,"because we are loyal to the men in the trenches, because we are loyal to ourselves, because we believe in the word of the President of the United States, we are today, gentlemen, pleading for democracy, that those who submit to authority shall have a voice in government." [57]

Worth mentioning in the endeavor to acquire supplies is Charles G. Dawes, who served as a General Purchasing Agent of the AEF and earned the rank of Brigadier General by the time he withdrew 2 years later. Dawes skillfully applied his business sense towards supplying the Army. When Western Europe was supposedly stripped of supplies, he acquired over ten million tons from Europe. Dawes made a well-known comment on accusations of waste during WWI, "'Sure we paid . . . We would have paid horse prices for sheep if sheep could have pulled artillery . . . It's all right now to say we bought too much vinegar or too many cold chisels, but we saved the civilizations of the world. . . . Hell and Maria, we weren't trying to keep a set of books. We were trying to win a war."[58] When the AEF needed coal and the French were not sure they could provide any, Pershing put Dawes in charge of working with the Navy to supply the commodity. In October, 1917, Dawes recruited 50,000 workers that Pershing estimated would be needed to build the railroads and buildings for the AEF. Dawes also devised an inter-Allied purchasing board, as well as a unified distribution authority. In 1919, despite opposition, he strongly urged the Congress to accept the Treaty of Versailles and the League of Nations.

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[55] LTC (P) Susan R. Sowers. "Women Combatants in World War I: A Russian Case Study." (Research Paper. US Army War College: 2003) Available at: http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA41454. Accessed 1 July 2010.

[56] Franz and Marilyn Shevin-Coetzee, *World War I - A History in Documents* (New York, Oxford University Press, Inc.: 2002), 78.

[57] Shevin-Coetzee, 78.

[58] Frank Friedel, *Over There: The American Experience in World War* (U.S., Bufurd Books: 2003) and Edward A Goedeken. "The Dawes-Pershing Relationship During World War I," *Nebraska History* 65 (1984): 108-129.

World War II

During World War II (WWII) The logistical reality of limited resources required concentration against one enemy at a time. It appeared Great Britain and Germany were in danger of surrendering, if assistance were not provided. However, circumstances forced the first moves of American deployments to be towards the Pacific. Preparations for the World War II invasion of France began 2 years before the actual operation. From January 1942 to June 1944, the United States shipped over 17 million tons of cargo to the United Kingdom. Included in the shipments was everything from general supplies and equipment to 800,000 pints of blood plasma, 125 million maps, prefabricated harbors (known as Mulberries), a replacement rail network, cigarettes, and toothbrushes.[59] By 1943 supplies were accumulating in Great Britain and1.5 million American troops and 5 million tons of cargo arrived by May 1944. [60]

Twelve quartermaster units provided everything from general supplies to transportation to graves registration. Frederick Godley does a great job summarizing the logistic challenges in World War II. The invasion operation divided Allied forces into five task forces--three British and two American. The invasion forces landed on June 6, 1944 at five beaches in Normandy: Omaha, Utah, Gold, Juno, and Sword. At Omaha and Utah (American landings) only 6,000of the 24,000 planned tons of cargo were offloaded in the first three days because of the difficulty of beach operations. Once forces secured the beaches of Normandy, supplied had to be organized, distributed, and moved forward. As the supply operation matured, 56Ktons of supplies, 20K vehicles, and 180,000 men were discharged each day at Omaha and Utah beaches. Until fixed port facilities at Cherbourg, Le Havre, Rouen, and Antwerp, Belgium were secured, resupply and staging operations consisted entirely of mulberries and over-the-shore operations.[61]

By the end of June, over 200K tons of supplies had been offloaded onto the Normandy beaches. Shortages still occurred because supplies could not be discharged from British ports quickly and ships could not return fast enough to keep up with the requirements of the landing forces. Once moving forward, supply lines lengthened. Transportation constraints frequently prevented Commanders from taking advantage of preferred tactical plans. In September 1944, supply forces set up a ground and air logistics express system to move food, fuel, ammunition, barrier materials, medical supplies, and equipment to forward units quickly by air, rail, and roads. Petroleum and ammunition accounted for half of the daily supply requirements.

As learned in WWI, coal and power in the form of petroleum was the lifeblood of the mechanized army. By September 1944, First and Third Armies were experiencing critical fuel problems, not because of a lack of fuel at the ports and beachheads but because of a shortage of transportation to move the fuel. To help solve the problem, the Allies built a pipeline. Once fuel reached the end of the pipeline, trucks moved it to forward supply bases. However, planned consumption was significantly underestimated consumption outstripped daily receipts as Allied forces moved forward. Fuel consumption rates and the lack of truck transportation were the largest contributors to the petroleum shortages. Nevertheless, fuel shortages accounted for only

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[59] Frederick V. Godfrey. "The logistics of invasions." *Army Logistician* **(**November-December 2003**)**. Available at Find Articles Database: http://findarticles.com/p/articles/mi_m0PAI/is_6_35/ai_110459247/. Accessed 22 July 2010.

[60] Huston, 435.

[61] Godfrey.

half of the critical shortages in the European theater. Ammunition was the other half. To deal with these operational supply shortfalls, logisticians set up a priority system based on the amount of supplies that could be hauled by truck and rail instead of which army had priority.[62] Aerial resupply was useful for supporting airborne operations and emergency resupply operations, but most supplies were moved by truck and rail. After March 1945, air transport was used mainly for medical and petroleum resupply.

Allied forces faced shortages of 105mm and 155mm howitzer and 81mm mortar ammunition, as the rate of supply fluctuated dramatically. The Army eventually solved this problem by establishing a required supply rate and a combat supply rate. Although providing food, water, construction materials, and clothing to forward troops was less difficult in World War II, it was difficult to serve a warm meal to units on the move. Clothing challenges involved everything from design and development to production problems to transportation shortages.

Although providing food, water, construction materials, and clothing to forward troops was less difficult in World War II than providing petroleum and ammunition, logisticians still faced some challenges with sustainment. Providing hot "chow" to forward units was time consuming, and it was difficult to serve units on the move. However, hot food was as big a morale boost for combat forces then as it is now.

World War II logistics, like prior wars, was a continuous process of adaptation and improvement. Quartermaster units and the Service of Supply (SOS) moved the supplies forward to corps supply dumps. Divisional quartermaster units then, moved the supplies forward and distributed them to units. Mule-pack and man-pack was still used as modes of transportation in some theaters. Transportation functions were consolidated into the Transportation Division of the newly created Services of Supply. In July 1942, President Franklin D. Roosevelt established the Transportation Corps. In 1945 the Transportation Corps had moved more than 30 million Soldiers within the U.S. and 7 million Soldiers plus 126 million tons of supplies overseas.[63]

The WWII men of the Services of Supply (SOS) again performed with courage and ingenuity. They were relied on to unload ships and the docks, worked on the railway destroyed by war, drove trucks, moved ammunition across the country, packed and unpacked warehouses of supplies, constructed camps and staging areas in muddy fields, and overall labored very hard to supply the Allied force. They again worked endlessly with little sleep as the tasks surmounted and supplies needed to be pushed further forward. Thousands of men doing their duty wherever

[62] *Ibid.*
[63] *Ibid.*

they happened to be, in defiance of danger and exhaustion. Though their stories are most likely located in archives across the country, many men sacrificed selflessly while supplying Allies and American forces in both theaters of war.

Ensign Herbert Charpoint Jones of the U.S. Naval Reserve was awarded the Medal of Honor for his courage and selflessness during the attack on the Fleet in Pearl Harbor on December 7, 1941. Jones organized and led a party, which was supplying ammunition to the antiaircraft battery of the U.S.S. California after the mechanical hoists were put out of action when he was fatally wounded by a bomb explosion. When two men attempted to take him from the area which was on fire, he refused to let them do so, saying in words to the effect, "Leave me alone! I am done for. Get out of here before the magazines go off." His actions caused him to lose his life but are courageous and his service will be honored by our continued support of freedom.

Lieutenant Jackson Charles Pharris also made critical impact to supply during the attacks on Pearl Harbor. Pharris served for the U.S. Navy, U.S.S. California, in charge of the ordnance repair party on the third deck when a first Japanese torpedo struck almost directly under his station. Pharris was severely injured by the concussion which hurled him to the overhead and back to the deck. Quickly recovering, he acted on his own initiative to set up a hand-supply ammunition train for the antiaircraft guns. Twice rendered unconscious by the nauseous fumes and handicapped by his painful injuries, he persisted in his desperate efforts to speed up the supply of ammunition and at the same time repeatedly risked his life to enter flooding compartments and drag to safety unconscious shipmates who were gradually being submerged in oil. He saved many of his shipmates from death and was largely responsible for keeping the California in action during the attack. He was awarded the Medal of Honor.

In Germany, Technical Sergeant, Vernon McGarity risked his life to resupply his troops. He was painfully wounded in an artillery barrage that preceded the powerful counteroffensive launched by the Germans near Krinkelt, Belgium in December 1944. He was treated and demanded to return to his men. McGarity's small force, tenaciously stood firm at all costs despite enemy fire and the breakdown of their communications. When morning came and the Germans attacked with tanks and infantry, McGarity braved heavy fire to run to an advantageous position where he immobilized the enemy's lead tank with a round from a rocket launcher. Under fire he rescued another wounded American. When ammunition began to run low, McGarity, remembered an old ammunition hole about 100 yards distant in the general direction of the enemy and his unit's supply. He left cover, and while under steady fire from the enemy, killed or wounded all the hostile gunners with deadly accurate rifle fire and made it back with ammunition. When the squad's last round had been fired, the enemy was able to advance and capture the men. McGarity did everything in his power to save himself and his men and ultimately they delayed the enemy, which allowed for assembling reserves who defeated the enemy.

Under the leadership of Admiral Nimitz the Navy developed elaborate techniques for floating base support, using combat loaders, fleet auxiliaries, and reliance upon carrier based air support. The need would be critical as we faced the long approach across the Pacific. These

techniques prove successful in the North African invasion, the Guadalcanal and Gilbert operations.

Civilians and contractors were used during the Korean War as well to supplement supply services and needs. As it had been since the onset of American involvement, the use of civilian contract labor would be a key element in the effort to keep aircraft operationally ready. Lear Siegler, Dynalectron, and Lockheed provided mechanics, while Bell, Lycoming, and Hughes dispatched field service representatives who gave technical assistance. A large number of personnel at the Army Aircraft Refresher Training School were also civilians who updated military personnel on later models and series equipment. Furthermore, the Aviation Command furnished Department of the Army Civilians (DACs), who went to Vietnam to assist in the establishment of its requisitioning procedures and channels and to help on any maintenance or retrofit problems. These DACs would return to Vietnam again and again, for a variety of reasons, though chiefly instructional. They enabled AVCOM to start and maintain a very close relationship, and they were important in the improvement of the in-country operational readiness rate.

General Andrew Thomas McNamara, former quartermaster general and a decorated World War II logistician, was indispensible in the organization of the main supply line in North Africa. He received the Legion of Merit for providing food, gasoline and other supplies to fast-moving U.S. forces in Tunisia. In November 1942, General McNamara was appointed Chief Quartermaster of the II Corps of the First Army and moved with them to establish the principal supply line in North Africa during Operation TORCH. In September 1943, following the Sicilian campaign, McNamara was brought to England and assigned as Chief Quartermaster of the First Army in preparation for the D-Day landing at Normandy. Units under his command supplied a minimum of 22 divisions on the continent, and provided services which would have been deemed impossible a generation earlier. The German counter-attack in December 1944 (Battle of the Bulge), McNamara sensed that the enemy's immediate objective was to seize as much as possible of the Allies' supplies, especially gasoline. In response they successfully evacuated more than 3 million gallons of gasoline in three days. For his outstanding service in the War, General McNamara was awarded the Distinguished Service Medal, Legion of Merit, Bronze Star Medal, Army Commendation Ribbon, and several foreign decorations, including French Croix de Guerre with palm, French Legion D'Honneur, and the Luxembourg Order De La Couronne DeChenne. Following V-E Day, McNamara returned to the U.S. in May 1945. He served for a short time in the Southwest Pacific Theater of Operations, then in August was assigned as Quartermaster of the First Army at Fort Bragg, North Carolina. [64] His other assignments included commandant of

[64] Arlington Cemetery Website. "Andrew Thomas McNamara, Lieutenant General, United States Army." http://www.arlingtoncemetery.net/atmcnamara.htmand Quartermaster Foundation. "Lieutenant General Andrew T. McNamara 36th Quartermaster General June 1957 - June 1961" Biography. Available at: http://www.qmfound.com/LTG_Andrew_McNamara.htm. Accessed on 3 July 2010.

the Quartermaster School at Fort Lee, Virginia, executive officer to the undersecretary of the Army and chief of the storage and distribution division of the office of the deputy chief of logistics. President Dwight D. Eisenhower nominated him to be Quartermaster General in 1957. In this capacity, he was responsible for myriad supplies and services, including uniforms, food, petroleum, field shelter, and maintenance of more than 80 national cemeteries. Before retiring he was the first Defense Logistics Agency (DLA) Commander. In retirement, he served as president and secretary of the Defense Supply Association and managing editor of its bimonthly publication.

World War II logistics was a continuous process of adaptation and improvement. It is the men and women who worked from home and behind combat lines that provided the combat power needed to defeat Germany and Japan.

Korean War

On June 25, 1950, the North Korean Army began an offensive to invade South Korea that resulted in the capture of the republic's capital, Seoul, within four days. The United States, the United Kingdom and other members of the United Nations moved to actively defend South Korea – an effort that would last until July 27, 1953, when negotiations concluded and fighting finally ended. The Korean War has been described as the United States greatest logistical undertakings in history. The total tonnage of supplies of all classes shipped from the United States to the Far East during the three years and one month of the Korean conflict -approximately 31.5 million measurement tons- was more than twice the tonnage shipped from the United States in support of the American Expeditionary Force in World War I during the 19 months from June 1917 through December 1918. It was 82 percent greater than the total shipment of supplies (17,277,000 measurement tons) for the support of Army ground and air forces in the Southwest Pacific Areas under General MacArthur's command in World War II in the 37 months from August 1942 to August 1945. [65]

Existing mobilization plans at the beginning of the Korean War, both for personnel, and materiel, were all framed in terms of all-out war. Thus, the entire mobilization process was one of improvisation. The limited mobilization undertaken had to be aimed both at providing and equipping the necessary forces for fighting a limited war in Korea and at placing the United States in a posture to meet Communist threats on a world-wide basis.

Industrial mobilization ran a parallel course to manpower mobilization but because of industrial lead time, averaging 18 months to two years for major items, its products had much less significance in fighting the war in Korea than did the results of personnel mobilization. For the most part, during the first year of the war in Korea, theater supply needs were met largely from World War II surplus, either rolled-up from the Pacific islands and rebuilt in Japan or

[65] Shrader, 577.

withdrawn from reserves in the United States, or from production on orders placed prior to June 1950. Without the roll-up and rebuild program in Japan timely supply to the forces in Korea would very probably have been impossible.

The 1903rd Engineer Aviation Battalion out of Chicago was the only organization that went as a whole unit to Korea. Stationed near Pusan, the 1903rd kept vital runways repaired, constructed much-needed buildings, and installed electrical lines, plumbing and refrigeration equipment in many areas. The engineers received a Presidential Unit Citation and were commended by the Korean government with a parade in their honor for the much-needed repairs Equipment for the most part consisted of World War II types; much of the service support, both in the United States and abroad, was being rendered by civilians. Mobilization reserves consisted of World War II stocks in Europe and the United States mainly designed to support a war in Europe. None of these reserves had been built to planned levels and they were badly unbalanced and in a poor state of maintenance.

Civilians and contractors were used during the Korean War as well to supplement supply services and needs. As it had been since the onset of American involvement, the use of civilian contract labor would be a key element in the effort to keep aircraft operationally ready. Lear Siegler, Dynalectron, and Lockheed provided mechanics, while Bell, Lycoming, and Hughes dispatched field service representatives who gave technical assistance. A large number of personnel at the Army Aircraft Refresher Training School were also civilians who updated military personnel on later models and series equipment. Furthermore, the Aviation Command furnished Department of the Army Civilians (DACs), who went to Vietnam to assist in the establishment of its requisitioning procedures and channels and to help on any maintenance or retrofit problems. These DACs would return to Vietnam again and again, for a variety of reasons, though chiefly instructional. They enabled AVCOM to start and maintain a very close relationship, and they were important in the improvement of the in-country operational readiness rate.

In one situation, a Soldier saved the day by thinking out of the box. In 1951, "Eighth Army took over operation of the Taegu ice plant. The medics approved the plant for sanitation and the engineers chlorinated the water. Ice was issued daily to every unit. An unusual use of the ice came when the enemy surrounded a company of the British 27th Brigade. The isolated troops suffered from a water shortage. Attempts were made to airdrop water in one-gallon canvas bags, but these split and the water ran out." One officer, Lt. McGail C. Baker suggested dropping ice to the troops instead of water. He placed 15- to 20-pound blocks in barrack bags and dropped them with great success. [66]

Lieutenant Colonel John U.D. Page of the U.S. Army, X Corps Artillery, attached to the 52d Transportation Truck Battalion earned distinction in battle in the Chosin Reservoir, Korea from November 29 to December 10,1950. His mission was to establish traffic control on the main supply route to 1st Marine Division positions and those of some Army elements on the Chosin Reservoir plateau. Having completed the mission, he chose to remain on the plateau to aid an isolated signal station. After rescuing his jeep driver by breaking up an ambush near a

[66] Shrader, 632.

destroyed bridge, Page reached the lines of a surrounded marine garrison at Koto-ri. He then voluntarily developed and trained a reserve force of assorted army troops trapped with the marines, which made an effective tactical unit available. He also helped improvise an airstrip on frozen ground outside of the Koto-ri defense perimeter while under attack. After 10 days of constant fighting the marine and army units in the vicinity of the Chosin Reservoir had succeeded in gathering at the edge of the plateau and Page was flown to Hamhung to arrange for artillery support for troops attempting to break out. Page refused an opportunity to remain in safety and returned to give every assistance to his comrades. As the column slowly moved south Lt. Col. Page joined the rear guard. When it neared the entrance to a narrow pass it came under frequent attacks on both flanks. Mounting an abandoned tank Lt. Col. Page manned the machine gun, braved heavy return fire, and covered the passing vehicles until the danger diminished. For 10 days he repeatedly did everything he could to protect his troops.

Captain William E. Barber's actions were critical in keeping supply lines open. A U.S. Marine Corps, Commanding officer, Company F, 2d Battalion 7th Marines, 1st Marine Division he defended the Chosin Reservoir, Korea. Assigned to defend a three mile mountain pass along the division's main supply line and commanding the only route of approach in the march from Yudam-ni to Hagaru-ri, Barber took position with his troops and along the frozen, snow-covered hillside. When attacked during the night, Barber gave assurance that he could hold the point if supplied by airdrops and requested permission to stand fast rather than fight the way back to a relieving force. This was after two reinforcing units had been driven back under fierce resistance in their attempts to reach the isolated troops. Aware that leaving the position would sever contact with the 8,000 Marines trapped at Yudam-ni and jeopardize their chances of joining the 3,000 more awaiting their arrival in Hagaru-ri for the continued drive to the sea, he chose to risk loss of his command rather than sacrifice more men if the enemy seized control and forced a renewed battle to regain the position, or abandon his many wounded who were unable to walk. Although severely wounded in the leg, he and his troops waged desperate battle throughout 5 days and 6 nights of combat. He and his heroic command killed 1,000 enemy in bitter subzero weather. When the company was relieved only 82 of his original 220 men were able to walk away from the position. His profound courage and fortitude were decisive factors in the successful withdrawal of the division from the deathtrap in the Chosin Reservoir.

Vietnam War

The modern conflict of the Vietnam War (1955-1975) had greater logistical challenges than the Vietnam War. In 1950, the People's Republic of China (PRC) recognized the Viet Minh's Democratic Republic of Vietnam rather than the French-supported State of Vietnam. When the PRC started providing advisors, workers, and weapons to the Viet Minh, the United States decided to provide limited support for the French in Indochina, as part of a global Cold War strategy to contain the spread of Communism. American support increased in proportion to the pressures faced by their allies. By the time the Viet Minh won a decisive victory at Dien Bien Phu, resulting in a French surrender on May 7, 1954, the United States had contributed over $1 billion in money and arms to the French, roughly 80% of the total cost of the conflict. As part of the ceasefire agreement, Vietnam was divided at the 17th Parallel. This was meant to be a temporary measure until nationwide elections could be held, but unrest following the rigged election of anti-Communist leader Ngo Dinh Diem in Saigon effectively cemented the division

of North and South Vietnam until the conclusion of the war. With the government of South Vietnam under increasing threat of an invasion from the north, United States participation in the war increased. In all, three million Americans would serve in Vietnam, a number equal to the military fatalities suffered by North and South Vietnam combined. Comparatively, 58,000 Americans died in Vietnam, nearly three-quarters of which were volunteers.[67]

The logistical and supply challenges faced by American planners in Vietnam were significant. Ports were overcrowded and insufficient to American military needs. In most areas there were literally no warehouse, storage, or maintenance facilities. In addition, the topography of the region provided American soldiers with an environment more forbidding than any they had seen since World War II in the Pacific. Facing jungles, swamps, and mountains, support crews had a difficult time establishing and maintaining construction, transportation, and lines of communication. Added to this was the climate. As Lieutenant General Joseph M. Heiser, Jr. noted, "There are two seasons: hot and dry, and hot and rainy… Overall, the climate of Vietnam severely hampered all logistical operations."[68]

The factor which had perhaps the largest impact on the ability of logisticians to effectively supply and support American forces was the nature of combat in Southeast Asia. As late as 1960, U.S. advisors to Ngo Dinh Diem's government were focused on preparing South Vietnam for a conventional invasion by North Vietnam. However, the strongly ideological military units of North Vietnam, the Viet Cong, were fighting a guerrilla war and augmenting their numbers through raids and recruitment. As such, it became nearly impossible to distinguish the Viet Cong from the civilian population of North Vietnam. As noted in *American Military History*, "By mobilizing the population, the Viet Cong compensated for their numerical and material disadvantages. The rule of thumb that ten soldiers were needed to defeat one guerrilla reflected the insurgents' political support rather than their military superiority."[69] The Viet Cong strategy proved effective, and allowed the movement to rise from 5,000 members in 1959, to nearly 100,000 by 1965.[70]

This was not the open warfare that the United States had experienced throughout much of World War II. American soldiers had seen guerrilla warfare in the Philippines and elsewhere in the Pacific Theater; however, American military strategists generally considered these to be isolated and unique incidents. To them, guerrilla fighting was used as a small-scale tactic, not as an overall strategy. The new war in Southeast Asia would prove them wrong. In Vietnam, there were few conventional battles, therefore standard war plans did not apply. Strategists had been accustomed to planning with a "front" mentality, the assumption that there is always a clear line marking the difference between friendly and enemy territory. This was not the case in Vietnam, where there were effectively no safe zones.[71] As Heiser has noted, the challenges created a rude awakening for those tasked with logistical support.

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[67] James Webb. "Heroes of the Vietnam Generation." Available at http://www.grunt.com/scuttlebutt/corps-stories/vietnam/heroes.asp. Accessed 23 July 2010.
[68] Lieutenant General Joseph M. Heiser, *Vietnam Studies: Logistic Support* (Washington, D.C.: Department of the Army, 2004), 3-4.
[69] *American Military History* (Washington D.C.: Center of Military History, 1989, reprint from 1969), 626.
[70] *American Military History*, 625-627.
[71] Heiser, 4.

Vietnam was a war fought essentially by small units (maneuver battalions, companies, and similar forces) in constant pursuit of an elusive enemy. In stark contrast to World War II and Korea, Vietnam is characterized largely by small, isolated actions consisting of ground and air assaults mounted from the numerous isolated base camps dotting the countryside. There were no fixed terrain objectives.[72]

Suddenly, the U.S. Army had to find a way to supply, equip, and maintain hundreds of thousands of American Soldiers, scattered in knots throughout a jungle landscape in footing of counterinsurgency, along a line 10,000 miles long. Initial efforts were further hampered by the fact that logistical support units and combat units tended to arrive in theater simultaneously, thereby giving support units little to no time in which to prepare the way.[73]

In an effort to improve the situation, the Joint Chiefs of Staff approved the creation of the 1st Logistical Command, activated with 350 men in Saigon on 1 April 1965. Its mission was to take charge of all logistical support in the war, including all procurement, engineering, construction, financial, and medical needs, although the Air Force and Navy had their own logistical systems. Any needs determined to be outside of the overall scope of the 1st Logistical Command were to be appealed to U.S. Army Ryukyu Islands (Okinawa), with which the new command had direct communication. Once in Okinawa, requests were screened and then either filled or forwarded on to U.S. Army Pacific and Army Materiel Command (AMC), in turn. This system proved to be inefficient, due to inconsistent communication lines, lack of supply, excessive bureaucracy, and clogged dock facilities in Vietnam. It is estimated that at least 40% of all allotted materials were lost in the chain of handling during the buildup for the war.[74]

There were many other barriers to effective logistical support in the Vietnam War, not the least of which was the inconsistent method of deploying troops to the region. The United States attempted to establish manpower ceilings, but these would prove inadequate in the face of mounting pressures on the South Vietnamese government. As such, these 'final ceilings' would constantly shift, with more troops deployed periodically over time. This left logistical planners in the constant position of supporting the current year's personnel level with last year's budget and supply. As a result, reserve stocks struggled to reach acceptable levels. Related to this was a lack of a comprehensive set of standards for living conditions in Vietnam. As such, each unit determined for itself how it would construct, furnish, supply, and maintain its facilities. This led to a spiraling cycle of chaos in procurement. Units over-ordered supplies, resulting in shortages for other units, unnecessarily. This shortage led to the ordering of non-standard models and items to make up for the shortfall. The proliferation of item models in inventory led to shortages in replacement parts and in personnel qualified to make repairs. This led units to order extra items to have on hand in the event of malfunction, which further exacerbated the supply issue.[75]

Despite these challenges, logistical support in Vietnam steadily improved over time. One of the earliest problems to be addressed was the lack of port facilities. At the start of the conflict, U.S. forces could only rely on two busy ports to unload materiel. By the end of 1967, that

[72] *Ibid*, 7.
[73] *Ibid*, 4, 8.
[74] *Ibid*, 9-11.
[75] *Ibid*, 13, 17-18.

number had increased to ten. As a result, the time American ships spent waiting to unload was reduced from twenty days in 1964 to two days in 1970. In 1965, the Army also elected to bypass Okinawa in the supply chain in favor of direct requisition from the Ammunition Procurement and Supply Agency. This helped eliminate delays and reduce losses. Additional improvements in logistics organization throughout the war resulted in improved supply and saved several billion dollars.[76] Improvements were also made in the area of training. In the U.S., the Atlanta Army Depot initiated depot operations instruction for those bound for support duty overseas, resulting in the training of over 4,600 personnel. Officer personnel bound for Vietnam received training at the Defense Supply Agency (Richmond, Kentucky) and at the U.S. Army Electronics Command (Fort Monmouth, New Jersey). Personnel already in theater also received training under the guidance of the 1st Logistical Command, which included supply and inventory instruction.[77]

With consistent improvements, the logistical situation improved to such a level that only in rare cases were troops left wanting. According to James Webb, "Overall, our troops had little, if anything, to complain about. Communications support, logistic support of all kinds, medical care which made miracles seem commonplace, and engineer support – all without exception were outstanding."[78] Contributing to this success was the important relationship that developed between Soldiers and logistical support personnel, who, unlike other wars, constantly shared the same dangers and concerns in the hostile jungle environment.[79] They also shared a tendency to go above and beyond the call. Soldiers, accustomed to the possibility that they might lose their lives at any time, in a country where it was often difficult to tell friend from foe, nonetheless often donated their time and efforts to help the Vietnamese population. While cynical stories of brutality during the Vietnam War are prolific, what is not as well reported are the positive efforts made by American Soldiers. For example, in 1968-1969 alone, American personnel were responsible for the construction of 7,099 homes, 1,253 schools, 598 bridges, 422 dispensaries, 263 churches, 175 hospitals, 153 marketplaces, and 3,154km of roads.[80]

Support personnel also made sacrifices, sometimes at the expense of their lives. Sergeant William W. Seay was a supply truck driver for the U.S. Army, 62d Transportation Company (Medium Truck), 7th Transportation Battalion, 48th Transportation Group. On 25 August 1968, while serving on a resupply mission, carring critically needed ammunition and supplies from Long Binh to Tay Ninh, his convoy was attacked by the North Vietnamese Army. Sergeant Seay immediately took cover and returned fire, killing as many as a dozen enemy fighters. In the process, he twice picked up grenades lobbed in his direction and threw them back, killing the enemy and saving several of his comrades before losing his life to a sniper's bullet. Though Sergeant Seay lost his life, he assisted in the successful defense of the supply convoy and saved the lives of many. He was awarded the Medal of Honor for his sacrifice.

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[76] *Ibid*, v, 25, 108.
[77] *Ibid*, 32, 61.
[78] James Webb, Heroes of the Vietnam Generation", Grunt.com, http://www.grunt.com/scuttlebutt/corps-stories/vietnam/heroes.asp.
[79] Heiser, vi, 4.
[80] *Ibid*, vi.

Lance Corporal Thomas E. Creek, U.S. Marine Corps, Company I, 3d Battalion, 9th Marines, 3d Marine Division (Rein), FMF served selflessly near Cam Lo, Republic of Vietnam in February 1969. While serving as a rifleman with Company, Creek's squad was providing security for a convoy moving to resupply the Vandegrift Command Base when a mine destroyed one of the vehicles and halted the convoy near the Cam Lo Resettlement Village. Almost immediately, the Marines came under mortar and small-arms fire. Creek quickly moved to a fighting position and engaged in the fire fight. Disregarding his own safety he dashed across the fire-swept terrain and was seriously wounded by enemy fire. At the same time, an enemy grenade was thrown into the gully where he had fallen, landing between him and several companions. Creek rolled on the grenade and absorbed the full force of the explosion with his body, saving the lives of five fellow Marines. His men defeated the enemy and the convoy was able to continue its vital mission. Lance Corporal Creek's courage and selflessness is an incredible show of altruism. He gave his life for his comrades, for our country, and for the people of Vietnam.

Sergeant Donald Russell Long also sacrificed his life in a similar manner. He fought bravely in Vietnam on June 30, 1966. Conducting a reconnaissance mission along a road they were suddenly attacked by a Viet Cong regiment. Long abandoned his armored personnel carrier and braved enemy fire to carry wounded men to evacuation helicopters. As the platoon fought its way forward to resupply advanced elements, Sgt. Long repeatedly exposed himself to enemy fire at point blank range to provide the needed supplies. When the enemy threatened to overrun a disabled carrier nearby, Long helped wounded crew to safety. As he was handing arms to others and reorganizing them to press the attack, an enemy grenade was hurled onto the carrier deck. Instinctively shouted to the crew and pushed one man to safety before absorbing the blast saving the lives of eight comrades at the expense of his life. Sergeant Long died showing extraordinary heroism.

Chief Warrant Officer, Edgar Frederick Ferguson, U.S. Army, Company C, 227th Aviation Battalion, 1st Cavalry Division (Airmobile) served bravely in Hue, Republic of Vietnam on January 31,1968. As Commander of a resupply helicopter, he received an emergency call from wounded passengers and crewmen of a downed helicopter under attack and volunteered to attempt evacuation. Despite warnings from all aircraft to stay clear of the area, CWO Ferguson began a low-level night at maximum airspeed along the Perfume River toward the tiny, isolated South Vietnamese Army compound in which the crash survivors had taken refuge., he displayed superior flying skill by landing his aircraft under heavy fire. Although the helicopter was severely damaged by mortar fragments while loading the wounded, Ferguson disregarded the damage and, taking off through the continuing hail of mortar fire, he flew his crippled aircraft through continued enemy fire and safely returned the wounded passengers. CWO Ferguson's extraordinary determination saved the lives of 5 of his comrades. He is a true role model of selfless service.

General Frank Besson impacted the path tactical and strategic logistics over the course of three wars, through Vietnam. In 1943, then LTC Frank Besson was assigned as Assistant Director and General Manager of the Third Military Railway Service in Iran, assuming full command in 1944. He manage the Iranian State Railroad to get U.S. supplies to Russia. Under his command, more than five million tons of essential war materials were

delivered to the Russian Army to help repel the German attack. He was awarded the Army Legion of Merit for his outstanding work. The Shah of Iran personally presented him with the Iranian Medal, the Order of Hoymanoun, Second Class.

After V-E Day in May 1945, Brigade General Besson was assigned as Deputy Chief Transportation Officer of the Western Pacific, and assumed total control of the railroads in the Eighth Army's assigned zone of occupation. Incoming occupation troops were soon moving throughout northern Japan by rail from shipside to airport. From 1946-1948, BG Besson was assigned by General Douglas MacArthur as Director of the Civil Transportation Division, Supreme Headquarters, Allied Powers in Japan. He was responsible for all military water, motor and rail transportation activities in Japan, the Philippines, the Marianas, and Korea. Among his accomplishments was the establishment of a "depot on wheels," storing in 20,000 rail cars valuable military equipment released by inactivated units. This equipment, saved from deterioration and loss, was later rehabilitated and played an important part in the Korean campaign.

BG Besson returned to the U.S. in 1948 and served for nearly five years as Deputy Chief of Army Transportation. Promoted to Major General in 1950, he assumed command of the U.S. Army Transportation Center and School at Fort Eustis. He directed extensive studies to develop new doctrines that would enable the Corps to better cope with the requirements of modern warfare. His visions involved the routine use of air transportation, employment of express surface transport, full exploitation of special purpose containers, vehicles, material handling equipment and ships of radical design. He pioneered concepts aimed at greater speed and efficiency into the transportation system by using containerization, roll-on/roll-off vessels, and improved amphibious vessels, such as the 5-ton and 15-ton LARC's and the 60-ton BARC.

From 1958 to 1962, Besson served as the Chief of Army Transportation. He also traveled worldwide reviewing transportation operations and needs. The photo below shows Besson with a soldier and the commander of Fort Story, Col Thompson, discussing the merits of the BARC, later designated the LARC-60. Training for the LARC-60 took place at Fort Story until 2001. In 1962, Besson was promoted to Lieutenant General, and became the first chief of the U.S. Army Materiel Command (AMC) which consolidated all seven technical services. Many consider his role in helping establish the AMC, and his six years of service as its first commander, as his most important contribution to the Army. In 1964, Besson became the 75th officer to become a four star general. He was the first Transportation Corps officer to achieve that rank and also the first to achieve the rank as head of a logistical organization in peacetime. After retirement in 1969, General Besson was recalled to serve as Chairman of the Joint Logistics Review Board, reporting on worldwide logistic support to U.S. forces during the Vietnam conflict. In 1970, he was appointed by President Nixon as a founding director and first CEO of the National Rail Passenger Corporation, the operators of AMTRAK. He received many U.S. and foreign awards and decorations, including the Distinguished Service Medal with two Oak Leaf Clusters, the Legion of Merit with one Oak

Leaf Cluster, the Iranian Order of Homayoun Star, Commander of the Order of the British Empire, and the Republic of Korea's Order of the Military Merit, Second Class (Ulchi).[81]

Throughout the Cold War era, logistics and the technology that impacted it continued to change as the US participated in several smaller contingency engagements leading up to the Gulf War.

Operation Desert Storm

Saddam Hussein ordered Republican Guard Forces to begin preparations to invade Kuwait in July 1990. On 2 August 1990 his forces conducted a rapid ground advance south and captured Kuwaiti forces and sped towards Kuwait City and captured it by 0500. Once secured, they started to advance towards the Saudi Arabia border to establish a defensive line. On 4 August 1990, General Norman Schwarzkopf, US Army Commander in Chief, CENTCOM, briefed President Bush in Camp David with details of deploying a defensive force to Saudi Arabia. The onset of the Gulf War in 1990 proved one of the greatest challenges faced by Army logisticians. General Schwarzkopf's demand for a buildup was the fastest ever witnessed by the United States military.

"The overall logistics effort to mobilize and support Desret Shield/Storm was hurculean, especially in the weeks prior to initiating hostilities. The superb performance of the logistics community deserves high praise."

Gernal Norman Schwarzkopf
Lessons Learned Report April 1991

As summarized by Major John McGrath and Colonel Michael Krause, Logisticians who served in Operation Desert Storm, in *U.S. Army Materiel Command: Theater Logistics and the Gulf War*, the deployment to the Gulf was very different in comparison to previous wars. In the Spanish American War and Second World War the Army adapted to supplying from an amphibious platform. In both World Wars, the U.S relied on an inter-Allied approach and integrated into existing theater supply systems. In Korea, the US relied on a large logistic foundation in Japan. During Vietnam, the deployment was gradual and logisticians had time to build up the required structure to support the forces. In Southwest Asia, logisticians had to start from scratch, in relative terms. There was no military presence in the region and the timeline to get troops on the ground and equipped was short.[82]

The Army moved forward into Iraq from Saudi Arabia. The Saudis provided support during the first two months with no formal agreement. ARCENT would rely on them for the contract of food, fuel, long-haul trucks and drivers, water and other essential supplies. The U.S. used their port facilities and telecommunication infrastructure. Overall the Saudi government supplied 4,800 tents, 1 million gallons of petroleum products, 333 heavy equipment transporters,

[81] Army Materiel Command Website. "General Frank Besson." Available at: http://www.amc.army.mil/pa/Previous%20Commanders/Besson.pdf. Accessed 28 June 2010.
[82] Major John McGrath and Colonel Michael Krause, *U.S. Army Materiel Command: Theater Logistics and the Gulf War*, (Washington D.C.: Center of Military History, 1994), 3.

20 million meals, 20.5 million gallons of gas per day and bottled water for the entire theater and Iraqi prisoners. The demands of our presence and support required were surely not ideal, but their country and people responded to the tremendous effort. [83]

Lieutenant General John Yeosack served as the Commander of CENTCOM's Third Army at the time we entered the War. His command required he serve in three major capacities. It was his duty to divide scarce resources amongst war-fighting units and he personally conducted the apportionment tasks. He was expected to coordinate with all US Services and Allied forces. And third, he was responsible for common supplies and service to include food, fuel, ammunition and transportation to all Services within theater. LTG Yeosack set forth to build the field army incrementally. Fighting forces were placed at the forefront of the deployments, making the challenge to provide adequate logistical support a major challenge. To accomplish the task of supply, LTG Yeosack would count on the expertise of Lieutenant General William G. Pagonis.

Lieutenant General William G. Pagonis served as the Commander of the 22nd Support Command and the ARCENT Deputy Commanding General for Logistics. His expertise was invaluable in receiving troops as they first landed in Saudi Arabia. Pagonis described how the supply of the war started. He said it began "me and two other guys" after a phone call on the day after the Iraqi invasion of Kuwait, from the headquarters of the Joint Rapid Deployment Force in Tampa, Florida.[84] Eventually he and 21 officers created the framework necessary to support the force from Saudi Arabia. The 22nd Support Command began as a small operation, and they had to act on their feet and handle all situations that surfaced quickly. The magnitiude of the situation was that they were operating on a bare bones logistical structure and building it up while having to begin supporting troops arriving in theater. The flow of troops only picked up pace, while more challenges surfaced. Early arriving units brought inadequate support with them. Some Soldiers had little more than their basic load of ammunition, food and water. By the time President Bush authorized limited troop activation in March the 22nd Support command was running effectively to manage the logistics mission growing daily. As efficiently as allowed by circumstances. LTG Pagonis and his staff continuously adapted to the evolving challenges of supplying the theater from Saudi Arabia.

One of the first feats to work through was moving troops from airports or ports. Pagonis relied on the capabilities of his Officers to create solutions on moving items and troops.

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[83] Scales, 65.

[84] John Kifner, "War in the Gulf: Logistics; From Bombs to Burgers, Gulf War Involves Biggest Supply Effort Ever" *New York Times*. Feb 4 1991. Available at: http://www.nytimes.com/1991/02/04/world/war-gulf-logistics-bombs-burgers-gulf-war-involves-biggest-supply-effort-ever.html. Accessed 20 July 2010.

Lieutenant Colonel Mike Velten did an incredible job creating an ad-hoc transportation organization to move troops by bus from Saudi Arabia. With the 7th Transportation Group and 12 Soldiers, he orchestrated the movement of Soldiers and baggage from the Dhahran airport. In one incident, Velten took to the streets of Dhahran in his pickup truck and whenever he saw a truck or bus parked, he pulled over to the side and negotiated deals to acquire transportation for Soldiers. Under pressure, his initiative kept Soldiers moving from the ports at a rate of 4,000 per day. [85]

American companies and industry again responded to the war call. When tires for Heavy Equipment Transporters (HETs) required tires, the Army found itself in short supply. AMC Commander General William G.T. Tuttle and Major General Leo Pigaty of the Tank Automotive Command could only locate 900 tires worldwide. The private sector answered the call to support immediately. A civilian version of the tire was produced at General Tire and Rubber and the company offered to ship all they had on hand immediately. One of their dealers in Waco Texas, Ken Oliver, acted by immediately making an overnight trip to Tinker Air Force Base with a rented cargo trailer.[86] This is just one example of selfless service to support the troops. Forthe tremendous efforts to organize and execute logistics from home and in theater, many logisticians deserve additional credit for their actions.

Though the war didn't last long, logisticians again gave their life in sacrifice of our country. The 14th Quartermaster Detachment, a United States Army Reserve water purification unit stationed in Greensburg, Pennsylvania, was mobilized for service on 15 January 1991. The unit arrived at Fort Lee, Virginia three days later to conduct intensive mobilization training in preparation for deployment to Saudi Arabia. For thirty days, detachment soldiers trained 18 hours a day on the Reverse Osmosis Water Purification Unit (ROWPU) water purification system and common soldier tasks. The unit, augmented by 35 filler personnel from other active Army and reserve units, arrived in Dhahran, Saudi Arabia on 19 February 1991. The detachment's soldiers were quartered in a warehouse that had been converted to a temporary barracks. There, they waited for the arrival of unit equipment and movement to a field support location. On 25 February 1991, parts of an Iraqi SCUD missile destroyed the barracks housing members of the 14th Quartermaster Detachment. In the single, most devastating attack on U.S. forces during that war, 29 soldiers died and 99 were wounded. The 14th Quartermaster Detachment lost 13 soldiers and suffered 43 wounded. Casualties were evacuated to medical facilities in Saudi Arabia and Germany. The 14th, which had been in Saudi Arabia only six days, suffered the greatest number of casualties of any allied unit during Operation Desert Storm. Eighty-one percent of the unit's 69 soldiers had been killed or wounded. A community memorial service was held on 2 March 1991 and over 1,500 citizens attended to honor the lives and sacrifice of: Specialist Steven E. Atherton**,** Specialist John A. Boliver, Jr.**,** Sergeant Joseph P. Bongiorni III**,** Sergeant John T. Boxler, Specialist Beverly S. Clark**,** Sergeant Allen B. Craver, Specialist Frank S. Keough**,** Specialist Anthony E. Madison, Specialist Christine L. Mayes**,** Specialist Steven J. Siko, Specialist Thomas G. Stone, Sergeant Frank J. Walls**,** and Specialist Richard V. Wolverton.[87]

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[85] General Robert H. Scales, *Certain Victory: The US Army in the Gulf War.* (Leavenworth, KS: US Army Combined and General Staff College Press, 1994), 62, 65.

[86] Scales, 63.

[87] Quartermaster History Department. "14th Quartermaster Detachment." http://www.qmfound.com/14th_Quartermaster_Detachment.htm**.** Accessed 15 July 2010.

Members of the 14th Quartermaster Detachment receive a hero's welcome at Latrobe Airport, Pennsylvania, March 9, 1991.

Specialist Steven Hawkins proudly holds the unit's tattered guidon at present arms First Lieutenant David Bennett, Acting Commander

More women and men worked side by side than ever before in the defense of the nation. Still not permitted in direct combat positions such as infantry, women played a critical role in the management of logistic functions and roles within the administrative and combat support positions in the Army. Their assignments included civil engineering, military police, and transportation via truck and helicopter. Several, gave their life and five women were killed in action. Sergeant Sheri Barbato worked as a records administrator in a vehicle maintenance unit of the 1st Calvary Division. Her unite crossed the border into Iraq on the opening night of fighting. Barbato stated, "I didn't think women were supposed to get this close to the front lines…and there wasn't anything over there that happened to the guys that didn't happen to me." After her position, she questioned the exclusion of women in combat positions. Sergeant Barbara Bates served as a meteorologist and the only women of 700 men in a forward based self-propelled howitzer unit with the 24th ID (mechanized). Supporting a combat unit, she deflected the policy by stating, "When the shells start coming downwind, I will be counting on my flak jacket for protection, not my MOS." The women of the Gulf War demonstrated admirable and courageous support. [88]

[88] Frank N. Schubert and Theresa L. Kraus, *The Whirlwind War* (Washington D.C.: Center of Military History, 1995), 209-214.

Major Marie Rossi was a combat pilot with the XVIII Airborne Corps and one of the first female Soldiers over the border into Iraq, where she led a company of Chinook helicopters in supplying ammunition to combat troops. Her selfless service shined through in a comment with a CNN reporter, "What I'm doing is no greater or less than the man who is flying next to me or in back of me." Major Rossi sacrificed her life when she and three others crashed returning form an air resupply mission. Bad weather caused them to veer off direction and hit a microwave tower. [89]

In the mission to supply to the 2nd Armored Cavalry Regiment, Captain Deborah Davis led her company with great courage. When fifteen of the regiment's ammunition tractors became bogged down in sand crossing a berm, the 11th Aviation Brigade was directed to provide emergency aerial supply. Two Chinooks from A-Company, 5-159th flew tank ammunition north. They were initially forced to return when a sandstorm struck. Two more aircraft pilots returned to reattempt the mission. CPT Davis led the pilots as they descended below 50 feet. The Chinooks were required to land. The Aviation Company sent 4 more helicopters forward when the weather broke long enough to provide the ammunition. By the end of the day, the regiment captured enemy forces, accomplishing their mission.[90]

After the War, Army Reserve Colonel Randall Elliott of the 352nd Civil Affairs Command led the Kuwaiti Task Force to bring Kuwait back to life. He and the task force worked the acquisition and supply of needs to the people. After experiencing months of attacks and strife with Iraqis, the Army would help provide restoration and relief to Kuwait citizens. The Task Force obtained more than $558 million in contracts for goods and services to help revive the city and care for its people. The Corps of Engineers played a significant role rebuilding infrastructure. Over $300 million in repair work was conducted to fix electrical substations, water mains, two seaports, the airport, schools, and public works facilities even provided to feed the animals at the zoo.

[89] Schubert and Kraus, 214.
[90] Scales, 223-224.

Global War on Terrorism

The logistics mission being accomplished by the United States military still unfolds in support of Operation Iraqi Freedom and Operation Enduring Freedom. Logistic support was already in motion, at the start of operations in March 2003. That month, 167 ships operated by the Military Sealift Command carried equipment forward into theater. Pilots flew thousands aircraft and commercial sorties both inter- and intra-theater to deploy and position almost 424,000 U.S. personnel and their equipment, facilitating reception, staging, onward movement, and integration (RSO&I) of forces in the Area of Operations (AOR) in accordance to the concept of operations developed by the combatant commander. Subsequently, "during OIF, we witnessed the most dominating, rapidly moving, and ultimately successful combined air, sea, and ground fighting force ever to go into battle. The battle plan predicted a 30-day campaign timeline to combat victory. The coalition did it in three weeks." [91] Conventional military doctrine would have deployed a few hundred thousand troops on the move to Iraq supported by a large logistics tail or "iron mountain." Instead, then Central Command Combatant Commander, General Tommy R. Franks, "envisioned a swarming, rapid, responsive force capable of removing threats immediately: relying on speed more than mass."[92]

Significant planning and capabilities enabled us to be more prepared to supply incoming troops than ever before, and provide the speed required. Supply and combat service support (CSS) units performed miracles distributing materiel throughout theater, where the pace of keeping up with combat units pushing north was critical. Routine sustainment and operational support missions occurred simultaneously and continuously throughout Iraq. The level of support has been sustained as focus has been shifted back into Afghanistan.

There are numerous lessons learned and stories of success filling pages of logistics publications in the past seven years. For example, supplying and distributing fuel proved to be a critical task. The 49th Quartermaster Group (Petroleum and Water) successfully managed the mission. Decisions to use the Inland Petroleum Distribution system and pre-projection efforts to place seven truck companies in theater supported the movement of fuel from day one of combat operations. [93] Many problems surfaced with distribution and shortages of some classes of supply such as repair parts. Logisticians worked quickly to prevent disruption of supplying the Warfighter. For example, a theater distribution center moving materiel from Kuwait operated by a contractor. When materiel exceeded the central shipping and receiving point (CSRP) capacity, backlog developed, and the contract terms were exceeded. Part of the problem was untrained drivers. As a solution a theater distribution center (TDC) was established and the backlog was shifted and the problem of backlog diminished.

In this war, more effort was placed on tracking and accounting for ammunition, equipment, water, and food with the use of complex computer systems. Some supplies were tracked digitally through the Battle Command Sustainment and Support System (BCS3) to provide Commanders with a visual layout of battlefield logistics. The system uses transponders to track vehicles progress towards supply points. For example, logisticians low on gas had the

[91] Christopher M. Kennedy et al, *U.S. Marines in Iraq, 2003: Anthology and Annotated Bibliography* (Washington, DC: History Division, United States Marine Corps, 2006), 62.
[92] Kennedy, 62.
[93] 49th Group Website. "49th Group."Available at: http://www.49thgrp.army.mil/aboutus.html. Accessed 17 July 2010.

capability to use BCS3 to find out what gas vehicles were in transit to create a strategic meeting point to fill the vehicle. Many sectors of the Army, managing property and equipment embarked on a campaign to "tag everything that moved" to track equipment and improve accountability.

Once we shifted towards sustaining the force and managing the equipment on ground, redistribution and retrograde of equipment became the focus for all units in Iraq, most notably for AMC's Field Support Brigade-Iraq (AFSB–I), the Military Surface Deployment and Distribution Command's 840th Transportation Battalion, and the 3rd COSCOM. These processes reversed the paradigm of bringing everything into Iraq, as had been done for the last three years. The shift toward moving equipment and materiel out of Iraq while redistributing other equipment to other combat, sustainment, deployment, and redeployment operations began. Redistribution and retrograde were key components of the Army's transition from limited wartime property accountability to stricter peacetime accountability standards.[94]

The Army Materiel Command (AMC) has provided extensive logistic support through the use support elements in theater. AMC Logistic Support Elements (LSEs) prepared for arrival of Army Prepositioned Stock, executed a logistics assistance program to provide expertise on the battlefield and managed Logistics Civilian Augmentation Program (LOGCAP) for base services. Their forward role was critical to providing better reception of equipment and troops. As troops built up in theater more LSE forwards were integrated into theater and the logisticians supporting the force grew to over 8000 personnel the mission by May 2003. The ability to utilize Army Prepositioned Stocks (APS) generated combat power from March to May 2003, while additional equipment could be moved overseas. Initially the APS program fielded 218 units with 12,700 pieces of combat and wheeled rolling stock, innumerable Sets Kits and Outfits (SKOs) and hundreds of thousands of eaches of sustainment supplies. Though problems were identified with the use of APS and fill rates of supplies within some of the APS sets, it was a success. Equipment performed as forces spearheaded by the 3ID (M) entered Baghdad in a series of maneuvers called "Thunder Runs." As AMC's mission grew, it expanded its support across theater. AMC major subordinate command (MSC) the Army Sustainment Command (ASC) operates a network of Army field support brigades and battalions, logistics support elements, and brigade logistics support teams which identify and resolve equipment and maintenance problems, as well as materiel readiness issues for combatant commands. The AFSBs provide ASC with a single command structure in Iraq, Afghanistan and Kuwait.[95]

The 3rd COSCOM (Corps Support Command) played a significant role in reducing threats to convoys and Soldiers moving materiel. In addition, new technological advances were made in terms of IED defeat to be incorporated onto vehicles for detection and protection. Early in 2003, it became critical to implement strategies to reduce threats to Soldiers and contractors traversing the roads of Iraq. At the same time, they had to effectively keep the pace of distribution required. Decisions were made to maximize the use of airlift and increased in-transit visibility. For every four pallets flown, one truckload was displaced. For every combat logistics patrol (CLP) not sent out, up to 35 personnel were kept off the road. The 3d COSCOM partnered with the Air Force and Army aviation units to ensure maximum use of their pallet- and cargo-carrying capabilities. Additional measures taken include the construction of over 6 water

[94] Randy Talbot. *AMC LSE SWA Operation Iraqi Freedom Phases I-III.* (AMC History Publication: 2005), Chapter 1.
[95] Talbot, Chapters 1-3.

bottling plants. Army CH–47 Chinook helicopters proved critical in moving repair parts and major assemblies. The C–23B Sherpa aircraft was an indispensable workhorse for moving medical cargo and personnel. More than 98 percent of medical supplies were distributed by aircraft.[96]

We are amidst operations that are currently reported as our most successful execution of overseas distribution in American military history. Cholen and Anderson may have summed it best by saying "the overwhelming logistics capabilities of battle-hardened logistics warriors, augmented with a division's worth of contractors on the battlefield, provide unprecedented, near-total freedom of logistics maneuver on the battlefield."[97] Despite success, it would not have been accomplished without the devotion of the men and women completing logistic tasks at home and in theater. Though many lives were undoubtedly saved by logistician's efforts to rapidly solve critical problems, numerous logisticians on the ground lost their lives.

The logisticians of today's war have tackled the challenges and complexity of supplying the War while serving with courage to protect our freedoms. This following paragraphs recognize logisticians who gave their all to execute the supply missions. Researching the stories of those who gave "the shirts off their back and the boots off their feet" to accomplish the logistics task is a sobering reality of true sacrifice, selfless service, and unparalleled dedication. Logisticians faced combat situations when the enemy was not always discernible and improvised explosive devices (IED)/roadside bombs were a constant threat. The below paragraphs are selected stories of the heroes who have provided the logistics strength and power behind the combat power of our force. Amongst the 723 Logisticians who have died in support of our freedom, the War, and while supplying our forces are the following service men and women, civilians, and contractors.

Selfless Service Members

Indianapolis native, Senior Airman Ashton L.M. Goodman, 21 years old, served in the U.S. Air Force as a vehicle operator dispatcher upon assignment to her second deployment to Afghanistan, this time as part of the Panjshir Provincial Reconstruction Team (PRT) with the 43rd Logistics Readiness Squadron of Pope Air Force Base, North Carolina. As part of the reconstruction team, Goodman specialized in helping Afghan communities develop roads, schools, medical services, and electrical power. Goodman mentored Panjshir's female Afghan leadership, and played a significant role in advancing the economic and social skills of the women in the province. On May 18, 2009 she helped deliver critically needed food and housing supplies to more than 100 women in the area. Nine days later, she and LTC Mark E. Stratton, Commander of the PRT, were killed in action while driving in a convoy when they struck a roadside bomb near Bagram Airfield. Those who knew Ashton Goodman admired her dedication to service and described her as full of zest, hard working, eager, and vivacious.

[96] Colonel C. Brandon Cholen and CW-5 Matthew A. Anderson, Sr. "Distribution-Based Logistics in Operation Iraqi Freedom." *Army Logistician* (March-April 2007) Available at: http://www.almc.army.mil/alog/issues/Mar-Apr07/distrib_log_oif.html. Accessed 1 June 2010.

[97] *Ibid.*

Not only was Ashton Goodman a role model for Afghan women, but a model of courage and bravery for all.

On April 15, 2008 the Combat Logistics Battalion 24 of the 24th Marine Expeditionary Unit, II Marine Expeditionary Force lost its first two casualties of the War. Corporal Kyle W. Wilks of Arkansas and 1st Sergeant Luke J. Mercandante from Georgia, were conducting a supply run on the unit's first major mission outside the safety of Kandahar Airfield in Afghanistan. Approximately 100 Marines left base in a convoy carrying supplies forward, when an improvised explosive device (IED) detonated on the road. The IED caused a hole in the ground 12 feet wide and 6 foot deep, stopping the convoy. Mercandante was described as the unit's "glue that held us together…the man to help our small problems from becoming big problems." He had joined the Marines in 1992 and successfully completed. In September 2001, Staff Sergeant Mercandante was assigned to Headquarters and Support Battalion, Marine Corps Base, Camp Lejeune, N.C. as the training chief and brig security for the Base Brig. Staff Sergeant Mercandante was selected and meritoriously promoted to the rank of Gunnery Sergeant in December 2002. In December 2005, Mercandante was attached to Company A, 1st Battalion, 14th Marines, Task Force Military Police, I Marine Expeditionary Force Forward for duty as the SNCOIC[98] Enemy Detainee Operations and Regional Detention Facility at Al Asad Iraq until August 2006. First Sergeant Mercandante's personal decorations include the Navy and Marine Corps Commendation Medal with 3 gold stars in lieu of 4th award, Navy and Marine Corps Achievement Medal with 1 gold star in lieu of 2nd award and the Outstanding Volunteer Service Medal. First Sergeant Mercardante earned an Associates Degree from Campbell University (2002) and a Bachelor of Science Degree in Business Administration from the University of Maryland (2005). He died doing what he loved, mentoring and being with his Marines. In one of his last letters to his family, Mercandante said, "I want no person to ever feel sad or pity for my Marines as we endure hardship and sacrifice, as this is our calling, with the unknown outcome being that of God's master plan."

Army Staff Sergeant Timothy Walker lost his life serving during Operation Iraqi Freedom in November 2008. Walker joined the Army in 1990 and had previously served tours in Bosnia and Kuwait. He had earned a Purple Heart, the Bronze Star and six Army Commendation medals and Walker was a combat medic assigned to the 64th Brigade Support Battalion, 3rd Brigade Combat Team, 4th Infantry Division. In his second tour of duty to Iraq, he served as the battalion's medical materiel coordinate for the Iraqi security forces logistics coordination team, he taught Iraqi police officers and soldiers how to track and receive medical supplies. He also trained Iraqis in procedures dealing with mass casualties and taught combat lifesaving courses. His unit was assigned to secure Sadr City in Baghdad's northeast region and he was killed in action when an IED detonated near his vehicle. The mission he was conducting is one that earned the respect of the Iraqi people and the heartfelt appreciation for his service by the American people.

Marine Corporal Armando Ariel Gonzales came by raft to the United States from Cuba in 1995 with his father and brother. Gonzales enlisted in the Marines in November 2000 after learning English at Miami Dade Community college. At age 25 he was assigned to the Marine

[98] SNCOIC = Staff Non-Commissioned Officer in Charge

Wing Support Squadron 273, Marine Wing Support Group 27, 2nd Marine Aircraft Wing, Marine Corps Air Station of Beaucort, South Carolina. He was killed in a non-hostile accident when a commercial refueler collapsed at Logistics Supply Area Viper in southern Iraq. His father is extremely proud of his son and the sacrifice he made to the land he called home and has requested that Gonzales be granted U.S. citizenship posthumously, "because he deserves it, he's a hero."[99]

Naval Officer Lieutenant Florence B. Chloe served our nation as a medical administrator and logistics mentor to the Afghan National Army. At age 35, she deployed to Afghanistan on assignment with the Combined Security Transition Command – Afghanistan at Forward Operating Base Shaheen, Mazar-E-Sharif, Afghanistan. She and Navy Lieutenant J.G. Francis L. Toner were fatally shot by an insurgent enlisted in and posing as an Afghan National Army soldier, while jogging near the base. Chloe contacted a naval recruiter days after the September 11th 2001 tragedies to serve our nation and was serving on her second deployment at the time of her death. She is described as extremely bright and had earned a bachelor's degree in biology and a master's degree in public health and health care administration by 2001 and was commissioned to the Naval Medical Service Corps in 2002. Her husband Lieutenant Commander Chong "Jay" Chloe and daughter Kristin carry on her legacy.

At the beginning of the war in March-April 2003, First Lieutenant Randall Lee Ashby of Spartanburg, South Carolina was awarded the Silver Star for actions during the Global War on Terrorism. While serving as the Platoon Leader of the Second Platoon, Company B, 317th Engineer Battalion, 2nd Battalion, 69th Armor Regiment, 3d Infantry Division (Mech.), Ashby demonstrated valor in executing his engineering missions as the lead platoon leader for Task Force 2-69 Armor. Serving with Team Assassin, he executed dangerous missions across Iraq. In over 25 days of combat, he spearheaded engineer movement for the Division for 200 kilometers to the Highway 1 Bridge across the Euphrates, west of An Nasiriyah. On March 21, 2003, Ashby conducted a difficult classification mission while under heavy fire. While linking up with the elements of 3-7 Calvary, he directed his platoon's placement of vital blocking obstacles to prevent enemy penetration and endured more than 70 hours of combat, keeping the enemy out of the company's sector. Later, in southern Al Kifl, he and his platoon forced entry to a water bottling factory to gain supply of water reserved needed by the population and forces. He calmly led his troops and encountered several more dangerous situations on convoys escorting vital equipment and stood bravely against the enemy.

Also in March 2003, Master Chief Hospital Corpsman Alan J. Kinnel, U.S. Navy, Battalion Aid Station, Headquarters and Service Company, Third Battalion, Seventh Marine Regiment, Regimental Combat Team 7, First Marine Division, I Marine Expeditionary Force, demonstrated gallantry in combat action with the enemy. During an attack on Zubayr, Iraq, his battalion's logistics train unknowingly moved into a minefield, and a mine detonated severely wounding himself and two other Marines. During the situation, Kinnell quickly took control and

[99] MilitaryTimes.com, "Honoring the Fallen" Available at: http://militarytimes.com/valor/marine-cpl-armando-ariel-gonzalez/256615/. Accessed 9 June 2010.

ordered everyone to stop moving. With limited use of his hand, he triaged his wound, and for the next two hours supervised the care and evacuation of all wounded personnel in the minefield to the evacuation helicopter. He refused to be evacuated so he could continue the attack. Sadly, he was killed by another mine detonating before he could be evacuated from the battlefield. He put others before himself, and saved the lives of his comrades.

The Silver Star was awarded to Sergeant Leigh Ann Hester, United States Army, for valorous achievement during combat operations on March 20th, 2005, in Iraq. Sergeant Hester was federalized from the Kentucky National Guard and

is the first woman since World War II to earn the Silver Star. Sergeant Hester's demonstrated heroic actions while serving as the Team Leader for RAVEN 42B in the 617th Military Police Company, 503d Military Police Battalion (Airborne), 18th Military Police Brigade stationed at Camp Liberty, Iraq. Sergeant Hester led her soldiers on a counterattack of anti-Iraqi Forces (AIF) who were ambushing a convoy with heavy AK-47 assault rifle fire, PRK machine gun fire, and rocket propelled grenades. Sergeant Hester maneuvered her team through the kill zone into a flanking position where she assaulted a trench line with grenades and M-203 rounds. She then cleared two trenches with her Squad Leader where she engaged and eliminated 3 AIF with her M-4 rifle. Her actions saved the lives of numerous convoy members. The team's mission was to assist Raven 42 in searching the Eastern Convoy Route for IEDs and provide additional security to sustainment convoys traveling through their area of responsibility.

Sergeant James Witkowski, United States Army (Reserve), was awarded the Silver Star after his death, for gallantry in action while serving with the 1173rd Transportation Company. During a combat logistics convoy he faced battle near Ashraf, Iraq in October 2005, Sergeant Witkowski's convoy was ambushed and came under fierce, sustained attack; first from small-arms fire and roadside bombs, then by more small-arms fire, onrushing insurgents throwing hand grenades and by rocket-propelled grenades. Witkowski manned a .50-caliber machine gun on his armored truck and held the attackers at bay with continuous suppressive fire. An enemy grenade landed in his gun turret. Had he jumped aside, the grenade explosion would have killed three fellow soldiers. Sergeant Witkowski stayed at his post, continued firing, and took the full blast of the grenade. His regard for the lives of others over his own were the ultimate example of selflessness.

The Bronze Star Medal was awarded to Lieutenant Bryan J. Boudreaux, United States Navy, for meritorious service from October 24, 2004 to March 26, 2005, while serving as the Property Book Officer and Deputy Human Resource Management Officer, Project and Contracting Office, United States Embassy, Baghdad, Iraq. Boudreaux is credited with

management of highly visible projects, consultations, and international relations that led to the principle transition of command authority from the United States and Coalition Forces to the Iraqi government. While serving in a dangerous environment, exposed to attacks from hostile insurgent mortar and rocket attacks, Boudreaux's knowledge and expertise sustained $18.6 billion dollars apportioned by the U.S. Congress for rebuilding Iraq. Boudreaux served as principle advisor to the Project and Contracting Office as Senior Logistics Officer, and developed a comprehensive plan and strategic logistics training package for all logistics personnel assigned to the Joint Area Support Group and Chief of Mission. As the Deputy for Human Resources, he worked extensively with the Joint Area Support Group, Multi-National Forces-Iraq, Department of State and Kellogg Brown and Root (KBR) contractors, within the International Zone. His extensive knowledge of logistical and life support issues improved the quality of life for military, civilians, contractors and coalition forces. Boudreaux accounted for all Government Furnished Equipment (GFE) assigned to this organization and incorporated Property Book Unit Supply-Enhanced (PBUS-E) as the main system for Property Book Accounting to establish 100% accountability for over $30 million worth of property. Boudreaux simultaneously managed postal operations, time and attendance reporting to the Pentagon, sponsorship and the establishment of policy. In addition to his demonstration of excellence, Boudreaux acted heroically on two occasions during a coordination trip with the C-4, MNF-1, when attacked by insurgents with small arms fire and vehicle borne improvised explosive devices (VBIEDs). He then showed his courage during a rocket attack on the U.S. Embassy, Baghdad, Iraq in January 2005. When the rocket entered into Contracting Office and Joint Contracting Command-Iraq work areas, two were killed and five wounded. Boudreaux threw himself over First Lieutenant Brian Lomax to protect him from shrapnel and debris without regard for his own life, before searching for additional survivors. He began first aid to Major Luis Cotto-Arroyo to control bleeding and saved his life. He then assisted in moving wounded personnel to a safe location for further medical treatment. His actions in combination with his efforts to provide excellent logistics support to Allies and the United States make him a heroic Warfighter Logistician.

Civilian and Contractor Logisticians

The heroic efforts of enlisted men and women supporting logistics operations in Afghanistan and Iraq are worthy of our unwavering appreciation and honor. Equally important are the large number of civilians and contractor who have voluntarily deployed in support of Operations Iraqi Freedom and Enduring Freedom. Though not always exposed directly to the dangers Warfighters encounter, many of these individuals have proven their devotion to the nation is as strong and stand as models of selfless service and sacrifice in support of our country. Minus a weapon, they too put their lives at varied levels of risk in support of the Warfighter to provide the logistics backbone needed to succeed in this War. Several of these heroes stories will be featured in the paragraphs below.

The Army Materiel Command (AMC) footprint in theater has been critical in the logistic support of our Services and Coalitions. AMC is over 90 percent Department of the Army (DA) civilians and heavily augmented by contractors, and have therefore managed the largest ever deployment of DA civilians and contractors into a combat area to accomplish its mission. Army

Materiel Command Purple Heart and Secretary of Defense Freedom Medal recipients were recognized at a commemorative dedication ceremony honoring 12 award recipients in 2007. Former AMC Commanding General, Benjamin Griffin stated the importance of the recognition of civilians and contractors participation in this War, "This is a key part of our history – our legacy of people who went forward and were wounded or sacrificed life." Major Luis Cotto-Arroyo said he was humbled and very appreciative of the opportunity to be included in the event. He received the Purple Heart for wounds he sustained while in Iraq serving in the Contracting Office in 2003. "I thought about my office in Iraq. It's hard not to get a little emotional," he said when describing what went through his mind during the ceremony. I think this will give future generations pause and maybe think about the sacrifices great Americans have made for our country. Many have paid the ultimate price." There are 12 individuals honored by a plaque outside of AMC in Fort Belvoir displaying: Major Luis Cotto-Arroyo, Major Darren Tate, Sergeant Major Enoch Godbolt, Master Sergeant Adrian Torrez, Staff Sergeant Ricardo Zamora, Staff Sergeant, Robert Hodge, Sergeant. Michelle Hufnagel, William Burnette, Cleveland Rogers, Kevin Rohm, Thomas Ironside and Linda Villar.[100]

Department of Army Civilian, Logistics Assistance Representative, Mr. Kevin Rohm is one of the men recognized for his dedication to the logistics mission. Kevin deployed to Iraq in support of the 2nd Armored Cavalry Regiment at Muleskinner, on the southeast corner of Baghdad in 2003. His duties were to investigate the causes for non-mission capable supply, in other words, the absence of parts to repair the equipment that supported the regiment, and to find plausible solutions and expedite that material into theater. Shortly into his deployment, Mr. Rohm relieved a fellow LAR who'd been stationed at Camp Dogwood, which was a fairly dangerous area and being mortared frequently in 2003. Rohm was acting as the liaison officer (LNO), between Colonel Hodges, the LAO commander, and the 1st Armored Division, Division Support Command (DISCOM), which was located at Dogwood. The living conditions at Dogwood were primarily metal frame tent structures with outhouses for bathrooms; showers were towers, water tanks and sprayers; and food served was out of T-ration trays. Mortar attacks

[100] Diana Dawa, "Remembering their sacrifice…Honoring their service." *The Bullet'n* 2, Vol 12 (24 September 2007), 1-2

made the living situation unnerving. On the tenth day at Camp Dogwood, November 25th, 2003 at around 6:30 in the evening, Rohm heard the first round come in very close. Yelling to everyone to get their vests and helmets on, he searched for his own. As he put his helmet on, a mortar round hit an I-beam almost straight above his location and shrapnel penetrated his stomach. Not realizing he had been hit, he yelled to the others to move towards a bunker or HMMWV. As he started to stand he felt his wounds and recalled, "I don't think my butt got more than six inches off the chair. I felt something kind of ooze from my stomach, so I realized I was hit. I yelled out, I'm hit! About that time, I heard somebody else say that they were hit. It was Don Evans with the Defense Logistics Agency." Gerald Stevenson, Tamsco contractor, ran out of the tent and called for medics before looking after the men wounded. They were still being shelled at the time and Kevin considered his actions "rather heroic, or maybe even foolish…Since it was done for my and the other guy's health, I'd have to call it heroic." For Kevin's bravery and wounds suffered on duty, he was awarded a Secretary Medal for the Defense of Freedom.[101]

Department of Army Civilian and HQ Joint Munitions Command employee, Melissa Sharp, deployed in 2006 in support of logistics operations in theater. Melissa exhibited courage and bravery when the helicopter she was being flown in from Baghdad to Balad, was shot by insurgents in the middle of the night. The only civilian flying on board, she handled herself as calmly as possible and allowed the team to land the helicopter safely and erect a perimeter around. "I was experiencing the awe of flying through the warm night. I was staring out the window, admiring the glow of the full moon on the countryside, dotted with lights from the small scattered dwellings." Next she knew, her mind was busily processing the events that occurred and the miraculous effort of the flight team that brought them safely to the ground. [102]

Melissa Sharp and the pilots of the Apache AH-64 helicopter involved in the 2006 attack. They acted bravely with extreme calmness and expertise to disengage with the attack and land the crew and Melissa safely.

[101] Army Sustainment Command History Office. "Oral History Interview with Kevin Rohm." Available at Combined Arms Research Library Online Database: http://cgsc.cdmhost.com/cdm4/results.php?CISOOP1=any&CISOFIELD 1=CISOSEARCHALL&CISOROOT=/ p4013coll13&CISOBOX1=Kevin. Accessed 7 June 2010.

[102] Melissa Sharp. "JMC Employee Survives Crash: The Honor of a Soldier." *The Bullet'n.* (August 2007), 2-3. Available at: http://www.pica.army.mil/jml/Bullet%20N/2007/August%202007%20Bullet'n.pdf. Accessed 1 June 2010.

Department of Army Civilian, Linda J. Villar sacrificed her life June 3, 2005, when an insurgent mortar round struck Camp Liberty near Baghdad International Airport, Iraq, while she was serving as the Acting Chief for the Logistics Support Element. Linda lost her life supporting Soldiers fighting to defend democracy and defeat terrorism. In December 2005, Fort Stewart honored Villar with a room dedication, and in February the Communications - Electronics Command Forward Repair Activity, Army Field Support Brigade – Iraq, dedicated a gate in her name. Her awards include the Defense of Freedom Medal, the Meritorious Civilian Service Award and the Army Achievement Award. As a Logistics Assistance Representative for AMC, she had deployed to Iraq in support of the 3rd Infantry Division's Operation Iraqi Freedom III as a Logistics Management Specialist. Linda served at Fort Stewart, Georgia, where she and her husband David worked similar jobs. Deeply dedicated to helping Soldiers, she willingly placed herself in harm's way. Linda's unselfish devotion to duty and dedication to our nation's principles bring great credit upon herself, her family, and the military.[103]

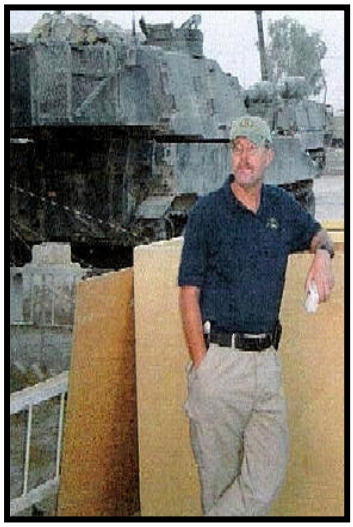
General Benjamin S. Griffin applauds as Linda Villar's daughter, Tanesha, unveils the commemorative plaque dedicating the MQ AMC multipurpose room the Linda Villar Conference Room.

The number of contractors in the theater and on the battlefield is large. In one estimate, some 47,000 people employed as private sector contractors were on the battlefield during the course of the Iraq war. In others, I've read more than 180,000 private contractors have served in the war efforts. Citizens who accepted positions in theater all chose to do so for their own reasons. Despite their motivations, some faced significant threats and danger and at times put their lives at risk in similar manners as our military. Sadly, several contractors sacrificed their lives in support of supplying or servicing the miltary. Many drivers conducting supply operations, driving trucks in and out of theater faced insurgents and threats of roadside bombs. Donald E. Tolfree Jr., a truck driver from Michigan, was fatally shot in the cab of his vehicle while returning to Camp Anaconda, north of Baghdad. The men and women who drove in these convoys, did so bravely, as the rate of IEDs and roadside bombs increased in Iraq after the start of War.

In 2005 Keven Dagit, Christopher Lem, Sascha Grenner-Case were in a convoy ambushed when it had to reroute and go back through town. KBR contractor drivers and the

[103] Beth E. Musselman-Clemons, "HQAMC dedicates room to fallen civilian" RDECOM Press Release. Available at: http://www.amc.army.mil/amc/pa/releases06/villar.html. Accessed 20 June 2010.

Virginia Army National Guardsmen who escorted them Sept. 20, 2005, through the Iraqi village of Ad Duluiyah in the Sunni Triangle, where an estimated 100 to 200 insurgents attacked 15 soldiers from the Rocky Mount-based 1173rd Transportation Company and 13 unarmed truck drivers in a quarter-mile-long convoy, that ended in blood, fire and dust. During the ambush Christopher Lem was shot in the neck, killed. Keven Dagit steered his truck around the flipped truck but was disabled by gunfire. Sascha Grenner-Case stopped alongside Dagit to try to help save him. Brutally, Sascha and Keven were executed and their trucks were set on fire. These three brave Americans faced the enemy and must have been scared beyond my imagination, however selflessly tried to survive and help each other while engaged by the enemy.[104]



Mr. Roy Buckmaster was the first Captured Enemy Ammunition (CEA) Site Manager at Taji, Iraq, Camp Cooke. While traveling from Camp Victory, Baghdad, Mr. Buckmaster and his co-worker Mr. Dave Dyess, were killed instantly by an IED along the roadside when their convoy was misrouted thru Fallujah, Iraq. Buckmaster worked for EOD Technology, a Tennessee based company. As a leader, Roy was held in the highest regard, loved, and respected, by his subordinates as well as his superiors. After high school, Roy enlisted in the U.S. Air Force and served 24 years in Explosive Ordnance Demolition (EOD), gaining rank of Chief Master Sergeant. Roy went on to serve in the Pacific as the Air Force's EOD Functional Manager. Roy is survived by his wife, Aida, 2 sons, 2 daughters, his mother, 2 sisters, and 4 brothers. In one of his last e-mails home Roy wrote, "I'm in Iraq with some really good people, but there are some really bad people. I'm just hoping to get home."[105] In honor of his sacrifice, Buckmaster Depot (Iraq) was named in his memory.

John Mallery was a project manager for MayDay Supply, which sells dining facility supplies to the U.S. military. He spent two years working in Iraq and was killed while driving back from Camp Anaconda, near Balad. Four vehicles of insurgents pulled around him and started shooting. A roadside bomb in August 2004 killed Kevin Rader, a 34-year-old from Utah working for a division of Halliburton in Iraq. Rader was driving a fuel tanker for KBR Engineering, Construction and Services. Knowing the risks of serving in theater, John and Kevin selflessly gave us their lives in support of the nation.[106]

A former Marine who had served on a year-long deployment before returning as a contractor lost his life in 2004. Robert Wagner spent eight years in the Marines and had reenlisted in the Army Reserves in 2001 and spent nine months in 2003 in Iraq. Upon his death, Wagner worked as a private contractor in Iraq was killed when his convoy was attacked and a bomb blew up his convoy. Robert Wagner lead his convoy transporting materials for the

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[104] John Cramer. "Attack reverberates for Guard, truckers." *The Roanoke Times* (8 October 2006) Available at: http://www.roanoke.com/news/roanoke/wb/86192. Accessed 6 June 2010.

[105] Buckmaster Depot. "In honor and memory of Roy Buckmaster." Available at: http://www.buckmaster.gulag.net/roy_buckmaster/roy_buckmaster.htm. Accessed 2 June 2010.

[106] Mary Niederberger. "Iraq causalty still has place in school art." *Pittsburgh Post-Gazette* (26 October 2006). Available at: http://www.postgazette.com/pg/06299/732986-55.stm. Accessed 3 June 2010.

reconstruction of Iraq when a roadside bomb explosion took his life and injured two other American contractors.[107]

Several contractor truck drivers died while supplying our services honorably. Some contractors were captured and considered missing, causing the Army and contractors to work quickly to establish accountability of contractors on the battlefield. Like Soldiers they faced the threat of insurgents and IED/roadside bombs. They stand among the brave and selfless who risked everything.

The stories of those who sacrificed does not end with those that were presented in the above pages. To date, CASCOM reports that of its units, 723 Logisticians have died in defense of our nation. The stories of those who are making significant changes and progress in the logistic community are certainly numerous, as we study this war further. As the importance of logistics has moved to the forefront of study, efforts of logisticians are recognized more often. The Chief of Staff of the Army Combined Logistics Excellence Awards program is a great example of the increased recognition of those who move, supply, maintain, and sustain our Army. In 2010, 82 winners were awarded from 316 nominees for various categories of awards. The Chief of Staff of the Army Combined Logistics Excellence Awards program recognizes achievement in the areas of deployment, maintenance and supply operations for the active component, National Guard and Reserves.

Conclusion

In many wars, there was a failure to mobilize logistical facilities/requirements before mobilizing personnel. That trend is apparent back to the Civil War and was tied to poor planning for mobilization. The miracle about the failure to plan is that our military has repeatedly to overcome and corrected problems to increase industrial capability and persevere through shortages while correcting shortfalls. It takes an Army of Logisticians willing to work through the complexity of the distribution and supply challenges that surface in the face of new technology and new warfare obstacles. It also takes direct sacrifice and devotion to the mission by those who are conducting logistics operations on the ground. This paper serves as a testament to their courage and bravery to provide the decisive edge behind our combat power. Researching the stories of those who gave "the shirts off their back and the boots off their feet" to accomplish the logistics task is a sobering reality of true sacrifice, selfless service, and unparalleled dedication.

[107] Kim O'Brien. "Fighting Continues in Najaf." *Dialy Press.com* (6 August 2004). Available at: http://articles.dailypress.com/2004-08-06/news/0408060125_1_custer-battles-wagner-s-family-contractor. Accessed 13 June 2010.

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