With the onset of hostilities in early 1861, most thought the fighting would be short-lived, a few months at most. This unfounded optimism was quickly laid to rest in July with the first major battle of the American Civil War at Manassas (Bull Run), when Brigadier General PGT Beauregard’s Southern forces prevailed in a bloody conflict that would presage the carnage to come. Thousands of sick and wounded combatants poured into Richmond, the newly established Confederate capital, from the surrounding countryside. Only a small number found their way into hospitals. One firsthand report described “the whole country … one vast hospital, … scattered throughout hotels, private houses, public halls and wherever it was possible to spread a blanket”\(^1\); leading one English visitor to observe, “There was scarcely a gentleman in or about Richmond who had not from one to four patients in his house.”\(^2\) As a result, Richmond itself resembled a vast city of improvised hospitals with little or no planning or organization to provide needed medical services and little to build on, as all 5 existing hospitals in Richmond at the start of the war were small facilities with patient capacity of only 30 to 100 beds.\(^3\) Clearly, this would be inadequate for the future. The newly appointed surgeon general of the Confederacy, Dr Samuel Preston Moore, a native South Carolinian who had resigned his commission with the US Army when the war began, was charged with the creation of a Confederate medical department with no existing bureaucracy or infrastructure to build on and limited funds. He designated Richmond as the center for a hospital system because it was in proximity to all the fighting in the east, and was both the largest city in the region and a major transportation hub, with links to both railroads and shipping and suitable road access in all directions. This would prove a wise decision because more than 60% of the Confederate wounded would pass through Richmond hospitals during the subsequent war years.\(^4\)

Moore appointed Dr James B McCaw, a local Richmond surgeon and professor of chemistry and pharmacy at the Medical College of Virginia (MCV), to organize and develop a major Confederate hospital in response to the crisis. From the onset, the facility was to be designated an independent Army post with McCaw as Surgeon-in-Chief. This left him with power and authority to oversee the entire operation—a crucial decision for the turbulent and trying circumstances to come. With deliberate haste, McCaw selected a site just east of Richmond on Chimbarazo Hill, named for its reported similarity to a large volcano in central Ecuador, as the best location. This turned out to be an ideal site—an elevated plateau of nearly 40 acres with excellent natural drainage on 3 sides, easy access to the James River below, and, most importantly, a favorable climate that was warm in winter and the “coolest spot in Richmond” in summer because of the constant breezes up the steep bluff. Chimbarazo Hospital would become the best-known hospital in the Confederacy and the largest hospital in the history of North America, with almost 78,000 sick and injured passing through its gates during the war years of 1861 to 1865.\(^5\) More important than sheer size, however, Chimbarazo would pioneer numerous aspects of hospital care that are now accepted but were lacking at the time of the Civil War, a period described by historians as “the end of the medical Middle Ages.”\(^6\) In fact, many of these hospital innovations were previously introduced to Western Europe by an obscure monastic order that arose during the period of the Crusades, called the Knights Hospitaller. As a result of these innovations and their unique places in history, both Chimbarazo and the hospitals of the Knights played seminal roles in the changing perception of hospitals and their roles in developing a systematic plan for providing medical care. To appreciate this process requires the examination of hospitals as places of healing in the years leading up to the American Civil War.
Undoubtedly, provision of medical care has been a focus of human history as far back as artifacts and records can verify, including depictions of healing services on cave drawings dating from 17,000 to 20,000 years BC in France. Medical practices in ancient Egypt were both extensive and well detailed, according to hieroglyphs and depictions on the Edwin Smith papyrus (17th century BC), which describe a variety of surgical treatments organized by body region. One Egyptian physician, Imhotep, became symbolic of the mystery and awe ascribed to Egyptian medicine, and his legendary prowess in healing the sick later merged with that of the Greek figure Asklepios. Originating in the 6th century BC and spreading across the Mediterranean world, temples dedicated to Asklepios can be considered among the earliest places devoted to the healing arts. These temple complexes incorporated theaters, gymnasiums, and stadiums, all designed to foster a sense of rejuvenation and recovery for the afflicted. The actual healing process involved a ritual service, beginning with rites of purification and fasting, followed by a ceremony in which the supplicant, resting in an open air courtyard after dark, would be visited by the temple priest, often accompanied by a sacred dog or snake. The “cure,” which occurred as the patient slept, might involve advice, medication, or a surgical procedure, after which the supplicant would depart and appropriate gifts were dispensed to the responsible priests/healers.

In the Christian era, dating from the 4th century, followers in the faith were expected to demonstrate charity and compassion to others, especially the sick and the poor. The first reported facility to provide care for the ill and destitute was founded in Rome about 390 AD by Fabiola, a wealthy convert to Christianity. By the 8th century, most major cities in the Latin West and Greek Eastern Mediterranean had designated homes to care for the poor; however, these were essentially almshouses, each housing only a few individuals and providing little in the way of actual medical services.

Both the word *hospital* and our concept of it derive from the Latin term for guest, *hospes*, which refers to the hospitality due a visitor (often traveling pilgrims), rather than the term *nosokomia*, used for Roman military camps that provided temporary medical care (for battle-related injuries). Most of these “hostels” (in German, *spitals*) developed from monasteries, which would minister to the medical needs of passing travelers and often included an “infirmaratorium,” or place within the walls for recovery. Some included pharmaceutical or herb gardens that were used in treatment of various ailments. These monastic enclaves eventually expanded to treat the ills and injuries of more travelers, who would typically wait at the abbey gate or “hospitium” to be seen. Some monasteries, especially along pilgrim routes, became widely acclaimed for their ability to cure particular diseases, and became popular destination points in themselves, accumulating considerable wealth as a result.

With a large population increase beginning in the 11th century (in England alone, population tripled between the years 1086 and 1346), an influx of newcomers from the countryside to the rapidly expanding cities brought dramatic increases in both poverty and disease. By the 12th century, increasing concern for medical care of the public influenced religious reformers in the monastic orders to develop and expand facilities to provide care—the Benedictine Order alone founded more than 2,000 such hospitals during the Middle Ages. Gradually, the Church was pressured to relax restrictions on medical practice that had prohibited clergy (including monks) from performing medical/surgical duties that might involve contact with blood or body fluids, as this was believed to be contaminating, as was the lucrative income derived from the practice. A notable transition from religious to secular hospitals was precipitated by Henry VIII’s dissolution of the monasteries in 1540, which “put an end to hospital building in England for some 200 years.”

One early hospice destined to play a crucial role in the evolution of health care was established in Jerusalem, sometime before 1071 AD, as a dependency of St Mary of the Latins, a monastery endowed by merchants from Amalfi to provide food and shelter to weary travelers. With the capture of Jerusalem in the first Crusade (1099), pilgrims to the Holy City began to arrive in unprecedented numbers, often in need of medical care as a result of the long and arduous journey or attacks along the way. Many received medical care and a number “made donations, often in extremis,” as donations to the Order were thought to atone for sins of the benefactors and their families. The dying request of Bernard William of the Latins, a monastery under papal protection to establish a new, self-governing monastic order, the Knights of the Hospital of St John of Jerusalem, which was to be exempt...
from allegiance to any sovereign ruler and answerable only to the Pope himself. The centrality of medical service of these Knights Hospitallers, as they came to be called, was affirmed by their signature mission to “Our Lords, the Sick” to emphasize the duty of Christian charity to care for the sick and suffering as if ministering to Christ himself. During the course of the crusades, the Order gradually became more militant, resembling that of a subsequent monastic Order, the Knights Templars, with whom they fought alongside and with whom they competed for favor and donations. The Hospitaller’s ardor, expressed by a contemporary as “lambs when the church bell sounds, lions at the trumpet’s blast,” was acknowledged by the Moslem commander Saladin, who decreed that all captured Hospitaller Knights be executed rather than ransomed because of their bravery and fighting prowess on the battlefield.

With the fall of Acre, the last crusader stronghold in the Levant in 1291, the surviving Knights moved the Order and its hospital from a temporary base on Cyprus to the island of Rhodes in 1310. Rhodes served as base for the Order until it was forced to withdraw after a protracted siege in 1523 by overwhelming Turkish forces. Subsequently, the Knights established headquarters for the Order and its most famous hospital, Sacra Infermia, on the island of Malta, given to the Order in perpetuity by Emperor Charles V in 1530. Malta was situated in a crucial location in the shipping lanes of the western Mediterranean, and the Knights rapidly adapted to the sea as expert sailors and formidable adversaries to the Turkish (Barbary) pirates who preyed on Christian ships and Mediterranean coastal towns from France to Greece. In the Battle of Lepanto in 1571, an epic encounter that ended Turkish dreams of expansion into Europe, the Knights on board served with distinction as the first naval surgeons in history.

Despite their impressive Crusader battles and naval sieges, Knights of the Order remained true to their primary mission—care of the sick. Once established in any new land, Cyprus, Rhodes, or Malta, the first project undertaken was construction of a hospital base and, during the centuries, dedication to their patients remained a constant source of duty and pride. As a result, their hospitals became legendary for innovation and excellence. In the words of one early historian, “the hospice of the Hospitallers … was distinct from the other xenodochia [Greek hospitals] in the lands of Latin Europe in that it very early exhibited the attributes of a true hospital.”

To the modern era, such attributes would likely include a dedicated commitment to quality patient care, an emphasis on educational endeavors, and service to the immediate community and beyond. In all of these areas, hospitals founded by the Knights were pioneers and were highly regarded not only by the nearby populace, but attracted “strangers [patients from abroad] to Malta, not only to study its operation and methods, but to profit from them—to be nursed by Knights … and to be fed off silver [service].”

It is important to note that such care was freely provided to all, irrespective of race, religion, creed, or nationality.

Architectural design for hospitals of the Order was adapted from Islamic and Byzantine centers in Cordoba, Baghdad, and Damascus and featured an open-air design tailored to the Middle Eastern climate to facilitate ventilating breezes and sunshine. This design allowed hospitals of the Order to separate patients by (contagious) disease, surgery (convalescence), or other conditions, providing each ward its own baths, as well as designated isolation areas for fever or dysentery; separate wards were also provided for the mentally ill. “Not until the middle of the 18th century did such conditions prevail in any other hospital.” Matters of patient comfort were treated with no less attention. The Great Ward in the Order’s famous hospital in Valletta (Malta), the Sacra Infermia, built in 1574, was said at the time to represent “one of the greatest interiors in the world” at more than 500 feet in length with ceilings more than 30 feet, and provided the unheard of luxury of single (canopied) beds at a time when most hospitals placed patients 2 to 3 in a bed. (By comparison, the Hotel-Dieu in Paris reported 12 patients to a bed, forced to sit on a bench in shifts waiting for a turn to lie down.) The ward was described as very pleasant, smelling “sweet, clean and neat” and the beds were changed “whenever necessary, even several times daily.” Patient’s every need was provided, “each sick person was to have a sheepskin cloak and woolen cap and boots for going and coming from the latrine” (in winter). The diet was lavish—“rice, vermicelli, herbs and chicken were provided for the very ill … stronger ones had meat, pigeon, game, sausage and potatoes … only the best was served in the hospital … [with] snow and ice from Mt Gibel in Sicily supplied year round.”

The structure and discipline inherent to rules of the monastic Order (which incorporated vows of chastity, poverty, and obedience) facilitated an efficient and dedicated hospital administration organized under the Hospitaller Grand Master, who had ultimate say in all affairs of hospital function. The Order’s commitment to extraordinary care of their patients (“Our Lords, the Sick”) was exemplified in every aspect of hospital care. Patients were fed from solid silver dishes and drank from silver goblets until 1798, when Malta was captured by Napoleon and the silver was melted into 3,449 lb of bullion and used to pay his troops for the Egyptian campaign.
Believing pleasant surroundings benefited recovery, the Order used the greatest artists of the era to adorn their hospitals. Eighty-five paintings depicting episodes from the Order’s history were hung along the Great Ward in summer and replaced with decorative woolen tapestries in cold weather; monumental works of art, such as Caravaggio’s masterpiece, “the Beheading of St John the Baptist” can be viewed today in the Cathedral of the Knights in Valetta.35

Nursing care was also considered of great importance to the Order, and the Convent of St Ursula, attached to the Sacra Infirma at Valetta, served to train many young women to care for the ill—a legacy extending to Florence Nightingale, founder of modern nursing, who was installed as a Lady of Grace in the Order of St John in 1901.31 In fact, nurses were not required to leave Malta with its conquest by Napoleon in 1798, and they still wear the habit of Knights there today.32

Education was another key part of the Hospitallers’ legacy. An organized program of medical studies in the Sacra Infirma dates to 1674, when students were granted licenses to practice medicine from the Chief Medical Officer only after attending to hospital duties, which included weekly patient care conferences, for no less than 10 years.33 The study of anatomy was emphasized; a Chair of Anatomy was established in 1676 and all practitioners were required to attend anatomy lectures each Thursday throughout the year.34 At a time when dissection was still discouraged or forbidden, the bodies of all Knights, including the Grand Master, were autopsied.36 “In no other place in the world did such a liberal attitude towards anatomical studies prevail.”35

The Knights’ legacy of excellence in operative surgery is well documented, especially in lithotomy and cataract surgery. It is said that “modern ophthalmology originated with surgeons at the [Knights] hospital in Malta.”36 It is noteworthy that the first Chair of Ophthalmology in Europe (Vienna) was held by Joseph Barth, a knight from Malta.37 This ophthalmologic legacy continues in the St John Ophthalmologic Hospital of Jerusalem, one of the busiest eye centers in the world, providing outpatient care for 55,000 outpatients and 4,500 inpatient procedures yearly, with outreach clinics to the West Bank and remote Palestinian villages.38

In addition to providing free medical care in hospital, the Knights instituted a system of social services, distributing food, medications, and clothing to the poor, widows, and children “to every sort of needy human being, the blind, cripples, scrofulous persons and indeed any who were not able-bodied … the Order had the duty of acting as a mother to them.”39 “No where else in the world at that time was there such a systematic medical care of the general population”40; Frederick Barbarossa, German Holy Roman Emperor (1152–1190) praised the hospital for its “inestimable works of mercy and for the practice of charity, [which it] demonstrated on an extraordinary scale.”41

Public health was another area of innovation by the Order, including adoption of uniform standards for licensure in medicine, surgery, and pharmacy (apothecary); comprehensive measures for quarantine and isolation to control infectious disease; and hygienic regulations for burial of the dead “long before such were in effect elsewhere in Europe.”42 As a result of such foresighted approaches and innovations, “the great hospital or Holy Infirmary of the Hospitalers at Valetta was the best known institution of its kind in the world in its day.”43

By the 14th century, although many hospitals in Europe began to increase their inpatient capacity and show even more similarities with the famous hospital of the Knights of St John, advances and innovations in hospital/medical care fostered by the Order were not widely accepted throughout Western Europe, where most hospitals remained strictly under Church (monastic) control.44 In 1540, King Henry VIII of England dissolved the monasteries, “[an act of] rapacious asset-stripping carried out in the name of religious reform,” resulting in closure of most of the medieval hospitals in the country.45 “Even if they had provided little medical treatment, at least [they] had afforded shelter to the aged, sick and incapacitated.”46 Few (secular) hospitals were left to care for the rapidly increasing population. As a result, by 1700, London, with a population of almost 500,000, had only 2 hospitals; not one existed in the remaining English countryside.47 In the predominantly Catholic countries of Continental Europe, many hospitals, including the Hotel Dieu of Paris, were complicit in a socialized scheme, referred to by historians as the Great Confinement, to shelter/confine beggars, orphans, vagabonds, and thieves from the rest of society along with the sick and poor—some of whom might have received at least token medical care in the process. With the French Revolution, attacks on the Church paralleled those on the nobility, as both were believed to represent corrupt aristocratic institutions. Charities, including hospitals, were taken over and nationalized but were run so poorly that in many, monastic oversight was eventually restored. As a result of these debacles, hospitals across the continent came to be viewed as places of disease and death that spread illness instead of curing it.48

With reform efforts beginning in the 18th century, a new kind of hospital began to appear in London and in the American colonies (Philadelphia General in 1751, New York Hospital in 1791, and Massachusetts
General in 1811). These facilities began to integrate educational programs with directed clinical care, combining bedside teaching rounds, first introduced in Edinburgh in the 1740s, with autopsies for both anatomic demonstration and to record pathologic conditions. This led to a new approach in reporting clinical results and treatment based on scientific data. However, advances from the new discoveries in cellular pathology (by Virchow) or Koch’s research on microbes in the 1850s were slow to translate into actual patient practice. When Semmelweis was able to demonstrate a dramatic drop in puerperal fever from handwashing alone in 1847, he was ostracized by colleagues in Vienna and departed for Budapest to escape ridicule. The concept of microbes as causative agents of disease remained controversial even after Lister reported the first trial of antisepsis in 1867 (in Lancet) using lint soaked in carbolic acid for treatment of a severely comminuted fracture of the tibia in a young boy run over by a cart.

Perhaps from fear of contagion, or merely lack of experience, at the beginning of the American Civil War, virtually all soldiers objected to treatment in hospital. In a letter from 1861, a Union soldier wrote, "Our hospitals are so bad that our men fight against being sent to them ... many brave it out and die in camp. I really believe they are more comfortable and better cared for in camp, with their comrades, than in hospital." Mothers “in parting with their soldier boys would implore their Captains and Colonels to keep their precious children out of those horrid places, the hospitals, and many officers promised to do so.”

Chimbarazo Hospital would do much to change that perception. Under Dr McCaw’s leadership, Chimbarazo rapidly expanded into a virtually all-inclusive complex, akin to a small city in itself. The grounds included a bakery (capable of producing 10,000 loaves of bread daily), 5 ice houses, 5 soup houses, a Russian bathhouse, a brewery capable of producing 40 kegs of beer at a time, a dairy, sawmill, and adjacent pasture for cows and goats, and as a sizable vegetable garden. The hospital plan, unique for its day, incorporated 5 separate divisions, each consisting of 30 buildings that could house 20 to 40 patients each; a maximum capacity of more than 3,000 patients could be accommodated.

The wards were hastily constructed with timber salvaged from Richmond’s nearby tobacco warehouses laid out in a pattern of symmetric rows, with wide avenues and buildings positioned to allow the prevailing winds to blow through the complex of latticed frames and combed roofs, affording maximum ventilation. This carefully planned hospital layout made Chimbarazo the first “pavilion”-style hospital constructed in the United States. In addition, the separation into divisions, each with multiple wards, facilitated the staff’s ability to triage patients into separate buildings based on infection or underlying disease. This pavilion-style hospital design was later adopted in widespread locations, both military and civilian, and was championed by Florence Nightingale in her report to the British Parliament based on her Crimean experience advocating hospitals “composed of separate, isolated pavilions with large airy wards, well lit and ventilated by windows along both long sides.”

The administrative structure and management of Chimbarazo were likewise unique. "Never before in American history had a physician been placed in charge of such a large hospital, military or civilian." Dr McCaw used the military hierarchy for administrative structure and discipline, but reported to no board of trustees, dean, or university president. As long as he could provide care within military regulations, he was free to implement policies he believed to be in the best interests of his patients. In the process, he redefined hospital management. By contemporary reports, he was ideally suited to this job, a commanding figure with “resolute eyes. … A man with ready oil to pour upon troubled waters” according to his head matron [nurse] Phoebe Pember, a no-nonsense woman of stern constitution herself. A tireless worker, McCaw oversaw the staff of more than 500 surgeons, stewards, matrons, cooks, etc, and personally interviewed every applicant hired. The high regard with which McCaw was held by all and his perceived ability to resolve even trivial problems is illustrated by a letter sent to him in December 1862 from patients complaining about the “manner in which Mr Miller, the PostMaster casts out the mail.” It concludes, “Your attention to this matter will greatly oblige the inmates of Chimbarazo.”

All departments reported directly to him and he conducted daily rounds inspecting the entire facility and served as a staff surgeon in the 1st Division and lectured at MCV. Significantly, he also had sole responsibility for fiscal management of the “hospital fund,” which was income paid to the hospital from the Confederacy for a soldier’s daily ration—an amount ranging from $0.75 daily at the war’s onset to $2.50 by February of 1864. This fund was so efficiently managed that the Confederacy actually owed the hospital $300,000 at the end of the war. (Secretary of Treasury Christopher G Memminger agreed to pay the amount in gold on March 19, 1865, but the city surrendered on April 3 and the note went unpaid.)

Recognizing the importance of proper diet as well as fresh air and sunshine, McCaw made creative use of limited resources to provide healthy meals using hospital
gardens, bakeries, and dairies instead of obtaining these from outside contractors. This allowed him to divert monies in ingenious ways, such as outfitting a canal boat named the Chimbarazo, which could travel up the James River as far away as Lexington to purchase goods miles away from Richmond, where prices were dramatically higher than in the surrounding countryside. Economy was crucial to every aspect of hospital operation. Nothing was wasted, even the bedding was recycled as bandages once it became too threadbare to be mended, and soap was homemade from leftover cooking grease using ashes from the burned broom straw of soiled bedding when lye was no longer available.

Outside visitors were encouraged, not only to boost soldiers’ morale, but to spread stories of the superior care provided to patients. McCaw recognized from the onset the importance of public opinion and made the facility welcoming to visitors. To facilitate this process, divisions were organized by the patient’s home state so that parcels of food or clothing, letters, or visits by family or friends could be directed to the proper location; a challenging feat when dealing with large numbers of patients arriving from field hospitals en masse after major battles.

From all indications, patient care was foremost in every aspect of Chimbarazo’s operation, and the challenges posed were monumental. It is estimated that more than 600,000 soldiers fought for the Confederacy. Medical records describe more than 3 million cases requiring treatment, approximating 6 times per soldier. Of these, 600,000 soldiers fought for the Confederacy. Medical economy was crucial to every aspect of hospital operation. Nothing was wasted, even the bedding was recycled as bandages once it became too threadbare to be mended, and soap was homemade from leftover cooking grease using ashes from the burned broom straw of soiled bedding when lye was no longer available.

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From all indications, patient care was foremost in every aspect of Chimbarazo’s operation, and the challenges posed were monumental. It is estimated that more than 600,000 soldiers fought for the Confederacy. Medical records describe more than 3 million cases requiring treatment, approximating 6 times per soldier. Of these, a surprisingly small percentage involved combat wounds. In the early war years, gunshot wounds (referred to in medical terminology of the day as “vulnus sclopteticum”) accounted for only 14% of admissions to Chimbarazo; that figure had increased to 20% after 1863. The greatest scourge to soldiers was not injury, but disease; measles and rubella were rampant, especially among Southern soldiers, many of whom came from isolated, rural regions with little exposure to the infections endemic in more populated regions of the North. Doctors learned early in the war to recognize symptoms of these outbreaks and use the isolation wards of Chimbarazo to contain spread as best they could, often resorting to temporary “Sibley tents” erected along the outer grounds for overflow. Dysentery/diarrhea was a constant problem, especially as the war progressed and food rations in the Confederacy shrank, compounded by poor sanitary practices in the camps and little time for cooking. Many soldiers preferred to eat their daily meat allotment of raw bacon uncooked, as most of it would disappear in frying. Severe abdominal cramping and thin, watery stools were chronic and endemic among both armies and “produced more sickness and mortality than any other form of disease,” leading one Confederate doctor to state, “no matter what else a patient had ... he had diarrhea.” In fact, the deaths from disease (in all forms) exceeded those from battle injuries in the Civil War by 2:1, although this figure is considerably better than the 7:1 reported during the Mexican War (1846–1848).

For those who were wounded, the leading cause of death was infection—erysipelas, gangrene, or pyemia (sepsis)—terms that appear poorly differentiated in Civil War medical records. The accurate number of such cases is impossible to determine. However, the appalling odor and horrible appearance of such wounds was well known, and “hospital gangrene, the typhus of wounds” prompted aggressive treatment on recognition, including nitric acid (or other escharotic agents) “unsparingly applied to every spot and surface involved ... and the disease pursued to its furthest refuge ... even somewhat to the sound parts beyond, or the disease will spread inevitably, and kindness well meant will be really unintentional cruelty.” Despite aggressive treatment of gangrenous wounds, evidence of pyemia (septic shock) spelled almost certain demise, as only 17 of 2,818 such patients survived, a 97% mortality rate. Matron Pember recalled in her memoirs that “no one ever recovers... The only cases under my observation that survived were two Irishmen, and it was really so difficult to kill an Irishman that there was little cause for boasting on the part of the officiating surgeons.”

In later war years, infected patients at Chimbarazo were isolated and innovative practices undertaken, such as giving each patient his own wash bucket and sponge “which were intended to be used by no one else,” clearly suggesting an awareness of local contagion as a factor in onset or spread. (Although it has been suggested that medicine at the time was “dancing around the germ theory,” Koch’s postulates were still considered revolutionary thinking in leading medical circles as late as 1884.)

The layout of wards at Chimbarazo not only facilitated isolation of infectious diseases, but allowed study among groups in different locations of the facility, especially because the same doctors were responsible for care of their patients in each ward and accurate record keeping was emphasized. One such study involved treatment for “camp itch,” an epidemic-like skin infection that spread from localized patches to cover torso and extremities with painful, crusty sores. Chimbarazo’s baths provided a site for assessing treatments using local poke root or broom straw root in place of commonly used agents (ie, sulfur or arsenic), which were unavailable due to the blockade.

A variety of other studies were conducted at Chimbarazo, including conservative treatment of extremity injuries using debridement and disinfectant vs amputation,
comparison of willow bark as a quinine substitute for malaria, use of various splints for leg ulcers, and many others.71

Chimbarazo’s reputation was bolstered by contact with both medical educators and scientific journals. After 1862, MCV was the only medical school in the South that remained open, and Dr McCaw not only maintained his faculty position at MCV, but allowed hospital doctors and stewards (many of whom were medical students there) to attend lectures without charge. Stewards and students were encouraged to accompany surgeons on ward rounds, and the interchange lent an academic exposure that enhanced the hospital’s reputation throughout the South.72 Even more noteworthy, McCaw served as Editor-in-Chief of a new journal beginning in 1864, the Confederate States Medical and Surgical Journal (CSMS). Until its demise in 1865, CSMS served as a main source of medical information, as stated in its first issue, “Not only as the organ of the Southern medical profession, but as a means of imparting information to those who have, for three years, been debarred from any intercourse with the scientific world.”73

In one such article in the Journal, author John Bennett decried the old practice of bloodletting, still a mainstay of surgical care into the 1870s, as well as purging and use of antimony, calling them “sources of danger and the chief cause(s) of the fatal result.”74 Circulation exceeded that of any Southern medical periodical before, but was hampered by shortage of paper and problems with distribution through the Confederate mail system. The CSMS also published proceedings from meetings of the Association of Army and Navy Surgeons of the Confederacy—a group that met twice monthly in Richmond to present papers on medical topics, discuss cases, and debate treatment plans—available via subscription (CSMSJ) to practitioners throughout the South. Dr McCaw served as Vice President of the Association of Army and Navy Surgeons of the Confederacy, and his prestige in directing such academic endeavors established Chimbarazo on the cutting edge of medical/surgical knowledge.75 Drawing on excerpts from journals, diaries, and letters of the combatants, historian Robert Denney concludes in his book, Civil War Medicine: Care and Comfort of the Wounded, “Chimbarazo was by far the best medical facility, North or South.”76 And the challenges were great, more Americans died during the Civil War than all other American wars through the Vietnam War combined.77 In the 1st Tennessee regiment, only 65 of 3,200 men who enlisted were alive at the war’s end.78

Mortality at Chimbarazo was surprisingly low, <11% overall and <6% for gunshot wounds,”79 figures impressive for hospitals in that day, but tempered by the triage distance from the field hospital to Richmond, as well as the perception that gunshot wounds to the abdomen or chest were usually fatal and treatment was often deferred to others less critically injured. Contrary to common opinion that military medicine in the Civil War was of poor quality, care in the civilian sector was essentially of equal standard. In addition, results improved as doctors developed experience with treatment of both injuries and related illnesses during the course of the war. As convincingly stated by Carol Green in her book, Chimbarazo, “Although its institutional lifetime was relatively short, Chimbarazo Hospital affected the development of modern medicine by directly exposing a large number of soldiers to successful medical treatment in a large institutional setting.”80

In the mid-19th century, before the value of cleanliness was truly understood in medical terms, hospitals were not viewed in a positive manner. However, the hospital setting at Chimbarazo was tolerable enough that people began to see hospitals in general as a reasonable option when they needed medical treatment. Through patients’ experiences, the perception of hospitals changed. Confederate surgeon Spencer Welch commented in a letter to his wife, “Last year when a soldier was sent to a hospital he was expected to die, but all who come from the hospitals in Richmond now are highly pleased with the treatment they received.”81

A sense of comraderie had developed at Chimbarazo, as well as a sense of trust—that the people who worked at the hospital saw patients as individuals worthy of respect. Once this level of trust had been achieved, the view of hospitals as a place where only society’s worthless went to die had been broken. The patients at Chimbarazo and the visitors who came to see them began to view hospitals in a new light. Although people still considered the home setting preferable, as it is today, they also realized that medical care in a large institutional setting could work effectively.82

Although there were no great technical advances or theories resulting from the Civil War period, there was a change in attitude by both the public and the medical community about the treatment of patients in hospitals. Both Chimbarazo and the Sacra Infirmita of the Knights Hospitallers were critical to this way of thinking, although in different ways and different times. Their legacy quite literally opened a door for development of the medical/industrial complex known as the modern hospital of today. We must be mindful of their sacrifice and deserving of their valor as we seek to carry on the tradition of caring for “Our Lords, the Sick.”

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67. Green CC, p 140.
68. Green CC, p 138.
69. Green CC, p 117.
70. Green CC, p 111.
72. Green CC, p 110.
73. Green CC, p 112.
74. Green p 119.
75. Green CC, p 113.
77. Calcutt RB, p 23.
78. Cunningham, p 4.
79. Green CC, p 134.
80. Green CC, p X.
81. Green CC, p 85.
82. Ibid.