Chapter Three

The Kansas Plains

George Sternberg apparently transitioned from the heart-pounding urgency of combat casualty care to the slow-paced routine of postwar army medicine in garrison with ease and grace. No official or private records suggest that he even contemplated resigning his commission after the war to return to the uncertain prospects in the civilian medical world of New York. At $100 per month, his army salary was more secure and in some ways easier to earn than those of his civilian peers. Demonstrating fiscal responsibility and security to certain parties in Cooperstown was now of primary importance. A long-distance relationship with Louisa Russell had withstood his discouraging days on Long Island and the anxiety and separation of war. Sternberg yearned for the domestic tranquility of marriage to Louisa, but the memories of his own economically insecure childhood probably continued to lurk in his mind. It was imperative that the proposal be cloaked with the promise of financial security, and the Army Medical Department provided it.

Louisa married George Sternberg in Cooperstown on October 19, 1865, presumably in the Russell family home on south Chestnut Street. The Russells were Presbyterians, but Levi Sternberg assisted the minister, Charles K. McHarg. After a short honeymoon to an unknown location, the couple returned to Jefferson Barracks where they began housekeeping in early November.[1]

Jefferson Barracks sat on a plateau overlooking the Mississippi River 3 miles southwest of St. Louis. A relatively old post, it had been the focal point for many western expeditions since 1827 and was converted into a large hospital during the war. In 1865, the post was once again reconfigured to accommodate infantry troops moving to western stations. Service on the western frontier became the focus of the army's postwar mission, specifically the protection of railroad construction parties and settlers as they traveled west. Commanded by Major General William T. Sherman, the Military Division of the Missouri stretched from Canada to Texas and from the Mississippi River to the Rocky Mountains. This vast area

encompassed the Great Plains, over which many emigrants were moving west and brought small towns, fences, stagecoach lines, railroads, and a culture that would never understand the Indian way of life. The Plains tribes—afraid and angry—realized that they would have to fight to safeguard their independence, culture, and way of life for the future. Army strategy to provide protection for this westward advance was to dot the major emigration arteries with forts. In Kansas, on the southern plains, these arteries were the Smoky Hill and Santa Fe trails. Along the Smoky Hill route to Denver, Fort Riley, Fort Ellsworth (later Harker), Fort Hays, and Fort Wallace were established.[2]

An Army Medical Department constrained by post–Civil War reductions in manpower and funding provided medical services to these forts. The medical department had a fixed strength of 210 medical officers in the rank of major and below available for assignment, and more than 280 forts required routine medical services in garrison and medical support while on campaign. Physicians who remained in uniform after the war frequently found themselves moving west to support these operations. Since Sternberg arrived in Missouri, he had been the acting post surgeon and sole physician at Jefferson Barracks. In January 1866, Major and Surgeon Richard H. Alexander, Sternberg's former boss in New Orleans, assumed duties as post surgeon. Alexander's arrival made the junior-ranking Sternberg a free agent and heralded an imminent change of station for him. The tranquil, domestic life that he and Louisa briefly enjoyed ended in mid-April when he received orders to accompany elements of the 3rd U.S. Infantry from Fort Leavenworth to Fort Ellsworth, Kansas. Upon arrival, he would assume duties as post surgeon. By the end of April, he was on his way, and one month later he was promoted to captain.[3]

Fort Ellsworth stood on the flood plain of the Smoky Hill River 93 miles southwest of Fort Riley. In the spring of 1866, the garrison, composed of two companies of the 2nd Cavalry and two of the 3rd Infantry, protected laborers constructing the Eastern Division of the Union Pacific Railroad and many new stations west of the post, and also provided escort details for stage companies. Construction of the new Fort Ellsworth, one mile to the northeast, would begin in the summer. Once the new fort was completed, it would also serve as a quartermaster and commissary depot for posts on the Arkansas River and in Colorado and New Mexico. But the dilapidated collection of sod and log huts that greeted Sternberg at the end of the trail was a fort in name only. Barely high enough for a man to stand in, these shanties quartered both officers and enlisted soldiers. Prairie winds blew through them, mud dripped in congealed masses from the roofs during thunderstorms, and rats and mice scurried throughout them. The post hospital consisted of one tent. No quartermaster or commissary storehouses existed, leaving supplies at the mercy of the elements and marauding animals. Horses and mules were sheltered behind dirt and brush embankments because no stables had been built. Sternberg looked forward to a trying winter, but he would not have exposed Louisa to such rough and uncomfortable accommodations. She returned to Cooperstown until new quarters were ready in the spring of 1867.[4]

Although "lonely and disconsolate" for Louisa, Sternberg found his time completely occupied with the duties of a frontier soldier and physician.[5] Professionally sterile and generally monotonous, daily duties centered around sick call; inspections of living areas, water supplies, stables, and kitchens; and medical department paperwork. Occasionally, work details or military operations away from post required medical support. The routine clinical fare for a post surgeon consisted of venereal diseases, which were brought west from eastern stations or contracted through liaisons with post laundresses or frontier prostitutes; respiratory and diarrheal diseases; and scurvy, secondary to the nutritionally poor army rations. Army wives and children, as well as the local population, provided some obstetrical, pediatric, and psychiatric variety to this bland medical diet. The frontier army doctor who took an interest in the health of families on post became an invaluable pillar of support when the men were in the field. Surgeons were encouraged by the medical department to provide such care, but even if they had not been, necessity demanded it. Sternberg was assisted in these responsibilities by civilian contract surgeon, also referred to as Acting Assistant Surgeon J. A. Sabine, Hospital Steward John Lamb, and enlisted soldiers temporarily detailed as medics from line companies on post. In July, he became the sole medical provider for the post when Sabine departed, and Hospital Steward John Lamb was arrested and confined. His burden would not lighten until the fall when a new civilian contract surgeon, Dr. Thomas B. Chase, arrived and Charles Miller, a replacement hospital steward, were assigned.[6]

During the summer of 1866, construction activities increased dramatically and the new post began to take shape. Sternberg and Chase anxiously watched construction of the new hospital 200 yards south of the main garrison. When completed, it would be a substantial structure of dressed sandstone with two 20-bed wards, a bath, dispensary, medicine storeroom, kitchen, dining room, and its own well. Fort Ellsworth was renamed Fort Harker on November 11, and in January 1867 part of the new post was occupied.[7]

The construction of a large permanent army post and the Union Pacific Railroad, which by the fall of 1866 had reached Junction City, created many jobs for recently discharged Civil War veterans. Businessmen in Ellsworth County saw this as the beginning of a great opportunity for lucrative land development and commercial ventures. The potential for the town, to be named Ellsworth, to grow into a prosperous agricultural center was great. An epidemic of land speculation fever swept over the county, and Sternberg was not immune. Initially, he filed a homestead claim for a quarter section of rich bottomland on the wooded banks of the Smoky Hill River two and one-half miles south of the fort. Impressed with the area and its potential and having additional funds from a 33 percent pay raise, he shrewdly amassed 320 fertile acres by purchasing land adjoining his claim from other officers. One of these parcels supposedly included a large farmhouse, but Reverend Sternberg and son, Charles, commented that it was a single room log house with a 20 foot by 14 foot cottonwood stockade building roofed with sod behind it that served as a kitchen. Such enthusiasm for permanency in an area,

suggested by these purchases, seems incongruous in an army officer whose life by definition is nomadic. Jennie Barnitz, wife of Captain Albert Barnitz, 7th U.S. Cavalry, Fort Harker, and friends of Sternberg, remarked to her husband that, "he [Sternberg] is more certain of remaining here than others and can surround himself with all those things."[8] Mrs. Barnitz's comment notwithstanding, army officers had a long history of buying land near frontier posts and properly timed ventures into the land market could be financially rewarding. Sternberg's intentions appear to go beyond supplementing his income. Although never stated, he may have been seriously contemplating resigning from the army and settling in Kansas. Establishing a medical practice in this booming area would have been relatively simple, and a farm would provide additional income and security for a growing family. However, Sternberg had another motive. Although Sternberg biographers disagree on this issue, his father stated clearly that his oldest son was so taken with Ellsworth County that "he had formed the project of getting the family settled there."[9]

Reverend Sternberg had become principal of the Iowa Lutheran College in Albion, Iowa, in 1866. At his son's urging, he visited Ellsworth County and although he "was rather pleased with the country," he was "not as enthusiastic as George was."[10] Reverend Sternberg's eldest son was persistent and persuasive in discussing the development and future possibilities of central Kansas for his parents and nine siblings. He had also been successfully coaxing his brother Theodore, an attorney in St. Louis, to join them. Obligations in Iowa precluded the elder Sternberg from any move until late spring when his teaching and administrative duties were completed. With his father's approval, Sternberg recruited three other brothers, Frederick and 17-year-old twins Charles and Edward—all anxious to see the wild west—to precede the family to Ellsworth and begin working the ranch. With Theodore as ranch foreman, Sternberg purchased chickens, some horses, and the beginning of a dairy cattle herd; fields were plowed and planted. By the summer of 1867, Charles was delivering fresh milk, eggs, butter, and vegetables to the soldiers at Fort Harker.[11]

As the harsh Kansas winter of 1866–1867 gave way to spring, the U.S. Army's presence in Kansas continued to grow, but the Little Arkansas treaties of 1865 and the Bluff Creek Council held in early 1866, which kept the southern plains generally peaceful through 1866, were tenuous. Sporadic fighting between whites and Indians continued throughout the winter. General Sherman's response to this situation was to conduct total war on the northern and southern plains until the Indians submitted to life on a reservation or were exterminated. He had developed plans for such operations against the northern and southern plains tribes by March 1867. The U.S. Congress, however, favored a negotiated resolution. While a peace commission delayed Colonel John Gibbon's expedition to the northern plains, Sherman launched General Winfield Hancock on an expedition to harass and intimidate the southern plains Indians in April.[12]

Louisa Sternberg arrived on the afternoon of May 26 after a tiring, 36-mile journey from the new Salina railway station in an army ambulance. Elated to have his darling "Puss" with him again, Sternberg proudly showed her their almost completed

quarters on post and then took a trip to the ranch. The four Sternberg farmers gave her a complete tour, but whether her eastern urban upbringing could capture her husband's future vision of the ranch as she surveyed the one-room log hut is unknown. It mattered little for the moment because the change in Sternberg's gloomy spirits was immediate, and Jennie Barnitz had commented on it to Louisa. Upon hearing this, Louisa vowed, "I will never leave George alone again, under any circumstances. I did not know he missed me so."[13] Louisa's pleasant, kind-hearted nature and "high moral principle" rapidly gained her warm acceptance by the small contingent of army wives at Fort Harker, diligently working to make their spartan existence more comfortable.[14] The Sternbergs occupied their new one-story frame quarters on the parade ground in mid-June. Jennie Barnitz told her husband in a letter that Louisa had "five spacious rooms—very handsomely furnished" and "china and silver for her table."[15] They also employed an Irish cook named Bridget. According to Mrs. Barnitz, the Sternberg home was "the pleasantest one I have ever seen in the Army…."[16] Their table, which was spread with the fruits of Sternberg's well-cultivated garden, became a happy gathering place for junior officers and their wives.[17]

Louisa's introduction to the pleasantries of frontier army life was accompanied by the anxieties of a post preparing for war. Hancock's expedition failed miserably and initiated Cheyenne, Arapaho, and Sioux aggression along the Smoky Hill route in June, particularly in the vicinity of Fort Harker, and slowed railroad construction considerably. Fort Harker bustled with activity, and the post commander, Colonel A. J. Smith, intensified efforts to guard railroad workers and settlers in the area, which included a 10-man detail to the Sternberg ranch. In addition, 500 to 800 quartermaster employees labored feverishly not only to construct the new post and supply depots, but also to resupply and outfit troops arriving from Fort Riley. Elements of the 10th Cavalry; the 3rd, 37th, and 38th Infantry Regiments; and a regiment of 18th Kansas Volunteers camped in and around the post.[18]

This large and increasing military and civilian population living in less than ideal conditions generated an immense sanitation problem. Compounding the problem were heavy spring rains and flooding during the first week of June that made the fort and Ellsworth a muddy quagmire. Sanitation and personal hygiene techniques of the day were primitive, and the Civil War experience of the average line officer did nothing to bolster his faith in the preventive measures advocated by the medical department. Post surgeons issued directives for the proper disposal of animal refuse from the slaughter pens, human waste, and garbage, but often the most basic recommendations were ignored. The Smoky Hill River and other streams—used for bathing and washing clothes—became convenient dumping sites for refuse of all varieties. The single water source for the post, a spring located two miles from Harker at old Fort Ellsworth, was inadequate and too inconvenient for the large number of people it supplied. Consequently, drinking water was obtained from the polluted streams. These crowded, unsanitary conditions primed Fort Harker for a gastrointestinal disease outbreak. All that was required was a virulent organism that could be easily transmitted in this environment.[19]

One such organism, *Vibrio cholerae*, struck North America for the third time in 1866. This bacterium, transmitted primarily by water or food that has been in contact with contaminated water, produces a toxin that is responsible for the profuse watery diarrhea, rapid dehydration, and physical collapse associated with the disease. Before the advent of intravenous fluid replacement and antibiotics, no effective treatment existed for cholera. The U.S. Army suffered 2,813 cases and 1,269 deaths in 1866. Although few physicians believed that a microorganism was responsible for the disease, many acknowledged that human excreta were involved with disseminating cholera. Practical-minded American physicians embraced the recommendations of Dr. Max von Pettenkofer to boil water and disinfect clothing and bed linens. Circular #5, *Report on Epidemic Cholera in the Army of the United States, During the Year 1866*, which was issued to all medical officers, reviewed the epidemic and provided guidance for preventing and controlling the disease to prepare physicians for an outbreak in 1867. The report stressed the value of quarantine measures and hygienic precautions, particularly water purification, disinfection of patient discharges, ventilation, and adequate air space in barracks.[20]

In June 1867, cholera made its first appearance among civilians in New Orleans, Vicksburg, and St. Louis. Late in the month, Fort Riley had its first cases. Although the source is unknown, the victims were civilians. Through the energetic efforts of Post Surgeon Bernard J. D. Irwin, the disease did not become epidemic, and no cases were reported in soldiers assigned to Fort Riley or in those soldiers passing through the post on their way west. These facts have led historians to believe that cholera was introduced at Fort Harker by civilians, from Fort Riley or points south and east, whose movements were uncontrolled by the military.[21]

On June 28, George W. Keeton, a herder and butcher, and Private George Groom, Company H, 38th Infantry, became the first victims of cholera at Fort Harker. How conscientious Doctors Sternberg and Chase had been in urging sanitary recommendations on commanders and how well their advice was heeded before cholera struck are questionable. Sternberg admitted in his report "…the police of the camps was not good when cholera made its appearance. Some of the company sinks were in wretched condition, and there were several offensive holes about the post where slops and garbage from the kitchen had been thrown. Measures were at once taken to remedy these evils; a strict system of policing was inaugurated; the camps were all moved to new grounds, and disinfectants [solutions of permanganate of potash, carbolic acid, quicklime, and chlorine] were procured and freely used."[22] These statements do not necessarily indicate a lack of proper medical recommendations as much as they do a lack of command support in their implementation.

On June 30, with the cholera epidemic 2 days old, Sternberg apparently had the cooperation of the post and line commanders as he stated, "I made a thorough sanitary inspection of the post… and all my recommendations in regard to policing have been carried out by the post commander. The camps…. of the 38th Infantry have been moved to better and higher grounds. The old sinks have been filled up and new ones dug."[23] Sternberg also isolated cholera cases from other patients in hospital tents "pitched for the sick in the quarters of each company"

and "pitched 50 yards in the rear of the hospital."[24] In essence, he was following the quarantine and hygienic guidance provided in Circular #5. Cases of cholera and Indian activity increased through the first week of July.[25]

Sternberg again made recommendations concerning the movement of transient and garrison troops about post, the location of cantonment areas, and sanitary policing of these camps on July 9, but he met resistance from the quartermaster depot in their implementation. The "Remarks" Sternberg added to this letter overflow with frustration and barely controlled anger: "The above recommendations in so as they relate to the movement of troops & to the employees of the Q.M. [Quartermaster] Dept. were not fully carried out. My efforts to secure a systematic & efficient method of policing in the camps of the Q.M. Employees were only partially successful, in consequence of the tardy and incomplete manner in which the Depot Q.M. assisted them."[26] Four days later, he requested a "permanent police party" be designated to report to him, and stated that "New cases of cholera are occurring everyday & we may anticipate a severe epidemic, unless every precaution is taken—constant policing and constant disinfection of privy vaults, etc. is essential…."[27] Following these recommendations, he provided a plan approved by the post commander for a cholera hospital to be established north of the railroad depot, but "nothing was done in regard to it by the Depot QM, who was charged with the execution of it."[28] Records provide no reason for the quartermaster's disregard of medical recommendations in an expanding epidemic. However, Madison Mills, Medical Director, Department of the Missouri, stated in his report of August 5 that, "Large details have been made from the command, and from the employees of the quartermaster's department, to thoroughly police the grounds, move tents, and disinfect privies and latrines, etc. Tents are being put up for the accommodation of cholera patients on the opposite side of the garrison from the hospital now occupied."[29] Exactly when these details were formed is obscure. The side of the garrison opposite the hospital was the north side, where Sternberg had recommended a cholera hospital be established on July 17.

Sternberg and Chase were not the only surgeons at Fort Harker. Captain and Assistant Surgeon Ely McClellan, Assistant Surgeon George McGill, and Acting Assistant Surgeon Ira Perry served with the 38th Infantry. Acting Assistant Surgeon Algernon Squier, new to the army and the plains, attended to the Kansas Volunteers. These officers ensured their unit areas were appropriately positioned and policed. When cholera broke out, they tended to their sick in camp, and only the severe cases were admitted to the post hospital.[30]

Unfortunately for the medical efforts at Harker, troop movements and the appearance of cholera at Fort Zarah took surgeons McGill, Squier, and Perry away from Fort Harker. Military dependents and civilian employees were fleeing Ellsworth County rapidly and, by the end of July, Ellsworth was little more than a ghost town. Elizabeth Custer, wife of Lieutenant Colonel George A. Custer, remembered the post as "the most absolutely dismal and melancholy spot I remember ever to have seen."[31] The remaining medical staff and many of the women who had not fled the fort intensified their efforts to control the epidemic and succor the

sick. True to her word, Louisa refused to leave her husband. Side by side with the Sisters of Charity, she nursed the sick until she "was marked by that terrible finger which bade her go alone into the valley of death."[32] Once marked, Louisa succumbed rapidly. Albert Barnitz stated to his wife that Louisa died six hours after contracting cholera. Sternberg stoically reported to Surgeon General Barnes, "One of the ladies of the garrison died of cholera on the 15th of July," but he was utterly devastated.[33] Bridget, the Sternberg's cook, died the next day.[34]

The growing cholera epidemic at Fort Harker soon received command attention. Surgeon Madison Mills arrived late in the evening of July 22 with Major and Surgeon Ebenezer Swift, Captain and Assistant Surgeon John Brewer, and Acting Assistant Surgeons Augustus Wiggins and William Renick to appraise the situation and ascertain what assistance was required. The post had had 88 cholera cases and 42 deaths. Sanitation was in a miserable state. The surgeons were physically and psychologically distraught. Chase, who had been ill since July 18, lost his wife to puerperal convulsions only a few hours before the medical party arrived. Although Louisa had been dead only three days, Sternberg assumed Chase's duties with his own. When Medical Director Mills arrived, he found Sternberg depressed and prostrate in bed, and Chase "not in condition to do any kind of duty."[35] Brewer immediately relieved the post surgeon of his medical duties.[36]

With the exception of Renick, all of the surgeons involved with the epidemic prepared after-action reports. Troop movements, poor drinking water, and unsanitary conditions were all implicated as causes of the epidemic. Of all the physicians, only Brewer used his report to glorify his own actions, and, through the omission of Sternberg's efforts, cast the post surgeon in a culpatory light. Brewer stated his immediate and continuing actions redundantly in positive, forceful terms: "I was at once assigned to duty…"; "immediately went on duty and visited the cholera wards…"; and "I took personal charge of the cholera wards."[37] Clearly, Brewer wanted the medical command—and posterity—to know he was the man of the hour. He remarked: "The most recent and approved methods of treatment were adopted, and every known means resorted to for the cure or alleviation of the disease."[38]

The weary surgeons at Fort Harker were not ignorant of the current therapies recommended for cholera. Assistant Surgeons McClellan and McGill had experienced the cholera epidemic of 1866. Joseph J. Woodward's *Report on Epidemic Cholera in the Army of the United States, During the Year 1866*, which was issued in the spring of 1867, provided treatment guidance and stated that no "new light has been shed upon the existing obscurity of the subject."[39] References in the post medical library, such as George B. Wood's *Treatise on the Practice of Medicine*, also offered recommendations and guidance. Therapy included oral dosing with opiates (Squibb's Mixture) and the inhalation of chloroform for early cramping, diarrhea, and vomiting. Although large doses of mercurial compounds (calomel), camphor, and cayenne pepper were given to patients with severe manifestations of disease, by 1866, reliance on enormous doses of opiates, mercurial compounds, and alkaloids had declined dramatically. The medical profession was discouraged and pessimistic not only about any treatment for cholera, but also about therapeutics in general.

Although progress had been made in other areas of medical science, specific disease therapy lagged behind. Sternberg commented in his report that chloroform treatments were first used upon McClellan's recommendation, but later calomel was adopted and proved more efficacious. Brewer continued to use these regimens, with the addition of quinine, without much success. His report continued: "A large majority of the cases were not seen until the stage of collapse had ensued…."[40] This is not true. From the beginning of the epidemic, Sternberg had mandated that command surgeons treat as many cases as possible in their unit areas and only send the worst cases to the post hospital. Brewer was seeing the most severe cases, but this does not mean these cases received prior medical attention.

Brewer admitted that the origin of the epidemic was uncertain and that the evidence for the importation of cholera was "meager," but he did not wholly preclude this possibility.[41] He was emphatic about the possibility of a local origin of the epidemic. He used three contemporary studies of cholera—one study stated that without a "peculiar cause" of cholera no amount of filth will generate it, and the other two studies supported filth as the cause of the disease—to support his contention that poor sanitation at Fort Harker, which he described in detail, caused the epidemic.[42] Brewer's comments reflect the most current thoughts and ideas of cholera causation and epidemiology. These made sense given that medical science had no knowledge of a bacteriologic basis of disease and that the sanitation on and around the post was poor prior to the epidemic.

In his concluding paragraph, Brewer stated, "…as soon as I reached the post I put in operation every means available for correcting the deplorable condition of affairs."[43] This included removing filth, weeding and policing areas, moving sinks regularly, and using disinfectants liberally. Although Fort Harker's surgeons had been using disinfectants and Sternberg had requisitioned more, Brewer took pride in stating, "To the free use of disinfectants in the cholera tents and sinks, I attribute the immunity from the disease enjoyed by the nurses and attendants. No case of cholera occurred among them after I took charge."[44] To add insult to injury, he lauded Renick, Chase, Swift, and Hospital Steward C. S. Darling as men who "did their duty" while ignoring the efforts of the post surgeon.[45]

As the chief medical officer, Sternberg was responsible for providing appropriate sanitary recommendations to the commander at Fort Harker. However, Sternberg possessed no command authority in his own right. Whatever the conditions were at the post before cholera struck, he had command support in implementing appropriate sanitary measures during the epidemic's initial stage. As the situation became critical, however, command support apparently faded. With cases mounting, his medical staff shrinking, and personal tragedy overwhelming him, Sternberg found it impossible to ensure his recommendations were being enforced. He and those assisting him failed in their sanitary mission not because of wanton neglect or ignorance, but because they did not receive command support, did not have authority over the civilians around the post, and were eventually overcome by events requiring more time and medical officers than were available.

Sternberg was granted a leave of absence at the end of July. Although he found solace and comfort in the arms of his family, his future hopes and dreams had been shattered. He had watched—helpless—as his heart's dearest was rapidly torn from him and buried in a crude wooden box. If only he had sent her away to the ranch, to Iowa, or to Cooperstown when the first case was found, she might still be alive. Pursued by this specter, his life had little zest and the ranch became just another piece of land. All that was left was the army. Sternberg was relieved of duty at Fort Harker in August, replaced by Assistant Surgeon Blencoe E. Fryer, and assigned to Fort Riley.[46]

While Sternberg became acquainted with Fort Riley, a peace commission met with the southern plains Indians at Medicine Lodge Creek, Kansas, in October 1867. The resulting treaty gave all rights to land between the Arkansas and Platte rivers to the United States; placed the signatory tribes on two reservations and offered them material support, arms, and ammunition; and guaranteed no unauthorized trespassing by whites. But congressional funding was slow and the younger, more volatile tribal factions, who were extremely displeased with the terms, seethed with hostility during the winter. General Philip H. Sheridan, who had replaced General Hancock as department commander in August, feared that Indian aggression would increase when the buffalo returned to their feeding grounds. In the spring of 1868, Sheridan sent the 7th and 10th Cavalry Regiments on campaign across Kansas to safeguard settlers and laborers working on the Union Pacific Railroad.[47]

The 10th U.S. Colored Cavalry Regiment, commanded by Colonel Benjamin H. Grierson, was a relatively new unit on the plains. Most of the 10th U.S. Colored Cavalry Regiment was stationed at Fort Riley during the winter of 1867–1868. When orders arrived for the unit to move west in late March 1868, Sternberg and Acting Assistant Surgeon Henry S. Kilbourne were assigned as medical staff to this regiment. Sternberg's orders directed him to prepare medical supplies, equipage, and transportation and to be ready to accompany Major Merideth H. Kidd and six troops from Fort Riley to Fort Hays. With Buffalo Bill Cody as hunter and scout, the expedition arrived at Fort Hays on April 24 and camped on Big Creek near the head of the Union Pacific Railway. Companies from the 7th Cavalry were camped one mile away on the other side of the same stream. Indian activity was minimal. Soldiers from both regiments settled into a quiet daily routine; they socialized, hunted, fished, and enjoyed fresh rations from Fort Hays daily. The command was generally healthy, and while nonbattle injuries were apparently infrequent, they could have serious results. Private Michael Mitchell of K Troop accidentally shot himself and a few weeks later Sergeant Ewing Smith of C Troop died in the same way.[48]

Sternberg was fascinated with the natural beauty of undeveloped western Kansas, with its abundance of flora and fauna, on the seemingly interminable marches. His inherent scientific curiosity led him far afield to gather fossils and animal remains, but he kept a particularly watchful eye out for Indian artifacts for the Army Medical Museum. The museum, established by Surgeon General William A. Hammond

in 1862, began building a collection of pathological specimens during the Civil War. In January 1868, Dr. George A. Otis, who was in charge of the anatomical section of the museum, decided to take advantage of the western expansion and sent letters to all post surgeons requesting that they contribute Native American curiosities, crania, and skeletons for anthropological study. Sternberg contributed significantly to this collection and that of the Smithsonian over the years, but in 1868 he ranged so far afield that officers in the command feared that he might fall prey to the Indians on these excursions. Apparently unconcerned for his safety, Sternberg continued his explorations throughout the campaign.[49]

Sheridan's hope that the Indians would remain quiescent was short-lived. In late May, Cheyenne dog soldiers attacked Coyote Station and Fort Wallace, Kansas. The 10th Cavalry was dispatched to the fort and from its base camp on Rose Creek companies searched in vain for the elusive Indians in the Smoky Hill, Saline, and Solomon River valleys during June and July. Indian encampments near Fort Dodge began to break up in July, but the tribes moved north rather than south to the reservations. Cheyenne raids continued, prompting Indian Superintendent Thomas Murphy to withhold all weapons from the tribes, but tribal elders managed to convince Lieutenant Colonel Alfred Sully, commander of the District of the Arkansas, that no trouble would ensue if arms were distributed. Sully consented, and Indian war parties struck settlements immediately along the Saline and Solomon rivers north of Fort Harker. The 10th Cavalry gave chase, but the Indians eluded them for the remainder of the month. Frustrated, the 10th Cavalry was directed by Sheridan to turn in all excess equipment in preparation for a rapid pursuit of the Indians.[50]

Wild Bill Hickok and Buffalo Bill Cody guided the cavalry southwest to the headwaters of Walnut Creek. On September 4, the expedition followed a fresh Indian trail located by Hickok and discovered an Indian burial party, which had just placed the remains of one of their tribe, wrapped in buffalo robes, in the notch of a walnut tree. According to Captain George Armes, Sternberg was "very anxious" to have this trophy for the Smithsonian Institution, although "picking up dead Indians was not considered in the program."[51] The moment the burial party departed, Sternberg commandeered a wagon to the tree, secured his prize, and shipped it off to Washington via Hays City. [52]

Sheridan was now determined to strike the Indians in their winter camps, when ponies would be at their weakest, supplies would be limited, and movement would be difficult. He developed a three-pronged attack on the Indians in the Canadian and Washita river valleys. One column would proceed from Fort Bascom, New Mexico, up the South Canadian River; another column would proceed from Fort Lyon, Colorado, and would move toward the Antelope Hills and Red River; the third, and strongest column would march south from Fort Dodge into Indian Territory and establish a supply depot there. At Fort Dodge, Sternberg was relieved of duty with the 10th Cavalry and appointed chief surgeon for the third column of Sheridan's forces under Sully's command. Sternberg readied enough medical supplies and equipment to support 1,100 men for the winter. Three other medical officers—

Captain Elias J. Marsh with the infantry battalion, Captain Henry Lippincott, and Acting Assistant Surgeon William Renick with the 7th Cavalry—were assigned to the expedition. However, Sternberg felt they would be insufficient support to the troops and supply trains that would be moving between Sully's base of operations and the rear area supply depot at Fort Dodge. He lobbied for two more physicians, but was granted only one, Acting Assistant Surgeon William S. Forwood, and an extra hospital steward.[53]

On November 12, 1868, Sully's troops and 450 wagons departed their camp near Fort Dodge. Six days and 100 miles later, Sully established Camp Supply at the confluence of Wolf and Beaver creeks just south of the North Canadian River. This camp served as a supply point for winter operations. Infantrymen immediately began constructing a stockade, winter quarters, and storehouses, and digging wells. Sheridan and his staff, which included army surgeon Morris Asch, arrived on the evening of November 21 in a severe snowstorm. As Sheridan's party approached Camp Supply, they had spied Indians moving along a trail toward the Washita River, and the general immediately dispatched Custer to the valley of the Washita. Under Sternberg's direction, the medical staff prepared for the wounded soon to come. A hospital "consisting of four hospital tents arranged as two wards with a double chimney of stone between them, one hospital tent as dispensary, and two wall tents for [a] kitchen" were erected quickly.[54]

Custer found the village of Chief Black Kettle on the Washita River late on the evening of November 26. Under cover of darkness, his troops surrounded the village and just before dawn they launched a lightning attack that reduced it to ashes. However, when the 7th Cavalry arrived at Camp Supply on the afternoon of December 1, it brought plenty of grist for the medical mill. Two officers and 17 men had been killed, and three officers and 11 men were wounded. Most severely wounded was Sternberg's friend, Captain Albert Barnitz. Shot through the flank at close range, Barnitz was pronounced in mortal condition on the field by Doctors Lippincott and Renick, who assumed his intestine had been pierced. Once in the hospital at Camp Supply, Sternberg carefully examined Barnitz and "found him very much fatigued by the journey, but having a good pulse, and presenting no bad symptoms."[55] The bullet had entered just below the twelfth rib, traveled obliquely toward the spine, and exited close to the hip bone. From the entry wound bulged a large mass of omentum. Sternberg reported, "On the 8th I removed the protruding mass of omentum. I commenced the operation with a wire ecraseur, but before it was completed the loop of wire broke, and I severed a small portion which was not yet cut through, with scissors … December 12th the [Brevet] Colonel is able to sit up an hour or two at a time, has a good appetite, sleeps well, and may be considered out of all danger."[56] On December 8, Albert reported to Jennie that he was "doing exceedingly well" under Sternberg's attentive care.[57] By Christmas Eve, Barnitz wanted to return home, but Sternberg prudently kept him under observation for another two weeks. Sternberg and his colleagues also treated many of the 53 Indian captives—mostly women and children—who had been wounded during the battle.[58]

Sternberg was relieved from duty with the expedition and assigned as post surgeon on December 7 at Camp Supply. He spent the winter administering medical activities at the depot. In good weather and without Indian activity, he collected specimens of animals, birds, and Indian paraphernalia for the Smithsonian Institution and the Army Medical Museum. In March he reported to Medical Director Madison Mills at Fort Hays for reassignment. Mills did not have a position immediately available, and Sternberg spent a month working his ranch before replacing Assistant Surgeon Leonard Y. Loring as post surgeon at Fort Riley. This 14-month tour proved to be a stable one, uninterrupted by epidemics or field service. Professional interests that had remained dormant while he was in the field were once again explored, including hobbies such as photography, botany, and gardening.[59]

Sternberg's interest in paleontology and ethnology continued unabated. He had collected Indian artifacts and fossils before 1868 in and around Fort Harker, but the summer campaign that year introduced him to new paleontological delights. The 10th Cavalry marched—more or less—directly west across Russell, Ellis, Trego, Gove, Logan, and Wallace counties. During the Cretaceous Era, some 65,000,000 to 140,000,000 years ago, this area had been a great inland sea. The sand and gravel crust Sternberg rode across had been deposited only 10 to 24 million years before, but over the millenia the Smoky Hill River and its tributaries had carved their way down into the Niobrara Chalk formation. What were then chalk bluffs had been the floor of the ancient sea and partially embedded within them were the remains of long extinct species of marine life. These were the treasures Sternberg rode extensively to find, examine, and collect. Although he gathered specimens all along the Smoky Hill River that summer, the two-month encampment on Rose Creek was Sternberg's most productive time as a paleontologist. Not only did he conduct numerous excursions, but also he assisted Captain and Assistant Surgeon Theophilus H. Turner, who was a post surgeon at Wallace and also an amateur paleontologist. By the end of the first week in July, Sternberg had found many vertebrate fossil specimens, but before they could be appropriately labeled and securely packed he was on the march again. Sternberg was aware of the value of his work and his driving desire to organize this collection induced him to request relief from duty with Sheridan in November at a critical juncture in the campaign. Sternberg, who was completely cognizant of the strategic and tactical medical requirements of the expedition, suggested that he be ordered to Washington to unpack these specimens and then two days later asked for more medical assistance. Surgeon General Barnes politely denied this odd request. The majority of specimens were given to Joseph Henry and Spencer Baird at the Smithsonian Institution and described by paleontologists Joseph Leidy, Edward D. Cope, and Othniel Marsh. Sternberg had found the remains of various species of Mosasaurus, a large marine reptile, that were abundant in the Cretaceous formations in the United States. Joseph Henry commented in more than one letter to Sternberg how valuable the collection truly was, and in 1873 Leidy described Sternberg's discoveries in detail in "Contributions to the Extinct Vertebrate Fauna of the Western Territories."[60]

In the spring of 1869, Sternberg's dream of establishing his parents in Ellsworth became a reality. Reverend Sternberg and his sons added a second story and a

kitchen to the log house and finished it with clapboards and plaster, and the Sternbergs had accumulated substantial land holdings on both sides of the Smoky Hill River. With his family happily settled relatively close and financially secure, Sternberg felt a sense of accomplishment and relief. His attention now turned to his own future happiness with the petite and attractive Martha L. Pattison of Indianapolis. It is uncertain where the couple met or when their courtship began, but it intensified in the summer of 1869, and they were wed on September 1 in Indianapolis. Mrs. Sternberg stated they had a short honeymoon that included a trip to Washington, DC, and a final visit with her family and friends before departing for Fort Riley in mid-October.[61]

Upon her arrival at Fort Riley, Martha admitted being "charmed with the fine substantial stone buildings and the general appearance of stability at the post."[62] The ambulance carrying the Sternbergs pulled up in front of a large frame home situated on an elevation apart from the other officer's quarters. Now that he was married, Sternberg was entitled to main post quarters; however, he expected his tour at Fort Riley to be short, as he had been in the Department of the Missouri since April 1866 and housing was at a premium on post. Sternberg gave his quarters to a line officer who was in poor health and accepted the old Sutlers' house in exchange. This home was much larger than he and Martha required, but it provided rooms for a laboratory and workshop.[63]

Mrs. Sternberg found that the man she married was much like the home in which they lived: a solid, dependable, and valuable part of the army, yet in many ways segregated and different from the whole. Capable of participating in and enjoying the camaraderie of his fellow officers in the field, Sternberg was a homebody while in garrison. He particularly enjoyed horseback riding, fossil hunting, and gardening with Martha, and often donned an apron to assist with kitchen duties. Never aloof or pretentious, he enjoyed small dinner parties among friends as he had at Fort Harker. But "grand blow-outs," as he called them, left him uncomfortable and bored.[64] "I don't like Army parties," he once wrote Martha, "because one meets so many silly, flirting married women and because the officers generally have to drink too much whiskey to make them pleasant companions for those who do not drink with them."[65] He avoided these gatherings, especially if Martha was visiting in Indianapolis, because he preferred the company of his laboratory, workshop, and books.

Martha's presence, like Louisa's, also made a great difference in Sternberg's disposition and outlook on the world. She shared his appreciation of nature and the outdoors, and understood his profound interest in science and developing dedication to the army. He had been very much in love with Louisa, and he realized that finding another woman with whom he could love with similar intensity—and have this love returned—was exceptional good fortune. Although Victorian America was tight-lipped in regard to recording marital intimacy, it appears that he was a very affectionate and attentive husband who much preferred the sole company of each of his wives to any other person.[66]

Sternberg continued to deluge the Army Medical Museum with anatomical specimens. Once again, he requested a microscope from the surgeon general "as

an aid in the diagnosis of disease and to enable me to pursue some investigations I am desirous of making."[67] This entreaty apparently fell on deaf ears as he put in a second request in early July. The new post commander, Major John Hamilton, wrote a frank and engaging letter to Surgeon General Barnes in support of his surgeon. It is obvious from the letter that Hamilton and Sternberg had a close relationship based on respect and similar interests. Hamilton stated how pleased he was with Sternberg's dedicated and hardworking attitude, and added that he, like Sternberg, was a "dabbler in natural science."[68] The letter's tone is one of respectful familiarity—a note from one mentor to another concerning a star pupil—and Hamilton gently prodded Barnes, "couldn't you send him a microscope?"[69] Although the pragmatic and parsimonious Army Medical Department saw little gain in supporting laboratory-based research efforts of its medical officers, Hamilton's letter appears to have had the desired effect. In mid-July, Sternberg received a Collins binocular microscope and a copy of Beale's *On the Microscope*. His commander was also aware that his surgeon did not want to depart Kansas in the fall of 1869 and took the opportunity to plant the idea in Barnes' mind. Hamilton's correspondence suggests that Sternberg's primary interest in a microscope was to make photomicrographs, presumably using botanical specimens as subjects, and that he was putting as much time and money into the effort as he could afford. Although Hamilton meant well, his description of Sternberg as a dabbler in science was a gross understatement. Equipped with an inquisitive, analytical mind, Sternberg found pleasure not only in medicine, but also in all scientific things. He read the scientific literature voraciously, and also digested its contents and applied it. As Martha noted, he had "a penchant for invention."[70] Although he was—undoubtedly—aware of and interested in the photomicrographic work of brother officers, Captains Joseph J. Woodward and Edward Curtis at the Army Medical Museum from a description of their activities in Circular #6 dated November 1, 1865, this was not his main scientific focus for the moment.[71]

Since the reorganization of the Army Medical Department under Surgeon General Joseph Lovell in 1818, post surgeons had been ordered to observe and record weather, climatic, and topographic data to help predict and define the diseases that they encountered. The detailed and precise official reports prepared by these officers, as well as articles prepared for local newspapers on the impact of meteorological conditions in the area, indicate how seriously this labor was regarded. Loring and Sternberg were familiar with the rapidly changing and often harsh weather conditions encountered in Kansas. To make wind data collection more accurate and easier, Sternberg crafted an inexpensive, self-registering anemometer. His enthusiasm for his new invention motivated him to travel to Washington to apply for a patent. Unfortunately, he found that his anemometer worked on the same principle described by a Dutch inventor in 1720. In a letter to Martha from Washington, Sternberg glumly reported, "'The old saying, 'There is nothing new under the sun,' certainly applies to my anemometer. Well, I am not greatly disappointed. It has been no great expense, has furnished me profitable employment, and I had not expected to make money out of it. It has at any rate helped to

develop and show my inventive powers."[72] Although the patent application was rejected, it is Sternberg's earliest existing technical scientific paper. The paper demonstrated a logical, lucid, and concise writing style and an above average drafting ability.

Sternberg then turned his attention to a much more complex issue: a temperature regulator automatically controlled by means of an electric circuit. The immediate benefit of such an invention was the stabilization and control of temperatures on the hospital wards at Fort Riley. However, he clearly saw that the application of the regulator extended not only to all buildings, but also to any process, such as the distillation of liquids or regulation of steam or gas pressure, that required precise temperature control over time. Elegant in its simplicity, his apparatus was powered by a 12-volt battery—probably a Fuller type as used with telegraphs—and used an electro-magnet, a thermometer, and a gear driven device to open and close the damper. Two wires connected the thermometer to the electro-magnet that was connected to the battery. One wire entered the mercury trough at the bottom of the thermometer and the other was placed at a pre-set temperature level. When the mercury rose to the pre-set level, it completed the electric circuit and the gear mechanism engaged to close the damper. When the temperature fell, the circuit was broken, and the damper reopened. Sternberg experimented with this device between October 1869 and April 1870. He applied for and was granted a patent on March 1, 1870.[73]

Before making his invention public, he had it reviewed by many scientists across the country. *Scientific American* magazine published its evaluation of his automatic regulator in the August 27 issue: "…It is obvious that this principle may be extended to a great variety of apparatus and operations in the industrial arts. In fact its possible and useful applications are almost beyond enumeration…its use would change uncertainty to precision, and render easy what are now oftentimes some of the most difficult and critical of industrial operations…. We have personally inspected the operation of this ingenious instrument in the operation of heating liquids for pharmaceutical purposes, and can vouch that in this respect it is all the inventor claims for it. We see no reason why it should not perform just as satisfactorily in regulating the heat of rooms and in other operations."[74]

Although this original contribution to technology provided great self-satisfaction to Sternberg, it should not be viewed as an indication that he was bored with medicine or in search of new professional goals. To the contrary, the invention originated—as did that of the anemometer and his tinkering with photomicrographs—with a medical application in mind. His laboratory and workshop provided an outlet for creative energies that were kept continually in motion by a scientific mind that never seemed to rest and exhibited an insatiable appetite for scientific and medical literature. The hospital and post libraries at Forts Harker and Riley offered a remarkable selection of medical and surgical texts and subscribed to journals such as the *Medical Record, American Journal of the Medical Sciences, Medical and Surgical Reporter, Braithwaite's Retrospect of Practical Medicine and Surgery*, and the *Half-Yearly Abstract of the Medical Sciences*. Whatever he

could not find there, he borrowed by mail from the Surgeon General's Library.[75] In this literature, Sternberg read about new developments in diagnosis using the microscope, ophthalmoscope, and clinical thermometer; kept up with the debate on what would soon be known as the germ theory; and read about Dr. Joseph Lister's recent work on the antiseptic treatment of fractures and abscesses. Lister's antiseptic method of treatment consisted of placing a cotton-lint pledget impregnated with carbolic acid directly on the wound and applying a dressing over it. He found that this treatment reduced secondary wound infections. Lister attributed the infections, which frequently developed in open fractures, "to minute particles suspended in it [the air], which are the germs of various low forms of life, long since revealed by the microscope, and…now shown by Pasteur to be its essential cause."[76] Sternberg realized that if Louis Pasteur's hypothesis was correct, and if disinfectants such as carbolic acid prohibited the growth of these germs, then the disinfecting efforts he and his colleagues had made at Fort Harker in the summer of 1867 might have been worthwhile. Furthermore, if germs in the air produced wound infections and could be seen through the microscope, then perhaps the germs or poison of cholera or various other epidemic diseases reside there as well, or possibly in the dejections of disease victims, and could also be seen microscopically. He was captivated by the possibility.

Sternberg continued to refine his photomicrographic skills and followed the opening debates of what would become known over the next decade as the germ theory of disease. But in 1869, the germ theory of disease was a confusing and nebulous concept. No precise terminology for or clearly articulated interpretation of the theory existed. A germ could be a discrete chemical poison or a living vegetable or animal agent variously termed algae, fungi, cryptogams, microzymes, or animalcula. These agents of disease could be described as toxic by-products of the body or environment, or free-living microorganisms. Pasteur's work on fermentation and the diseases of silkworms over the past 13 years reiterated the generation-old conclusions of Agostino Bassi, Theodor Schwann, Jakob Henle, and John K. Mitchell that fermentation and some diseases were caused by parasitic microorganisms, namely fungi. Although the popularity of the "fungus theory" had waned by the 1850s, Pasteur's experiments proved to be more scientifically acceptable and generated a revival of interest in this idea.[77]

Sternberg indicated in his first published medical paper that he was contemplating the germ theory. It has been suggested that Sternberg's experimental interest was in this direction, but Sternberg left no laboratory records, and his broad, veritably universal, interest in scientific subjects provided no clarification. His laboratory work probably consisted of reproducing the experiments he had read about in the literature, but without durable stains, oil-immersion lenses, or procedural guidelines, these efforts were rudimentary. The important point, however, is that in his last months in Kansas, Sternberg's professional focus and ambition shifted from one involving—predominantly—the physical sciences to one that addressed a totally new scientific frontier based on the recent experimental work of Pasteur and Lister. His attempts at preventing, controlling, and treating infectious diseases—

both in the Civil War and at Fort Harker—had left him frustrated and personally scarred. Sternberg thought these failures were not an acceptable status quo. He sought a logical scientific basis for disease causation, and he realized that it could only be elucidated in the laboratory.[78]

The only army laboratory at that time was located at the Army Medical Museum in Washington, DC. Sternberg was aware of the recent work there of Major Edward Curtis and Captain John S. Billings, requested by the Department of Agriculture, concerning the cryptogamic origin of Texas fever and pleuro-pneumonia in cattle. Although no evidence—microscopic or otherwise—for a fungal etiology of these diseases was found, the fact that the army laboratory engaged in research of this kind likely encouraged Sternberg that such research would continue. It may have been with the intention of obtaining a position there that he reversed his earlier decision to remain in Kansas and requested reassignment in March 1870.[79]