

Epilogue

On July 19, 1916, Senator J. H. Gallinger refreshed the memories of his colleagues in the Senate chamber on Sternberg's remarkable career and accomplishments. His intention was to sponsor a bill that would obtain a more adequate pension for Mrs. Sternberg. Congress had become more parsimonious in granting pensions to the widows of general officers, and \$50 per month was the limit set by the committee on pensions in both the House and Senate. Gallinger acknowledged this fact, but declared Mrs. Sternberg's case was unique because of her husband's accomplishments. He presented supporting letters from Surgeon General William Gorgas, General Leonard Wood, George Kober, and Elihu Root. Root's eloquent words summarized the feelings of these men and many others who had known and worked with Sternberg: "Senator Gallinger's bill does not rest alone upon long and faithful service...but chiefly and distinctively upon the great part which General Sternberg played in the service rendered by the Medical Corps of the Army in the nine years during which he was Surgeon General. The practical extirpation of yellow fever in Cuba and on the Isthmus of Panama and the development of methods of preventive medicine, which have secured the phenomenal freedom from typhoid in recent years, are achievements in which the Medical Corps of the Army bore a great part and won the highest distinction. Congress has paid great honor to the medical officers who in the field and in the camp became distinguished for their part in this extraordinary work. Let no one think, however, that the man who was at the head of the corps can be left out of account of this creditable record. Such things do not happen by accident. No body of men accomplishes what our medical officers accomplished except in response to leadership, incitement, encouragement, opportunity, motive, power, coming from the head of the corps. The Medical Corps accomplished what it did largely because the man at the top was a pioneer in bacteriology, an advance worker in protective medicine, and had the enthusiasm and devotion through which science wins victories.

That spirit communicated itself to the corps, directed its energies, made the field of opportunity for scientific effort, kept good men in it, brought good men into it, and furnished the indispensable element of leadership without which the good work could not have been done. General Sternberg was the general commanding in that campaign. Congress has been honoring his subordinates gratefully and properly. It is all wrong that there should be no appreciation for the commander.”¹ Gallinger called it “the simple truth” and moved to have her pension raised to \$100 per month.² After some discussion, the amendment was agreed to and the action went into conference committee.

Two weeks later, Mr. Edward Keating, of Colorado, called up the conference report on pension bills, which included that of Mrs. Sternberg, in the House of Representatives. A great deal of discussion occurred over Sternberg’s role in the conquest of yellow fever. This may have been the subject upon which passage of the bill hinged. Kober had submitted the testimony of Aristides Agramonte, the last surviving member of the Yellow Fever Board, in which the Cuban doctor affirmed that Sternberg’s “...instructions to Major Reed were so precise yet so complete that they embraced even human experimentation, a thing until then considered will nigh impossible, and, without the moral support which his reputation as a scientist of the highest order and his official position rendered us, I am sure we would have never undertaken the method of investigation with which you are familiar.”³ Even with this evidence, Representative Clarence B. Miller, of Minnesota, fearful the bill would fail, had prepared a speech in support of the bill and asked for 10 minutes on the floor. Keating—perhaps aware of what was to come—graciously relinquished the remainder of his time to his northern colleague.⁴

The representative from Minnesota delivered the most comprehensive, concise, and accurate biography of George Sternberg that has ever been written. Miller’s words captured the soldier, the scientist, the philanthropist, and the man. If any opposition remained by the time he reached his final remarks, it faded away as he closed:

“Had General Sternberg devoted even a portion of his lifetime to acquiring remuneration for his services, he might have died a rich man.... He has contributed more for the well being of humanity than almost any other man I can name in the whole realm of medical science during the last half century. It seems to me that a great – I do not mean to say generous, but I think I have a right to say a fairly considerate government will recognize the lifetime of service, the heroic devotion and the splendid achievements of this man and honor his memory, a memory that ought to be blessed and hallowed by every man in the South. He has done more for you than any other living man. I believe you agree with me that his widow, who is now in advanced years, ought to be able to live in reasonable comfort during the remaining period of her life, and the distinguished services of this noble man thereby in some degree recognized by an appreciative Government.”⁵

The bill passed.

In early November 1919, friends and students from the Army Medical School gathered at Arlington National Cemetery to dedicate the large monument to General Sternberg. Army Surgeon General Merritte W. Ireland, Brigadier General Walter

D. McCaw, MC, and Colonels Edward L. Munson and Frederick F. Russell, MC, provided tributes to their old chief and mentor. But long-time family friend and colleague George Kober touched Mrs. Sternberg the most when he said Sternberg left “a memory of patriotism and good citizenship, a memory of brotherly love and good deeds.”⁶

Martha Sternberg, the General’s beloved “Mattie,” resided in Washington, DC, until her death in February 1936.⁷

Acronyms and Abbreviations

ACP	Ammunition Control Point
AFIP	Armed Forces Institute of Pathology
AGO	Adjutant General's Office
AMA	American Medical Association
AMEDD	Army Medical Department
Am Jour Med Sci	<i>American Journal of the Medical Sciences</i>
AMS	Army Medical School
AMSUS	Association of Military Surgeons of the United States
APHA	American Public Health Association
ARIG	<i>Annual Report of the Inspector General</i>
ARSG	<i>Annual Report of the Surgeon General</i>
ARSW	<i>Annual Report of the Secretary of War</i>
ARWD	<i>Annual Report of the War Department</i>
BDE	<i>Brooklyn Daily Eagle</i>
B&L	<i>Battles and Leaders of the Civil War</i>
BM&SJ	<i>Boston Medical & Surgical Journal</i>
CB	Commission Branch
CMH	Center for Military History
DAR	Daughters of the American Revolution
DCR	Dodge Commission Report
FGO	Field General Order
FY	fiscal year
GMS	George Miller Sternberg
GO	General Order

GPO	Government Printing Office
GWU	George Washington University
HIV	human immunodeficiency virus
HQ	headquarters
HR	House of Representatives
HRC	Hench-Reed Collection
JAMA	<i>Journal of the American Medical Association</i>
LOC	Library of Congress
Med Rec	Medical Record
MHP	Medical History of Post
MR	Muster Rolls
M&SHCW	<i>Medical & Surgical History of the Civil War</i>
M&SHWR	<i>Medical & Surgical History of the War of the Rebellion</i>
NARA	National Archives and Records Administration
NBH	National Board of Health
n.d.	no date
NGU	nongonococcal urethritis
NLM	National Library of Medicine
NMH	National Museum of Health and Medicine
NMM	National Medical Museum
NOM&SJ	<i>New Orleans Medical & Surgical Journal</i>
n.p.	no publisher
n.s.	new series
NTA	National Tuberculosis Association
NYEP	<i>New York Evening Post</i>
NYS	<i>New York Sun</i>
NYT	<i>New York Times</i>
OR	The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies
PH	Post History
PHRP	Public Health Reports and Papers
PPPMO	Personal Papers of Physicians and Medical Officers
PR	Post Returns
RG	Record Group
Rpt.	report
Sen. Doc.	Senate document
SFO	Special Field Order
SGO	Surgeon General's Office

SO	Special Order
Ther Gaz	<i>Therapeutic Gazette</i>
TN&HR	<i>The Trained Nurse and Hospital Review</i>
USSC	U.S. Sanitary Commission
USUHS	Uniformed Services University of the Health Sciences
UVA	University of Virginia
WES	<i>Washington Evening Star</i>
WRAIR	Walter Reed Army Institute of Research
WSHC	Washington Sanitary Housing Company
WSIC	Washington Sanitary Improvement Company

Endnotes

Chapter One

Palatines, Pietists, and Medicine

1. Levi Sternberg, *Story of My Life* (privately published by Martin A. Lambert, Decatur, AL, 1997), 1, 36.
2. *Ibid.*, 1–2.
3. Bailey, *Hartwick College: A Bicentennial History*, 43, 44; Jensson, *American Lutheran Biographies*, 322; Kuenning, *The Rise and Fall of American Lutheran Pietism*, 47, 75–89; Wolf, *The Lutherans in America*, 355; M. Sternberg, *George Miller Sternberg*, 2.
4. Kreider, *History of the United Lutheran Synod of New York and New England*, 70–93; L. Sternberg, *Story of My Life*, 3–4; Sternberg genealogy, Albert A. Martin, Decatur, AL.
5. This condition became epidemic among clergymen in the 1830s and 1840s, and some lost the use of their voice completely. Levi may have suffered from chronic laryngitis with secondary nodule formation on his vocal cords that developed from prolonged use and abuse of his vocal cords. Cassedy, “An American Clerical Crisis: Minister’s Sore Throat, 1830–1860,” 23–38.
6. L. Sternberg, *Story of My Life*, 5–8.
7. GMS, *My Life*, MS C100 George Miller Sternberg Papers, 1861–1917, Box 1, Folder 7, n.d., NLM, 3; GMS, “Presidential Address,” Association of Military Surgeons of the United States, 11; M. Sternberg, *GMS*, 2; 1850 New York census, NARA.
8. A. Hiller to Martha L. Sternberg, 1917, Biographical Sketch of George Sternberg by Alfred Hiller, MS C100 George Miller Sternberg Papers, 1861–1917, Box 1, Folder 23, NLM.
9. Sternberg genealogy.
10. Bailey, *Hartwick College*, 44; Hiller, “Biography of Rev Miller,” 75–78.

11. GMS, *My Life*, 5.
12. GMS, *My Life*, 2; Hiller, "Biography of Rev Miller," 75–80.
13. Kreider, *History United Lutheran Synod*, 201; L. Sternberg, *Story of My Life*, 9, 14, 17, 31.
14. GMS, *My Life*, 4.
15. Ibid.
16. Livermore, *Condensed History of Cooperstown*, 161–162; M. Sternberg, GMS, 2.
17. GMS, *My Life*, 4.
18. Ibid., 5.
19. *Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 25, 1852*, 4–7.
20. Bailey, *Hartwick College*, 48; Bruce, *Launching of American Science, 1846–1876*, 121, 122; Daniels, *American Science in the Age of Jackson*, 7, 20, 47, 48, 50–53. See also Stanley Guralnick, *Science and the Ante-Bellum American College* (Philadelphia: American Philosophical Society, 1975).
21. GMS, *My Life*, 5.
22. "A letter from Rev. G. B. Miller, D.D., Written to his Daughter Henrietta, now Mrs. A. Hiller, 55 years ago," *The Monthly*, Hartwick Seminary, Oct 1908, 4. Rogers, *Dinosaur Dynasty: Sternberg Fossil Hunters*, 10.
23. "A letter from Rev. G. B. Miller, D.D., Written to his Daughter Henrietta, now Mrs. A. Hiller, 55 years ago," *The Monthly*, Hartwick Seminary, Oct 1908, 4.
24. *Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 23, 1854*, 6–7; GMS, *My Life*, 6.
25. GMS, *My Life*, 6–7; Sternberg genealogy.
26. GMS, *My Life*, 7.
27. GMS's comment on missing his mother is difficult to reconcile with his actions. At 13 he spent a year living in Cooperstown and there is no comment by him or Mrs. Sternberg suggesting that separation was a trial. GMS, *My Life*, 7; Kaester, *Pillars of the Republic: Common Schools and American Society, 1780–1860*, 20–22.
28. GMS, *My Life*, 8; *Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 26, 1857*, 2.
29. GMS, *My Life*, 8.
30. Ibid., 8–9.
31. GMS, *My Life*, 9. In the two autobiographical essays Sternberg wrote during his life—the short biography he provided the Medical Examining Board in May 1861 and *My Life* written after 1875—he was vague about the true sequence of events between 1856 and 1858. When these essays are combined with the records of Hartwick Seminary, it is evident he must have returned from New Jersey in the summer of 1856. "Prelim. Exam. Dr. Sternberg, May 13, 1861," Personal Papers of Physicians and Medical Officers (cited herein as PPPMO), MO, Box 551, RG94, NARA; Gibson, *Soldier in White*, 10; Minutes, Board of Trustees, 1857, Cooper Archives, Hartwick College, Oneonta, NY.

32. *Biographical Review of Otsego County*, 153–154; Gibson, *Soldier in White*, 11–12.
33. Material for medical education, practice, and personalities in this chapter was derived from the following sources: Starr, *The Social Transformation of American Medicine*, 81–83; Norwood, *Medical Education in the United States Before the Civil War*, 393–394; Bonner, *Becoming a Physician: Medical Education in Great Britain, France, Germany, and the United States, 1750–1945*, 229–230; Haller, *American Medicine in Transition, 1840–1910*, 197–199; Shryock, *Medicine and Society in America, 1660–1860*, 141, 144, 148, 149, and *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved*, 183; Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity*, 290, 354; Mettler, *History of Medicine*, 527–528; Rothstein, *American Physicians in the 19th Century: From Sects to Science*, 85, 88–89, 92; Bynum, *Science and the Practice of Medicine in the Nineteenth Century*, 26, 31–33, 41–42; Ludmerer, *Learning to Heal: The Development of American Medical Education*, 21–22; Warner, *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820–1885*, 13, 14, 15; Rothschild, *History of Physiology*, 187–188; Lesch, *Science and Medicine in France*, 5, 14, 54, 58; Warner, *Against the Spirit of System: The French Impulse in Nineteenth Century American Medicine*, 3–4, 7–9; Kelly and Burrage, *Dictionary of American Medical Biography*; Atkinson, ed., *Physicians and Surgeons of the United States*; Garrison, *An Introduction to the History of Medicine*, 4th ed., 601, 278; Walsh, *History of Medicine in New York*, v2, 492–493; Duffy, *The Healers: A History of American Medicine*, 167, 172, 174–175.
34. GMS, *My Life*, 9.
35. The College of Physicians and Surgeons of New York required six-month terms during the early 1850s, but had returned to four-month terms by the time of GMS's matriculation.
36. Ludmerer, *Learning to Heal*, 13; Smith, *The Emergence of Organized Clinical Instruction in the Nineteenth Century American Cities of Boston, New York, and Philadelphia*, 236–237.
37. *Atlas of Otsego County*, 18; Map of Otsego County, 1868, New York State Historical Society, Cooperstown, New York.
38. Bylebyl, "William Beaumont, Robley Dunglison, and the 'Philadelphia Physiologists,'" 3–21; Warner, "The Campaign for Medical Microscopy in Antebellum America," 371–372; Cassedy, "The Microscope in American Medical Science, 1840–1860," 76–97.
39. Bonner, *Becoming a Physician*, 152.
40. Haller, *American Medicine in Transition*, 206.
41. GMS, *My Life*, 9; GMS, "Presidential Address," 7.
42. *Eleventh Annual Announcement, Medical Department, University of Buffalo*, 1856–57, 16.
43. *Ibid.*, 9.
44. *Ibid.*, 9.
45. *Ibid.*, 9.
46. *Ibid.*, 9.

47. Editorial, *Buffalo Medical Journal*, Jul 1857, 13(2):127, Jan 1858, 13(8):512, Aug 1858, 14(3):180–182, Aug 1857, 13(3):190.
48. Editorial, *Buffalo Medical Journal*, Aug 1857, 13(3):190.
49. White's presentation of a woman in labor to his class outraged some Buffalo physicians, but his methods survived the criticism and lawsuit.
50. Editorial, "Medical Department – University of Buffalo," *Buffalo Medical Journal*, Aug 1857, 13(3):190 and Aug 1858, 14(3):180–182; *Annual Announcement, Medical Department of the University of Buffalo, 1858–1859* (Buffalo, NY: Chas. E. Felton, 1859), 8; Sentz, *Medical History of Buffalo*, 4–5, 7, 43; Smith, "Austin Flint and Auscultation in America," 129–149; Peltier, "A Brief History of Traction," 1603–1617; Fye, "Growth of American Physiology, 1850–1900," 48; Roths Schuh, *History of Physiology*, 189.
51. *11th Annual Announcement*, 10.
52. Editorial, *Buffalo Medical Journal*, 14(5), Oct 1858, 316 and 14(6), Nov 1858, 374–375.
53. Sternberg attended the College of Physicians and Surgeons during the 1859–1860 session; however, he wrote that he did this the winter following his Buffalo instruction, which he stated was in the winter of 1857–1858. Since he graduated in March 1860, presumably he made an error and attended Buffalo in the winter of 1858–1859. GMS, *My Life*, 9–10.
54. Shrady, ed., *The College of Physicians and Surgeons of New York and Its Founders, Officers, Benefactors, and Alumni*, v1, 106–107.
55. Walsh, *History of Medicine in New York*, v2, 427.
56. Walsh, *History of Medicine in New York*, v2, 427–429; *53rd Annual Catalogue, College of Physicians and Surgeons in the City of New York, 1859–60*, 12; Smith, *Emergence of Organized Clinical Instruction*, 169, 170, 173; Rosenberg, "The Practice of Medicine in New York a Century Ago," 140.
57. *53rd Annual Catalogue, College of Physicians and Surgeons in the City of New York*, 2; Sentz, *Medical History in Buffalo*, 7; Ruhrah, "Willard Parker," 205–214; Smith, "A Historical Overview of the Recognition of Appendicitis – Part I," 571–647; Baldwin, "The Detmold Method of Controlling Inoperable Hemorrhage," 34–36; Shrady, *College of Physicians and Surgeons*, 107, 111, 112–113; Smith, *Emergence of Organized Clinical Instruction*, 173; Norwood, *Medical Education in the United States*, 164.
58. According to the college catalog of 1860–1861, Sternberg's essay was titled "Necrosis," but 14 months later he told the Army Medical Examining Board the paper was on the subject of "Cynanche Trachealis." The essay has not survived, but presumably, the catalog entry was a misprint. "Prelim. Exam. Dr. Sternberg, May 13, 1861," PPPMO, Box 551, RG94, NARA; *54th Annual Catalogue, College of Physicians and Surgeons in the City of New York, 1860–1861*.
59. Rosenberg, *The Care of Strangers*, 72, 74, 78, 83, 93.
60. M. Sternberg, GMS, 245.

61. Cassedy, "The Microscope in American Medical Science," 76, 82 & n, 83, 97; Schaeffer, "Nineteenth Century American Microscopy," 464; Gage, "Microscopy in America (1830–1945)," 47–49, 57; Warner, "The Campaign for Medical Microscopy in Antebellum America," 369, 374–375, 377, 379.
62. See GMS Civil War reports in: *The Medical and Surgical History of the Civil War*, v2, (Wilmington, NC: Broadfoot Publishing, 1990), 8, 88.
63. *54th Annual Catalogue, College of Physicians and Surgeons, Session of 1860–1861*, 15–16. Rosenberg, "The Practice of Medicine in New York a Century Ago," 151, and *Care of Strangers*, 65.

Chapter Two

From First Bull Run to Hospital Command

1. M. Sternberg, GMS, 245.
2. Ibid.
3. Starr, *Transformation*, 64, 89.
4. M. Sternberg, GMS, 245.
5. Although GMS's forefathers had served in the Seven Years and Revolutionary Wars, and his paternal grandfather had owned slaves, he had grown up in a religious environment that was both pacifist and abolitionist. Yet, where the struggle for abolition was concerned the Evangelical Lutherans believed that the end justified the means. GMS, and later his brothers Theodore and Frederick, probably received support for their decisions to enter the service. GMS to Cameron, 14 Apr 1861, PPPMO, Box 551 (Sternberg), RG94, NARA; Gibson, *Soldier in White*, 13, 14.
6. Ludmerer, *Learning to Heal*, 15–16; Cameron to GMS, 22 Apr 1861 and GMS to Surgeon General, 4 May 1861, PPPMO, Box 551, RG94, NARA.
7. William A. Hammond, older than most of the other candidates and with prior army service, stood first in the class. Charles C. Gray, Charles E. Goddard, Blencoe E. Fryer, and Henry R. Silliman, who would work closely with GMS in the very near future, also performed well. Merit Rolls Regulars, Entry 77, RG112, NARA; Brown, *The Medical Department of the United States Army from 1775 to 1873*, 212, 216, 217; William Sloan to Surgeon General, 16 May 1861 and Contract of Service, 20 May 1861, PPPMO, Box 551, RG94, NARA.
8. GMS Narrative of Service to Surgeon General, Jul 29, 1863, PPPMO, Box 551, RG94, NARA; Marcus, ed., *Washington During Wartime*, Appendix B; Bryan, *A History of the National Capital*, v2, 3n, 479. Reese, *Sykes' Regular Infantry Division*, 32, 33.
9. Weigley, *History of the United States Army*, 189, 190, 200, 566.
10. Gillett, *The Army Medical Department, 1818–1865*, 128.

11. Gillett, *The Army Medical Department, 1818–1865*, 127–132; Otis, *Report on the Transport of Sick and Wounded by Pack Animals*, 4, 5.
12. Leech, *Reville in Washington*, 55.
13. Mitgang, ed., Noah Brooks, *Washington, D.C. in Lincoln's Time*, 13; Elden Billings, "Military Activities in Washington in 1861," 131; *Battles & Leaders of the Civil War*, v1, 171 (hereafter cited as *B&L*); Warner, *Generals in Blue*, 298; GMS Narrative of Service to Surgeon General GMS to SGO, Jul 29, 1863, PPPMO, Box 551, RG94, NARA.
14. *B&L*, v1, 174–175; Davis, *Battle at Bull Run*, 73–76; W. S. King, "Report of Events Connected with the First Bull Run Campaign," *Medical and Surgical History of the Civil War*, v2, 1–4, 6 (hereafter cited as *M&SHCW*); Gillett, *AMEDD, 1818–1865*, 163, 164; Duncan, *The Medical Department of the United States Army in the Civil War*, 21, 26; Cunningham, *Field Medical Services at the Battles of Manassas*, 20; Adams, *Doctors in Blue*, 26.
15. Sykes Regular Battalion consisted of two companies: 2d U.S. Infantry, 5 from the 3rd U.S. Infantry, and one from the 8th U.S. Infantry Reese, *Sykes' Regular Infantry*, 34. Adams, *Doctors in Blue*, 25; *B&L*, v1, 178; Hennessy, *First Battle of Manassas*, 2d ed., 12; *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* (hereafter cited as *OR*), Series 1, v2, 315, 390; Duncan, *Medical Department in the Civil War*, 38; Johnston, *Bull Run*, 114–115, 120, 130–136.
16. "Capture and Escape of Dr. Sternberg," *Freeman's Journal*, Cooperstown, NY, Aug 1861, George Miller Sternberg Papers, 1861–1917, Box 1, Folder 8, NLM; Davis, *Battle at Bull Run*, 159, 160, 162; Johnston, *Bull Run*, 144.
17. Davis, *Battle at Bull Run*, 167; Haynes, *A History of the Second Regiment, New Hampshire Volunteer Infantry in the War of the Rebellion*, 23–28; Woodbury, *The Second Rhode Island Regiment*, 31; Fairchild, *History of the 27th Regiment New York Volunteers*, 9–11. Sternberg thought the flank march to be about 10 miles. According to measurements from battlefield maps contemporary with the battle, the distance from where Hunter's Division turned off the Warrenton Turnpike to the Sudley Ford was about 6 miles. *B&L*, v1, 186; "Capture and Escape of Dr. Sternberg"; Parker, "The Regular Infantry in the First Bull Run Campaign," 525; Johnston, *Bull Run*, 184–185; Davis, Perrin, and Kirkley, *Official Military Atlas of the Civil War*, Plate 3.
18. *OR*, Series 1, v2, 319, 383–387, 488, 559; Parker, "The Regular Infantry in the First Bull Run Campaign," 527; "Capture and Escape of Dr. Sternberg."
19. "Capture and Escape of Dr. Sternberg."
20. "No. 35, Report of Maj. George Sykes," 390–391 and "No. 110, Report of Brig. Gen. Nathan G. Evans," 559, *OR*, Series 1, v2; Davis, *Battle at Bull Run*, 173–174. "Capture and Escape of Dr. Sternberg." For an analysis of how Union soldiers reacted to battle, see Hess, *Union Soldier in Battle* (Lawrence: University of Kansas Press, 1997).
21. W. S. King, "Report of Events Connected with the First Bull Run Campaign," *M&SHCW*, v2, 4, 5.

22. "No. 110, Report of Brig. Gen. Nathan G. Evans, *OR*," Series 1, v2, 559; Davis, *Battle at Bull Run*, 175, 177, 180–185, 187–188; Reese, *Sykes' Regular Infantry*, 37, 40; Parker, "Regular Infantry in the First Bull Run Campaign," 529. Cunningham, *Field Medical Services*, 15, 36; Duncan, *Medical Department in the Civil War*, 31.
23. "Capture and Escape of Dr. Sternberg."
24. GMS sent Colonel Jones to Sudley Church for definitive care. Jones died at Orange Hospital, Orange, Virginia, from complications of his injuries on 3 Sep 1861. Compiled Service Records of Confederate Soldiers, M-311, Roll 124, NARA; Davis, *Battle of Bull Run*, 181.
25. Davis, *Battle of Bull Run*, 191–195, 214, 236.
26. Reese, *Sykes' Regular Infantry*, 38–40; Parker, "Regular Infantry in the First Bull Run Campaign," 528–529; Hennessy, *First Battle of Manassas*, 78; "Capture and Escape of Dr. Sternberg"; "No. 35, Report of Maj. George Sykes," 390–399, and "No. 83, Report of Col. J. E. B. Stuart," *OR*, Series 1, v2, 484.
27. "Capture and Escape of Dr. Sternberg." GMS probably tethered his horse at the Lewis home. Undoubtedly, his unattended mount had been the vehicle of someone's headlong flight from the battlefield. He humorously remarked years later, "I tied him to a tree, and unless some one else took him away he is still there, for I have never seen him since." GMS, "Presidential Address," 13. Among surgeons ordered to Sudley Church were Charles C. Gray, Regular Army, William W. Keene, 5th Mass, and C. S. Degraw, 8th NY. *M&SHCW*, v2, 5, 7, 8, 18.
28. Taken prisoner with GMS were: Charles Gray, Regular Army; Foster Swift, G. S. Winston, and C. S. DeGraw, 8th NY; Homiston and William F. Swalm, 14th NY; Eugene E. R. Peugnet, 71st NY; James Harris, 2d RI; Jacob H. Stewart and Charles W. Boutillier, 1st Minn; Benjamin F. Buxton, 5th Maine, William Allen, 2d Maine, James M. Lewis, 2d Wis, and Edward F. Taylor, 2d NJ. Cunningham, *Field Medical Services*, 6, 20; Duncan, *Medical Department in the Civil War*, 31, 34–35; C. C. Gray, "Extract from a Report of Services at the First Battle of Bull Run," *M&SHCW*, v2, 7; "No. 83, Report of Col. J. E. B. Stuart," *OR*, Series 1, v2, 484.
29. "Capture and Escape of Dr. Sternberg"; PPPMO, Boxes 453 (Peugenet), 566 (Swalm), 646 (Winston), RG94, NARA; Alan Goff, ed., George H. Otis, *The Second Wisconsin Infantry*, 236, 295; Mundy, *Second to None: The Story of the Second Maine Volunteers*, 81–82; Bilby and Goble, *Remember You Are Jerseyemen!* 66; Blackford, *War Years with JEB Stuart*, 41–42.
30. Cunningham, *Field Medical Services*, 14, 15; "Capture and Escape of Dr. Sternberg."
31. G. M. Sternberg, "Extract from a Report on Duties Assigned to Him from the Outbreak of the Rebellion," *M&SHCW*, v2, 8.
32. "Capture and Escape of Dr. Sternberg."
33. *Ibid.*
34. Winston, PPPMO, Box 646, RG94, NARA; "Capture and Escape of Dr. Sternberg."
35. "Capture and Escape of Dr. Sternberg."
36. *Ibid.*

37. Ibid.
38. Ibid.
39. "Capture and Escape of Dr. Sternberg." Poulitces of red oak were used for their astringent properties on wounds and abscesses, and decoctions of the bark, fortified with opium, were used orally to control chronic diarrhea. Neill and Smith, *An Analytical Compendium of the Various Branches of Medical Science*, 705–706.
40. "Capture and Escape of Dr. Sternberg."
41. GMS's course from Centreville to the Maryland side of the Potomac west of Washington can be recreated with a reasonable amount of certainty. He paralleled present day state route 28 to its junction with state route 7, a distance of about 15 miles. State route 7 (Leesburg Pike) was the road patrolled by the South Carolina Regiment. From the junction of routes 28 and 7, GMS proceeded about 7 miles east to the banks of the Potomac just north of Great Falls in the River Park area. This is 9.5 miles above the Little Falls Dam. From Little Falls Dam to Rock Creek, the southwestern edge of the city is about 5 miles. *The Union Army*, v1, 43; Davis, *Official Military Atlas*, Plate 7.
42. *The Union Army*, v1, 42; "Capture and Escape of Dr. Sternberg."
43. Warner, *Generals in Blue*, 291; Billings, "Military Activities," 131; Bryan, *History of the National Capital*, 478–479, 481, 484; Green, *Washington*, 262; Brooks, *Washington, D.C. in Lincoln's Time*, 13–14.
44. Steiner, *Disease in the Civil War*, Table 105, 106, 107, 109, 115–116.
45. GMS Narrative of Service to Surgeon General GMS to SGO, Jul 29, 1863, PPPMO, Box 551, RG94, NARA; C. E. Goddard, "Extracts from a Report of His Services in the Medical Staff," *M&SHCW*, v2, 74; Lowry, *Civil War Bawdy Houses of Washington, D.C.*, 10, map.
46. Sears, *George B. McClellan*, 167 and *To the Gates of Richmond*, 5, 12–14, 18–20; *B&L*, v2, 167–168.
47. Charles S. Tripler, "Report of the Operations of the Medical Department of the Army of the Potomac," *M&SHCW*, v2, 44–57.
48. Ibid.
49. Tripler, "Report of Operations," *M&SHCW*, v2, 49–50; Gillett, *AMEDD, 1818–1865*, 186.
50. George M. Sternberg, Carded Medical Records, RG94, NARA; Register of Letters Received, 1862, RG112, NARA; Reese, *Sykes' Regular Infantry*, 70.
51. Foote, *The Civil War*, v2, 410, 417; *B&L*, v2, 168–173; Reese, *Sykes' Regular Infantry*, 73.
52. Gillett, *AMEDD, 1818–1865*, 188–189; Tripler, "Report of Operations," *M&SHCW*, v2, 58.
53. "No. 137, Report of Brig. Gen. George Sykes," 348–349 and "No. 141, Report of Capt. Thomas W. Walker," 361–363, *OR*, Series 1, v11; Reese, *Sykes' Regular Infantry*, 76–84; Sears, *To the Gates of Richmond*, 223–225; *B&L*, v2, map 334, 335; G. M. Sternberg, "Second Extract from a Report on Duties Assigned to Him," *M&SHCW*, v2, 88.

54. G. M. Sternberg, "Second Extract from a Report on Duties Assigned to Him," *M&SHCW*, v2, 88.
55. Surgeons provided a primitive version of advanced trauma life support. Without intravenous fluid replacement and the means for airway management, this consisted of applying compression dressings and immobilization devices, and administering anodynes and stimulants as the case may warrant. Narratives and Reports of Service, *M&SHCW*, v2, 69 (Brown), 72 (Bentley), 73 (Woodhull and Greenleaf), 76 (Schell), 80 (waters), 81 (Spencer and Hand), 82 (Middleton).
56. Reese, *Sykes' Regular Infantry*, 89–90; Sears, *To the Gates of Richmond*, 236–242; Hess, *Union Soldier in Battle*, 17, 19, 21, 27; *B&L*, v2, 339–340; "No. 137, Report of Brig. Gen. George Sykes," *OR*, Series 1, v11, 348–349. Tripler stated there were 1,300 casualties at Savage Station, but his estimate is not substantiated by others who were there and contemporary historians. Tripler may have made this estimate prior to the arrival of wounded from the Gaines' Mill engagement. Tripler, "Report of the Operations of the Army of the Potomac" and Greenleaf, "Narrative of Medical Services," *M&SHCW*, v2, 57, 73; *B&L*, v2, 386; Foote, *Sumter to Perryville*, 501.
57. "No. 137, Report of Brig. Gen. George Sykes," *OR*, Series 1, v11, 350; Reese, *Sykes' Regular Infantry*, 96–97.
58. "No. 137, Report of Brig. Gen. George Sykes," *OR*, Series 1, v11, 352.
59. *Ibid.*
60. "No. 35, Report of Maj. George Sykes," *OR*, Series 1, v2, p 391.
61. "No. 140, Report of Lieut. Col. Robert C. Buchanan," *OR*, Series 1, v11, 360; Reese, *Sykes' Regular Infantry*, 99; GMS Narrative of Service to Surgeon General GMS to SGO, Jul 29, 1863, PPPMO, Box 551, RG94, NARA, 6; Narrative Reports of Service, *M&SHCW*, v2, 45–57 (Tripler), 81 (Spencer), 82 (Middleton), 88 (Sternberg), 93–94 (Letterman); Duncan, *Medical Department in the Civil War*, 102; GMS to Letterman, Jul 19, 1862, PPPMO, Box 551, RG94, NARA. Volunteer medical staff and 650 wounded were left to the enemy at Savage Station. "Narratives and Reports of Service," *M&SHCW*, v2, 72 (Bentley), 76 (Schell).
62. Letterman, *Medical Recollections*, 5–8; Stille, *History of the USSC*, 159–160.
63. The USSC fitted out the *Daniel Webster* and *Ocean Queen* and the Medical Department renovated the *Cosmopolitan*, *Western Metropolis*, *Connecticut*, and *State of Maine*. *M&SHCW*, v12, 982, 984; Stille, *History of the USSC*, 154–158; Letterman, *Medical Recollections*, 9–11. Adams commented that the transport vessels were filthy, poorly equipped, and inadequately staffed until the USSC assumed control of them. This is contradictory to Letterman's assessment of these floating hospitals. Adams, *Doctors in Blue*, 71–72.
64. Steiner, *Disease in the Civil War*, 125; Reports, *M&SHCW*, v2, 93–96 (Letterman).
65. GMS to Hammond, Jul 9, 1862, PPPMO, Box 551, RG94, NARA.
66. *Ibid.*
67. SGO to GMS, Jul 15, 1862, PPPMO, Box 551, RG94, NARA.

68. GMS to Letterman, Jul 19, 1862, GMS Narrative of Service to Surgeon General GMS to SGO, Jul 29, 1863, SGO to GMS, Aug 29, 1862, and GMS to SGO, Sep 18, 1862, PPPMO, Box 551, RG94, NARA; Sternberg, *GMS*, 28; Gibson, *Soldier in White*, 31.
69. Gibson, *Soldier in White*, 31; *M&SHCW*, v3, 15 and v6, 935, 939, 940, 956; GMS, "Disease Germs," 451–455.
70. Editorial, "The Hospital at Portsmouth, R.I.," 115, 116.
71. GMS, "Address to the Pan-American Medical Congress," 371.
72. GMS to SGO, Nov 19, 1862 and SO#355, Adj Gen Office, Nov 20, 1862, PPPMO, Box 551, RG94, NARA; Harrington, *Fighting Politician*, 86.
73. Johnson, *Red River Campaign*, 10–25, 28; Harrington, *Fighting Politician*, 85, 86; Halleck to Banks, HQ of the Army, Nov 9, 1862, Minority Report, Report of Red River Expedition to the 38th Cong (Millwood, NY: Kraus Reprint Company, 1977), 16; SO#17, HQ Banks Expedition, Nov 26, 1862, PPPMO, Box 551, RG94, NARA.
74. Duffy, *History of Medicine in Louisiana*, v2, 319; OR, Series 1, v26, 13, 14; Johnson, *Red River Campaign*, 32–33; Harrington, *Fighting Politician*, 121–122, 124. SO#28, HQ Banks Expedition, Dec 14, 1862, PPPMO, Box 551, RG94, NARA; Chaille, "The Yellow Fever, Sanitary Condition, and Vital Statistics of New Orleans," 570–571; *M&SHCW*, v6, 676; Woodward to GMS, Woodward Letter Book, Curatorial Records, Otis Archives. Alexander installed GMS as secretary of the Board of Health. Brown, *Report on Quarantine*, 54.
75. GMS accompanied Banks' to the desolate, windswept flats of Brazos Island and Brownsville, Texas, in October. By mid-December, he was back at his desk in New Orleans. OR, Series 1, v26, 20, 397, 399; SO#16, HQ, Dept of the Gulf, Jan 19, 1864; GMS to Barnes, Feb 6, 1864, PPPMO, Box 551, RG94, NARA.
76. SO#74, Feb 15, and SO#84, War Dept, Washington, DC, Feb 20, 1864, PPPMO, Box 551, RG94, NARA.
77. Cleveland General Hospital, consisting of 11 wards, was located on an open plain in the University Heights suburbs, one mile from Cleveland proper. GMS commanded the camp until mid-August when Colonel Charles C. Smith, 10th Ohio Vol. Cavalry, assumed control of Camp Cleveland. SO#37, HQ, Northern Dept, Mar 12, 1864, GMS to Barnes, Mar 12, 1864, Tripler to GMS, Apr 16, 1864, SO #76, May 2, SO, May 5, 1864, SO#92, May 21, 1864, and SO#159, Aug 12, HQ, Northern Dept, PPPMO, Box 551, RG94, NARA; Indexes to Field Records of Hospitals, 1821–1912, Records of the AGO, RG94, Box 5, NARA; Stark, "The United States General Hospital at Cleveland, Ohio," 125–128.
78. GMS to Wood, Aug 19, 1864 and GMS to Wood, Nov 15, 1864, PPPMO, Box 551, RG94, NARA. Lutheran Church conservatives had advocated a more defined confessional position based on a revision of the Augsburg Confessions and symbolical books of the church. Levi became outraged, particularly over the suggestion Lutherans accept the Roman doctrine of transubstantiation, and led the opposition at Hartwick in an article titled "The Lord's Supper." Dr. Miller agreed with Levi's arguments, but pleaded with him not to publish it for fear of repercussions to the seminary. The dissension that rocked the church found its way into the seminary, polarized the student body, and caused a schism between Levi

- and Miller. The growing conservative movement in the Lutheran church was extinguishing the evangelical fire, and Levi saw himself surrounded by adversaries. A moderate, George Miller was a burr under Levi's saddle as he fought the good fight for evangelicalism. By virtue of Miller's seniority at the school and his relationship as mentor and father-in-law, Rev. Sternberg had felt some obligation to be deferential, but as pressures mounted so did his insecurities, and he became ever more suspicious that opponents in the synods, on the board of trustees, and possibly Miller, were subverting his authority as principal. L. Sternberg, *Story of My Life*, 12, 14, 15 and "The Lord's Supper," 558–578; Jacobs, *A History of the Evangelical Lutheran Church in the United States*, 416, 418, 424–425; L. Sternberg to Lintner, Mar 10, 1864, Weiskotten to Lintner, Mar 21, 1864, and L. Sternberg to Lintner, Apr 24, 1864, Cooper Archives, Hartwick College, Oneonta, NY.
79. Miller to Pohlman, Nov 27, 1864, Cooper Archives, Hartwick College.
 80. Pohlman to Miller, Dec 16, 1864, and Miller to Lintner, Dec 19, 1864, Cooper Archives, Hartwick College; L. Sternberg, *Story of My Life*, 12; GMS to Tripler, Nov 15, 1864, Tripler to GMS, Dec 17, 1864, SO#104, Dec 20, 1864, Medical Director's Office, Gen Hospital, Louisville, KY, GMS to Tripler, Dec 21, 1864, and GMS to Tripler, Mar 18, 1865, PPPMO, Box 551, RG94, NARA.
 81. Gillett, *AMEDD 1865–1917*, 11; Tripler to GMS, Jul 4, 1865, PPPMO, Box 551, RG94, NARA.
 82. SO#425, Aug 8, 1865, GMS to Tripler, Aug 29, 1865, and GMS to Wood, Aug 31, 1865, PPPMO, Box 551, RG94, NARA.

Chapter Three

The Kansas Plains

1. *Biographical Review*, Otsego County, NY, 117; *Freeman's Journal*, Oct 27, 1865; Sternberg, *GMS*, 11.
2. The Military Division of the Missouri was composed of the Departments of the Missouri (Missouri, Kansas, Colorado, and New Mexico), the Platte (Iowa, Nebraska, Utah and parts of Dakota and Montana), Dakota (Minnesota and the remainder of Dakota and Montana), and the Arkansas (Indian Territory, now Oklahoma). Utley, *Frontier Regulars*, 2, 13–14, 45, 93, 94. Billings, *Report on Barracks and Hospitals*, 276; Weigley, *The American Way of War*, 157–158; Leckie, *Military Conquest of the Southern Plains*, 3, 28; Gillett, *AMEDD, 1865–1917*, 63; Sherman, *Memoirs*, v2, 412, 413.
3. Gillett, *AMEDD, 1865–1917*, 12; Ashburn, *History of the Medical Department of the United States Army*, 89; Brown, *Medical Department United States Army*, 244; GMS to Barnes, Jan 31, 1866, SO#89, Apr 14, 1866, and GMS to Barnes, Apr 30, 1866, PPPMO, Box 551, RG94, NARA. GMS was promoted to captain on 28 May 1866. At the end of the war, he had received "brevet" promotions, for gallantry in combat, to Captain and Major and therefore wore the rank of, and was addressed as, Major. Brevet promotions were honorary ranks given for gallantry and

meritorious service. Although brevet rank had little practical significance, officers could be assigned on the basis of their brevet rank; however, for pay and retirement purposes, their regular, or permanent, rank applied. The issue of brevet versus regular rank can become confusing, therefore, only regular army rank will be used. Heitman, *Historical Register*, 921; *Official Army Register* 1893, 10; Weigley, *United States Army*, 110–111; Utley, *Frontier Regulars*, 13, 37 n. 13; Utley, personal communication, Aug 12, 1997.

4. Louisa returned to Cooperstown on account of “frail health.” No other sources substantiate she was in poor health, and, as will be seen, her later actions contradict the idea that she lacked physical or emotional strength. M. Sternberg, *GMS*, 11; Billings, *Report Barracks and Hospitals*, 290; Post Returns, Fort Harker, M617, Roll 453, NARA; Zornow, *Kansas*, 137; Clapsaddle, “Conflict and Commerce on the Santa Fe Trail,” 2, 133–134. In 1863, the railway was designated the Union Pacific, Eastern Division and in 1869 the name was changed to Kansas Pacific. Garfield, “Defense of the Kansas Frontier, 1866–1867,” 326–344; Carriker and Carriker, eds. *An Army Wife on the Frontier*, 35; Medical History of Post, 1865–1872, (Fort Harker), vol 128, E547, RG94; Gibson, *Soldier in White*, 33–34; Rogers, *Dinosaur Dynasty*, 10, 11; Coffman, *The Old Army*, 254; Oliva, *Fort Harker*, 26–28.
5. Jennie Barnitz to Albert Barnitz, Jul 21, 1867, Albert Barnitz Papers, Beineke Library, Yale University.
6. The reasons for Lamb’s incarceration are unknown. Clary, “The Role of the Army Surgeon in the West,” 53–66; Lynch, “The Day of Small Things in the United States Army, 1865–1898,” 44; SO#43, May 8, 1866, PPPMO, Box 551, RG94, NARA; Post Returns, Ft. Harker; Wengert, “The Contract Surgeon,” 67–76; Rickey, *Forty Miles a Day on Beans and Hay*, 131, 132; Gillett, *AMEDD, 1865–1917*, 49, 73, 74, 77; Knight, *Life and Manners in the Frontier Army*, 172–173.
7. Post Returns, Ft. Harker M617, Roll 453, NARA; Medical History of Post, Ft. Harker, 2, 15–16; Oliva, *Fort Harker*, 43.
8. M. Sternberg, *GMS*, 19; Dobak, *Fort Riley and its Neighbors*, 41, 62; Dykstra, “Ellsworth, 1869–1875: The Rise and Fall of a Kansas Cowntown,” 162, 163 and *Cattle Towns*, 31; Rogers, *Dinosaur Dynasty*, 11–12; C. Sternberg, *Life of a Fossil Hunter*, 11; Land Records, Registrar’s Office, Ellsworth Kansas. Congress granted a 33.3 percent pay raise to all officers in the spring of 1867 retroactive to July 1, 1866, but for only two years. Coffman, *Old Army*, 84, 85, 265. Utley, ed., *Life in Custer’s Cavalry*, 59.
9. L. Sternberg, *Story of My Life*, 21, 24.
10. After resigning from the seminary, Levi had accepted an oil company superintendency in Pennsylvania. Although the annual salary of \$2,000 was more money than Levi had ever contemplated earning, he was not fit for the job and after four months he resigned. In the fall of 1865, he accepted the Iowa position and began his duties in January 1866. L. Sternberg, *Story of My Life*, 12, 13, 20, 24. As of October 1867, Levi was still living in Albion, Iowa. CB Files, M1064, Roll 376, NARA.
11. Mrs. Sternberg indicated *GMS* was not in favor of settling his mother in Kansas, but Rogers noted it was part of his plan to coax his parents to Kansas from the time he purchased the ranch. Gibson does not refer to the episode, and Charles Sternberg

- merely stated he and his brother Edward moved to the ranch in 1867. GMS had good reason not to want his educated and refined mother near Ellsworth. Soon after its founding in 1867, it gained a reputation as a rough, seedy cowtown harboring the worst elements of society; however, this does not appear to have deterred his plans and his parents eventually moved into the town. M. Sternberg, *GMS*, 18–19; Rogers, *Dinosaur Dynasty*, 1–12; Sternberg, *Life of a Fossil Hunter*, 5–6, 13–14; Dykstra, *Cattle Towns*, 113; Clapsaddle, “Conflict and Commerce,” 136.
12. Moore, *Cheyenne Nation*, 46; Utley, *Frontier Regulars*, 93, 97, 103–107, 113, 114; Leckie, *Military Conquest*, 9, 30–32; Zwink, “E. W. Wynkoop and the Bluff Creek Council, 1866,” 217; Garfield, “Defense of the Kansas Frontier,” 326, 328; Carriker, *Fort Supply*, 3.
 13. Billings, *Report Barracks and Hospitals*, 290; The railroad was not completed to Ellsworth until July 5. Zornow, *Kansas*, 152; Jennie Barnitz to Albert Barnitz, Jul 21, 1867, Albert Barnitz Papers, Beineke Library, Yale University.
 14. Jennie Barnitz’s Journal, Jul 20, 1867, Utley, *Life in Custer’s Cavalry*, 91.
 15. Utley, *Life in Custer’s Cavalry*, 59, 91.
 16. Utley, *Life in Custer’s Cavalry*, 59; Carriker and Carriker, *Army Wife on the Frontier*, 42.
 17. Utley, *Life in Custer’s Cavalry*, 59; Jennie Barnitz to Albert Barnitz, Jul 21, 1867, Albert Barnitz Papers, Beineke Library, Yale University.
 18. Early on July 4, an Indian scouting party did approach the Sternberg ranch, but dispersed at the site of a troop of cavalry. C. Sternberg, *Life of a Fossil Hunter*, 11; Utley, *Frontier Regulars*, 114–120; Leckie, *Military Conquest*, 47, 48, 56; Garfield, “Defense of the Kansas Frontier,” 329–332; Medical History of Post, Ft. Harker, 9; Woodward, *Report on the Epidemic Cholera...During the Year 1867*, 29.
 19. Powers and Younger, “Cholera on the Plains,” 368; Woodward, *Report Epidemic Cholera, 1867*, 29–30, 41, 43. In 1874, line officers were further motivated to implement sanitary recommendations by the post surgeon when the army required them to routinely submit reports on the sanitation of their units to their commanding officer. Gillett, *AMEDD, 1865–1917*, 4, 39; Utley, *Frontier Regulars*, 86; Medical History of Post, Ft. Harker, 13.
 20. Rosenberg, *Cholera Years*, 198–200; Woodward, *Report Epidemic Cholera, 1867*, 16–18, and *Report Epidemic Cholera, 1867*, 37, 43; Powers and Younger, “Cholera and the Army,” 49.
 21. Powers and Younger, “Cholera on the Plains,” 360–361.
 22. Woodward, *Report Epidemic Cholera, 1867*, 28, 29, 43.
 23. Woodward, *Report Epidemic Cholera, 1867*, 29, 35 (tables).
 24. Woodward, *Report Epidemic Cholera, 1867*, 29.
 25. Armes, *Ups and Downs*, 231–232.
 26. GMS to Post Commander, Jul 9, 1867, Letters Received, SGO, 1818–1870, Box 96, RG112, NARA.
 27. GMS to Post Commander, Jul 13, 1867, Letters Received, SGO, 1818–1870, Box 96, RG112, NARA.

28. GMS to Post Commander, Jul 17, 1867, Letters Received, SGO, 1818–1870, Box 96, RG112, NARA.
29. Woodward, *Report Epidemic Cholera*, 1867, 32.
30. PPMO, Boxes 354 (McClellan), 451 (Perry), and 545 (Squier), RG94, NARA; Powers and Younger, “Cholera on the Plains,” 367, 372–373; Woodward, *Report Epidemic Cholera*, 1867, 31.
31. Powers and Younger, “Cholera on the Plains,” 368; Clapsaddle, “Conflict and Commerce,” 137; Utey, *Life in Custer’s Cavalry*, 89; Custer, *Tenting on the Plains*, 381.
32. Post Returns, Ft. Harker, M617, Roll 453, NARA; Armes, *Ups and Downs*, 234–235; Custer, *Tenting on the Plains*, 382.
33. Woodward, *Report Epidemic Cholera*, 1867, 29, 30, 31, 36; Leiker, “Voices from a Disease Frontier, 244–245; Utey, *Life in Custer’s Cavalry*, 89.
34. Carriker and Carriker, *Army Wife on the Frontier*, 42.
35. Woodward, *Report Epidemic Cholera*, 1867, 29, 31, 33, 34, 37.
36. Woodward, *Report Epidemic Cholera*, 1867, 35.
37. Woodward, *Report Epidemic Cholera*, 1867, 33, 34, 35.
38. *Ibid.*, 35.
39. Woodward, *Report Epidemic Cholera*, 1866, xvi, 43, and appendices.
40. Wood, *Treatise on the Practice of Medicine*, 732–733; Howard-Jones, “Cholera Therapy,” 382; Rothstein, *American Physicians*, 51, 59, 183–185, 188. Duffy, “History of Asiatic Cholera,” 116; Rosenberg, *Cholera Years*, 222, 223; *Report Epidemic Cholera*, 1867, 30, 31, 35, 36; Powers and Younger, “Cholera and the Army,” 49–54; Woodward, *Report Epidemic Cholera*, 1867, 35.
41. Woodward, *Report Epidemic Cholera*, 1867, 37.
42. Woodward, *Report Epidemic Cholera*, 1867, 29, 37, 38.
43. Woodward, *Report Epidemic Cholera*, 1867, 37.
44. Woodward, *Report Epidemic Cholera*, 1867, 38.
45. *Ibid.*
46. SO #163, HQ Dept of the Missouri, Fort Leavenworth, Jul 30, 1867, Box 2, Folder 13, George M. Sternberg Papers, 1861–1917, MS C100, NLM; Post Returns, Fort Harker, KS, M617, Roll 453, NARA. Wood was scarce, and those who died at Harker that summer were buried in coffins hastily constructed from hardtack boxes. Custer, *Tenting on the Plains*, 381.
47. Kappler, *Indian Treaties*, 982–989; Utey, *Frontier Regulars*, 132–133, 137–138, 142, 147 and *Life in Custer’s Cavalry*, 147; Leckie, *Military Conquest*, 64, 67; Wooster, *Military and United States Indian Policy*, 130; Sheridan, *Personal Memoirs*, v2, 283–284, 286.
48. Post Returns, Ft Riley, KS, Jan 1868, M617, Roll 1012, NARA; Leckie, *Buffalo Soldiers*, 27–28; Leckie, ed., *Colonel’s Lady*, 13, 15. The act to increase the Military Peace Establishment of the United States on July 28, 1866, created six U.S. Colored

- Regiments: the 9th and 10th Cavalry, and the 38th, 39th, 40th, and 41st Infantry. Unit pride and morale were high in these regiments; alcoholism extremely low; and desertion rates the lowest in the army. Dubbed “buffalo soldiers” by the Indians, they wore the sobriquet proudly, but whether it was their black curly hair or their ferocity, uncommon stamina, and courage in battle that was reminiscent of the buffalo is uncertain. White officers were assigned to these regiments. Utley, *Frontier Regulars*, 11; Leckie, *Buffalo Soldiers*, 6, 8, 26, 26 n. 14; Foner, *Blacks and the Military*, 52, 53; Smith, *Fort Huachuca*, 1; Orders, HQ Dept of the Missouri, Mar 23, 1868, and SO#70, HQ Dept of the Missouri, Apr 8, 1868, Box 2, Folder 14, George M. Sternberg Papers, 1861-1917, MS C100, NLM; Muster Rolls, 10th Cavalry, Apr 1867 and Apr-Sep 1868, Boxes 1140, 1141, 1147, 1149, 1151, 1153, and 1155, RG94, NARA; Utley, *Life in Custer's Cavalry*, 143, 148-149.
49. Henry, *AFIP*, 58; SGO to GMS, Jul 30, 1868, and Woodward to GMS, Aug 6, 1868, Woodward Letterbook, 1868-69, Curatorial Records, Otis Archives, NMM; Lamb, “The Army Medical Museum in American Anthropology,” 625-632; M. Sternberg, *GMS*, 14; Gibson, *Soldier in White*, 37.
 50. Sheridan, *Memoirs*, v2, 288, 289-291; Armes, *Ups and Downs*, 265; Muster Rolls, 10th Cavalry, Apr-Sep 1868, Boxes 1138, 1140, 1141, 1147, 1149, 1151, 1153, and 1155, RG94, NARA; Leckie, *Military Conquest*, 69-71, 74; Utley, *Frontier Regulars*, 138; Godfrey, “Some Reminiscences, Including an Account of General Sully's Expedition Against the Southern Plains Indians,” 419.
 51. Leckie, *Military Conquest*, 74; Muster Rolls, 7th Cavalry; Burke, *Buffalo Bill*, 49; Armes, *Ups and Downs*, 273, 274.
 52. When unwrapped at the Army Medical Museum, Sternberg's prize was found to be the remains of a Cheyenne child. For the complete report, see George A. Otis to GMS, 15 Oct 1868, Box 2, Folder 14, George M. Sternberg Papers, 1861-1917, MS C100, NLM.
 53. White, “General Sully's Expedition to the North Canadian,” 75-98; Godfrey, “Some Reminiscences,” 421-425; Armes, *Ups and Downs*, 274; Sheridan, *Memoirs*, v2, 297, 308-309; Utley, *Frontier Regulars*, 149-150 and *Life in Custer's Cavalry*, 228-229; Carriker, *Fort Supply*, 14; FGO#2, HQ, Fort Dodge, GMS to Adj Gen, Nov 7, 1868, SFO#40, Nov 22, 1868, and SFO#41, Nov 22, 1868, Box 2, Folder 14, George M. Sternberg Papers, 1861-1917, MS C100, NLM; M. Sternberg, *GMS*, 13; Medical History of Post, Fort Supply, IT, Sep 1868-Feb 1893, 166, 1-3, RG94, NARA; Keim, *Sheridan's Troopers*, 102.
 54. Keim, *Sheridan's Troopers*, 101; Utley, *Life in Custer's Cavalry*, 204, 208, 229; Custer, *My Life on the Plains*, 210, 214; Sheridan, *Memoirs*, v2, 308, 311-312; PPPMO, Boxes No. 342 (Lippincott), No. 482 (Renick), No. 19 (Asch), RG94, NARA; Medical History of Post, Camp Supply, 1, 2. Quarters and storehouses consisted of “pits, four and a half feet deep, walled with cottonwood logs extending above the ground about three feet and covered with logs, straw, and earth.” Carriker, *Fort Supply*, 3, 17, 20, 21.
 55. Carriker, *Fort Supply*, 22, 23; Hoig, *Battle of the Washita*, 118, 127, 129-134, 142; Custer, *My Life on the Plains*, 232-234, 240-248, 250; Keim, *Sheridan's Troopers*, 115-121, 124-125; Utley, *Frontier Regulars*, 150-152 and *Life in Custer's Cavalry*, 225-227, 237.

56. Utley, *Life in Custer's Cavalry*, 237. The greater omentum is a fold of peritoneal membrane passing from the greater curvature of the stomach to the transverse portion of the large intestine and hangs like an apron in front of the intestines. Barnitz recovered and was medically retired from the army in June 1870. He died July 18, 1912, from a growth around the wound received at the Washita. Utley, *Life in Custer's Cavalry*, 247.
57. Albert to Jennie Barnitz, Dec 8, 1868, Albert Barnitz Papers, Beineke Library, Yale University.
58. Medical History of Post, Fort Supply 2, 3; Godfrey, "Some Reminiscences, Including the Washita Battle, Nov 27, 1868," 495; SGO to GMS, 4 Jan 1869, Otis Archives, NMM. There are very few direct references concerning the clinical care and specific instruments GMS used at this time. It is apparent the SGO was diligent in its efforts to keep frontier surgeons supplied with the most current medical instruments. SGO to GMS, Apr 4, 1868 and SGO to GMS, Jun 15, 1868, Letters & Endorsements Sent to Medical Officers, Sep 1862–Sep 1872, RG112, E7.
59. SFO#65, Dec 7, 1868, George A. Otis to GMS, May 15, 1869, SO#23, Mar 2, 1869, and SO#54, Apr 17, 1869, Box 2, Folders 14 and 15, George M. Sternberg Papers, 1861–1917, MS C100, NLM; GMS to SGO, Mar 31, 1869, PPPMO, Box 551, RG94, NARA; Gibson, *Soldier in White*, 39. Captain Leonard Young Loring, born Feb 1, 1844 in St. Louis, was commissioned on May 14, 1867. Initially assigned to Downer's Station, Kansas, he arrived at Fort Riley in July 1868. He again became post surgeon when GMS departed in May 1870. Loring retired in 1908. Omer, "An Army Hospital: From Dragoons to Rough Riders," 337–367; Post Returns, Fort Riley, M617, Roll 1012, NARA.
60. Turner found the fossil skeleton of *Elasmosaurus platyrus*, a 34.5-foot-long mosasaur, 14 miles north of the fort, and dug it out of the chalk in late Dec 1867. Almy, "Thof's Dragon," 184; Otis to GMS, Jul 30 and Nov 24, 1868, Woodward to GMS, Aug 6, 1868, Woodward Letterbook, 1868–1869, Otis Archives, NMM; Leidy, "Contributions to the Extinct Vertebrate Fauna of the Western Territories," 269–291.
61. The "considerable herd of cattle" noted by Levi became the Smoky Hill Dairy, a major butter producer for the area. Over the next five years, Levi became a successful farmer and then cattleman, being elected president of the Stock Growers Association of Kansas in 1873. While earning a statewide reputation as an agriculturist, he also was appointed pastor of the First Presbyterian Church of Ellsworth and was on one of the early boards of regents for Kansas State College. In another year, the elder Sternberg's estate would be valued at \$7,500, third largest in the county, and Theodore owned an additional \$2,000 worth of real estate in his own right. L. Sternberg, *Story of My Life*, 24, 25–26; Dykstra, "Ellsworth: 1869–1875," 163 and *Cattle Towns*, 309. Although still impressive, Fort Riley was entering the low ebb of its existence. When the Kansas Pacific Railroad reached Ellsworth in the summer of 1867, the army moved the quartermaster depot from Riley to Fort Harker. With it went jobs and civilian optimism that the fort would continue to support the local economy. In July 1869, General John M. Schofield, Commander, Department of the Missouri, converted Fort Riley into a school of instruction for light artillery, but the post's garrison continued to decline through 1870. Registers, Medical Officers of the Regular Army arriving at the SGO, 1848–1889, RG112.

62. M. Sternberg, *GMS*, 14, 15, 16–17.
63. M. Sternberg, *GMS*, 16–17; Dobak, *Riley and its Neighbors*, 100, 120, 121; Post Returns, Ft. Riley, M617, Roll 1012, NARA.
64. Gibson, *Soldier in White*, 50.
65. Gibson, *Soldier in White*, 49. Although *GMS* had grown up in a home where alcohol was forbidden, it does not appear he was a teetotaler himself or a man who did not enjoy a friendly wager every now and again. He and Captain George Armes engaged in a horse race while in camp during the summer of 1868. The prize was a basket of wine, which Armes declared he would have won had his horse not commenced to bucking just short of the finish line. Armes, *Ups and Downs*, 271.
66. Gibson, *Soldier in White*, 41–42, 67–68; M. Sternberg, *GMS*, 16, 22–24, 38–39.
67. *GMS* to SGO, May 10, 1869 and Jul 1, 1869, Letters Received, SGO, 1818–1870, Box 96, RG112, NARA.
68. Hamilton to SGO, Jun 12, 1869, PPPMO, Box 551, RG94, NARA.
69. *Ibid.*
70. M. Sternberg, *GMS*, 14, 16–18; Gibson, *Soldier in White*, 45–49. The origin of *GMS*' interest in photography is unknown, but Mrs. Sternberg mentions it at this time. *GMS* probably used two types of photographic plates, depending on what he had access to and could afford. From 1856, dry photographic plates coated with an emulsion of collodion gel and iodide was available. In 1864, Bolton and Sayce of Liverpool replaced iodide with silver bromide—a faster developer—and by 1867 these were available in dry form. Gernsheim and Gernsheim, “The Photographic Arts: Photography,” 728. Experimentation with photomicrographs began in the early 1850s and, by 1856, had been refined enough that John W. Draper illustrated his text *Human Physiology* with original microscopic photographs. Cassedy, “The Microscope in American Medical Science,” 89, 90. Woodward and Major Edward Curtis pioneered the art of photomicrography in 1864. The description of their work in Circular #6, November 1, 1865 and in the second part of the Catalogue of the Microscopical Section of the Army Medical Museum were probably read by *GMS*. Henry, *AFIP*, 36. Bayne-Jones stated *GMS* made photomicrographs at the Army Medical Museum in the late 1860s. This author can find no other sources that substantiate or even discuss this event. Bayne-Jones, *Evolution of Preventive Medicine in the United States Army*, 112, 118; *GMS*, “Researches Relating to the Etiology of Yellow Fever,” 16; Flaumenhaft and Flaumenhaft, “Evolution of America's Pioneer Bacteriologist: George M. Sternberg's Formative Years,” 449.
71. For a comparison of the careers of *GMS* and Woodward, see Gillett, “A Tale of Two Surgeons,” 404–414.
72. Hume, *Victories of Army Medicine*, 58–60; Kober, “General Albert J. Myer and the United States Weather Bureau,” 65–82; *GMS*, “Sterility of the Plains”; Patent Application for an Improved Anemometer, Box 2, Folder 16, George M. Sternberg Papers, 1861–1917, MS C100, NLM *GMS* Papers, NLM; M. Sternberg, *GMS*, 17; Gibson, *Soldier in White*, 44–45.

73. G. M. Sternberg's Electro-magnetic Regulator for Dampers and Valves Secured by Letters Patent, No. 100, 462, Granted Mar 1, 1870, Ltrs Rec'd by the SGO, 1818-1870, Box 96, RG112, NARA.
74. *Scientific American*, Aug 27, 1870.
75. Gibson, *Soldier in White*, 41, 42, 50; Post History, Fort Harker, RG94; Miles, *A History of the National Library of Medicine*, 96-97. The *American Journal of Medical Sciences* was received from the SGO Library by the Fort Harker medical library. Medical History of Post, Ft Harker, RG94.
76. *Collected Papers of Joseph, Baron Lister*, v2, 2.
77. Pasteur's work (1857-1865) established a germ theory of fermentation and destroyed the concept of spontaneous generation. As early as 1864, British surgeons were evaluating the relationship of Pasteur's work on fermentation to postoperative infection. Lister believed the airborne germs that decomposed wine could also decompose human flesh in the same manner. At this time, he did not conceive of a specific germ theory of disease, i.e., individual microbes causing individual diseases. Lister's article, "On a new method of treating compound fracture, abscess, etc., with observations on the conditions of suppuration," appeared in the *Lancet* in the summer of 1867 and had reached Boston, Chicago, and New York a few weeks later. American medical journals, such as the *Medical Record*, *Chicago Medical Examiner*, and the *American Journal of Medical Sciences*, had reprinted or abstracted the article by the time autumn numbers were published. Progressive-minded surgeons J. Collins Warren, of Boston, and Faneuil Weisse, of New York, visited Glasgow and worked with Lister in 1868. Accounts of their experiences were published in U.S. journals in the spring of 1869. Pasteur, "On the Organized Bodies Which Exist in the Atmosphere," 43-48; Geison, *Private Science of Louis Pasteur*, 36; Brieger, "American Surgery and the Germ Theory of Disease," 136, 137; Gariepy, "Introduction and Acceptance of Listerian Antisepsis in the United States," 167, 169, 170, 174; Tomes, "American Attitudes toward the Germ Theory," 21-28; Bulloch, *History of Bacteriology*, 159, 160, 165-166, 182-183; Curtis, "On the Cryptogamic Origin of Disease," 467-471; Letzrich, "Fungus as a Cause of Whooping Cough," 49.
78. GMS, "An Inquiry into the Nature of the Yellow Fever Poison," 405; Bacterial staining was first performed by Hermann Hoffman of Giesen in 1869 using carmine and fuchsin in water. More durable aniline dyes would not come into vogue for another year. Oil-immersion lens was developed in the 1880s. Bulloch, *History of Bacteriology*, 213-214; Clark and Kasten, *History of Staining*, 91, 92.
79. GMS to Barnes, Mar 6, 1870, PPPMO, Box 551, RG94, NARA. Garrison, *John Shaw Billings*, 150-151.

Chapter Four

A Career in Medical Science Begins

1. Gillett, *AMEDD, 1865–1917*, 28; Shryock, *American Medical Research*, 42–44. The Sternbergs occupied one of four sets of officer's quarters that faced onto the parade ground. Each of the two-story frame structures had a basement and attic, containing a total of 16 rooms and a backyard planted with fruit trees and shrubs. M. Sternberg, *GMS*, 20, 21.
2. Duffy, *History of Public Health in New York City*, 162; Shrady, "Yellow Fever and the Vagaries of the Board of Health," 397–398; *NYT*, "The Governor's Island Fever," Sep 21, "Yellow Fever," Oct 2, and "The Yellow Fever," Oct 5, 1870. GMS said at the time, "I fear yellow fever," but in 1880 he freely admitted he, Page, and the New York Board of Health "supposed they were dealing with a malignant form of malarial fever, until the distinguished Dr. Nott, formerly of Mobile, saw the cases and without hesitation made a diagnosis of yellow fever, which it undoubtedly was." Sternberg, *GMS*, 21, 22; *GMS*, Letter to the Editor, 486–487.
3. *NYT*, "Yellow Fever," Oct 2 and "The Yellow Fever," Oct 5, 1870; Shrady, "Yellow Fever and the Vagaries of the Board of Health," 397–398; Nott, "On the Natural History of Yellow Fever," 451–453; M. Sternberg, *GMS*, 22.
4. M. Sternberg, *GMS*, 22–23.
5. M. Sternberg, *GMS*, 23.
6. M. Sternberg, *GMS*, 23–24; Gibson, *Soldier in White*, 53–54.
7. Duffy, *Public Health in New York City*, 200–201; Smith, "The New York Quarantine Establishment," 202; Gibson, *Soldier in White*, 55; Smith, *Governor's Island*, 113, 141; McParlin to Barnes, Oct 2, 1870, PPPMO, Box 373 (McParlin), RG94, NARA.
8. *NYT*, "The Yellow Fever," Oct 5, 9, and 11, 1870.
9. Gibson, *Soldier in White*, 55–56; M. Sternberg, *GMS*, 24; Smith, *Governor's Island*, 189.
10. M. Sternberg, *GMS*, 24; Smith, *Governor's Island*, 111; SO#86, Apr 26, 1871, SO#110, May 26, 1871, and SO#129, Jun 20, 1871, HQ, Dept of the East, PPPMO, Box 551, RG94, NARA.
11. Billings, *Rpt Barracks and Hospitals*, 6–8; M. Sternberg, *GMS*, 25, 26; Gibson, *Soldier in White*, 59.
12. Simons to SGO, Sep 1, 1872, PPPMO, Box 524 (Simons), RG94, NARA; M. Sternberg, *GMS*, 26; SO#129, Jun 20, 1871, HQ Dept of the East, *GMS* to Adj Gen, Aug 21, 1872, *GMS* to Barnes, Aug 31, 1872, and SO#137, Sep 2, 1872, HQ Dept of the Gulf, PPPMO, Box 551, RG94, NARA; Gibson, *Soldier in White*, 62; Herrick, "Review of Yellow Fever in New Orleans," 645–652; Humphreys, *Yellow Fever and the South*, 57; Carrigan, *Saffron Scourge*, 90; Duffy, *History of Medicine in Louisiana*, v2, 459, 460, 461–464.
13. M. Sternberg, *GMS*, 28, 29; Simons to SGO, 3 Oct 1872, PPPMO, Box 524 (Simons), RG94, NARA; *GMS* to Barnes, Sep 4, 1872, *GMS* to Simons, Oct 11, 1872,

and GMS to Barnes, Oct 31, 1872, PPPMO, Box 551, RG94, NARA; Billings, *Report Hygiene of the United States Army*, 115, 116.

14. M. Sternberg, *GMS*, 29.
15. *Ibid.*
16. M. Sternberg, *GMS*, 30; Eales, *Army Wives on the American Frontier*, 65; GMS, "An Inquiry into the Yellow Fever Poison," 398.
17. GMS, "An Inquiry into the Yellow Fever Poison," 398.
18. *Ibid.*, 399.
19. *Ibid.*, 403.
20. *Ibid.*, 406.
21. *Ibid.*, 406.
22. Surgeon Harvey Brown disagreed with GMS's assessment that a port of entry could not be determined. He stated the disease "was undoubtedly due to the arrival... of vessels which...had evaded the New York quarantine by entering at Perth Amboy, New Jersey, and coming thence to New York. The tide in the channel between the island and Brooklyn is such that articles thrown overboard from these ships would readily be carried to the island." Brown, *Report on Quarantine*, 14. Dr. Carnochan, Health Officer for New York City, stated in the *New York Times* a number of ships infected with yellow fever arrived from August through September. *NYT*, "The Quarantine Troubles," Aug 17, "Quarantine Affairs," Sep 15, "Yellow Fever at Quarantine," Sep 28, and "The Yellow Fever," Oct 5, 1870.
23. GMS, "An Inquiry into the Yellow Fever Poison," 399.
24. *Ibid.*, 403, 404.
25. *Ibid.*, 403–405.
26. *Ibid.*, 406.
27. Reilly, "Yellow-Fever Epidemic of 1873," 225.
28. *Ibid.*
29. GMS, "Yellow Fever in Pensacola, Fla., in 1873, 1874, and 1875," n.1, 473, 474; Sternberg, *GMS*, 32. The urine of yellow fever patients will contain a small amount of albumin early in the infection and increase by days 4 and 5. During Sternberg's era, a diagnostic precipitation test, either by boiling the urine or using nitric acid, was employed on days 2 or 3 of the infection. Brown, *Medical Diagnosis*, 207.
30. Reilly, "Yellow-Fever Epidemic 1873," 210, 215; *ARSG 1874*, 12; Herrick, "Review Yellow Fever in New Orleans," 647; M. Sternberg, *GMS*, 33; GMS, "Yellow Fever in Pensacola," 473.
31. GMS, "Yellow Fever in Pensacola," 474.
32. GMS, "Yellow Fever in Pensacola," 474–476; John Milton Brannon, 218 ACP, 1881, Letters Received by the Appointment, Commission, and Personnel Branch, AGO, 1871–1894, RG94, NARA.

33. Petition of Grievances, 1874, George M. Sternberg Papers, MS C100, Box 2, Folder 9, NLM; SGO to Sec of War, Apr 2, 1869 and War Dept Paymaster Gen to SGO, Mar 31, 1869, M1064, Roll 446, NARA.
34. James Herron, "Yellow Fever at Pensacola in 1874," *Annual Report, Supervising Surgeon-General of the Marine Hospital Service of the United States for the Fiscal Year 1874* (Washington, DC: GPO, 1874), 195–196.
35. Tryon, "Epidemic of Yellow Fever at the Navy-Yard, 454; Hamersly, *Records of Living Officers of the U.S. Navy and Marine Corps*, 446–447; General Navy Records, RG45; NARA; GMS, "Yellow Fever in Pensacola," 476; M. Sternberg, *GMS*, 33, 34.
36. GMS, "Yellow Fever in Pensacola," 476; *ARSG 1875*, 6.
37. *Ibid.*, 477.
38. Gibson, *Soldier in White*, 66.
39. Woolsey to Sec Nav, Sep 12, 1874, Letters from Commandants, v235, General Records, Navy, E34, RG45, NARA. Why the mail from Florida was not fumigated is not mentioned. Since 1822, New Orleans had been fumigating mail during epidemics. This practice consisted of punching small holes in pieces of mail with a special mallet of nails and then exposing it to dilute fumes of sulfuric or carbolic acid gas in an enclosed railroad car. Meyer, *Disinfected Mail*, 311–320.
40. SO#99, Oct 2, 1873, General and Special Orders, Fort Barrancas, Box 13, Records US Army Continental Command, RG393, NARA; Tryon, "Epidemic of Yellow Fever at the Navy-Yard," 454; Woolsey to Sec Nav, Sep 18, 1874, Letters from Commandants, v235, E34, RG45, NARA.
41. Tryon, "Epidemic of Yellow Fever at the Navy-Yard," 454–456.
42. Gibson, *Soldier in White*, 67.
43. *Ibid.*, 68.
44. Correspondence, Sept-Oct, 1874, Letters from Commandants, v235, RG45, Gen Records, Navy, E34.
45. GMS, "Yellow Fever in Pensacola," 476, 478.
46. M. Sternberg, *GMS*, 34–35.
47. Herron, "Yellow Fever at Pensacola in 1874," 199; GMS, "An Inquiry into the Modus Operandi," 1–23, Billings, *Report, Hygiene of the United States Army, Circular #8*, 118.
48. Sternberg surmised from the location of the mound, the workmanship and decoration of the pots, and the iron nails he found that Natchez Indians had inhabited the area by during the time of DeSoto's exploration of Florida. His discovery was a small one, but proved to be significant enough to be reported to the American Association for the Advancement of Science in 1879. M. Sternberg, *GMS*, 35, 36–38; GMS to SGO, Dec 7, 1874, PPPMO, Box 551, NARA; SO#22, Ft. Barrancas, Apr 27, 1875, General and Special Orders, Fort Barrancas, Box 13, Records US Army Continental Command, RG393, NARA.
49. GMS, "Yellow Fever in Pensacola," 469–478; List of Members of the APHA, Appendix, *PHRP*, v5, 254.

50. GMS, "An Inquiry into the Modus Operandi of the Yellow Fever Poison," 1.
51. Ibid.
52. Ibid., 2.
53. Ibid., 3–11.
54. Ibid., 7.
55. GMS, "An Inquiry into the Modus Operandi of the Yellow Fever Poison," 9, 11–23. Fungi continued to hold center stage as the most acceptable life form to support the germ theory of disease. Barnhard, "Germ Theory of Disease and its Relations to Hygiene," 71.
56. GMS, "Yellow Fever in Pensacola," 479; Cooper to Sec Nav, Jul 6, 1875, Letters from Commandants, v245, General Records, Navy, E34, RG45, NARA; Herron, "Yellow Fever at Barrancas," 139.
57. GMS, "Yellow Fever in Pensacola," 480; Herron, "Yellow Fever at Barrancas," 141.
58. GMS, "Yellow Fever in Pensacola," 480, 481, 484; Cooper to Sec Nav, Jul 22, 1875 Letters from Commandants, v245, General Records, Navy, E34, RG45, NARA; SO#47, Jul 22, 1875, SO#48, Jul 26, 1875, General Orders, Fort Barrancas, FL, RG393, Box 13, NARA; GMS, "Study of the Natural History of Yellow Fever," 638–674.
59. M. Sternberg, *GMS*, 38.
60. Ibid.
61. Apparently, GMS had discussed Martha's leaving with his commander earlier and he readily agreed. It is interesting that Brannan, experienced as he was with the disease, did not put his own wife in that wagon. He may have considered the effect of such action very demoralizing to the other wives, but the decision would soon come back to haunt him. M. Sternberg, *GMS*, 38, 39.
62. M. Sternberg, *GMS*, 39.
63. Beale to Cooper, Jul 23, 1875, Letters from Commandants, v245, RG45, Navy Records, NARA.
64. Cooper to Beale, Jul 23, 1875, Letters from Commandants, v245, RG45, Navy Records, NARA.
65. Cooper to Beale, 1:15 PM, Jul 26, 1875, Letters from Commandants, v245, RG45, Navy Records, NARA.
66. Cooper to Beale, 2:35 PM, Jul 26, 1875, Letters from Commandants, v245, RG45, Navy Records, NARA.
67. GMS, "Yellow Fever in Pensacola," 481, 482; Herron, "Yellow Fever at Barrancas," 146; PPPMO, Boxes 264 (Herron), 504 (Salomon), 379 (Mandeville), RG94, NARA; Billings, *Report Hygiene of the United States Army, Circular #8*, 116; GMS, "Study of the Natural History of Yellow Fever," 671.
68. GMS, "Study of the Natural History of Yellow Fever," 667.

69. GMS, "Study of the Natural History of Yellow Fever," 667–668 and "Yellow Fever in Pensacola," 481–483; Faget, "Type and Specific Character of True Yellow Fever," 157–160. For the standard therapeutics used in yellow fever, see Wood, *Treatise of Medicine*, v1, 331–337, and Reynolds, *System of Medicine*, v1, 674–676.
70. M. Sternberg, GMS, 39–40.
71. Surgeon General Barnes wired Brannan to do everything in his power to see Sternberg through this crisis and sent Assistant Surgeon Harvey E. Brown, post surgeon at Fort Jefferson, Key West to Barrancas to assume post surgeon duties. By the time Brown arrived on August 5, Sternberg was recovering and the epidemic was in its final stages. GMS, "A Study of the Natural History of Yellow Fever," 667 and "Yellow Fever in Pensacola," 483; Herron, "Yellow Fever at Barrancas," 139–140; M. Sternberg, GMS, 39; RG94, PPMO, Box 75 (H. E. Brown), NARA; SO#53, HQ Fort Barrancas, Aug 16, 1875, RG393, Box 13, General and Special Orders, Fort Barrancas, NARA; Gibson, *Soldier in White*, 77.
72. GMS, "Yellow Fever in Pensacola," 483.
73. GMS, "A Study of the Natural History of Yellow Fever," 667; "Yellow Fever in Pensacola," 483.
74. Mrs. Sternberg's parting from the brave, kindly old woman was somewhat bitter-sweet. For a month, she had provided shelter and comfort "even as my own mother would have done." The trip to Pensacola was not without its difficulties, however. A severe rainstorm required a night in a logger's camp, and once they were on the way again, a lone horseman hailed them. When the rider inquired if she were Mrs. Sternberg, her heart sank in fear of more bad news. He assured her that was not the case, and that he had been sent from Pensacola by Dr. Herron's mother to meet them. At the request of her son and Sternberg, she had made arrangements for Martha's travel and hoped that Martha would stop by for a rest and some tea before departing. Martha consented and the party continued on to Pensacola. M. Sternberg, GMS, 40, 41; SO#54, HQ Fort Barrancas, Aug 16, 1875, RG393, Box 13, General and Special Orders, Fort Barrancas, NARA; GMS to SGO, Aug 31, 1875, PPPMO, Box 551, RG94, NARA.

Chapter Five

Return to the Field

1. Theodore Sternberg, who had resumed his law practice in St. Louis once his father and younger brothers had firm control of the farm, most likely assisted with their rendezvous. M. Sternberg, GMS, 42; SGO to GMS, Aug 31, 1875, PPPMO, Box 551, RG94, NARA. Butter and milk from the Smoky Hill were of superior quality and highly prized in the area. Levi had expanded the ranch by another 280 acres and built a herd of cattle that provided one or two car-loads of steers for market each year. Already recognized as a leader among the agriculturists and dairymen of the county, Levi had been elected president of the Cattleman's Association in 1873.

His desire to remain active in higher education was well received at the Kansas State Agricultural College in Manhattan where he was appointed chairman of the examining committee and a few years later was elected to that institution's board of regents. L. Sternberg, *Story of My Life*, 24–27.

2. M. Sternberg, *GMS*, 42.
3. SGO to Adj Gen, Sept 26, 1875, SGO to Adj Gen, Oct 7, 1875, GMS to SGO, Nov 5, 1875, PPPMO, Box 551, RG94, NARA; ACP files (Brannan), NARA; GMS, "Yellow Fever in Pensacola," 484–485; Abstract of Minutes, Meetings of the APHA, Apr 18, 1872–Nov 12, 1875, *PHRP*, v2, 551.
4. M. Sternberg, *GMS*, 42–43, 45; GMS to SGO, Dec 24, 1875, PPPMO, Box 551, RG94, NARA.
5. M. Sternberg, *GMS*, 45; GMS to SGO, Nov 30, 1875, Jan 31, Feb 29, and Mar 31, 1876, PPPMO, Box 551, RG94, NARA.
6. M. Sternberg, *GMS*, 46–47; GMS to SGO, May 16, 1876, PPPMO, Box 551, RG94, NARA.
7. M. Sternberg, *GMS*, 46–47.
8. GMS to SGO, May 31, 1876, and GMS to SGO, Jun 8, 1876, PPPMO, Box 551, RG94, NARA; Utley, "Oliver Otis Howard," 55–64.
9. GMS to SGO, Aug 31, 1876, PPPMO, Box 551, RG94, NARA; M. Sternberg, *GMS*, 47–48; Utley, *Frontier Regulars*, 258–260; Connell, *Son of the Morning Star*, 383.
10. Old Joseph claimed the Wallowa country, bounded essentially by the Snake River on the east, the Grand Ronde River on the west, and the Wallowa Mountains to the south and southwest, for the Nez Percé from that moment forward. The other chiefs claimed ownership of land extending northeast of this region into the Idaho Territory. Beal, *I Will Fight No More Forever*, 14–18, 24–26, 29–30, 33–37; Hampton, *Children of Grace*, 19–21, 28; McWhorter, *Hear Me My Chiefs*, 94, 97, 102, 107–108, 132, 135.
11. Utley, "O. O. Howard," 59–60; Josephy, *The Nez Perce Indians*, 473–474, 475, 477; Birtle, *U. S. Counterinsurgency and Contingency Operations Doctrine*, 79.
12. GMS to SGO, Aug 31, 1876, PPPMO, Box 551, RG94, NARA; M. Sternberg, *GMS*, 48; Billings, *Report on Hygiene, Circular #8*, 490–491; Hart, *Tour Guide to Old Western Forts*, 190–191; Medical History of Posts, Ft Walla Walla, v797, RG94; Post Returns, Ft Walla Walla, M617, Roll 1344, NARA.
13. Weigley, *United States Army*, 271; Medical History of Posts, Ft Walla Walla, v797, RG94.
14. M. Sternberg, *GMS*, 49.
15. M. Sternberg, *GMS*, 49–52; C. Sternberg, *Life of a Fossil Hunter*, 171.
16. M. Sternberg, *GMS*, 51.
17. *Ibid.*, 52.
18. M. Sternberg, *GMS*, 51–52; GMS to SGO, Dec 15, 1878, PPPMO, Box 551, RG94, NARA.

19. Josephy, *Nez Perce Indians*, 484, 486–494; Beal, *I Will Fight No More*, 37–38, 40. Mrs. Sternberg and a number of other ladies of the garrison attended the meeting, and were impressed by Ollikot's tall, handsome, graceful presence and frank diplomatic manner. M. Sternberg, *GMS*, 54–55; Hampton, *Children of Grace*, 49–50.
20. Hampton, *Children of Grace*, 52–55; Josephy, *Nez Perce Indians*, 497, 500–505; Beal, *I Will Fight No More*, 40–42.
21. Beal, *I Will Fight No More*, 49–51, 55–56; ARSW 1877, v1, 601–602; Howard, *My Life and Experiences*, 287; Howard, *Saga of Chief Joseph*, 151, 153; Hampton, *Children of Grace*, 57, 60, 69–70, 81; Brown, *Flight of the Nez Perce*, 71–80, 131–133.
22. Josephy, *Nez Perce Indians*, 518, 524–525; Howard to Wood, Jun 18, 1877, Bailey to Adj, 19 Jun 1877 (#978 and #979), Kress to Wood, Jun 20, 1877, Ltrs Rec'd, Dept of the Columbia, RG393, E715; Howard, *Saga of Chief Joseph*, 154.
23. Post Returns, Ft Lapwai, Roll 594, and Ft Walla Walla, Roll 1344, M617, NARA; Gibson, *Soldier in White*, 95; Jocelyn, *Mostly Alkalai*, 223–224; Howard, *My Life and Experiences*, 286–287; M. Sternberg, *GMS*, 58; Howard to Grover, Jun 19, 1877, Grover to Adj Gen, Jun 19, 1877, Ltrs Rec'd, Dept of the Columbia, RG393, NARA; Laufe, ed., *An Army Doctor's Wife*, 254, 257, 259.
24. Sternberg's surgical kit, including ether anesthesia, had not changed significantly since the Civil War. However, his dressing technique now included carbolic acid solutions. While carbolic acid was a well-known disinfectant and carbolated oil and ointments had been used on wounds in the Army as early as 1868, Baron Joseph Lister's participation in the International Medical Congress at Philadelphia in June 1876 did a great deal to stimulate interest in, and acceptance of, his antiseptic method in the United States. In 1877, Captain and Assistant Surgeon Alfred C. Girard reported on the success German army surgeons were experiencing with Lister's method. He was greatly impressed with this system of wound care. He noted in his report to the Surgeon General that, with the exception of the antiseptic gauze, all of the equipment and materials used by Lister were available in the army supply table. Girard, "Report on the materials used in Lister's system," 4–12; M. Sternberg, *GMS*, 58–59; Gibson, *Soldier in White*, 95; ARSW 1877, 602; Brown, *Flight of the Nez Perce*, 144–145; Jocelyn, *Mostly Alkalai*, 224; Farrow, "Assembling of the Soldiers and the Battle of Clearwater," 151.
25. Gibson, *Soldier in White*, 95.
26. ARSW 1877, 602; Brown, *Flight of the Nez Perce*, 144–145; Jocelyn, *Mostly Alkalai*, 224.
27. Farrow, "The Assembling of the Soldiers and the Battle of Clearwater," 152–153; Jocelyn, *Mostly Alkalai*, 224–227; Muster Rolls, Co E, 4th Artillery, Box 1321, and Co H, 21st Infantry, Box, 625, RG94, NARA; Howard, *My Life and Experiences*, 287; Bancroft to Wood, Jun 19, 1877, Burton to Wood, Jun 20, 1877, Throckmorton to Wood, Jun 20, 1877, and Grover to Wood, Jun 20, 1877, Ltrs Rec'd, Dept of the Columbia, Box 43, E715, RG393, NARA; Hampton, *Children of Grace*, 84; Parnell, "The Salmon River Expedition," 127; ARSW 1877, 602; Gibson, *Soldier in White*, 97.
28. Hampton, *Children of Grace*, 87–88; ARSW 1877, 602; Brown, *Flight of the Nez Perce*, 158–159; Jocelyn, *Mostly Alkalai*, 227–228; Gibson, *Soldier in White*, 96.

29. Gibson, *Soldier in White*, 97; Parnell, "The Salmon River Expedition," 128; Hampton, *Children of Grace*, 90–91; ARSW 1877, 603.
30. Gibson, *Soldier in White*, 97.
31. Farrow, "Assembling of Soldiers and the Battle of Clearwater," 154; Hampton, *Children of Grace*, 91; ARSW 1877, 603; Hall to SGO, Jul 31, 1877, PPMO, Box 240 (Hall), RG94, NARA; Jocelyn, *Mostly Alkalai*, 228, 229; Brown, *Flight of the Nez Perce*, 160–161, 166.
32. Parnell, "The Salmon River Expedition," 128; Gibson, *Soldier in White*, 97; Brown, *Flight of the Nez Perce*, 173; Hampton, *Children of Grace*, 96.
33. Hampton, *Children of Grace*, 96; Gibson, *Soldier in White*, 96.
34. Parnell, "The Salmon River Expedition," 129.
35. Gibson, *Soldier in White*, 98.
36. Parnell, "The Salmon River Expedition," 129; Hampton, *Children of Grace*, 96.
37. ARSW 1877, 603–604; Gibson, *Soldier in White*, 98. Medical duties remained few, and GMS entertained himself productively by fishing, which made an "agreeable change in our [his and tent mate Captain Miller's] bill of fare." Gibson, *Soldier in White*, 98.
38. Captain Marcus Miller prepared a statement of the incident. Were it not for the tragedy of the event, Miller's concise summation would be rather amusing. Miller asked, "who shot the sentinel? Lt. Paddock came to my tent & said, 'I shot him, Colonel, I thought he was an Indian, he had a blanket about him.' I [Miller] said to him 'that is because you are a young Officer, don't you know better than that, no Indian would appear that way.' Did you challenge him? He answered, 'No, Sir.' I saw that he felt as badly as anyone would feel about it and that it was an accident. I heard in the morning that the Officer was a somnambulist & gave orders to his Captain (Morris, who tented with him) to see that Lt. Paddock had no musket with him hereafter at night.... No further action was taken by me with the [exception] to recommend to send the Officer to the rear." Miller to Wood, Jul 26, 1877, Ltrs Rec'd, Dept of the Columbia, Box 43, E715, RG393; Brown, *Flight of the Nez Perce*, 174–175.
39. McWhorter, *Hear Me My Chiefs*, 294–297; ARSW 1877, 604; Hampton, *Children of Grace*, 107–108.
40. Hampton, *Children of Grace*, 109–111; ARSW 1877, 604; McWhorter, *Hear Me My Chiefs*, 297, 299, 301; Beal, *I Will Fight No More*, 73; Jocelyn, *Mostly Alkalai*, 232.
41. McWhorter, *Hear Me My Chiefs*, 305; Trimble, "Battle of the Clearwater," 144–145; Farrow, "Assembling of the Soldiers and the Battle of Clearwater," 159; Parnell, "The Salmon River Expedition," 131; Jocelyn, *Mostly Alkalai*, 232, 237; ARSW 1877, 605; Post Returns, Fort Lapwai, Roll 594, and Fort Vancouver, Roll 1317, M617, NARA; McWhorter, *Hear Me My Chiefs*, 305; Brown, *Flight of the Nez Perce*, 188; Gibson, *Soldier in White*, 99.
42. Gibson, *Soldier in White*, 100–101; M. Sternberg, *GMS*, 60, 61.
43. Greenleaf to SGO, Jun 24, 1890.

44. SGO to Adj Gen, Jan 15, 1891, PPPMO, Box 551, RG94, NARA; Farrow, "Assembling of the Soldiers and the Battle of Clearwater," 159; Gibson, *Soldier in White*, 100–101; M. Sternberg, *GMS*, 60–61.
45. Farrow, "Assembling of the Soldiers and the Battle of Clearwater," 159–160; ARSW 1877, 605; Trimble, "Battle of the Clearwater," 145, 146–147; Jocelyn, *Mostly Alkalai*, 233.
46. Later at Ft Lapwai, GMS bought 4 or 5 ceremonial garments for \$10 to \$25 apiece. Laufe, *Army Doctors Wife*, 290; Post Returns, Ft Lapwai, Jul 1877, Roll 594 and Ft Vancouver, Aug-Sep, 1877, Roll 1317, M617, NARA; Muster Rolls, H troop, Jun–Aug 1877, Box 869 and L Troop, Jul–Aug 1877, Box 876, 1st Cavalry, RG94, NARA; Jocelyn, *Mostly Alkalai*, 237; ARSG 1878, 11; ARSW 1877, 606; Hampton, *Children of Grace*, 117; Field Orders #28, Jul 14, 1877, Ltrs pertaining to Chief Joseph & Nez Perce Campaign, E721, RG393, NARA; GMS to SGO, Jul 15, 1877, PPPMO, Box 551, RG94, NARA; Gibson, *Soldier in White*, 102. Horse litters were easier on the wounded than jostling over rough trails in a wagon, well known to frontier surgeons, and Sternberg had employed it during his campaigns in Kansas. Otis, *Report, Transport of Sick and Wounded*, 17; M. Sternberg, *GMS*, 61–62.
47. M. Sternberg, *GMS*, 62; ARSW 1877, 606; Jocelyn, *Mostly Alkalai*, 237; ARSG 1878, 11, 12.
48. Gibson, *Soldier in White*, 103.
49. Post Returns, Ft Vancouver, Sep 1877, Roll 1317, M617, NARA.
50. M. Sternberg, *GMS*, 62; Gibson, *Soldier in White*, 104.
51. M. Sternberg, *GMS*, 63; GMS to SGO, Jul 22, 1877, PPPMO, Box 551, RG94, NARA; Gibson, *Soldier in White*, 105.
52. M. Sternberg, *GMS*, 63, 64.
53. Gibson, *Soldier in White*, 105.
54. Gibson, *Soldier in White*, 105–106; M. Sternberg, *GMS*, 63; GMS to SGO, Jul 22, 1877, PPPMO, Box 551, RG94, NARA.
55. *M&SHCW*, v11, 410.
56. Medical History of Post, Ft Lapwai, Roll 3, 903, NARA; Post Returns, Ft Lapwai, Jul 1877, Roll 594, M617, NARA; Thompson, "Summer of '77 at Fort Lapwai," 15; GMS to SGO, Jul 31, 1877, PPPMO, Box 551, RG94, NARA; Laufe, *Army Doctor's Wife*, 281, 288.
57. Bailey to Wood, Aug 6, 1877, Ltrs Rec'd, Dept of the Columbia, Box 43, RG393, NARA; M. Sternberg, *GMS*, 64, 65; Thompson, "The Summer of '77 at Fort Lapwai," 15; Laufe, *Army Doctor's Wife*, 286.
58. M. Sternberg, *GMS*, 64, 65; Laufe, *Army Doctor's Wife*, 288.
59. M. Sternberg, *GMS*, 64.
60. *Ibid.*, 65.
61. Bailey to Adj Gen, Dept of the Columbia, Aug 6, 1877, SO#114, HQ, Dept of the Columbia, Aug 13, 1877, and SO#139, Sep 26, 1877, Ltrs Rec'd, Dept of the Columbia, Box 43, RG393; *M&SHCW*, v11, n1, 410; Brown, *Flight of the Nez Perce*, 198.

Chapter Six

Debut on the National Stage

1. Kober, *Reminiscences*, v1, 41–43, 59–62, 67, 229, 359 and *Reminiscences*, v2, Part 10, 23–24, Box 18, MS C115 George M. Kober Papers, NLM.
2. M. Sternberg, *GMS*, 67. *GMS* declared he had initiated experiments with disinfectants in 1876, a year ahead of Robert Koch. *GMS*, “The Value of Carbolic Acid as a Germicide as Established by Experimental Data,” *Med Rec* 22 (Sep 1882):315.
3. *GMS* to SGO, December 15, 1878, *GMS Papers*, NARA. At this time, *GMS* was probably using collodion emulsion wet plates in his photographic work. Producing photomicrographs was a laborious, time-intensive process that began with a sunny day. The microscopic slide was placed on the stage and brought into focus, then the heliostat adjusted to direct sunlight onto the slide. In a darkroom, clean glass plates were then coated with collodion, a solution of cellulose nitrate in alcohol-ether saturated iodine. After the collodion drained off leaving a thin film, the plate was dipped in a bath of silver nitrate to form silver iodide crystals, the light-sensitive agent that would produce the desired image. The plate was enclosed in a wooden photographic plate holder and taken to the photomicrographic equipment. Once in place, the plate holder was opened and the exposure made that normally required four to five minutes. After exposure, the plate holder was closed and taken to the darkroom once again where it could be developed and fixed. This time-consuming, exacting, and expensive process could be completely ruined by a number of uncontrollable events, such as a fast-moving cloud that blocked the sun or by the reverberations of a wagon passing by the house that put the object out of focus. Gelatin emulsion dry plates, which developed faster than the collodion type, were on the market, but were not produced and exported in large quantities by British firms until early in 1878. Gernsheim, “The Photographic Arts: Photography,” 728.
4. Brock, *Robert Koch*, 58–60, 62–63, 68, 322; Woodward Obituary, 250.
5. Sternberg, *GMS*, 67, 68, 93; *M&SHCW*, v11, 410; *GMS*, “The Value of Carbolic Acid as a Germicide,” 315; Brieger, “American Surgery and the Germ Theory of Disease,” 139; Gariepy, “The Introduction and Acceptance of Listerian Antisepsis,” 177–182; Wangenstein and Wangenstein, *Rise of Surgery*, 512–513. Sternberg may have had no more success with the technique in Idaho than German surgeons did during the Franco-Prussian War. Lister’s original method was a relatively complex process meant to be applied in a hospital setting, and it required specific materials, equipment, and assistance to obtain desired results. For a discussion of the German success with Lister’s method, see Schuppert, “Results of Lister’s Antiseptic Treatment of Wounds in German Hospitals,” 613–642.
6. *GMS*, “A Study of the Natural History of Yellow Fever and Some Remarks upon the Treatment Based upon the Same; with Cases and Tables of Observations upon the Temperature and Urine,” *NOM&S J* 5 (Mar 1877):638–674.
7. Bruton, *NBH*, 64–67, 110; Humphreys, *Yellow Fever and the South*, 61, 62. For the complete history of the yellow fever epidemic of 1878, see Khaled J. Bloom, *The Mississippi Valley’s Great Yellow Fever Epidemic of 1878* (Baton Rouge: Louisiana State University, 1993).

8. Duffy, *Sanitarians*, 95–98, 100, 102; Duffy, *History of Medicine in Louisiana*, v2, 460; Cavins, “National Quarantine and Sanitary Conventions,” 404–426.
9. This strange collection of allies occurred because yellow fever was not as large a threat to the northern cities as it was to those in the south, and federal control would terminate a profitable system for revenue and graft that lined the pockets of northern state and local officials. Humphreys, *Yellow Fever and the South*, 63; Brown, *Report on Quarantine*, 90; Bruton, *NBH*, 51–53, 55–60.
10. Bruton, *NBH*, 115–116, 120–121; Woodworth, “A Brief Review of the Organization and Purpose of the Yellow Fever Commission,” 167–168.
11. Bruton, *NBH*, 117; Barnes to Sec War, Nov 2, 1878 and Barnes to GMS, Nov 2, 1878, PPPMO, Box 551, RG94, NARA.
12. Woodworth found himself in trouble with the executive committee again the following morning when it became known the Yellow Fever Commission’s report had been published in New York newspapers against assurances to the contrary. Abstract of Discussions and Minutes, 6th Meeting, APHA, *PHRP*, v4, 352, 354, 369–370; Ellis, *Yellow Fever*, 66–67; Bruton, *NBH*, 121–122. Gibson stated GMS was on a special committee on disinfectants, but the minutes of the meeting make no reference to such a committee. Gibson, *Soldier in White*, 112.
13. GMS, “Public Health Association and Yellow Fever,” 45.
14. *Ibid.*
15. *Ibid.*, 46.
16. *Ibid.*
17. Bruton, *NBH*, 135.
18. Bruton, *NBH*, 166, 169–170; Miles, *History NBH*, Chap 17, MS C237, v2, 110, NLM.
19. Bruton, *NBH*, 169–170, 223, 224; Miles, *History NBH*, Chap 17, 112, 117, 118, 126–128.
20. Sec War to GMS, Apr 18, 1879, PPPMO, Box 551, RG94, NARA; M. Sternberg, *GMS*, 69.
21. GMS, “Preliminary Rpt, Havana Yellow Fever Commission,” 33.
22. *Ibid.*, 33–34.
23. GMS received intensive training in the latest photomicrographic techniques from LTC Woodward, who also recommended all of the microscopic equipment used in Havana. GMS, “Preliminary Rpt, Havana Yellow Fever Commission,” 34, 64–73; Gibson, *Soldier in White*, 114; Brock, *Robert Koch*, 31–37.
24. The auxiliary commission was presided over by Dr. Marcelina Astray de Canada and included Doctors Feline Rodriguez, Vincente L. Ferrer, Vincente B. Valdez, Joaquin Garcia Lebrede, Antonio Pardinias, Casimiro Rome, Raphael Fleitas, Carlos Finlay, Serafin Gallardo, Francisco Zayas, and Emilio N. de Villavicencia. GMS, “Preliminary Rpt, Havana Yellow Fever Commission,” 34, 35; Bruton, *NBH*, 224; GMS to Billings, Jul 13, 1879, Billings Gen Correspondence, MS C26, MS Film 25, Reel 4, NLM.

25. Gibson, *Soldier in White*, 114. On July 24, the steamer *Niagara* delivered dogs, cats, rabbits, guinea pigs, chickens, pigeons, geese, and a monkey for the proposed experiments on lower animals. GMS exposed these animals to an infected brig, the *John Welch*, for two days, had the dogs sleep on blankets from the bed of a yellow fever patient, and injected the dogs with blood from yellow fever patients and culture media. All of these attempts to generate the disease were negative. GMS, "Preliminary Rpt, Havana Yellow Fever Commission" 64, 66–70.
26. GMS to Billings, Jul 15 and Aug 29, 1879, Billings Gen Correspondence, MS C26, MS Film 25, Reel 4, NLM.
27. GMS to Billings, Jul 15, 1879, Billings Gen Correspondence, MS C26, MS Film 25, Reel 4, NLM.
28. GMS, "Preliminary Rpt, Havana Yellow Fever Commission" 66–70; GMS to Billings, Aug 19, 1879, Billings Gen Correspondence, MS C26, MS Film 25, Reel 4, NLM. Until Robert Koch perfected the solid culture media technique in 1881 obtaining pure cultures was difficult. Joseph Lister obtained the first pure liquid culture by using a limiting dilution technique. He published his results in 1878, and GMS very likely used this method in his experiments in Cuba. Joseph Schroeter (1872) successfully used potato, starch paste, bread, and meat to grow pure cultures. Brock, *Robert Koch*, 94–103; Bulloch, *History of Bacteriology*, 217–229.
29. GMS to Billings, Aug 29, 1879 and GMS to Billings, Sep 12, 1879, Billings Gen Correspondence, MS C26, MS Film 25, Reel 4, NLM.
30. Gibson, *Soldier in White*, 116.
31. *Ibid.*, 11.
32. GMS, "Preliminary Rpt, Havana Yellow Fever Commission," 64.
33. Gibson, *Soldier in White*, 116.
34. M. Sternberg, *GMS*, 72.
35. GMS, "Preliminary Rpt, Havana Yellow Fever Commission" 33–73; Miles, *History NBH*, 121.
36. Miles, *History NBH*, 124–125.
37. Miles, *History NBH*, 119; M. Sternberg, *GMS*, 93. Sternberg published his results in late 1880; Koch published in April 1881. GMS, "Experiments Designed to Test the Value of Certain Gaseous and Volatile Disinfectants," 320.
38. GMS, "Experiments Designed to Test the Value of Certain Gaseous and Volatile Disinfectants," 318–320; Bulloch, *History of Bacteriology*, 235; Brock, *Robert Koch*, 106–107.
39. GMS, "Microscopical Investigations of the Havana Yellow Fever Commission," 1019.
40. GMS, "Microscopical Investigations of the Havana Yellow Fever Commission," 1020–1023; NBH to GMS, Feb 4, 1880, PPPMO, Box 551, RG94, NARA; GMS, "Report of Microscopical Examination of Suspended Particles," 387–395.

41. GMS lodged at 22 Rampart Street. Sternberg, *GMS*, 73; *GMS, Malaria and Malarial Diseases*, 69; NBH to GMS, Feb 4, 1880, GMS to SGO, Feb 7 and 29, 1880, PPPMO, Box 551, RG94, NARA; GMS, "Experimental Investigations Relating to the Etiology of Malarial Fevers," 1–10; Miles, *History NBH*, 119.
42. GMS found a large number of organisms—predominantly pollen, starch granules, and cryptogram spores—were constantly in the air of Havana and New Orleans, but fully developed bacteria were rarely found although their constant presence was proved by culture experiments. GMS, "Rpt, Microscopical Examination of Suspended Particles," 395.
43. GMS, "Rpt, Microscopical Examination of Suspended Particles," 387.
44. Dr. John Dell'Orto of New Orleans provided GMS with the translation. GMS, "Experimental Investigations Relating to the Etiology of Malarial Fevers," 65. Neither Mrs. Sternberg nor Gibson mentioned the nature of his malady. GMS's work history supports the notion he may have been suffering from fatigue brought on by too many hours in the laboratory and at his desk. Along with the two NBH studies, he was also translating Antoine Magnin's *The Bacteria* from the French, and had just completed and presented a paper to the Louisiana State Medical Society. Once recovered he did not immediately return to New Orleans, but obtained leave for what he called a summer vacation. GMS to SGO, May 31, Jun 30, and Aug 31, 1880, PPPMO, Box 551, RG94, NARA.
45. Bemiss, "Fever on the Lower Coast," 306; Bruton, *NBH*, 266–270, 279.
46. *Ibid.*
47. Carrigan, *Saffron Scourge*, 132; Gillson, *Louisiana State Board of Health*, 199–208; Ellis, *Yellow Fever*, 80–81; Humphreys, *Yellow Fever and the South*, 70–71.
48. GMS, "Report to Dr. Bemiss," 384.
49. GMS, "Report to Dr. Bemiss," 385.
50. Bemiss, "Fever on the Lower Coast," 307; Bruton, *NBH*, 280–281.
51. GMS, "Report to Dr. Bemiss," 386; Bruton, *NBH*, 280–281.
52. Bruns and Davidson, "The Rice Fever," 391, 392.
53. Bruns and Davidson, "The Rice Fever," 393, 394–395; GMS, "Letter to the Editor," 482–486.
54. Bruns and Davidson, "The Rice Fever," 394–395.
55. GMS, "Minority Report," 382–398.
56. Gillson, *Louisiana State Board of Health*, 213. In late October, Dr. Hays published an attack on GMS's epidemiological assessment in the *Picayune* to validate his diagnosis of malaria and destroy GMS's yellow fever hypothesis. Hays' criticisms were poorly constructed and provided GMS with material to strengthen the findings of his recent investigations. He pointed out glaring diagnostic inconsistencies and, perhaps, outright falsehoods told to him by local physicians who wished to please Joseph Jones. GMS, "Letter to the Editor," 482–487 and "The Diagnosis of Yellow Fever," 601–602.

57. Gillson, *Louisiana State Board of Health*, 214.
58. GMS, "Experimental Investigations Relating to the Etiology of Malarial Fevers," 84.
59. *Ibid.*, 5.
60. GMS, "Yellow Fever and Quarantine," 353.
61. *Ibid.*, 354.
62. *Ibid.*, 355.
63. *Ibid.*, 356–357.
64. Book reviews, *Med Rec* 19 (12 Mar 1881), 298, and *Am Jour Med Sci* 81 (Apr 1881), 496–497. Antoine Magnin wrote *Les Bactéries* in a competition for a professorship. Flaumenhaft, "Evolution of America's Pioneer Bacteriologist," 456, n20.
65. Sanitary Congresses were held in Paris, 1851 and 1859, Constantinople, 1866, and Vienna, 1874. Although the Department of State had authorized U.S. delegates to act as plenipotentiaries for the government, foreign delegates did not feel so empowered nor did they care to extend such privileges to consuls in their home ports. The U.S. proposal was not passed. Howard-Jones, *Scientific Basis of the Sanitary Conferences*, 12, 17, 23, 35, 43, 45. GMS's 1879 blood photomicrographs inspired Finlay's theory. Finlay, "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever," 590–591, 606–607.
66. Howard-Jones, *Scientific Basis of the Sanitary Conferences*, 45.
67. The Sternbergs moved to 134 W. Madison Street in the Mount Vernon area of Baltimore. GMS to SGO, Feb 28, 1881, Mar 31, 1881, and GMS to Turner, Jul 26, 1881, PPPMO, Box 551, NARA; GMS, "A fatal form of septicaemia in the rabbit," 781–783; Pasteur, "Sur une maladie nouvelle provoquée par la salive d'un enfant mort de rage," 159. Klebs probably visualized *S. pneumoniae* in lung tissue preparations as early as 1875, as did Koch and Eberth prior to its recovery and culture in the laboratory. Austrian, *Life with the Pneumococcus*, 183–189. Dr. H. Newell Martin (1848–1896) taught physiology and conducted physiological research at Johns Hopkins from 1879–1891. Fye, "H. Newell Martin – A Remarkable Career destroyed by Neurasthenia and Alcoholism," 133–166; Gossel, "Institutional Growth and the Fate of Bacteriology at Johns Hopkins," 7; Chesney and Howell, *The Johns Hopkins Hospital and the Johns Hopkins University School of Medicine*, v1, 77–78.
68. GMS, "A fatal form of septicaemia," 781–783; GMS, "Etiology of Croupous Pneumonia – Parts 1 & 2," 309–312.
69. M. Sternberg, GMS, 76, 77. C. J. Davaine (1872) injected putrid blood into rabbits and produced a disease he termed septicaemia. He found serial passage of blood from one rabbit to the next increased its virulence, and the lethal dose depended on species and animal size. Robert Koch (1878) published the *Aetiology of Traumatic Infective Diseases* in which he described six different diseases from the injection of putrid fluids. Others engaged in similar investigations include Edwin Klebs (1871), Vulpian (1872), Clementi and Thin (1873), U. Dreyer (1874), and Feltz (1874). Bulloch, *History of Bacteriology*, 142–148.
70. M. Sternberg, GMS, 78–79.

71. Ibid., 81.
72. Ibid., 82.
73. Ibid., 83, 84.
74. Interestingly enough, neither Pasteur nor Sternberg were the first to see, culture, or describe the organism. Klebs cultured it in 1875, but gave it no significance. Eberth described it in 1880, but thought it was a variety of pyemia producing micrococci. In the same year, Matray found the micrococcus in normal and pneumonic sputum samples and named it *Pneummoniekokken*. Not until Carl Friedlander and Charles Talamon (1883) and Albert Fraenkel (1886) linked the organism to the production of lobar pneumonia would these previous investigations be recognized as illuminating. White, *The Biology of Pneumococcus*, 237; Garrison, *History of Medicine*, 582.

Chapter Seven

Exiled to California

1. Sanderson received his M.D. at Edinburgh. He began research work on infectious diseases for the medical department of the Privy Council, and, at the time of his communication with Martin, was professor of physiology at Oxford. Bulloch, *History of Bacteriology*, 395. Some of the non-gaseous disinfectants tested were iodine, chromic acid, ferric and cupric sulfates, thymol, caustic soda, and nitric, sulfuric, and hydrochloric acids. GMS, "Experiments with Disinfectants," 210–211, "An Instructive Experiment," 139, "A Contribution to the Study of the Bacterial Organisms Commonly Found upon Exposed Mucous Surfaces and in the Alimentary Canal of Healthy Individuals," 157–181, "The Micrococcus of Gonorrhoeal Pus," 67–70, 96–99, 323–325, *Bacteria*, 293, 302–303, and "Bacillus Anthracis," 149.
2. GMS, "A Contribution to the Study of the Bacterial Organisms Commonly Found upon Exposed Mucous Surfaces and in the Alimentary Canal of Healthy Individuals," 157–181; GMS, *Bacteria*, 175.
3. GMS, *Bacteria*, 175; GMS, *Manual of Bacteriology*, 245, 246.
4. This phenomenon was first proposed by John Muellendorf in his doctoral dissertation presented in Dresden in 1879. Cohn, Klebs, Koch, Weigert, Baumgarten, Sternberg, and presumably others were familiar with it, but none of them pursued it experimentally. In the autumn of 1883, Elie Metchnikoff, a Russian zoologist, put forth the theory of phagocytosis—the basis for understanding of cellular immunity—and his studies were published the following year. Bulloch, *History of Bacteriology*, 259; Bibel, "Sternberg, Metchnikoff, and the Phagocytes," 550–553; GMS, "The Metchnikoff Theory," 1, 1779–1780; Metchnikoff, *Life of Elie Metchnikoff*, 115, 19–122; Tauber and Chernyak, *Metchnikoff and the Origins of Immunology*, 106–107, 164–165.
5. GMS, "Experiments to Determine the Germicide Value of Certain Therapeutic Agents," 323, and *Manual of Bacteriology*, 63–65.

6. Miles, *NBH*, Chap 17, MS C237, v2, 40–43; Dunnington, “A Sketch of Dr. John William Mallet,” 187; GMS to Turner, Jul 19 and 26, 1881, PPPMO, Box 551, RG94, NARA.
7. GMS to Turner, Jul 19, 1881, GMS to Turner, Jul 26, 1881, PPPMO, Box 551, RG94, NARA.
8. Cabell to GMS, Jul 17, 1881, PPPMO, Box 551, RG94, NARA.
9. GMS to Adj Gen, Jul 17, 1881, PPPMO, Box 551, RG94, NARA.
10. Cabell to GMS and GMS to Cabell, Jul 19, 1881, PPPMO, Box 551, RG94, NARA.
11. GMS to Cabell, Jul 19, 1881, PPPMO, Box 551, RG94, NARA.
12. GMS to Turner, Jul 26, 1881, PPPMO, Box 551, RG94, NARA.
13. GMS to Crane, Jul 26, 1881, PPPMO, Box 551, RG94, NARA.
14. GMS to Crane, Jul 31, 1881, PPPMO, Box 551, RG94, NARA.
15. Crane to GMS, Aug 2, 1881, PPPMO, Box 551, RG94, NARA.
16. AGO to Barnes, Aug 6, 1881, SO#182, AGO, Aug 10, 1881, and SO#148, HQ, Div of the Pacific & Dept of California, Sep 1, 1881, Box 2, Folder 9, MS C100, George M. Sternberg Papers, 1861–1917, NLM. Fort Mason was known as Fort Point San Jose when GMS arrived. For the purposes of clarity, Fort Mason will be used to designate this post.
17. Mrs. Sternberg preferred not to mention it, presumably from the embarrassment it caused, and likely too because it cast her husband in less than a heroic light. Gibson did not allude to it either, and Wyndham Miles, who reviewed *NBH* records in the National Archives at length, only stated that he could find no reason for Sternberg’s abrupt departure. GMS to Crane and GMS to Turner, Jul 26, 1881, PPPMO, Box 551, RG94, NARA.
18. M. Sternberg, *GMS*, 87.
19. Crane to GMS, Aug 10, 1881, Box 1, Folder 17, MS C100, George M. Sternberg Papers, 1861–1917, NLM.
20. M. Sternberg, *GMS*, 87.
21. GMS asked for a Keith’s heliostat, Woodward’s governor, actinic condensing lens, blue cell and holder with six diaphragms, diaphragm footplate, and a storage box for photomicrographic work totaling \$115.25. Woodward to GMS, Nov 2, 1881, Woodward Correspondence, Curatorial Record Book, Otis Archives, NMM. Woodward was never convinced bacteria were linked to disease causation, and he mockingly called those who did “bacteriafanatics”; however, he and GMS shared a passion for photomicrography that appears to have transcended Woodward’s disregard for bacteriologists. Henry, *AFIP*, 66, 67; *M&SHWR*, Part 2, v1, 370, 374, 595. See also Mary C. Gillett, “A Tale of Two Surgeons.”
22. GMS presented “Bacteria and the Germ Theory of Disease” to the State Medical Society of California, described research with the micrococcus to the local San Francisco Medical Society, and the continued professional response to his work on septicemia in rabbits generated editorials and another paper. Other scientists, such as

- William Henry Welch at the Bellevue Medical School, and later at Johns Hopkins, and T. Mitchell Prudden at the College of Physicians and Surgeons of New York, would establish laboratories that pursued similar investigations before the close of the decade. SO#9, Jan 16, 1882, SO#140, Aug 11, 1882, SO#29, Mar 28, 1883, HQ, Div of the Pacific, Jan 16, 1882, GMS to SGO, Jan 31, 1882, PPPMO, Box 551, RG94, NARA; GMS, "Bacteria and the Germ Theory of Disease," 193–198; *Photomicrographs and How to Make Them*, 20–21, 92–96; "Poisonous Effects of Saliva," 53; "Virulence of Human Saliva," 332–334; "Induced Septicemia in the Rabbit," 69–76; and "Is Tuberculosis a Parasitic Disease?," *Med News* 41 (Jul 1, 1882), 6; Sternberg, *GMS*, 73, 94; Lightman, *Victorian Science in Context*, 391–393; Read and Mathes, *History of the San Francisco Medical Society*, v1, 81.
23. Mettler, *History of Medicine*, 645–646.
 24. GMS, "The Micrococcus of Gonorrhoeal Pus," 67–70. Joseph Oakland Hirschfelder (1854–1920) initiated his medical studies at the Medical College of the Pacific in 1870. In 1872, he began a five-year medical sojourn in Germany. He completed his degree and was the first foreigner to sit for the German state examinations that he passed with honors. "Obituary, Dr. J. O. Hirschfelder," 137–138.
 25. GMS, "The Micrococcus of Gonorrhoeal Pus," 69.
 26. Jonsen, *Short History of Medical Ethics*, 89.
 27. GMS, "The Micrococcus of Gonorrhoeal Pus," and "Further Experiments with the Micrococcus of Gonorrhoeal Pus – 'Gonococcus' of Neisser," 426–429.
 28. His comments should not be considered an excuse for experimental failure. While GMS was a superb laboratory technician, he was also feeling his way in the dark abyss of a new field of science searching for facts that would illuminate his path. Since he did not find the gonococcus using a simple lab procedure and failed to produce the disease in volunteer subjects, his original diagnosis of the soldier at Ft Mason may have been wrong. Non-gonococcal urethritis (NGU), what was then known as non-specific urethritis, is extremely common today, but was considered a rare event by GMS. A more scientifically plausible explanation is that he was indeed working with the highly infectious gonococcus, but his culturing or inoculation techniques, and perhaps both, probably stymied his efforts. To obtain a pure culture for inoculation, he passed the organism through a series of cultures that reduced the virulence of the organism. Furthermore, his inoculation technique—inserting a cotton swab soaked with infected culture fluid into the distal urethra and allowing it to remain for one to two hours—may not have penetrated deep enough to reach the non-cornified epithelial cell layer of the urethra vulnerable to gonococcal invasion. Lastly, if his volunteers urinated within the first four to six hours after inoculation, they very possibly flushed out the inoculum. The two most common causes of NGU, *Chlamydia trachomatis* and *Ureaplasma urealyticum*, can cause urethral discharge and painful urination in males just as gonorrhea does, but GMS would never have seen either of these small intracellular organisms with the microscopes and staining techniques of his day. Hook and Handsfield, "Gonococcal Infections in the Adult," 149, 152–153, 157; Evans and Brachman, *Bacterial Infections of Humans*, 2d, 265.
 29. Koch, "Etiology of Tuberculosis," 109–114.

30. Abstracts of Koch's work were published in the *Medical News* and *American Journal of the Medical Sciences*. Dr. Watson Cheyne of King's College Hospital attempted Koch's experiments without result for nearly a year. Koch, "Etiology of Tuberculosis," 109–114; Ehrlich, "A Method for Staining the Tubercle Bacillus," 118–120. Sternberg quoted a number of researchers – Toussaint, Schottelius, Brunet, and Burden-Sanderson among them – who had found tubercular nodules originated from non-infectious sources. GMS, "Is Tuberculosis a Parasitic Disease?," *Med News* 41 (Jul 1, 1882):6–7, (Jul 22, 1882):87–89, (Sep 16, 1882):311–314, (Nov 18, 1882):564–566, and (Dec 30, 1882):730–731; GMS, *Bacteria*, 391; Landis, "Reception of Koch's Discovery," 531–537; Dormandy, *The White Death*, 135, 136. Sternberg lamented that Koch had superb financial support for his work from a liberal government, whereas he had to keep his culture chamber continually operating with an alcohol lamp, an expensive and unreliable alternative to gas, but all that was available at Fort Mason. GMS, "Is Tuberculosis a Parasitic Disease?," (Nov 18, 1882):566; "Injection of Finely Powdered Inorganic Material into the Abdominal Cavity of Rabbits," 17–30; and "The Value of Carbolic Acid as a Germicide," 314–317.
31. Mercuric bichloride (corrosive sublimate) and iodine were excellent germicides in current therapeutic concentrations. Carbolic and sulfuric acids and ferrous chloride, however, failed as germicides in doses then used, but were potent antiseptics. GMS, "Experiments to Determine the Germicidal Value of Certain Therapeutic Agents," 321–343.
32. GMS, "Malaria," 31–54; GMS, *Malaria and Malarial Diseases*, iii.
33. M. Sternberg, GMS, 87. GMS, *Bacteria*, 2 ed., v. He was granted 10 days leave in early June, presumably to escape the responsibilities of the office, as the orders do not give him permission to leave the department nor was it sufficient time to travel to Kansas or Washington, DC. SO#63, Jun 8, 1883, SO#134, Oct 4, 1883, and GMS to SGO, Oct 6, 1883, HQ Dept of California, PPPMO Box 551, NARA.
34. Henry, *AFIP*, 73, 77, 79; Lamb, "The Army Medical Museum," 89–140; Ashburn, *History of the Medical Department*, 137; Otis obituary release from SGO, 990–991; Billings to GMS, Jan 15, 1884, Box 1, Folder 15, MS C100 George M. Sternberg Papers, NLM.
35. GMS to SGO, Nov 27, 1883, PPPMO Box 551, NARA, also in Sternberg, GMS, 87–89. Billings was commissioned in the army on Jul 16, 1862. Oblensky, "John Shaw Billings," 286–291.
36. Billings to GMS, Jan 15, 1884, Box 1, Folder 15, MS C100 George M. Sternberg Papers, NLM.
37. M. Sternberg, GMS, 89.
38. William H. Welch did not find the bacillus in his laboratory at the Bellevue Medical College until the fall of 1882; Dr. William T. Belfield, of Chicago, demonstrated it in October 1882 to the Chicago Pathological Society; T. Mitchell Prudden found it in his laboratory at the College of Physicians and Surgeons of New York in April 1883; and Edward L. Trudeau did not see the organism by his own hand, in T. Mitchell Prudden's laboratory, until at least the summer of 1883. Although Gibson gives Dr. Edward L. Trudeau his due for demonstrating the organism in T. Mitchell Prudden's laboratory, Trudeau did not have an English translation of Koch's paper

until Christmas 1882 at the earliest and did not begin work with Prudden and Dr. Hodenpyl until the summer of 1883. Gibson, *Soldier in White*, 125–127; Article IX. Chicago Pathological Society, 518; Trudeau, *An Autobiography*, 174–179; Landis, “Reception of Koch’s Discovery,” 533. McFarland mentions English language bacteriology manuals in his 1937 article – Klein’s *Microorganisms and Disease* (1884), Crookshank’s *Introduction to Bacteriology* (1886), Satterthwait’s *Introduction to Practical Bacteriology* (1887), and Senn’s *Surgical Bacteriology* (1889) – but does not mention either of Sternberg’s translations. McFarland, “Beginning of Bacteriology in Philadelphia,” 149–200.

Chapter Eight

Dean of American Bacteriology

1. M. Sternberg, *GMS*, 89, 91.
2. SO#45, Apr 16, 1884, SO#103, May 3, 1884, SO#131, Jun 6, 1884, *GMS* to SGO, 30 Apr, 1884, SGO to *GMS*, 12 May 1884, and *GMS* to SGO 8 Jun 1884, PPPMO, Box 551, RG94, NARA; Gossel, “Institutional Growth” 7; M. Sternberg, *GMS*, 91.
3. While Martha’s interest in bacteriology emanated from a desire to remain connected in a meaningful way to her husband’s professional interests, she also developed into a respectable laboratory technician. M. Sternberg, *GMS*, 91.
4. Sternberg, *GMS*, 111; Gossel, “Institutional Growth,” 2; Warner, “The Fall and Rise of Professional Mystery,” 131.
5. Duffy, *The Healers*, 229, 262; Flexner, *William Henry Welch and the Heroic Age of American Medicine*, 128, 129, 134, 137, 140; Chesney and Howell, *Johns Hopkins Hospital*, v1, 74–76, 83.
6. SGO to *GMS*, 2 Oct 1884, *GMS* to SGO, 19 Oct 1884, PPPMO, Box 551, RG94, NARA; *GMS*, “Disease Germs,” 452 and “Injection of Finely Powdered Inorganic Material,” 17–30.
7. *GMS*, “Disease Germs,” 453.
8. *Ibid.*
9. Coleman, “Koch’s Comma Bacillus,” 315–342. Koch led the German Cholera Commission in an eight-week investigation of a current disease outbreak and reported his isolation of the cholera organism from the rice water discharges of cholera patients in Calcutta on February 2, 1883. Brock, *Robert Koch*, 155, 159–162.
10. The Committee on Disinfectants consisted of Sternberg, Dr. Joseph H. Raymond, Professor of Physiology and Sanitary Science, Long Island College Hospital and Health Commissioner, City of Brooklyn, Dr. Victor C. Vaughn, Professor of Physiological Chemistry, University of Michigan, Major Charles Smart, NBH, Dr. W. H. Watkins, Medical Director of the Auxiliary Sanitary Association of New Orleans, Dr. Albert R. Leeds, Professor of Chemistry at Stevens Institute of Technology and Member of the New Jersey Board of Health, and Dr. George H. Rohe, Professor of

Hygiene, College of Physicians and Surgeons, Baltimore. GMS, et al., *Report of the Committee on Disinfectants*, 1885; Brock, *Robert Koch*, 167; Snowden, *Naples in the Time of Cholera*, 62, 64–67, 105; GMS, “The International Sanitary Conference at Rome,” 101–103.

11. GMS, et al., *Report of the Committee on Disinfectants*, 1885, xi.
12. *Ibid.*, xii.
13. *Ibid.*, vi–ix.
14. GMS, “Commercial Disinfectants,” 144–147 and “The Destruction of Cholera Germs,” 333.
15. Medicinal doses of mercuric chloride were 1:50,000 or 0.015 of a grain. GMS, “Commercial Disinfectants,” 144–147 and “The Destruction of Cholera Germs,” 334–335.
16. Manuscript Commissions for State Department Employees, 1 May 1848–30 Jun 1941, Gen Records, Dept of State, v2, E775, RG59, NARA; SGO to GMS, 24 and 25 Apr 1885, PPPMO, Box 551, RG94, NARA; GMS, “The Pneumonia-Coccus of Friedlander,” 109.
17. Countries represented at the conference included: the United States, Mexico, Argentina, Brazil, Chile, Peru, Uruguay, Guatemala, Great Britain, France, Belgium, The Netherlands, Germany, Spain, Portugal, Holland, Denmark, Norway/Sweden, Switzerland, Italy, Austria-Hungary, Romania, Serbia, Russia, India, China, and Japan. Howard-Jones, *Scientific Basis*, 52–56; Coleman, “Koch’s Comma Bacillus,” 326–327; Ogawa, “Uneasy Bedfellows,” n 106, 701; Moleschott and Erhardt, “Abstract of the Conclusions Adopted and Propositions Rejected by the Technical Commission,” 279–303; Brock, *Robert Koch*, 159–162, 167.
18. Howard-Jones, *Scientific Background*, 56; Moleschott and Erhardt, “Abstract of the Conclusions Adopted and Propositions Rejected by the Technical Commission,” 279–303; Hardy, “Cholera, Quarantine, and the English Preventive System,” 250–269; GMS, “International Sanitary Conference,” 101, 102, 103 and “Disinfection at Quarantine Stations,” 57–62.
19. GMS, “International Sanitary Conference,” 101.
20. *Ibid.*
21. GMS, “The Malarial Germ of Laveran,” 299; Gibson, *Soldier in White*, 139.
22. M. Sternberg, GMS, 91–92; Gibson, *Soldier in White*, 140. Upon returning from Rome, Sternberg was also notified that his essay, “Disinfection and Individual Prophylaxis Against Infectious Diseases” had won the Lomb prize at the annual APHA meeting for its content and his extended research on the practical value of disinfectants. GMS, “Disinfection and Individual Prophylaxis,” 101–136; Sternberg, GMS, 93.
23. de Fousta to Bayard, 29 Jul 1885, PPPMO, Box 551, RG94, NARA. The summer of 1885, although busy for Sternberg, was not without its family pleasures. His parents visited friends in Morristown, New Jersey, and he and Martha made time to see them. It was a bittersweet reunion for Sternberg. He had not seen his parents

- in some time, and in the interim his mother had apparently suffered a mild stroke leaving her, according to Levi, “with a partial paralysis which prevented the free use of her limbs.” Sternberg, *Story of My Life*, 28.
24. GMS may have discussed a visit with Koch during their time in Rome. However, neither Mrs. Sternberg nor Gibson discussed this trip and, with the exception of three fleeting references, two in Sternberg’s papers and one in his *Manual of Bacteriology*, it remains almost completely enigmatic. GMS to SGO, 31 Oct 1885, PPPMO, Box 551, RG94, NARA; GMS, *Manual of Bacteriology*, 293, “Pneumonia-Coccus of Friedlander,” 106–123, and *Report upon the Prevention of Yellow Fever by Inoculation*, 170.
 25. Austrian, *Life with the Pneumococcus*, 6–7; White, *Biology of Pneumococcus*, 5–7.
 26. GMS, “Pneumonia-Coccus of Friedlander,” 122.
 27. *Ibid.*, 113.
 28. White, *Biology of Pneumococcus*, 5–7, 9; GMS, “Micrococcus Pasteuri,” 123–131.
 29. *Reminiscences*, v2, Part 15, 185, Box 19, Kober Papers, NLM; Sternberg, GMS, 92, 93.
 30. Sternberg, GMS, 93.
 31. GMS, “Micrococcus Pasteuri,” 123, “Etiology of Croupous Pneumonia – Parts 1 & 2,” 281–285, 309–312, and *Manual of Bacteriology*, 291–294.
 32. GMS, “Micrococcus Pasteuri,” 123.
 33. GMS, “Etiology of Croupous Pneumonia – Parts 1 & 2,” 281–285, 309–312.
 34. GMS, “Pneumonia-Coccus of Friedlander,” 113, and *Manual of Bacteriology*, 40–41; White, *Biology of Pneumococcus*, 5–7, 33, 36–37; Joklik et al., eds., *Zinsser’s Microbiology*, 20th ed., 433, 434, 435; Austrian, “The Enduring Pneumococcus,” 3.
 35. Austrian, *Life with the Pneumococcus*, 8; Brock, *Milestones in Microbiology*, 215–217; White, *Biology of Pneumococcus*, 6, 11, 12, 13.
 36. Austrian, *Life with the Pneumococcus*, 6–13; Brock, *Milestones in Microbiology*, 215–217; White, *Biology of Pneumococcus*, 6, 11, 12, 13.
 37. GMS, “Micrococcus Pasteuri,” 123–131 and *Manual of Bacteriology*, 291, 293.
 38. GMS, *Manual of Bacteriology*, 294.
 39. *Ibid.*
 40. GMS, “The Etiology of Croupous Pneumonia – Parts 1 & 2,” 311–312.
 41. GMS to SGO, 27 Dec 1885, PPPMO, Box 551, NARA. Abbott studied bacteria in drinking water, William D. Booker studied bacterial flora in stools of children with summer diarrhea, and Christian A. Herter experimentally produced inflammation of the spinal cord. Flexner, *William Henry Welch*, 151–152, 153; Gossel, “Institutional Growth,” 7, 9; Chesney and Howell, *Johns Hopkins Hospital*, v1, 91–92; GMS, “The Bacillus of Typhoid Fever,” 197–202 and “Thermal Death-Point of Pathogenic Organisms,” 146–160; Cushing, *Life of Sir William Osler*, v1, 269–271, 270.

42. Dennis had requested \$50,000 from Andrew Carnegie to build a pathological laboratory in New York City to induce Welch to stay at Bellevue. Although Gilman trumped Dennis's offer, the Carnegie Laboratory was built. Prudden, *Biographical Sketches and Letters of T. Mitchell Prudden*, 50, 54; Flexner, *William Henry Welch*, 131; Winslow, *Life of Hermann Biggs*, 64–65; Eggerth, *The History of the Hoagland Laboratory*, 13, 17–18.
43. Hoagland may also have been familiar with Sternberg through his book on photomicrography. Eggerth, *The History of the Hoagland Laboratory*, 3, 4, 5–8, 17–18, 23–25.
44. Eggerth, *The History of the Hoagland Laboratory*, 29, 30–31.
45. Ashburn, *History Army Medical Department*, 139, 140.
46. Eggerth, *The History of the Hoagland Laboratory*, 31; M. Sternberg, *GMS*, 127; Edson, *Brooklyn First*, 71.
47. Eggerth, *The History of the Hoagland Laboratory*, 34–35.

Chapter Nine

Yellow Fever Investigations

1. "Notes and News," 535; Warner, "Hunting the Yellow Fever Germ," 361–382; *GMS, Prevention of Yellow Fever*, 141, 155–157; "Freire's Yellow Fever Microbe," 547–551; "Carmona's Yellow Fever Inoculation," 626.
2. Holt, "The Yellow Fever Commission," 623–625; "The Yellow Fever Commission," *NOM&SJ* 13 (Feb 1886), 629–632; "The Yellow Fever Commission," *NOM&SJ* 13 (Mar 1886), 722–728; "The Yellow Fever Commission," *NOM&SJ* 13 (Jun 1886), 964–972 and 990–994; "The President's Power in the Prevention of Epidemics, and the Yellow Fever Commission," 140–142; "Yellow Fever Inoculations," 623–624.
3. Holt to Bayard, 28 Feb 1887, Davis to *GMS*, 7 Mar 1887, Moore to Cleveland, 15 Apr 1887, *GMS* to SGO, 3 May and 30 May 1887, PPPMO, Box 551, NARA.
4. *GMS, Prevention of Yellow Fever*, 142, 146–147, 158–159, 184–185; Sternberg, *GMS*, 100.
5. As Sternberg spoke no Portuguese, he was assisted in his study of Freire's earlier results and visits to the inoculated population by Dr. R. Cleary and a Mr. Slaughter, both American ex-patriates who read and spoke Portuguese. *GMS, Prevention of Yellow Fever*, 142–143, 159, 164.
6. *GMS, Prevention of Yellow Fever*, 157, 159.
7. *Ibid.*, 159.
8. *Ibid.*, 168–169.
9. *Ibid.*, 178–182, 181.
10. *Ibid.*, 181–183.

11. Ibid., 190.
12. Ibid., 194–213.
13. During the latter part of their stay in Rio, smallpox broke out in the city, and Sternberg had been exposed to the disease through his work in a number of hospitals. Mrs. Sternberg therefore was vaccinated with an English-made smallpox vaccine. A few days out from port, Mrs. Sternberg awoke with a severe chill and generalized body aches. Over the next 24 hours, she developed a high fever, and the vaccination site became extremely red and painful. Sternberg, disturbed by this unexpected reaction, commented, “That English virus must have been contaminated. There must have been a germ in it that has taken a long time to incubate in your system. The time for the virus of smallpox to take effect has long since expired.... This germ that you have developed must be from another family, it has been so long in developing.” Sternberg was correct. The incubation period did not fit smallpox, and vaccine quills at that time were notorious for inducing infections from bacterial contamination. Fortunately, she recovered without complications. M. Sternberg, *GMS*, 102, 104–106.
14. M. Sternberg, *GMS*, 105.
15. Ibid., 105.
16. Ibid., 105, 106.
17. Mrs. Sternberg stayed home because she was tired of the excitement and tedium of traveling. Sternberg, *GMS*, 106.
18. *GMS*, “President’s Address,” 1–21, 9.
19. *GMS*, *Prevention of Yellow Fever*, 149.
20. *GMS*, *Prevention of Yellow Fever*, 149, 150, 213–217.
21. It was not known how many soldiers exposed to the epidemic in May were already immune to the disease. After exposure to the disease, these soldiers were inoculated, but another attack of yellow fever generated 28 cases and 19 deaths, a case-fatality rate of 68 percent. *GMS*, *Prevention of Yellow Fever*, 218–219; *GMS*, “Investigations Relating to the Etiology and Prophylaxis of Yellow Fever,” 339–365, 364.
22. *GMS*, *Prevention of Yellow Fever*, 166–168.
23. *GMS* to SGO, 3 Dec 87, *GMS* to SGO, 24 Oct 87, *GMS* to SGO, 12 Dec 87, and *GMS* to SGO, Sep 27, 1886, PPPMO, Box 551, NARA; *GMS*, “President’s Address,” 1–21.
24. Eggerth, *The History of the Hoagland Laboratory*, 34.
25. This appears to be the last time he gave it serious consideration until very late in 1887 or early 1888 even though he was aware that others, such as Dr. Edmund A. Parkes, a British military hygienist, considered fecal-oral transmission of the disease to be a genuine possibility. Gibson, *Soldier in White*, 148; *GMS*, “Hunting Yellow Fever Germs,” 253–256, 255; F. Chaumont, ed., *Parkes’ Hygiene*, 59, 131; *GMS*, *Report on the Etiology and Prevention of Yellow Fever*, 31.
26. *GMS*, “An Inquiry into the Modus Operandi of the Yellow Fever Poison,” 10, and *Report on the Etiology and Prevention of Yellow Fever*, 7, 31, 167–168.

27. GMS, *Etiology and Prevention of Yellow Fever*, 114, 167, 181.
28. Gibson, *Soldier in White*, 149; GMS, *Etiology and Prevention of Yellow Fever*, 181.
29. Gibson, *Soldier in White*, 149.
30. Gibson, *Soldier in White*, 149; GMS, *Etiology and Prevention of Yellow Fever*, 168.
31. Gibson, *Soldier in White*, 149, 150.
32. GMS, *Etiology and Prevention of Yellow Fever*, 182.
33. GMS, "Preliminary Note upon a New Method of Treating Yellow Fever," 524–526, and *Etiology and Prevention of Yellow Fever*, 78–87, 90, 91, 92, 95.
34. GMS, *Etiology and Prevention of Yellow Fever*, 91.
35. *Ibid.*, 91.
36. *Ibid.*, 85.
37. Kemp was given a salary of \$1,000 per year and the privilege of taking his medical degree at the Long Island College free of charge. Eggerth, *The History of the Hoagland Laboratory*, 36.
38. Eggerth, *The History of the Hoagland Laboratory*, 37.
39. New Orleans had had cases in all but three of the years from 1880 to 1887, but only nine deaths. Outbreaks had occurred at Matamoros and Brownsville, Texas, in 1882 and 1883, in Biloxi, Mississippi in 1886, and Key West in 1887; however, these visitations remained small and were locally contained. Dr. Joseph Holt's firm yet tactful diplomacy, understanding of state and national politics, and his system of maritime sanitation were crucial to the success of southern public health. Ellis, *Yellow Fever*, 121; Humphreys, *Yellow Fever and the South*, 113–118.
40. SO#203, Sep 1, 1888, SO#224, Sep 26, 1888, and GMS to SGO, Sep 29, 1888, PPP-MO, Box 551, NARA; GMS, *Etiology and Prevention of Yellow Fever*, 7, 12, 87–88, 98, 116, 117, 209–210.
41. GMS, *Etiology and Prevention of Yellow Fever*, 98, 116, 117, 209–210.
42. Sternberg's formula provided a patient with 285 milligrams of sodium bicarbonate, 1 milligram of inorganic mercury, and 53 milliliters of water per hour. If the nursing care was good, the patient probably received 12 to 15 doses per day, giving a moderate hourly dose of bicarbonate that probably provided some relief from stomach upset and allowed fluids to be retained; but it would not have had an appreciable effect on neutralizing acidic urine nor would it increase urine flow. Reduced urine production in yellow fever patients is due to virus-induced damage (acute tubular necrosis) of the kidney-filtering tubules in severe cases and dehydration secondary to vomiting and prolonged fever. As intravenous fluid replacement was unknown, fluid losses could only be corrected orally. The small amount of water in GMS's treatment, even when combined with other liquids not immediately regurgitated, would not by itself be sufficient to meet the dehydrated patient's fluid requirements and provide a diuretic effect. The amount of inorganic mercury he included as an antiseptic was also too small to cause an immediate toxic effect. However, mercury is extremely toxic to the filtering tubules of the kidney and is not rapidly cleared by them. At the end of 7 days of treatment—the average time in which a patient would

- be on the road to recovery—a patient would have accumulated about 84 to 105 milligrams of mercury in the kidneys, enough to produce toxic side effects in some individuals. GMS, *Etiology and Prevention of Yellow Fever*, 88–90, “Bicarbonate of Sodium and Bichloride of Mercury in the Treatment of Yellow Fever,” 298–304, and “Additional Note on the Treatment of Yellow Fever,” 388–389; Gibson, *Soldier in White*, 157.
43. GMS to SGO, Nov 4, 1888, PPPMO, Box 551, NARA; GMS, *Etiology and Prevention of Yellow Fever*, 140; Eggerth, *The History of the Hoagland Laboratory*, 46; BDE, “Dr. George M. Sternberg’s Lecture to his Professional Brethren,” Nov 18, 1888.
 44. Eggerth, *The History of the Hoagland Laboratory*, 41–43; BDE, “A Brilliant Crowd of Citizens Gather at the Opening of the Institution,” Dec 16, 1888.
 45. Eggerth, *The History of the Hoagland Laboratory*, 54; GMS, *Etiology and Prevention of Yellow Fever*, 8, 9, 12, 13, and “Hunting Yellow Fever Germs,” 253–256; GMS to SGO, Feb 11 and 28, Mar 3 and 16, and Aug 31, 1889, PPPMO, Box 551, NARA.
 46. Finlay, “The Mosquito Hypothetically Considered,” 605.
 47. *Ibid.*, 607.
 48. *Culex cubensis* was renamed *Stegomyia fasciata* and is known today as *Aedes aegypti*. Finlay, “Yellow Fever: Its Transmission by Means of the Culex Mosquito,” 395–406, and “Inoculations for Yellow Fever by Means of Contaminated Mosquitoes,” 264–268.
 49. Finlay, “The Mosquito Hypothetically Considered,” 591.
 50. *Ibid.*, 608–610.
 51. Manson, “On the Development of the Filaria Sanguinis Hominis and on the Mosquito Considered as a Nurse,” *Transactions Linnean Society* 14 (Aug 31, 1878):304–311. For a modern account of Manson’s work, see Douglas M. Haynes, *Imperial Medicine: Patrick Manson and the Conquest of Tropical Disease* (Philadelphia: Univ. of Pennsylvania Press, 2001).
 52. GMS, *Etiology and Prevention of Yellow Fever*, 164–165, and “Dr. Finlay’s Mosquito Inoculations,” 627–628.
 53. GMS, “Dr. Finlay’s Mosquito Inoculations,” 627–628; Finlay, “Transmission of Yellow Fever by the Culex Mosquito,” 183.
 54. GMS to Mall, Apr 6 and 15, 1889, PPPMO, Box 551, NARA.
 55. Eggerth, *The History of the Hoagland Laboratory*, 55.
 56. Billings, “Recent Work at the Pathobiological Laboratory State University,” 329.
 57. GMS to Mall, Apr 11, 1889 and GMS to Mall, 15, 1889, PPPMO, Box 551, NARA.
 58. GMS, *Etiology and Prevention of Yellow Fever*, 175–178.
 59. Gibson, *Soldier in White*, 154.
 60. *Ibid.*
 61. Gibson, *Soldier in White*, 155; GMS, *Etiology and Prevention of Yellow Fever*, 98, 121–131.

62. Gibson, *Soldier in White*, 155.
63. Ibid., 156.
64. Ibid.
65. Ibid., 157.
66. Ibid.
67. GMS, *Etiology and Prevention of Yellow Fever*, 187–188; GMS to SGO, Aug 31, 1889, PPPMO, Box 551, NARA. GMS sustained a rather tardy and severe personal attack from Dr. Freire in response to a summary article of the Brazilian investigations that GMS had published in the *Medical News* in April 1888. Freire accused him of incompetence, myopia, and improper conduct during the 1887 investigations. Although GMS felt a response to “the violent attack which he has made upon me in detail would be a waste of time...”, he devoted a postscriptum of seven pages in his final report to the subject and in May 1890 prepared two articles, one of which he read at the annual meeting of the AMA, on the obvious statistical failures of the Brazilian physician. GMS, *Etiology and Prevention of Yellow Fever*, 221.
68. GMS, “Investigations Relating to the Etiology and Prophylaxis of Yellow Fever,” 449–456, “Dr. Freire’s Protective Inoculation,” 524–526, “Facts Versus Figures,” 142–144, and *Etiology and Prevention of Yellow Fever*, 13.
69. GMS, *Etiology and Prevention of Yellow Fever*, 28.
70. Ibid., 13.

Chapter Ten

Immunology and Cholera in New York City

1. Margaret Sternberg’s debilitating and wasting illness probably resulted from her earlier stroke or strokes. Levi to GMS, Dec 7, 1888, Box 2, Folder 2, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
2. L. Sternberg, *Story of My Life*, 29.
3. M. Sternberg, GMS, 122, 124; SGO to GMS, Jun 11, 1890 and GMS to SGO, Jul 31, 1890, PPPMO, Box 551, NARA.
4. Greenleaf to SGO, Jun 24, 1890, PPPMO, Box 551, NARA; M. Sternberg, GMS, 66.
5. Schofield to Sec War, Aug 12, 1890, Daniel S. Lamont Papers, LOC.
6. Ashburn, *History Army Medical Department*, 143; M. Sternberg, GMS, 125.
7. SO#232, Oct 3, 1890 and GMS to SGO, Oct 7, 1890, PPPMO, Box 551, NARA; M. Sternberg, GMS, 125.
8. M. Sternberg, GMS, 125.
9. M. Sternberg, GMS, 125; GMS to SGO, Oct 15 and 31, 1890, PPPMO, Box 551, NARA; Eggerth, *The History of the Hoagland Laboratory*, 67.

10. Reasoner, "The Development of the Medical Supply Service," 2; Smith, *Medicines for the Union Army*, 7; ARSG 1891, 89.
11. Finlay, "Inoculations for Yellow Fever by Means of Contaminated Mosquitoes," 264–268; GMS, "Dr. Finlay's Mosquito Inoculations," 629.
12. GMS, "Dr. Finlay's Mosquito Inoculations," 630.
13. M. Sternberg, GMS, 297.
14. Ibid., 126.
15. M. Sternberg, GMS, 126; Fishbein, *A History of the American Medical Association*, 676.
16. Gibson, *Soldier in White*, 160; Schofield to GMS, Dec 31, 1890, Box 2, Folder 2, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
17. Schofield, *Forty-Six Years in the Army*, 183; GMS to Schofield, Jul 3, 1891, Series IV, Container 33, #237, John M. Schofield Papers, LOC.
18. GMS to Schofield, Aug 17, 1891, Series IV, Container 34, #305, John M. Schofield Papers, LOC.
19. SO#27, Feb 2, 1892 and SO#34, Mar 17, 1892, PPPMO, Box 551, NARA. In New York the Sternbergs lived first in a large house near the Windsor Hotel. Although the residence was spacious, Sternberg had a long and disagreeable early morning commute on the elevated streetcar to the south end of Broadway where the Army Building stood at 39 Whitehall Street. He soon tired of jostling in the crowded, poorly ventilated cars twice daily. They relocated to the Saint George Hotel in Brooklyn closer to his office, the Hoagland Laboratory, and a number of friends as well. M. Sternberg, GMS, 127; Eggerth, *The History of the Hoagland Laboratory*, 71; GMS, "Practical Results of Bacteriological Researches," 1–15.
20. Plotkin and Orenstein, *Vaccines*, 3rd, 1–3; Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae*. See also Ola Winslow, *A Destroying Angel*, Boston: Houghton Mifflin, 1974, and Elizabeth Fenn, *Pox Americana*, New York: Hill & Wang, 2001.
21. Baumgarten suggested the creation of an osmotically unfavorable environment in which bacterial cell walls ruptured, and von Behring suggested that an increasing alkalinity precluded further microbial growth. Silverstein, *History of Immunology*, 16–21; GMS, "Infectious Diseases, Causation and Immunity," 625–627 and "What Is the Explanation of the Protection from Subsequent Attacks, Resulting from an Attack of Certain Diseases, and of the Protective Influence of Vaccination against Smallpox?," 373–374.
22. GMS, "What Is the Explanation of the Protection from Subsequent Attacks, Resulting from an Attack of Certain Diseases, and of the Protective Influence of Vaccination against Smallpox?," 376.
23. Ibid.
24. Silverstein, *History of Immunology*, 16–21.

25. GMS, "Practical Results of Bacteriological Researches," 1–15, "Infectious Diseases, Causation and Immunity," 616–635, and "Protective Inoculations in Infectious Diseases," 273–291, 273.
26. Bulloch, *History of Bacteriology*, 256–258; Silverstein, *History of Immunology*, 47; Behring and Kitasato, "The Mechanism of Immunity in Animals to Diphtheria and Tetanus," 138–140 and "Studies on the Mechanism of Immunity to Diphtheria in Animals," 141–144.
27. GMS, "Practical Results of Bacteriological Researches," 73, and "Infectious Diseases, Causation and Immunity," 616–635.
28. GMS, "Practical Results of Bacteriological Researches," 80–81.
29. *Ibid.*, 81–82.
30. *Ibid.*, 82.
31. *Ibid.*, 84.
32. *Ibid.*
33. *Ibid.*, 85.
34. *Ibid.*
35. *Ibid.*, 86.
36. *Ibid.*
37. *Ibid.*, 84.
38. Evans, *Death in Hamburg*, 279–284; Markel, *Quarantine!*, 16–19.
39. Evans, *Death in Hamburg*, 286–290.
40. Duffy, *Public Health in New York City*, 85, 86, 92, 93; NYT, "Three More Doctors Out," Jul 6, 1892; Fee and Hammonds, "Science, Politics, and the Art of Persuasion," 158, 159.
41. Rauch, "Coast Defenses Against Asiatic Cholera," 130, 138, 140; Bell, "Report of the Committee on Disinfection of Rags," 170–196; Smith, "The New York Quarantine Establishment," 201–207.
42. Duffy, *Public Health in New York City*, 92, 94, 95; Fee and Hammond, "Science, Politics and the Art of Persuasion," 160; Winslow, *Life of Hermann M. Biggs*, 79, 81, 90, 95.
43. Markel, *Quarantine*, 90–91, 97–99, 108, 130.
44. Dr. Welch had been invited, but declined to attend. Markel, *Quarantine*, 126, 129; NYT, "Detention at Quarantine," Sep 22, 1892; M. Sternberg, GMS, 128, 129; Greenleaf to GMS, PPPMO, Box 151, NARA; GMS, "Disinfection at Quarantine Stations," 57.
45. GMS, "The Biological Characters of the Cholera Spirillum," 387–391, and "Disinfection at Quarantine Stations," 60; NYT, "Discussed By Physicians," Sep 20, 1892.

46. GMS, "Disinfection at Quarantine Stations," 60, 61.
47. Ibid., 59.
48. Ibid., 61.
49. Information Slip, Oct 31, 1892, Sutherland to GMS, Nov 29, 1892, and GMS to Sutherland, Dec 5, 1892, PPPMO, Box 551, NARA.
50. GMS, "Report on Typhoid Fever at Madison Barracks," 45–49.
51. Although Bolton claimed ill health—he had had a tuberculous kidney removed recently—both Cornelius Hoagland and GMS were somewhat irritated with his hasty departure that left no one in charge of bacteriology. Eggerth, *The History of the Hoagland Laboratory*, 71–72.
52. Eggerth, *The History of the Hoagland Laboratory*, 74, 75; M. Sternberg, *GMS*, 127.
53. M. Sternberg, *GMS*, 127, 128.
54. M. Sternberg, *GMS*, 128.
55. GMS encouraged Slee to establish his own private vaccine manufacturing laboratory. Four years later, he opened the Pocono Biological Laboratories in Swiftwater, Pennsylvania. It continues to produce vaccines today under the name Pasteur Merieux Connaught. Eggerth, *The History of the Hoagland Laboratory*, 73, 74; Jeff Widmer, *The Spirit of Swiftwater*, 11, 15, 17.
56. Welch to GMS, Dec 4, 1892, Box 2, Folder 4 and Osler to GMS, Mar 13, 1893, Box 1, Folder 29, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
57. M. Sternberg, *GMS*, 127.
58. Greenleaf to GMS, Dec 7, 1892 Box 1, Folder 21, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
59. Ashburn, *History Army Medical Department*, 147, 148.

Chapter Eleven

Surgeon General of the Army

1. M. Sternberg, *GMS*, 130.
2. Ibid.
3. Gibson, *Soldier in White*, 166, 167; Nevins, *Grover Cleveland*, v2, 129, 175.
4. Gillett, *AMEDD 1865–1917*, 95.
5. GMS to Dickinson, Feb 13, 1893, General Correspondence, Container 2, Lamont Papers, LOC.
6. Nevins, *Grover Cleveland*, v1, 196, v2, 467, 481.

7. GMS to Schofield, Apr 10, 1893, Letters Received, Container 34, #327, John M. Schofield Papers, LOC. Schofield, who had had a short tenure as Secretary of War (1868–1869), also replaced the traditional bureaucratic antagonism of the commanding general toward the Secretary of War with a cooperative spirit by assuming the role of a chief of staff, and he met regularly with the bureau chiefs to seek their advice and hear their concerns after he took command of the army in 1888. In the reform-minded, yet pragmatic, professionalism of Schofield, GMS had an understanding and sympathetic ally. Beaver, *Modernizing the American War Department*, 22; Connelly, *John M. Schofield*, 302–304.
8. Gibson, *Soldier in White*, 166, 167; Nevins, *Grover Cleveland*, v1, 129, 175.
9. M. Sternberg, *GMS*, 131.
10. Ibid.
11. M. Sternberg, *GMS*, 132; Information Slip, May 31 and Adj Gen to GMS, May 30, 1893, PPPMO, Box 152, NARA.
12. Welch to GMS, Jun 2, 1893, Box 2, Folder 4, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
13. M. Sternberg, *GMS*, 135.
14. Ibid.
15. Ibid., 136.
16. Box 1, Folders 14, 24, 28, 30, and Box 2, Folders 3 and 5, MS C100, George Miller Sternberg Papers, 1861–1917, NLM.
17. M. Sternberg, *GMS*, 135.
18. *Denver Medical Times*, May 31, 1893.
19. The 10 officers passed over were: Colonels Charles Page, Joseph E. Smith, Bernard J. D. Irwin, Charles T. Alexander, Joseph C. Bailey, Charles H. Alden, and Lieutenant Colonels Charles G. Byrne, Joseph P. Wright, Francis L. Town, and Dallas Bache. *Official Army Register*, 1893; NYT, “Surgeon General Sternberg,” May 31, 1893, 12.
20. J. C. Culbertson, “Surgeon General of the United States Navy,” 594, and “The Surgeon General of the United States Army,” 617; Kelly and Burrage, *Dictionary of American Medical Biography*, 1228.
21. Remembered primarily for civil service reform, Cleveland really saw this as a small piece of a broader program of general administrative change to reduce corruption in a number of departments. Secretary of War William C. Endicott put an end to the habitual homesteading of officers in Washington and other posts. When Surgeon General Murray retired in 1886, Cleveland broke from precedent and chose Lieutenant Colonel John Moore over six senior officers for the position. NYT, “New Naval Surgeon General,” May 10, 1893, 4; Nevins, *Grover Cleveland*, v1, 207, 214–215, 232, v2, 510.
22. Fryer to GMS, Jun 4, 1893, Box 1, Folder 19, George M. Sternberg Papers, 1861–1917, MS C100, NLM.

23. Bailey to GMS, May 31, 1893, Box 1, Folder 14, George M. Sternberg Papers, 1861–1917, MS C100, NLM.
24. Sherman and his successors also encouraged other professional activities, such as associations and journals. Through Sherman's support, officers such as Colonel William B. Hazen, Emory Upton, and others evaluated and reported upon European and Asian military organizations. In 1891, Schofield required all combat officers to prepare and present professional papers at regular meetings on post. This, in Schofield's words, was "to give officers an incentive to study...[and] stimulate professional zeal and ambition." Nenninger, *The Leavenworth Schools and the Old Army*, 7; Weigley, *History of the United States Army*, 272, 273, 274, 276; Coffman, *Old Army*, 271, 272.
25. Rothstein, *American Physicians*, 285–286; Flexner, *Medical Education in the United States and Canada*, 234–235.
26. ARSG 1888–1891; Gillett, *AMEDD 1865–1917*, 18–20; Greenleaf, Excerpts from personal correspondence of BG Charles R. Greenleaf, MS C91 Charles R. Greenleaf Papers, 1890–1936, NLM; Senn, "Mission of the Association," 547–550.
27. ARSG 1890, 3, 11; ARSG 1891, 3; ARSG 1892, 3.
28. ARSG 1893, 7, 13, 35.
29. No sources reveal when GMS began thinking about an Army Medical School. ARSG 1894, 21–23; Brinton, *Personal Memoirs of John H. Brinton*, 257–259; Thomas and Hyman, *Life and Times of Lincoln's Secretary of War*, 366–368; Duncan, "The Strange Case of Surgeon General Hammond," 100–101, 104, 107–108; "This Week," 10; GO's #51 and #78, Records, AMS, WRAIR Archives.
30. GMS to Reed, Jul 3, 1893, Hench-Reed Collection, UVA. GMS and Reed may have met in early October 1890 as Sternberg packed his equipment and departed for San Francisco and Reed began his course work in Welch's lab. Whether they did or not, GMS did not know Reed well enough to take him outright. Essay by William H. Welch concerning Walter Reed's work at Johns Hopkins University. 19--, Hench-Reed Collection, UVA.
31. ARSG 1893, 15.
32. GMS, "Function of the Army Medical School," 547–551.
33. M. Sternberg, *GMS*, 138–139.
34. M. Sternberg, *GMS*, 137–140; Gibson, *Soldier in White*, 173.
35. GMS, "Address to Members of the Pan-American Medical Congress," 369.
36. *Ibid.*
37. *Ibid.*, 371.
38. *Ibid.*, 374.
39. *Ibid.*, 374–375.
40. Surgeons such as Charles Nancrede and W. W. Keen in Philadelphia, R. A. Kinloch in Charleston, T. G. Richardson of New Orleans, and Moses Gunn and Nicholas Senn in Chicago had collected and reported on the treatment of a large number of gunshot wounds.

41. Smith, "Nicholas Senn and the Origins of Association of Military Surgeons of the United States," 244.
42. *Proceedings*, AMSUS 1894, viii, xxiv, xxxii, xlv, xlvi, lxix, 1; Senn, "Mission of the Association," 547–550.
43. Gillett, *AMEDD 1865–1917*, 18–20; *ARSG 1893*, 15; *ARSG 1894*, 35–37, and *ARSG 1895*, 14; Greenleaf, Excerpts from personal correspondence of BG Charles R. Greenleaf, MS C91 Charles R. Greenleaf Papers, 1890–1936, NLM; John van R. Hoff, "What Is the Most Practicable Plan of Sanitary Organization for Active Service in the United States Army," *Proceedings*, AMSUS 1896, 208, 212, 220.
44. As the Indian Wars waned, Congress had been paring down the number of, and support to, military posts. In 1880, 185 posts and detachments with the same requirements were covered by 125 assistant and 111 contract surgeons; 10 years later, 164 posts were served by the same number of assistant surgeons and only 48 contract physicians. *ARSG 1894*, 14–15; Gillett, *AMEDD 1865–1917*, 15–17.
45. M. Sternberg, *GMS*, 137, 138; Gibson, *Soldier in White*, 176–177; *ARSG 1894*, 14–15, 16.
46. *ARSG 1894*, 15–21.
47. Of the five new medical first lieutenants, Deane C. Howard stood first in the class, followed by A. S. Porter, W. H. Wilson, W. W. Quinton, and T. S. Bratton. *ARSG 1893*, 15 and *ARSG 1894*, 35; Faculty Meeting Minutes, March 6, 1894, Records AMS, WRAIR Archives. For Osler's complete address, see: Osler, *Aequanimitas*, 3rd ed., 99–113.
48. Bean, *Walter Reed*, 56, 57; *GMS* to Reed, Jan 19, 1894, Hench-Reed Collection, UVA; Reed, "Germicidal Value of Trikresol," 204.
49. Bryant had orchestrated the President's clandestine surgery for a malignant oral tumor earlier in the year; an operation that was kept from Congress, the nation, and, most impressively, the news media for nearly 25 years. Nevins, *Grover Cleveland*, v2, 528–529; M. Sternberg, *GMS*, 136; Gibson, *Soldier in White*, 172.
50. *GMS*, "Introductory Address Delivered September 30 at the College Building, Georgetown University," 689–696, "A National Health Bureau," 529–533, "The Bacteriology of Pyelonephritis," 664–669, and "The Proofs of Progress" 508–512; M. Sternberg, *GMS*, 149.
51. Gossel, "William Henry Welch and the Antivivisection Legislation," 405; *GMS*, *Immunity, Protective Inoculations in Infectious Diseases and Serum Therapy*, 234–235, and "Scientific Researches," 925, 927; Kinyoun, "Preliminary Report on the Treatment of Variola by Its Antitoxine," 31–33.
52. Kinyoun, "Preliminary Report on the Treatment of Variola by Its Antitoxine," 31–33. *GMS* thought a dried precipitate preparation of the serum, which could be reconstituted in a smaller amount of fluid, might eliminate the volume problem in treatment. Reed pursued this goal with some success in laboratory animals, but it was never tested in humans. *GMS* and Reed, "Report on Immunity Against Vaccination Conferred upon the Monkey," 57–58, 68.
53. M. Sternberg, *GMS*, 139; *ARSG 1895*, 7, 58.
54. *ARSG 1896*, 11–12, *ARSG 1897*, 14; Gillett, *AMEDD 1865–1917*, 99, 106–109.

55. GMS, "Scientific Researches Relating to the Specific Infectious Agent of Smallpox," 926–927.
56. French, *Antivivisection and Medical Science in Victorian Society*, 1–35, 61–71, 85–89. Gossel, "William Henry Welch and the Antivivisection Legislation," 398–400, 404–405, 406.
57. Gossel, "William Henry Welch and the Antivivisection Legislation," 406–408; 54th Congress, 1 sess., Senate Bill 1552, Jan 14, 1896, LOC.
58. M. Sternberg, *GMS*, 140–141. The Silver Purchase Act, which required the Treasury to buy large amounts of silver every month and turn it into coinage, had destabilized the nation's gold standard financial base. The tariff bill, meant to reduce federal income and protect farmers, tended to drive up the price of manufactured goods in the long run. Cherney, *American Politics in the Gilded Age*, 87–90, 110–111, 114–116, 119–121.
59. McKinley's struggle for the White House had received help from Cleveland and a splinter group, the Gold Democrats. They had sought not to win the election, but to ensure Bryan's defeat by siphoning off votes for themselves or encouraging conservative Democrats to vote for McKinley. McKinley was not so very different from Cleveland politically. He supported the gold standard and was willing to revise the tariff act that carried his name in a manner more to Cleveland's liking. Cherny, *American Politics in the Gilded Age*, 122, 126–128; M. Sternberg, *GMS*, 140–143; Leech, *In the Days of McKinley*, 17, 438; Hagedorn, *Leonard Wood*, v1, 133–135.
60. *ARSG 1896*, 13, 15–16 and *ARSG 1897*, 21–22; Chronology of events concerning the Army Medical Museum and Surgeon General's Library, Otis Archives, NMHM; SO#241, AGO, October 15, 1895, AMS Records, WRAIR.
61. *ARSG 1897*, 6–8, 22 and *ARSG 1896*, 14.
62. M. Sternberg, *GMS*, 251; *Reminiscences*, v2, Part 10, Box 18, MS C115 George M. Kober Papers, NLM; Rosen, "From Frontier Surgeon to Industrial Hygienist," 640, 641; Kober, *History and Development of the Housing Movement*, 11, 23–24. Kober began teaching hygiene and state medicine at Georgetown in 1892. Easby-Smith, *Georgetown University*, v1, 349–350.
63. Green, *Washington*, v2, 43–45; Lamb, *History of the Medical Society of the District of Columbia*, 153–156; *Report of the Committee on Public Health of the Medical Society of the District of Columbia*, 3, 4, 17, 18; "Purification of Water," Box 17, Kober Papers, NLM.
64. Kober, *History of Housing*, 4, 6–11, 13–20, 22–23; Hannold, "Comfort and Respectability," 24, 26; Jones, *Housing of Negroes*, 29–32; Borchert, *Alley Life in Washington*, 33–34.
65. Gould's company built sanitary tenements on Manhattan's East and West Sides. These structures had wide central courts, fire-proofed staircases and partitions, gas appliances, and were only two rooms deep to ensure adequate light and ventilation. Rented at \$8 to \$16 per month, they were affordable only to skilled laborers. Kober, *History of Housing*, 20–21, 23–24 and *Reminiscences*, v2, Part 18, 304–305; Lubove, *The Progressive and the Slum*, 88–89, 100–102, 109; Hannold, "Comfort and Respectability," 29.

66. Kober, *History of Housing*, 27, 29, *Reminiscences*, v2, Part 18, 304–305, and *Report on the Housing of the Laboring Classes*, 116; GMS, “Report of the Committee on Building of Model Homes,” 18, 19.
67. GMS, “Housing Conditions in the Nation’s Capital,” 2; *Ann. Rpts, Citizens Relief Association and Associated Charities*, 12.
68. GMS, “Report of the Committee on Building of Model Homes,” GMS, “Housing Conditions in the Nation’s Capital,” 2.
69. M. Sternberg, *GMS*, 144.
70. M. Sternberg, *GMS*, 144; GMS, “The Bacillus Icteroides of Sanarelli,” 305; Warner, “Hunting the Yellow Fever Germ,” 373.
71. M. Sternberg, *GMS*, 144; GMS, “The Bacillus Icteroides of Sanarelli,” 303–322.
72. Mrs. Sternberg’s account of the nearly 2-month-long trip, with the exception of site-seeing in St. Petersburg, is disappointingly vague. GMS had been so convinced that *Bacillus X* was the agent he sought he had tissue preparations from autopsied yellow fever victims sent to him from Havana by Dr. Burgess during the last two years of his research in an attempt to increase the number of reportable positive cases. He sent these fresh specimens to others, such as Dr. William Councilman at Johns Hopkins and Dr. James Reeves of Chattanooga, to review and hopefully confirm his earlier findings; this was a hope that did not materialize. Sternberg, *GMS*, 144–147; GMS, “Bacillus Icteroides of Sanarelli,” 307–308.
73. GMS, “Bacillus Icteroides of Sanarelli,” 308.
74. *Ibid.*, 312–317, 319–320.
75. M. Sternberg, *GMS*, 148; GMS, “Bacillus Icteroides and Bacillus X,” 233.
76. M. Sternberg, *GMS*, 149.

Chapter Twelve

War with Spain

1. Traxel, 1898, 82–84; Cashman, *America in the Gilded Age*, 3rd ed., 340–341; Trask, *War With Spain*, 8, 12, 21, 24, 28, 29, 41; Gould, *The Spanish-American War and President McKinley*, 29, 31, 32; Cosmas, *Army for Empire*, 2nd ed., 66.
2. Traxel, 1898, 82–84, 92–93; Trask, *War With Spain*, 41; Cosmas, *Army for Empire*, 2nd ed., 67; Gould, *The Spanish-American War and President McKinley*, 29, 31, 32.
3. Cosmas, *Army for Empire*, 70–71, 73–75, 77; *DCR*, v1, 169.
4. *ARSG 1890–1898*, budget reviews.
5. *ARSG 1894–1897*; Cosmas, *Army for Empire*, 81; Alger, *The Spanish-American War*, 9, 11–12; *DCR*, v1, 101, 169.

6. DCR, v1, 172, 717, 682–684, v6, 2812–2813, 2828, 2831, v7, 3325–3327; GMS, “Official Summary of the Annual Report of the Surgeon General of the Army,” 103; ARSW 1899, 490–496; M. Sternberg, GMS, 161–162; GMS to Alger, Mar 11 and 15, 1898; GMS to Hawley and GMS to Hull, Mar 30, 1898 Box 152, RG112, E26, NARA.
7. Alden to Superintendents, April 20, 1898, RG112, E26, Box 66, NARA; ARSG 1898, 107–108; Cosmas, *Army for Empire*, 81; Alger, *Spanish-American War*, 9, 11–12; DCR, v1, 169, v6, 2831–2833, v7, 3325–3327; GMS, “Official Summary of the Annual Report of the Surgeon General of the Army,” 103; ARSW 1899, 490–496; M. Sternberg, GMS, 161–162.
8. To fill the enlisted ranks of these units, individual states were named as recruiting areas for each regiment. Supplementary officers needed were drawn from the commissioned and non-commissioned ranks of the Regular Army and from civilian nominations by the President. Cosmas, *Army for Empire*, 82–84, 87–90, 98; Gould, *Spanish-American War*, 51.
9. Gould, *Spanish-American War*, 73–74; Cosmas, *Army for Empire*, 98, 108, 111, 114–116; Shafter, “Capture of Santiago de Cuba,” 612; Estimate of the Surgeon General, May 3, 1898, RG112, E26, Box 129, NARA.
10. Cosmas, *Army for Empire*, 114–115; NYT, “Plans for Invading Cuba,” May 6, 1898, 1, 9.
11. NYT, “Plans for Invading Cuba,” May 6, 1898, 9 and “Looking for Ships to Take Them,” May 10, 1898, 2.
12. Scott, *History of Tropical Medicine*, v1, 166–169.
13. ARSG 1898, 140.
14. Miles, “The War with Spain, I,” 522–523; DeMontravel, *A Hero to His Fighting Men*, 237.
15. Of the 97 physicians examined, 13 were accepted. ARSG 1898, 100–101; DCR, v6, 2813, 2814, 2816; ARSW, 370; Cosmas, *Army for Empire*, 81; GMS to Greenleaf, May 2, 1898, Box 339; GMS to Pope, Apr 20, 1898, Box 164, RG112, E26.
16. ARSG 1898, 101; DCR, v1, 170, v6, 2814, 2824.
17. DCR, v1, 171–172, v6, 2825–2827; ARSG 1898, 101; Sarnecky, *History of the U. S. Army Nurse Corps*, 30. Male nursing programs existed at Bellevue and Charity Hospitals, New York, Philadelphia and Western Pennsylvania Hospitals, Cook County Hospital, and at the University of Maryland. SGO to Superintendents, Male Nurse Training Schools, Apr 20, 1898, Box 66, RG112, E26, NARA; Kalisch, “Heroines of ’98,” 413.
18. DCR, v 1, 171.
19. Bache, “The Place of the Female Nurse in the Army,” 320.
20. Bache, “The Place of the Female Nurse in the Army,” 322; McGee, *Women Nurses*, 1.
21. DCR, v1, 725–726, v6, 2826.

22. Gillett, *AMEDD 1865–1917*, 123; Sarnecky, *Army Nurse Corps*, 30–32; McGee, *Women Nurses*, 1; M. Sternberg, *GMS*, 168; SGO Correspondence, Contract Nurses, Box 145, RG112, E26, NARA.
23. *ARSG 1898*, 140–142.
24. *DCR*, v1, 180, 643–644, v6, 2818–2619; *GMS* to Sec War, Jul 12, 1898, Box 164, RG112, E26.
25. *GMS* allowed 1 surgeon, 1 hospital steward, 10 privates, 10 beds, and supplies for 90 days per regiment, which were adequate and allowed mobility on campaign. *DCR*, v1, 173–174, 181.
26. Hospital facilities were established in convent buildings at Key West, empty barracks at Forts Thomas and Myer, and the Leiter Hotel at Chickamauga, while tents expanded existing hospitals at Forts McPherson and Monroe. Four nurses were on duty at the general hospital at Key West by mid-May, but only 50 contracts had been let by July 1, not more than 100 by mid month, and he continued to search for male nurses. *DCR*, v1, 172, 655–58, 731, v6, 2825; *GMS* to Ludington, May 30, 1898, Ludington to *GMS*, Jun 5, 1898, Box 189, and *GMS* to Matas, Jul 11, 1898, Box 171, E26, RG112, NARA.
27. Cosmas, *Army for Empire*, 119, 120.
28. For each regiment, this included two ambulances, four extra litters, a field hospital with a holding capacity for 10 patients, medical and surgical chests, and supplies for 90 days. *DCR*, v1, 681. Purveying officers Colonels Joseph P. Wright, J. V. D. Middleton, and Lieutenant Colonel J. M. Brown served at St. Louis, San Francisco, and New York, respectively. *ARSG 1898*, 105–106.
29. *ARSG 1898*, 103–106; *DCR*, v1, 681–682, 686, v6, 2836.
30. *ARSG 1898*, 104–106; *GMS* to Pope, May 17, 1898, Box 164, E26, RG112, NARA; Trask, *War with Spain*, 183; Cosmas, *Army for Empire*, 250.
31. Cosmas, *Army for Empire*, 173–174, 177, 193; Trask, *War with Spain*, 116, 132–134, 172–175.
32. *DCR*, v1, 717–719, v6, 2831–2833, v7, 3328–3329.
33. Trask, *War with Spain*, 178; *DCR*, v1, 190, 709.
34. *ARSG 1898*, 107–109; Trask, *War with Spain*, 194, 213, 217; *DCR*, v1, 151, 196, 720; Wood to *GMS*, Jun 30, 1898, Box 164, E26, RG112, NARA.
35. Greenleaf to *GMS*, Jun 11, Box 164, E26, RG112, NARA.
36. *GMS* to Greenleaf, Jun 12, 1898, Box 164, E26, RG112, NARA.
37. *GMS* to Byrne, Jun 9, 1898, Box 195, E26, RG112, NARA.
38. *DCR*, v1, 573, 718.
39. The nurses were Amy Farquharson, Amanda J. Armistead, Lucy Ashley Sharp, Elsie Lempe, Louise Jones Block, and Esther Voorhees Hasson. *NYT*, “The Hospital Ship Relief,” Jun 16 and “Departure of the Relief,” Jul 3, 1898.

40. Barton, *The Red Cross*, 557, 560, 561; DCR, v1, 195, 709–710, 720, v5, 2369; Wood to GMS, Jun 30, 1898, Box 164, and Barton to GMS, Jun 21, 1898, Box 195, E26, RG112, NARA.
41. ARSG 1898, 144–145; DCR, v1, 709, 710, v5, 1833–1834, 1836, 1966–1967; Trask, *War with Spain*, 295; NYEP, “The Yellow Fever Menace,” Jul 14, 1898; Shafter, “Capture of Santiago de Cuba,” 627–628.
42. GMS to Adj Gen and Adj Gen to Shafter, Jul 13, 1898, Box 212, E26, RG112, NARA.
43. Shafter to Adj Gen, Jul 14 1898, 139 and Greenleaf to GMS, Jul 14, 1898, 140, *Correspondence*, v1.
44. Greenleaf to GMS, Jul 14, 1898; *Correspondence*, v1, 140; ARSG 1898, 6.
45. DCR, v1, 719, 726; NYT, “Red Cross Relief Work,” Jul 17, 1898.
46. Concerned health officials in some of the Gulf Coast states had already registered their apprehensions about diseased soldiers returning to their states from Cuba and unfounded rumors were circulating that Tampa was now infected. Sanders to GMS, Jun 17, 1898, Corbin to Coppinger, and Coppinger to Corbin, Jul 17, 1898, and Porter to GMS, Jul 21, 1898, Box 194, E26, RG112, NARA.
47. NYT, “The Olivette’s Wounded,” Jul 18, 1898.
48. These vessels had not become filthy, pestholes overnight. The V Corps Surgeon and other medical officers had commented on the poor living conditions aboard the steamers before they left Tampa in June, but the urgency of the invasion necessitated their use. DCR, v1, 143–146, 616, v7, Torney Testimony, 3339–3340; ARSG 1899, 190; NYT, “Gen Sternberg’s Visit,” Jul 27, 1898; NYEP, “Arrival of the Seneca,” Jul 20 and “Dr. G. M. Sternberg Here,” Jul 26, 1898; Trask, *War with Spain*, 330; GMS, “The Medical Department of the Army,” 214; Byrne to GMS Aug 1, 1898, Box 219 and NYT, “The Concho,” Aug 2, 1898, Box 222, RG112, E26, NARA.
49. NYT, “Red Cross Relief Work,” Jul 17, 1898.
50. NYT, “Yellow Fever Checked,” Jul 20 and “Battling With the Fever,” Jul 31, 1898.
51. DCR, v1, 176; Trask, *War with Spain*, 328.
52. Trask, *War with Spain*, 328–329; Corbin to Shafter, Jul 19, 1898 and Shafter to Adj Gen July 25, 1898, Box 212, E26, RG112, NARA.
53. Trask, *War with Spain*, 330; Shafter to Adj Gen, July 29, 1898, *Correspondence*, v1, 186; Cosmas, *Army for Empire*, 258; ARSG 1899, 217.
54. Miley, *In Cuba with Shafter*, 216–217; Havard to GMS, Jul 31, 1898, Box 164, RG112, E26, NARA. GMS calculated later the admission rate on Cuba was 1,175 per thousand troops, or nearly 20,000 cases. Disease incidence of this magnitude, when the treatment was known and there was plenty of quinine available throughout the campaign, is attributed to GMS’s reticence to use quinine prophylaxis and the fact that many physicians still confused typhoid fever with malaria. “Surgeon General’s Report” in ARWD, 1899, 640.
55. Havard to GMS, Jul 31, 1898, Box 164, RG112, E26, NARA.

56. GMS and others had previously inspected the 15,000-acre site owned by the Long Island Railroad Company and recommended it to the Sec War. *DCR*, v1, 215–217; Cosmas, *Army for Empire*, 258–260; Trask, *War with Spain*, 330.
57. Shafter to Corbin, Aug 2, 1898, Box 164, E26, RG112, NARA; Miley, *In Cuba With Shafter*, 217–218.
58. Shafter to Corbin, Aug 3, 1898, Box 164, RG112, E26, NARA; *DCR*, v1, 217–218. Quite interestingly, “mild” type yellow fever was considered to be sporadic, not epidemic; however, they feared it had a very real potential to assume a virulent character at any time and become epidemic because of the weakened condition of the troops. Havard to GMS, Jul 31, 1898, Box 164, E26, RG112, NARA.
59. Shafter to Corbin, Aug 3, 1898, Box 164, RG112, E26, NARA; Miley, *In Cuba With Shafter*, 220–221.
60. *NYT*, “Generals Write a Round Robin,” Aug 5, 1898; Cosmas, *Army for Empire*, 261; Trask, *War with Spain*, 331–332; *BDE*, “Shafter Lays the Blame on Sternberg,” Aug 8, 1898; GMS to Corbin, Aug 3, 1898, Box 219; and Corbin to GMS, Aug 4, 1898, Box 164, E26, RG112, NARA.
61. GMS to Forwood, Aug 6, 1898, *DCR*, v2, 740–741, v5, Forwood Testimony, 1888; Cosmas, *Army for Empire*, 262.
62. Editorials, “The Army and Quarantine,” and “The Wounded After Siboney,” *Med Rec* 54 (Jul 30, 1898), 161–162; GMS to Senn, Jul 30, 1898, Box 222, E26, RG112, NARA.
63. GMS to Gould, Aug 3, 1898, Box 222, RG112, E26.
64. GMS, “The Medical Department of the Army,” 213–214, “The Medical Department of the Army – Letter from Gen. Sternberg,” 182–183, and “General Sternberg’s Answer to His Critics,” 335–337.
65. *NYS*, “The Concho,” Aug 2, 1898; Byrne to GMS, Aug 1, 1898, Box 219, E26, RG112, NARA.
66. *NYT*, “Medical Orders Violated,” Aug 5, 1898.
67. *Ibid.*
68. *Ibid.*
69. *NYEP*, “Surgeon-General Sternberg’s Responsibility,” Aug 5, 1898.
70. Forwood to GMS, Aug 6, and GMS to Forwood, Aug 8, 1898, Box 224 and GMS to Alger, Aug 8, 1898, Box 129, E26, RG112, NARA; *DCR*, v1, 218, v5, Forwood Testimony 1888, 1893; Cosmas, *Army for Empire*, 263, 264; Burtenshaw, “Caring for the Sick and Wounded,” 236; Prescott, “Camp Wikoff,” 83; *NYT*, “Montauk Camp Not Ready,” Aug 28, 1898. Allen, “Conditions at Camp Wikoff,” 326–327; Pritchard, “A True Pen-Picture of Camp Wikoff,” 333.
71. Forwood to GMS, Aug 10, 1898, Box 224, E26, RG112, NARA; Forwood to GMS, Aug 11, 1898, Correspondence Relating to Camp Wikoff, *DCR*, v2, 742, 745–746, 750, and Brown Testimony, *DCR*, v6, 2, 732.

72. Burtenshaw, "Caring for the Sick and Wounded," 235–236; Cosmas, *Army for Empire*, 263.
73. Forwood to GMS, Aug 10, 1898, Box 224, RG112, E26; GMS to Forwood and Byrne, Aug 14, Young to GMS and Doty to GMS, Aug 16, and GMS to Doty, Aug 18, 1898, Box 212, RG112, E26; DCR, v2, 743; NYT, "Contagion Feared at Camp Wikoff, Aug 17, and "No Quarantine at Camp Wikoff," Aug 18, 1898. One medical authority, Dr. Frederick Castle, claimed that the water was insufficient for any length of time and that a tetanus epidemic was imminent, as Montauk was the only place in North America, with the exception of Nova Scotia, where the tetanus bacillus thrived in the soil. NYT, "Bad Water at Montauk," Aug 11, 1898.
74. DCR, v1, 144 and v2, 746–748, 749, 750, v5, 1895.
75. The arrival of more ambulances alleviated difficulties with supply distribution, and although some physicians would complain later they could not get medicines, this was due more to obstinacy in not following request procedures than a genuine lack of items. DCR, v2, 754–755, 758, 759; Trask, *War with Spain*, 334.
76. DCR, v2, 749; Pritchard, "A True Pen-Picture of Camp Wikoff," 332; NYT, "Conditions at Montauk," Aug 31, 1898.
77. Forwood to GMS, Sep 10, 1898, Correspondence Relating to Camp Wikoff, DCR, v2, 758.
78. DCR, v1, 219.
79. NYT, "Camp Alger a Pest Hole," Aug 6, "The Disappointed Eighth," Aug 7, and "Awful Suffering at Camp Thomas," Aug 10, 1898; Trask, *War with Spain*, 357–365; Ashford, "Observations on the Campaign in Western Porto Rico," 162, 163, 167.
80. ARSG 1899, 109–115; Cirillo, *Bullets and Bacilli*, 62, 63, 69, 70; NYT, "Battling with the Fever," Jul 31, 1898, "Camp Alger a Pest Hole," Aug 6, 1898, and "Chickamauga a Pest Hole," Aug 14, 1898.
81. NYT, "Sickness Not Alarming," Jul 29, "Battling with the Fever," Jul 31, "Camp Alger a Pest Hole," Aug 6, and "The Disappointed Eighth," Aug 7, 1898; GMS to Corbin, Jul 29, 1898, Box 236, RG112, NARA; Reed, Vaughn, and Shakespeare, *Origin and Spread of Typhoid Fever*, 3; ARSG 1899, 173–183.
82. DCR, v2, 773–776, v6, 2816, 2821, 2823.
83. Reed, Vaughn, and Shakespeare, *Origin and Spread of Typhoid Fever*, 3. See also ARSG 1899, 620–625.
84. Reed, Vaughn, and Shakespeare, *Origin and Spread of Typhoid Fever*, 6–9, 167–174, 178–179, 182–184, 188, 190.
85. M. Sternberg, GMS, 184; BDE, "Shocking Scandal at Camp Thomas," and "A Time for Plainness of Speech, Aug 25, 1898; NYEP, "Surgeon General Sternberg's Responsibility," Aug 5, 1898; NYT, "Sternberg Answers Shafter," and "Sternberg May be Removed," Aug 10, "Yellow Fever at Montauk," and "Gen Sternberg Defense," Aug 30, and "Red Cross Works in Camps," Aug 31, 1898.
86. M. Sternberg, GMS, 185.

87. Secretary of War Alger and Adj. Gen. Corbin urged the President to order a formal investigation into the conduct of the war. Politicians and newspaper editors were quick to note that an investigation of the War Department was an investigation of the President, impartiality was impossible, and the entire effort would be a farce. Undaunted, McKinley made it clear he wanted to define the errors made, identify the guilty, and ensure they were prosecuted. This made finding a chair for the committee difficult, as many candidates saw a witch-hunt in the making to pacify voters and ensure Republican stability on Capitol Hill, while providing no legal protection for those accused. GMS, "The Medical Department of the Army," 213–214 and "The Medical Department of the Army – Letter from Gen. Sternberg," 182–183; Shrady, "Who is to Blame," 269; Editorial, "The Responsibility for Army Medical Defects," 453; NYT, "What Sternberg Says," Aug 28, 1898, "Seeks No Inquiry Now," Sep 2, "Alger Asks an Inquiry," Sep 9, and "Alger's Request Granted," Sep 10, 1898; Cosmas, *Army for Empire*, 284–286.
88. NYT, "What Sternberg Says," Aug 28 and "Seeks No Inquiry Now," Sep 2, 1898; DCR, v8, 37.
89. DCR, v1, 188.
90. Ibid., 189.
91. Ibid., 188–189.
92. Leech, *Days of McKinley*, 300.
93. Leech, *Days of McKinley*, 301–303; Cosmas, *Army for Empire*, 254; Trask, *War with Spain*, 160–161.
94. Curtin, *Disease and Empire*, 26–27; Osler, *Principles and Practice of Medicine*, 155; Manson, *Tropical Diseases*, 125; GMS, *Malaria and Malarial Diseases*, 121–122.
95. ARSG 1899, 365.
96. Sarnecky, *Army Nurse Corps*, 30.
97. Leech, *Days of McKinley*, 300; Trask, *War with Spain*, 160.

Chapter Thirteen

Empire and Insurrection

1. Linn, *Philippine War*, 3, 5, 6; Trask, *War with Spain*, 384; Cosmas, *Army for Empire*, 199–200; Lippincott, "Reminiscences of the Expedition," 168.
2. The engagement claimed 6 American lives and wounded 92, of whom 47 required hospitalization. Linn, *Philippine War*, 3, 5, 23–24, 27, 30–31; Trask, *War with Spain*, 413–414, 418–442; Woodhull to Adj Gen, Jan 30, 1900, Box 33, S26, RG112, S26, NARA; ARSG 1899, 451, 475.
3. Birtle, *U.S. Army Counterinsurgency and Contingency Operations*, 99–100; Foner, *Spanish-Cuban-American War*, 422.

4. Linn, *Philippine War*, 29–30, 31. Officers making up the Manila Board of Health were Major Frank S. Bourns, and Acting Assistant Surgeons Charles McQuesten and B. Ffoulkes. ARSG 1899, 452–453, 471, 488.
5. ARSG 1899, 357, 362–363, 376–377, 505, 545, 556.
6. ARSG 1900, 609; Greenleaf, “A Brief Statement of the Sanitary Work,” 157; Gillett, “U.S. Army Medical Officers,” 570.
7. ARSG 1899, 498–503, 502.
8. ARSG 1899, 365, 503, 504.
9. The Medical Department purchased and distributed 26,000 mosquito bars in 1899. This netting was meant to keep annoying mosquitoes at bay purely for comfort. ARSG 1899, 503; ARSG 1900, 745; Ward, “The Influence of Ronald Ross,” 208; Ross, *Memoirs*, 330–331, 528; Editorial, “Malaria and Mosquitoes,” *JAMA* 35 (Oct 20, 1900):1039.
10. Ross, *Memoirs*, 127.
11. GMS to Maus, Dec 30, 1898, Box 236, E26, RG112, NARA; ARSG 1899, 505–506, 626–627; Truby, *Memoir of Walter Reed*, 27–28.
12. ARSG 1899, 453.
13. Ibid.
14. Ibid.
15. Linn, *Philippine War*, 44, 46–52.
16. ARSG 1899, 461.
17. Ibid.
18. ARSG 1899, 462.
19. Linn, *Philippine War*, 56–57, 88–91.
20. ARSG 1899, 372; GMS to Sec War, 30 Nov 1898, E26, Box 152, RG112, NARA; ARSG 1900, 606.
21. GMS to Sec War, Feb 1, 1899, RG112, E26, Box 152, NARA; ARSG 1899, 372.
22. Gillette, *AMEDD 1865–1917*, 216.
23. Woodhull to GMS, May 23 and 24, Jun 4, 1899, Box 338, S26, RG112, NARA.
24. Ibid.
25. Woodhull to GMS, May 23 and 24, Jun 4, 1899, and Woodhull to Adj Gen, Jul 3, 1899, Box 338, S26, RG112, NARA; ARSG 1899, 465.
26. ARSG 1899, 505–506; GMS to Reed, April 19, 1899, Box 236, S26, RG112, NARA; Truby, *A Memoir*, 27–28.
27. ARSG 1899, 626, 631–632.
28. GMS, “Sanitary Lessons of the War,” 1287–1294.

29. Williams, *United States Public Health Service*, 222–223; GMS, “Bacillus Icteroides and Bacillus x,” 233, 234.
30. Agramonte, “Inside History,” 213.
31. ARSG 1899, 523; Truby, *A Memoir*, 37–39, 42, 43, 54; Geddings, “Causal Relationship of the Bacillus Icteroides,” 704; Agramonte to GMS, Oct 2, 1899, Box 1, Folder 13, NLM.
32. Geddings, “Causal Relation of the Bacillus Icteroides,” 704–705; Reed and Carroll, “Bacillus Icteroides and Bacillus Cholerae Suis,” 514; GMS to Agramonte, Jun 5, 1899, Reed-Hench Collection, UVA; GMS, “Yellow Fever Etiology,” 1039–1040.
33. Sanarelli, “Some Observations and Controversial Remarks,” 193–199 and Editorial, “Sanarelli and the Pathogenic Role of the Bacillus Icteroides,” 193–199; GMS, “Bacillus Icteroides as the Cause of Yellow Fever,” 225–228; Archinard, “Experiments Performed,” 85.
34. Woodhull to Adj Gen, Aug 3, 1899, Otis to Adj Gen, Aug 5, 1899, and Woodhull to GMS, Aug 15, 1899, Box 338, S26, RG112, NARA; Linn, *Philippine War*, 122–123, 139.
35. ARSG 1900, 535; GMS to Adj Gen, May 29, 1899, Box 133, S26, RG112, NARA.
36. Acting Surgeon Gen to Corbin, Jul 1, 1899, and GMS to Woodhull, Jul 19, 1899, Box 338, and GMS to Forwood, Jul 27, 1899, Box 10, S26, RG112, NARA.
37. GMS had the money and sent Major and Surgeon Daniel M. Appel to New Mexico to survey what was required. Appel reported the hospital, two sets of barracks, and 16 sets of officer’s quarters would establish a comfortable sanitarium. By the end of the year, tubercular officers and enlisted men were enjoying the salubrious dry climate of New Mexico. ARSG 1900, 538–539; Ludington to Sec War, Aug 19, Appel to GMS, Oct 10, and GMS to Appel, Oct 26, 1899, Box 359, E26, RG112, NARA.
38. Jessup, *Elihu Root*, v1, 220, 224, 241–242; Weigley, *History of the U.S. Army*, 314–319.
39. Sternberg, GMS, 219–220; GMS to Woodhull, Aug 28, Sep 23, and Oct 10, 1899, Box 338, S26, RG112, NARA.
40. GMS to Forwood, Sep 30 and Oct 10, 1899, Box 338, S26, RG112, NARA.
41. Linn, *Philippine War*, 142–143, 147–148, 149, 151, 154–155, 158–159; Woodhull to GMS, Nov 13, Box 339, S26, RG112, NARA.
42. Woodhull to GMS, Nov 16, 1899, and GMS to Forwood, Nov 16, 1899, Box 339, S26, RG112, NARA; Woodhull to GMS, Nov 20, 1899, McKinley Papers, Series 1, Reel 9, LOC; ARSG 1900, 604–605.
43. Linn, *Philippine War*, 160, 180; Greenleaf to GMS, Feb 16, 1900, Box 339, S26, RG112, NARA; Wolff, *Little Brown Brother*, 289.
44. Brands, *Bound to Empire*, 63; Linn, *Philippine War*, 216.
45. ARSG 1900, 531–532; Hume, *Victories of Army Medicine*, 175; Meacham to GMS, Aug 22, 1899, Box 1, Folder 27, MS C100, George Miller Sternberg Papers, 1861–1917, NLM; Ashford, *Soldier in Science*, 4–5; Curry, “U. S. Army Pathological Laboratories,” 175–176.

46. ARSG 1900, 531.
47. ARSG 1900, 532; Curry, "U. S. Army Pathological Laboratories," 175–176.
48. Linn, *Philippine War*, 187; Wolff, *Little Brown Brother*, 288–289.
49. Greenleaf to GMS, Feb 10, 1900, Box 339, S26, RG112, NARA.
50. Greenleaf to GMS, Feb 10, 1900, Box 339, S26, RG112 and PPPMO, Box 654 (Woodhull), RG94, NARA; ARSW 1900, 605.
51. Greenleaf to GMS, Feb 10, 1900, Box 339, S26, RG112, NARA.
52. Ibid.
53. ARSG 1900, 606; GMS to Root, Nov 29, 1899, GMS to McKinley, Dec 6, 1899, and GMS to Senator Hawley and Representative Hull, Apr 13, 1900, Box 152, E26, RG112, NARA.
54. GMS to Greenleaf, Mar 12, Letter, GMS to Greenleaf, and Telegram, GMS to Greenleaf, both Mar 29, 1900, Box 339, E26, RG112, NARA.
55. Sarnecky, *Army Nurse Corps*, 46.
56. More than just giving the Nurse Corps a black eye, these undesirables brought the difficulties of obtaining and maintaining competent female nurses in a combat zone to the fore once again. Sarnecky, *Army Nurse Corps*, 47; Circular No. 1, Mar 9, 1900, Box 171, and GMS to Greenleaf, Mar 13, 1900, Box 338, E26, RG112, NARA.
57. GMS to Greenleaf, Mar 13, 1900, Box 338, E26, RG112, NARA.
58. Sarnecky, *Army Nurse Corps*, 46; Greenleaf to GMS, Apr 30, 1900, Box 338, E26, RG112, NARA.
59. GMS to Greenleaf, Jun 30, 1900, Box 338, E26, RG112, NARA.
60. ARSG 1899, 377–382, and ARSG 1900, 534; GMS to Greenleaf, Jun 30, 1900, Box 338; Sarnecky, *Army Nurse Corps*, 49–50; GMS, "Surgeon General Sternberg's Report," 123–125; Kalisch, "Heroines of '98," 425–426.
61. GMS to Greenleaf, Jun 22, 1900, Box 339, Girard to GMS, Dec 28, 1899, Wells to GMS, Dec 31, 1899, and Hoff to GMS, Jan 2, 1900, Box 373, E26, RG112, NARA.
62. Linn, *Philippine War*, 206, 202, 208–209; Gates, *Schoolbooks and Krag's*, 171; Wolff, *Little Brown Brother*, 309–310, 318.
63. Linn, *Philippine War*, 209–210; Wolff, *Little Brown Brother*, 310–312; Gates, *Schoolbooks and Krag's*, 177.
64. Gates, *Schoolbooks and Krag's*, 135; Greenleaf, "Brief Statement of the Sanitary Work," 158; GMS to Greenleaf, Jun 23, 1900, Box 339, E26, RG112, NARA.
65. Greenleaf to Taft, June 27, 1900, Box 339, E26, RG112, NARA.
66. Ibid.
67. Ibid.
68. Ibid.
69. Taft Endorsement, Jun 30, 1900, Box 339, E26, RG112, NARA.

70. Corbin Endorsement, Aug 3, 1900, Box 339, RG112, E26, NARA.

71. Ibid.

72. Ibid.

Chapter Fourteen

Yellow Fever Loses Its Mystique

1. Hagedorn, *Leonard Wood*, 240, 242–243, 280–281.
2. Bean, *Walter Reed*, 108; Truby, *A Memoir*, 181.
3. GMS, “Transmission of Yellow Fever by Mosquitoes,” 229, 230.
4. GMS, “Etiology and Classification of Infectious Diseases,” 660; GMS to Reed, May 29, 1900, Box 460, E26, RG112, NARA.
5. GMS to Reed, May 29, 1900, Box 460, E26, RG112, NARA.
6. GMS to Reed, May 29, 1900, Box 460, E26, RG112, NARA; Agramonte, “Inside Story,” 216; Truby, *A Memoir*, 61, 82–84; Bean, *Walter Reed*, 110; GMS to T. Roosevelt, Jan 25, 1905, Box 2, Folder 1, MS C100 George Miller Sternberg Papers, 1861–1917, NLM; Welch to GMS, Jan 12, 1900, Box 425, E26, RG112, NARA.
7. Truby, *A Memoir*, 87–89; Carroll to Surgeon General, 18 Aug 1906, Box 236, E26, RG112, NARA; Furman, *Profile of the USPHS*, 234, 236, 237.
8. Carter to Lazear, Jun 26, 1900, Box 1, Folder 3, MS C160 Henry Rose Carter Papers, 1899–1968, NLM.
9. Carter, “A Note on the Interval between Infecting and Secondary Cases,” 636; Truby to Hench, Nov 30, 1941, Box 39, Philip Showalter Hench Series, Reed-Hench Collection, UVA; Finlay, “Transmission of Yellow Fever,” 73; John J. Moran, “Memoir of a Human Guinea Pig,” 6, Walter Reed Series, Box 25, #02571001, Reed-Hench Collection, UVA; Reed, “Propagation of Yellow Fever,” 203.
10. Reed to GMS, Jul 24, 1900, Walter Reed Series, Box 20, #02064001, Reed-Hench Collection, UVA.
11. Ibid.
12. Bean, “Walter Reed and the Ordeal of Human Experiments,” 84–85; Carroll, Statement to the Surgeon General, Aug 18, 1906, Box 236, E26, RG112, NARA; Truby, *A Memoir*, 104.
13. Hagedorn, *Leonard Wood*, v1, 324.
14. Ibid.
15. Preston, *The Boxer Rebellion*, 22–23, 32, 39, 92–96; Daggett, *America and the China Relief Expedition*, 13–14, 24–25; ARSW 1900, Part 7, 5–6.

16. GMS to Stephenson, Jul 3, 1900, Box 101, E25, RG112, NARA and GMS to Adj Gen, Jun 27, 1900, Box 133, S26, RG112, NARA; GMS to Greenleaf, Jul 3 and Greenleaf to GMS, Jul 4, Jul 7, and Jul 14, 1900, Box 339, E26, RG112, NARA.
17. MacArthur to Corbin, Jul 26, 1900, Box 339, E26, RG112, NARA.
18. GMS to Corbin, Subject Hospital Corps, Jul 26, 1900, Box 339, E26, RG112, NARA.
19. Ibid.
20. Ibid.
21. GMS to Corbin, Subject Hospital Corps, Jul 26, 1900, Box 339, E26, RG112, NARA; *ARSG 1900*, 575.
22. Corbin to GMS, Jul 27, 1900, Box 339, E26, RG112, NARA.
23. GMS to Root, Aug 7, 1900, Box 339, E26, RG112, NARA.
24. Ibid.
25. *ARWD 1900*, Part 7, 9–11, 13, 33–40, 42.
26. This action resulted in a quick rebuke from MacArthur, who thought his total medical supplies were being reduced by half because of a miscommunication from the supply officer in the SGO, but Sternberg held firm on his decision. GMS to Root and MacArthur to Corbin, Aug 9, 1900, Box 339, E26, RG112, NARA.
27. GMS to Greenleaf, Aug 9, and GMS to Greenleaf Aug 11, 1900, Box 339, E26, RG112, NARA. 1st Reserve Hospital: 187 sick; 5 surgeons (3 commissioned); 2d Reserve Hospital: 255 sick; 5 surgeons (2 commissioned); 3d Reserve Hospital: 212 sick; 5 surgeons (2 commissioned); Santa Mesa Hospital: 448 sick; 10 surgeons (5 commissioned); Corregidor Hospital: 175 sick; 3 surgeons (1 commissioned); Board of Health: 6 surgeons (4 commissioned); Supply Depot: 2. GMS to Greenleaf, Aug 11, 1900, Box 339, E26, RG112, NARA.
28. GMS to Root, Aug 15, 1900, Box 339, E26, RG112, NARA.
29. Greenleaf put military and Manila hospitals in quotation for clarification in his letter to Sternberg. Greenleaf to GMS, Aug 15, 1900, Box 339, E26, RG112, NARA.
30. Greenleaf to GMS, Sep 23, 1900, Box 339, E26, RG112, NARA.
31. GMS to Greenleaf, Sep 10, 1900, Box 339, E26, and Kean to GMS, Sep 24, 1900, Box 93, E25, RG112, NARA.
32. GMS to Kean, Sep 25, 1900, Box 425, E25, RG112, NARA.
33. Agramonte, "Inside Story," 220, 223, 224; Carroll, Statement to the Surgeon General, Aug 18, 1906, Box 236, E26, and Kean to GMS, Sep 26, 1900, Box 93, E25, RG112, NARA; Truby, *A Memoir*, 120.
34. Reed, Carroll, Agramonte, and Lazear, "The Etiology of Yellow Fever: A Preliminary Note," 792–793; Bean, *Walter Reed*, 136, 141; GMS to Adj Gen, 19 Oct 1900, Box 236, E26, RG112, NARA; GMS to Howard Kelly, Dec 12, 1902, Jefferson Randolph Kean Series, Box 143, #14347001, Reed-Hench Collection, UVA.
35. Greenleaf to GMS, Aug 19 and GMS to Greenleaf, Oct 1, 1900, Box 339, E26, RG112, NARA.

36. GMS to Greenleaf, Oct 18, 1900, Box 339, E26, RG112, NARA.
37. GMS to Corbin, Oct 8, 1900, Box 339, E26, RG112, NARA.
38. Linn, *Philippine War*, 272–273; Saxton, *Soldiers in the Sun*, 248–251; MacArthur to Corbin, Nov 22, 1900, Box 339, E26, RG112, NARA.
39. Bean, *Walter Reed*, 141–142; GMS to Reed, Oct 23, 1900, Box 236, E26, RG112, NARA; NYT, Oct 27, 1900.
40. Bean, *Walter Reed*, 142; Truby, *A Memoir*, 133.
41. Hagedorn, *Leonard Wood*, v1, 326; Bean, *Walter Reed*, 169, 175–176.
42. Reed, “The Etiology of Yellow Fever: A Preliminary Note,” 796.
43. Welch, Novy, and Archinard in the U.S., Roux in Paris, Lutz in Brazil, and the editor of the *Centralblatt für Bacteriologie* in Berlin received copies of Reed’s article. Bean, “Walter Reed and the Ordeal of Human Experiments,” 86; Truby, *A Memoir*, 133–134; GMS to DeArmond, May 16, 1901, Box 511, RG112, NARA; GMS to Reed, Nov 17, 1900, Walter Reed Series, Box 22, #02204001, Reed-Hench Collection, UVA.
44. Truby, *A Memoir*, 104.
45. GMS, “Yellow Fever and Mosquitoes,” 1391.
46. Truby, *A Memoir*, 132, 136; Hagedorn, *Leonard Wood*, v1, 326–328; Reed, “The Etiology of Yellow Fever: An Additional Note,” 132.
47. Reed, “The Etiology of Yellow Fever: An Additional Note,” 132; Sternberg, GMS, 222; Truby, *A Memoir*, 159–160.
48. Reed to Emilie Reed, Dec 11, 1900, Walter Reed Series, Box 22, 02233001, Reed-Hench Collection, UVA.
49. Ibid.
50. Reed, “The Etiology of Yellow Fever: An Additional Note,” 434, 438; Truby, *A Memoir*, 150.
51. Sternberg, GMS, 223, 224.
52. GMS to Reed, Dec 17, 1900, Box 236, E26, RG112, NARA; Reed to Emilie, Dec 18, 1900, Walter Reed Series, Box 22, #02248001, Reed-Hench Collection, UVA.
53. GMS to Reed, Dec 19, 1900, Walter Reed Series, Box 22, #02250001, Reed-Hench Collection, UVA.
54. GMS to Adj Gen, Dec 27, 1900, Box 236, E26, RG112, NARA; and GMS to Reed, Dec 27, 1900, Jefferson Randolph Kean Series, Box 143, #14333001, Reed-Hench Collection, UVA.
55. Reed, “The Etiology of Yellow Fever: An Additional Note,” 431, 436; Sternberg, GMS, 224; Reed to Emilie Reed, Jan 3, 1901, Walter Reed Series, Box 24, #02403001, Reed-Hench Collection, UVA.
56. Reed, “The Etiology of Yellow Fever: An Additional Note,” 431, 436; Bean, *Walter Reed*, 164, 165.

57. Morgan, *William McKinley*, 443; Linn, *Philippine War*, 273–275; Young, *The General's General*, 280–281.
58. Clary and Whitehorne, *Inspectors General*, 391; Gillette, *AMEDD 1865–1917*, 318–319; ARSG 1901, 571, 574, 576.
59. ARSG 1901, 571, 574–575.
60. GMS to Chief Surgeon, Department of California, Aug 24, 1901, Box 513, E26, RG112, NARA; ARSG 1901, 576.
61. ARSG 1901, 575, 577; Greenleaf to GMS, Jan 29, 1901, Box 513, E26, RG112, NARA.
62. Forwood to GMS, Feb 25, 1901, Box 529, E26, RG112, NARA.
63. Torney to GMS, Mar 1 and Bannister to GMS, Feb 21, 1901, Box 529, and Byrne to GMS, Mar 27, 1901, Box 406, E26, RG112, NARA.
64. ARSG 1902, 28.
65. Gorgas, *Sanitation in Panama*, 42.
66. Gorgas, *Sanitation in Panama*, 50–61; Havard to Kean, April 19, 1925, KAMD0790, Reed-Hench Collection, UVA.
67. Smallpox vaccination techniques gave validity to this idea. The natural history of the disease on Cuba and the experimental results of the yellow fever board added weight to the theory. Of the 26 cases of experimentally induced yellow fever, the majority of them had been mild attacks. Gorgas, *Sanitation in Panama*, 42–43, 47, 50, 52, 58; Gorgas to GMS, Feb 25, 1901, Box 218, E26, RG112, NARA.
68. Gorgas, *Sanitation in Panama*, 43–44.
69. GMS to Adj Gen, Mar 8 1901, Box 133, and GMS to Greenleaf, Mar 19, 1901, Box 339, E26, RG112, NARA; Leech, *Days of McKinley*, 575; Sternberg, *GMS*, 228; Clary and Whitehorne, *Inspectors General*, 386.
70. Record Card #78292, Box 108, E25, RG112, E25; Sternberg, *GMS*, 227–228.
71. GMS to Nicholson, Jun 18, 1901, Box 133 and GMS to Adj Gen, Jan 17, 1901, Box 236, E26, RG112, NARA; GMS, *Manual of Bacteriology*, 331.
72. Bean, *Walter Reed*, 164; Carroll to Surgeon General, Aug 18, 1906, Box 236, E26, RG112, NARA; Pierce and Writer, *Yellow Jack*, 198–200; Reed to Gorgas, Jul 29, 1901, Box 1, Folder 9, MS C6 Walter Reed Memorial Association, NLM.
73. Reed to Emilie Reed, Dec 9, 1900, Walter Reed Series, Box 22, #02231001, Reed-Hench Collection, UVA.
74. GMS, “The Transmission of Yellow Fever by Mosquitoes,” 228–229.
75. Reed to Gorgas, Jun 27, 1901, Box 1, Folder 9, MS C6 Walter Reed Memorial Association, NLM.
76. Bean, *Walter Reed*, 166, 171; Warner, “Hunting the Yellow Fever Germ,” 374; Gillett, *AMEDD 1865–1917*, 246; Pierce and Writer, *Yellow Jack*, 205–206.
77. GMS, “Etiology and Classification of Infectious Diseases,” 658, 659–660.

78. GMS to Chaille, Feb 15, 1898, Walter Reed Series, Box 18, #01827001, Reed-Hench Collection, UVA.
79. Sternberg, *GMS*, 228–229; GMS to Forwood, Jul 21, 1901, Box 133, E26, RG112, NARA.
80. *ARIG* 1902, 433–434; Sternberg, *GMS*, 229–233; GMS to Forwood, Jul 21, 1901, Box 133, E26, RG112, NARA.
81. Dysentery was still the major killer, followed by killed in action and drowning, but it only accounted for 13% of hospitalizations, behind venereal disease (16.8%) and malaria (13.5%), and just ahead of wounds and injuries (11.8%). *ARSG* 1902, 433–434; M. Sternberg, *GMS*, 230–233; GMS to Forwood, Aug 5, 1901, Box 133, E26, RG112, E26, Box 133.
82. GMS to Forwood, Aug 13, 1901, McKinley Papers, Reel 16, LOC, GMS to Forwood, Jul 21, Aug 5, and Aug 17, 1901, Box 133, E26, RG112, NARA.
83. GMS to Forwood, Aug 17, 1901, Box 133, E26, RG112, NARA.
84. GMS to Chief Surgeon, Department of California, Aug 24, 1901, Box 513, E25, RG112, NARA; Corbin to Root, Sep 28, 1901, Root Papers, Box 16, LOC.
85. M. Sternberg, *GMS*, 233–234.
86. Sternberg, *GMS*, 235; Chaffee to Corbin, Sep 2, 1901, Corbin Papers, Box 1, LOC.
87. Gorgas, *Sanitation in Panama*, 43, 47, 50, 52, 58; Bean, *Walter Reed*, 164; Carroll to Surgeon General, Aug 18, 1906, Box 236, E26, RG112, NARA; Pierce and Writer, *Yellow Jack*, 198–200; Reed to Gorgas, Jul 29, 1901, Box 1, Folder 9, MS C6 Walter Reed Memorial Association, NLM.

Chapter Fifteen

A Proper Progressive in Washington

1. Sternberg, *GMS*, 235–236; Morgan, *McKinley*, 513, 520–525.
2. Hofstadter, *Age of Reform*, 131, 136, 144, 167; Cashman, *America in the Gilded Age*, 23, 27; Wiebe, *Search for Order*, 12, 22, 45, 47, 53, 166, 167; Glaab and Brown, *History of Urban America*, 108–109, 136–138; Noble, *The Progressive Mind*, 3–4.
3. Pope to GMS, Dec 10, 1901, Box 340, E26, RG112, NARA.
4. GMS to Adj Gen, Dec 14, 1901, Box 1, Folder 12, MS C100, George Miller Sternberg Papers, 1861–1917, NLM.
5. GMS to Adj Gen, Dec 14, 1901, Box 1, Folder 12, MS C100, George Miller Sternberg Papers, 1861–1917, NLM.
6. *ARSG* 1902, 13.
7. Sen Docs 1679 and 3344, House Rpt 10075, LOC; GMS to Sec War, Feb 3, 1902, Box 133, E26, RG112, NARA.

8. GMS to Sec War, Feb 3, 1902, Box 133, E26, RG112, NARA.
9. Senate Bill 4889, Mar 10, 1902, LOC. Johnson to Hull, Apr 12, 1902, Box 1, Folder 24 MS C100 George Miller Sternberg Papers, 1861–1917, NLM.
10. Hawley to GMS, 26 Apr 1902, Box 1, Folder 23 and Senate Calendar No. 1420, Report on Retirement of Medical Officers in the Army, 7 May 1902, Box 2, Folder 2, MS C100 George Miller Sternberg Papers, 1861–1917, NLM; Sen. Doc. S4889 and 5213, and HR 13725, LOC.
11. Hull to Johnson, May 13, 1902, Box 1, Folder 23 and John F. Lacey to GMS, May 26, 1902, Box 1, Folder 25, MS C100 George Miller Sternberg Papers, 1861–1917, NLM; “Association News,” *JAMA* 38 (Apr 19, 1902): 1024; Sternberg, *GMS*, 238.
12. GMS, “Function of the Army Medical School,” 547.
13. *Ibid.*, 549.
14. *Ibid.*, 547.
15. Edward G. Janeway presided as master of ceremonies and attendees included Frank Billings, William Welch, Alexander Abbott, George Kober, James Wilson, S. B. Ward, Victor Vaughn, Hermann Biggs, William Osler, Roswell Park, Navy Surgeon General Rixey, Marine Hospital Service Surgeon General Walter Wyman, Simon Flexner, William Gorgas, and Henry Lippincott. Forwood, Reed, and Borden to GMS, May 22, 1902, Box 1, Folder 20, MS C100 George Miller Sternberg Papers, 1861–1917, NLM; Sternberg, *GMS*, 238–250.
16. Sternberg, *GMS*, 149, 249.
17. Sternberg, *GMS*, 149. GMS became a member of the hospital Board of Incorporators and Directors and the Executive Committee in 1897. The following year, he became a member of the nurse Training School Committee. *Annual Reports*, Garfield Memorial Hospital.
18. By this time, Secretary of State John Hay and Sir Julian Pauncefote, British Minister in Washington, had signed a treaty in which the British gave up their claims in the region. The second Hay-Pauncefote Treaty was signed in Washington on November 18, 1901. Campbell, *Anglo-American Understanding*, 237.
19. Gorgas, *Sanitation in Panama*, 139.
20. Gorgas, *Sanitation in Panama*, 139–142; GMS “Sanitary Problems,” 379.
21. GMS “Sanitary Problems,” 385–386.
22. GMS “Sanitary Problems,” 387.
23. Elizabeth Fee, *Disease and Discovery*, 61; Duffy, *Sanitarians*, 251–252.
24. Circular of Information, Georgetown University School of Medicine, 1903–1904, 19, George M. Kober Papers, Georgetown University Archives; Sternberg, *GMS*, 237, 250; GMS, “Preventive Medicine,” 348, 358; Record of the Board of Trustees, Columbian University, Jun 18, 1902–May 26, 1910, 169–171, 174, 242, 419, Gelman Library Archives, GWU; WES, “Opening Session Monday,” Jan 10, 1903.

25. Hofstadter, *Age of Reform*, 186–187, 202; Tomes, *Gospel of Germs*, 139–141; GMS, *Infection and Immunity*, iii, 126–139, 159–180.
26. At the time Sternberg wrote, Congress had finally appropriated money to address the problem. GMS, *Infection and Immunity*, 130–131, 160–161, 164–165, 167, 169; Green, *Washington*, v1, 12–12, v2, 43–47, 89, 149; Lamb, *History of the Medical Society of DC*, 155–156; *Report on Typhoid Fever in the District of Columbia*, 3, 4, 5, 15, 17, 18; “Purification of Water in the National Capital,” Box 17, MS C115, George M. Kober Papers, NLM; *Annual Reports, Association for the Prevention of TB*, 1908–1909, 9.
27. Kober, *History of Housing*, 31, 33, 50, 53–55; Rodgers, *Atlantic Crossings*, 15–16; “My Services on the Anti-Tuberculosis Campaign,” 13, Box 17, and *Reminiscences*, v2, Part 18, 305, Box 19, MS C115, George M. Kober Papers, NLM; Sternberg, GMS, 254.
28. Kober, *History of Housing*, 27, 39.
29. Kober, *History of Housing*, 27; GMS, “Housing Conditions in the Nation’s Capital,” 3.
30. Kober, *History of Housing*, 40–41, 46 and *Reminiscences*, v2, Part 18, 322, Box 19, MS C115, George M. Kober Papers, NLM; GMS, “Housing Conditions in the Nation’s Capital,” 4, and *Report on Building Model Homes*, 17.
31. This became evident when the popularity of two-room flats, constructed by the WSHC on an experimental basis, failed to materialize because tenants had no parlor in which to receive guests. GMS, *Report on Building Model Homes*, 88–89.
32. GMS, *Report on Building Model Homes*, 88–89 and “Housing Conditions in the Nation’s Capital,” 2.
33. Some form of meat and milk inspection existed in 62 cities, and milk pasteurization was becoming more common. Shryock, *National Tuberculosis Association*, 49, 51–54, 67–68; Knopf, *History of the National Tuberculosis Association*, 8–9, 16, 18–20, 86; Ravenel, “Relation Between Human and Bovine Tuberculosis,” 31–38.
34. Koch’s introduction of tuberculin as a cure for the disease in 1890 was enthusiastically received by American physicians. Although a failure, tuberculin continued to be studied, prescribed, and fiercely debated for years. Koch, “Etiology of Tuberculosis,” 109; Ott, *Fevered Lives*, 13–16, 70, 101; Shryock, *National Tuberculosis Association*, 40, 42, 46–47, 107–108; Feldberg, *Disease and Class*, 37, 38, 44, 47, 55–58; GMS, *Manual of Bacteriology*, 375, and “Contribution to the Study of the Bacterial Organisms.”
35. By 1904, 96 sanatoriums and special tuberculosis hospitals had been established in the United States. Many were operated for the poor. Feldberg, *Disease and Class*, 52–53. Shryock, *National Tuberculosis Association*, 46–47; S. Knopf, “Sanitariums for the Treatment and Prophylaxis of Pulmonary Phthisis,” 419, “The Urgent Need of Sanatoria,” 303, *Prophylaxis and Treatment of Pulmonary Tuberculosis*, 169, and *History of the National Tuberculosis Association*, 10–11, 12; Trudeau, *An Autobiography*, 89, 99, 154–155, 158, 304; Rothstein, *American Physicians*, 270–271; Dorman, *White Plague*, 178–179. For construction details see, Thomas S. Carrington, *Tuberculosis Hospital and Sanatorium Construction*, New York, 1911. Sternberg’s younger brother, Albert, died at Saranac Lake in 1894. Sternberg, *Story of My Life*, 30.

36. Shryock, *National Tuberculosis Association*, 49, 70–72; Knopf, *History of the National Tuberculosis Association*, 24.
37. Knopf, *History of the National Tuberculosis Association*, 22–23.
38. Knopf, *History of the National Tuberculosis Association*, 28–29; Shryock, *National Tuberculosis Association*, 75–76.
39. Shryock, *National Tuberculosis Association*, 76–77, 80–82; Knopf, *History of the National Tuberculosis Association*, 30–32.
40. “My Service on the Anti-Tuberculosis Campaign,” 6, Box 17, MS C115, George M. Kober Papers, NLM; Lamb, *History of the Medical Society of DC*, 177; M. Sternberg, *GMS*, 257, 260–262; Kober, *Charitable and Reformatory Institutions*, 1, 148, 149.
41. *GMS*, “Sanatorium Treatment,” 305–306, 308.
42. Trudeau claimed 20 percent of Adirondack Cottage patients were cured and 30 percent improved; the Loomis Sanatorium in Liberty, New York, reported 25 percent cured and 50 percent improved; and Dettweiler at the sanatorium in Falkenstein, Germany, boasted 28 percent cured or arrested and 45 percent improved. Nearly a year later, *GMS* presented treatment results from the first 50 cases admitted at Starmont to members of the Washington Medical Society. Although he had had far fewer incipient cases than he would have liked and many more advanced cases, he declared that all of the early cases had recovered and were sent home, and that 60 percent of advanced cases had shown marked improvement. Starmont’s success paved the way for other sanatoriums in Maryland and Virginia. *GMS*, “Sanatorium Treatment,” 306–308, “First Fifty Cases of Tuberculosis,” 340–343, 345, and “Results of Treatment,” 1, 52; M. Sternberg, *GMS*, 258–259.
43. Knopf, *History of the National Tuberculosis Association*, 143; Borchert, *Alley Life*, 47. M. Sternberg, *GMS*, 259–260.
44. Reynolds, “Report on the Housing of the Poor,” 2, 4; M. Sternberg, *GMS*, 260–261.
45. M. Sternberg, *GMS*, 261–262; Kober, *History of Housing*, 33, 37–38.
46. Reynolds, “Report on the Housing of the Poor,” 3–8, 10–15; Weller, *Neglected Neighborhoods*, 116–117; Greene, *Washington*, v2, 155. In 1905, the Sternbergs moved to 2005 Massachusetts Avenue on Dupont Circle. Today, it is the Washington headquarters of the Konrad Adenauer Foundation. M. Sternberg, *GMS*, 262–263.
47. Baldwin, *Report of the Committee on Improvement of Existing Houses*, 4, 7, 9, 13, 23.
48. Kober, *Report of the Committee on Social Betterment*, 5–9.
49. *GMS*, *Report of Committee on Building Model Houses*, 3–7, 41–60, 64, 66, 108–111.
50. Morris, *Theodore Rex*, 486, 496, 514–519; Roosevelt, *An Autobiography*, 445, 447; “Purification of Water Supply of the National Capital,” *Reminiscences*, Box 17, MS C115, George M. Kober Papers, NLM; Fisher, *Report on National Vitality*, 14–15; Shryock, *National Tuberculosis Association*, 100; Rosen, “The Committee of One Hundred,” 261, 262.
51. Knopf, *History of the National Tuberculosis Association*, 141, 144–145; Shryock, *National Tuberculosis Association*, 101, 103–105; M. Sternberg, *GMS*, 264; *Transactions, 6th International Congress on Tuberculosis*, v3, 1.

52. WES, "Cortelyou Greets White Plague Foes in World Congress," Sep 28, 1908, "American Methods Best in the World," Sep 30, "Health Supervision by Nation Favored"; Knopf, *History of the National Tuberculosis Association*, 146–147; *Trans, 6th International Congress on TB*, v1, part 1, 1.
53. Shyrock, *National Tuberculosis Association*, 107–110; Knopf, *History of the National Tuberculosis Association*, 147.
54. WES, "Delegates Dined," Oct 2, and "In the World of Society," Oct 3, 1908; M. Sternberg, *GMS*, 264.
55. WES, "Roosevelt Cheered by World Congress," Oct 3, 1908; Shryock, *National Tuberculosis Association*, 111–112; Knopf, *History of the National Tuberculosis Association*, 148–149; *Annual Report, Association for the Prevention of TB, 1908–1909*, 10–11.
56. *Annual Report, Association for the Prevention of TB, 1908–1909*, 12, 15, 16–17, 20.
57. *Annual Report, Association for the Prevention of TB, 1908–1909*, 12–13, 1909–1910, 24–25, 1910–1911, 10–12, and 1912, 17. Jacobs, "Tuberculosis Preventorium for Children," 362; Shryock, *National Tuberculosis Association*, 119–120.
58. *Annual Report, Association for the Prevention of TB, 1911*, cover.
59. Alley residents established their own anti-tuberculosis campaign. Clubs for women and children were organized in Blagden's Alley, a Children's Temporary Home that was founded, and an Alley Improvement Association worked for the social betterment of the alley population. Green, *Washington*, v2, 156–157; Jones, *Housing of Negroes*, 39, 41.
60. *Reminiscences*, v2, Part 18, 333, Box 19, MS C115, George M. Kober Papers, NLM; Hannold, "Comfort and Respectability," 35; Borchert, *Alley Life*, 47.
61. *Reminiscences*, v2, Part 18, 337, Box 19, MS C115, George M. Kober Papers, NLM; *Annual Report, Assn for the Prevention of Tuberculosis, 1912–1914*; M. Sternberg, *GMS*, 265, 266; Farrand to *GMS*, Nov 21, 1912, May 13, and May 16, 1913, Box 1, Folder 20, MS C100 George Miller Sternberg Papers, 1861–1917, NLM.
62. Dr. Richard Slee established the Sternberg Medal and invited *GMS* to present it. In 1920, Slee relinquished his right of presentation to Mrs. Sternberg, who endowed the medal in perpetuity. The Sternberg Medal is still awarded for academic proficiency in preventive medicine. Hume, "Medals of the United States Army Medical Department," 30–33, 34, 35.
63. *Reminiscences*, v2, Part 18, 337, Box 19, MS C115, George M. Kober Papers, NLM.
64. Howard was in the Army Medical School's first graduating class. *GMS Death Certificate*.
65. Martha Sternberg to Kober, undated, Box 4, MS C115 George M. Kober Papers, NLM.
66. *GMS Death Certificate*, District of Columbia Vital Records Office.

67. Over the next decade, standard curricula evolved, physicians began to lose dominance in the field, and public health became recognized as a multi-occupational profession. Fee and Acheson, *History of Education in Public Health*, 159, 162–168. The national anti-tuberculosis crusade was just beginning to gather steam under the executive leadership of Charles J. Hatfield, 1914–1922. Shryock, *National Tuberculosis Association*, 192–193, 198; Rodgers, *Atlantic Crossings*, 189.
68. “Memorial Meeting in Honor of George Miller Sternberg,” *Washington Medical Annals*, 15 (Mar 1916), 93–94; Baldwin, “General George M. Sternberg,” *Journal of the Outdoor Life* 12 (Dec 1915):389.

Epilogue

1. M. Sternberg, *GMS*, 219–220, 298–300.
2. *Ibid.*, 220, 299.
3. *Ibid.*, 218.
4. *Ibid.*, 300.
5. *Ibid.*, 304.
6. *Ibid.*, 305–314, 317.
7. Martha Louise Pattison Sternberg Death Certificate, District of Columbia Vital Records Office.

Bibliography

Unpublished Sources

Buffalo Medical College Archives, Buffalo, New York

Gelman Library Archives, George Washington University

Record of the Board of Trustees, Columbian University

Faculty Minutes, Columbian University

Georgetown University Archives, Georgetown

George M. Kober Papers

Gossel, Patricia Peck. *The Emergence of American Bacteriology, 1875–1900*. A dissertation submitted to the Johns Hopkins University in conformity with the requirements for the degree of Doctor of Philosophy, 1988.

Holt, Roberta. *The Associated Charities of Washington, D.C., 1882–1935: A History of Activity and Decision of the Board of Managers*. A dissertation submitted to the faculty of the School of Social Service of the Catholic University of America in partial fulfillment of the requirements for the degree of Doctor of Social Work, 1986

Idaho State Historical Society

Institute Pasteur, Paris

Kiplinger Research Library, Historical Society of Washington, DC

Library of Congress, Washington, DC

Daniel S. Lamont Papers

Elihu Root Papers

Grover Cleveland Papers

Henry Corbin Papers

John M. Schofield Papers

Leonard Wood Papers

Theodore Roosevelt Papers

William Howard Taft Papers

William McKinley Papers

National Archives and Records Administration, Washington, DC

M617. Post Returns, Fort Harker, KS, and Fort Walla Walla, WA

M311. Compiled Service Records of Confederate Soldiers

M903. Medical History of Posts

M1064. Acquisition, Commissioning, and Personnel Files, United States Army

M1328. Abstracts of Service Records of Naval Officers, 1829–1924

RG 45. General Records, United States Navy

RG 52. Records of Bureau of Medicine and Surgery, United States Navy

RG 94. Adjutant General's Records

Indexes to Field Records of Hospitals, 1821–1912

Merit Rolls Regulars Entry

Personal Papers of Medical Officers and Physicians

Records of Medical History of Post

Reports of Surgeons Accompanying Expeditions

RG 107. Records of the Secretary of War

RG 112. Surgeon General's Office

General Correspondence, 1894–1917

Letters and Endorsements Sent to Medical Officers, Sept 1862–Sept 1872

Letters Received by the Surgeon General's Office, 1818–1870

Registers of Medical Officers of the Regular Army Arriving at the Surgeon General's Office, 1848–1889

Reports on Civil War Hospitals

RG 393. Records of the United States Continental Command

Letters Received, 1877, Department of the Columbia

National Library of Medicine, History of Medicine Division, Bethesda, MD

Miles, Wyndham. *History of the National Board of Health*, unpublished manuscript

_____. *A History of the National Library of Medicine*, unpublished manuscript, 1982

MS C6 Walter Reed Memorial Association

MS C14 Jefferson R. Kean Papers

MS C26 John Shaw Billings Papers

MS C41 S. Adolphus Knopf Papers

MS C91 Charles R. Greenleaf Papers

MS C100 George Miller Sternberg Papers

MS C115 George M. Kober Papers

MS C160 Henry Rose Carter Papers

MS C464 Joseph J. Kinyoun Papers

New York State Historical Society, Albany, New York

Otis Historical Archives, National Museum of Health and Medicine, Washington, DC

Paul F. Cooper Archives, Hartwick College, Oneonta, New York

Hartwick Seminary, Annual Catalogs, 1852/1854

Hartwick Seminary, Board of Trustees Minutes

Philip S. Hench – Walter Reed Yellow Fever Collection, University of Virginia, Charlottesville

Henry Rose Carter Series

Jefferson R. Kean Series

Jesse Lazear Series

Philip S. Hench Series

Truby-Hench-Kean Series

Walter Reed Series

Resource Center, American Public Health Association, Washington, DC

Smith, Dale C. *The Emergence of Organized Clinical Instruction in the Nineteenth Century American Cities of Boston, New York, and Philadelphia*. A thesis submitted to the faculty of the graduate school of the University of Minnesota, June 1979.

State University of New York Health Science Center, Brooklyn, NY

Hoagland Laboratory Archives

Sternberg Family Genealogy

U.S. Army Military History Institute, Carlisle Barracks, Pennsylvania

Walter Reed Army Institute of Research Archives, Washington, DC

Records of the Army Medical School, October 2, 1898 to April 10, 1905

Westermann-Cicio, Mary L. *Of Mice and Medical Men: The Medical Profession's Response to the Vivisection Controversy in Turn of the Century America*. A dissertation presented to the faculty at State University of New York at Stony Brook, May 2001.

William L. Clements Archives, University of Michigan, Ann Arbor

Russell A. Alger Papers

W. S. Hoole Special Collections Library, University of Alabama, Tuscaloosa, Alabama

William C. Gorgas Papers

Yale University Library, New Haven, Connecticut

MSS S-1294 Albert Barnitz Papers

Publications of George Miller Sternberg (presented chronologically)

"Sterility of the Plains," *Junction City Union*, January 28, 1870.

"An Inquiry into the Nature of the Yellow Fever Poison, with an Account of the Disease as it occurred at Governor's Island, New York Harbor." *American Journal of the Medical Sciences* 3 (Apr 1873):398–406.

"An Inquiry into the Modus Operandi of the Yellow Fever Poison," *New Orleans Medical & Surgical Journal* (n.s.) 3 (Jul 1875):1–23.

"Observations upon the Urine in Yellow Fever," *New Orleans Medical & Surgical Journal* (n.s.) 3 (Sep 1875):197–202.

"Yellow Fever in Pensacola, FLA., in 1873, 1874, and 1875," 468–486. In: *Public Health Papers and Reports* 2, American Public Health Association, 1874–1875. New York: Hurd and Houghton, 1876.

"A Study of the Natural History of Yellow Fever and Some Remarks upon the Treatment Based upon the Same; With Cases and Tables of Observations upon the Temperature and Urine," *New Orleans Medical & Surgical Journal* 5 (Mar 1877):638–674.

"The Public Health Association and Yellow Fever," *Medical Record* 15 (1879):45–46.

"Experiments Designed to Test the Value of Certain Gaseous and Volatile Disinfectants," *National Board of Health Bulletin* 1 (1879):219, 227, 287, 265.

"Preliminary Report of the Havana Yellow Fever Commission of the National Board of Health, submitted November 18, 1879," (with Stanford Chaille) *National Board of Health Bulletin* 1, Suppl 1 (1879):1–19.

"The Microscopical Investigations of the Havana Yellow Fever Commission," *New Orleans Medical & Surgical Journal* 7 (May 1880):1017–1024.

"Report to Dr. Bemiss Concerning a Form of Fever Recently Prevailing on the Lower Coast of Louisiana," and "Minority Report." In: Editorial, *New Orleans Medical & Surgical Journal* 8 (Oct 1880):382–398.

Letter to the Editor, *New Orleans Medical & Surgical Journal* 8 (Nov 1880):482–487.

"Yellow Fever and Quarantine," 351–357. In: *Public Health Papers and Reports* 6, American Public Health Association, 1880. Boston: Franklin Press, 1881.

"The Diagnosis of Yellow Fever," *New Orleans Medical & Surgical Journal* 8 (Jan 1881):601–608.

"What is the Explanation of the Protection from Subsequent Attacks, Resulting from an Attack of Certain Diseases, and of the Protective Influence of Vaccination against Small-pox?" *American Journal of the Medical Sciences* 81 (Apr 1881):373–378.

"A Fatal Form of Septicaemia in the Rabbit, Produced by the Subcutaneous Injection of Human Saliva," *National Board of Health Bulletin* 2 (1881):781–783.

"A Prediction Verified," *Philadelphia Medical Times* 11 (1881):592.

"Experimental Investigations Relating to the Etiology of Malarial Fevers," *National Board of Health Bulletin* 3, Suppl 14 (Jul 23, 1881):1–11.

"Bacillus Anthracis," *American Monthly Microscopical Journal* 2 (Aug 1881):148–149.

"An Instructive Experiment," *Medical Record* 20 (1881):339–340.

"Report of Microscopical Examination of Suspended Particles Found in the Atmosphere," Appendix H, 387–395. In: *Annual Report of the National Board of Health, 1880*. Washington, DC: Government Printing Office, 1882.

"Experiments with Disinfectants," *Studies from the Biological Laboratory at Johns Hopkins University* 2 (1882):201–212. [Originally published in *National Board of Health Bulletin* 3 (1881):21, 68.]

"Bacteria and the Germ Theory of Disease," *Transactions of the State Medical Society of California* 12 (1882):193–198.

"A Contribution to the Study of the Bacterial Organisms Commonly Found upon Exposed Mucous Surfaces and in the Alimentary Canal of Healthy Individuals," *Studies from the Biological Laboratory at Johns Hopkins University* 2 (Mar 1882):157–181.

"Injections of the Virus of Hydrophobia into the Circulation," *Medical Record* 22 (1882):227–228.

- "Bacterial Organisms," *Western Lancet* 11 (1882):198–203.
- "Poisonous Effects of Saliva," *Medical News* 41 (Jul 8, 1882):53.
- "Induced Septicemia in the Rabbit," *American Journal of the Medical Sciences* 84 (Jul 1882):69–76.
- "Is Tuberculosis a Parasitic Disease," *Medical News* 41 (Jul 1, 1882):6–7, (Jul 22, 1882):87–89, (Sep 16, 1882):311–314, (Nov 18, 1882):564–566, and (Dec 30, 1882):730–731.
- "The Recognition of Micrococci," *Medical Record* 21 (1882):368–370.
- "Virulence of Human Saliva," *Medical News* 41 (Sep 16, 1882):332–334.
- "The Value of Carbolic Acid as a Germicide as Established by Experimental Data," *Medical Record* 22 (Sep 1882):314–317.
- "Malaria," *Sanitary Engineer* 7 (Jan 1883):126, 147, 172.
- "The Micrococcus of Gonorrheal Pus – Infective Virulence not Due to the Presence of This Parasitic Micro-organism," *Medical News* 42 (Jan 20, 1883):67–70, 96–99.
- "The Micrococcus of Gonorrheal Pus," *Medical News* 42 (Mar 24, 1883):323–324.
- "Experiments to Determine the Germicide Value of Certain Therapeutic Agents," *American Journal of the Medical Sciences* 85 (April 1883):321–343.
- "Our Invisible Foes," *Journal of the Military Service Institution* 6 (1883):27–36.
- "Malaria," *Public Health Papers and Reports* 9, American Public Health Association, 1883. Concord, NH: Republican Press, 1884.
- Photomicrographs and How to Make Them*. Boston: J. R. Osgood, 1883.
- Malaria and Malarial Diseases*. New York: William Wood, 1884.
- Bacteria*. New York: William Wood, 1884.
- "Further Experiments with the Micrococcus of Gonorrheal Pus – 'Gonococcus' of Neisser," *Medical News* 45 (Oct 18, 1884):426–429.
- "Disease Germs," *Medical Record* 26 (Oct 25, 1884):451–455.
- "Injection of Finely Powdered Inorganic Material into the Abdominal Cavity of Rabbits Does Not Induce Tuberculosis, An Experimental Research," *American Journal of the Medical Sciences* 89 (Jan 1885):17–30.

"Commercial Disinfectants," *Medical News* 46 (7 Feb 1885):144–147.

"The Destruction of Cholera Germs." In: Edmund Charles Wendt, ed. *A Treatise on Asiatic Cholera*. New York: William Wood, 1885:325–335.

"The Pneumonia-Coccus of Friedlander (*Micrococcus pasteuri*, Sternberg)," *American Journal of the Medical Sciences* 92 (Jul 1885):106–123, 435–438.

"The International Sanitary Conference at Rome," *Science* 6 (Aug 7 1885):101–103.

"Disinfection," *Science* 6 (Oct 16, 1885):328–331.

Report of the Committee on Disinfectants of the American Public Health Association. Baltimore: Printed for the Committee, 1885.

"Poisonous Cheese," 218–220. In: *Annual Report of the Secretary of the State Board of Health of the State of Michigan*. Lansing, MI: W. S. George, 1885.

"Disinfection and Individual Prophylaxis Against Infectious Diseases," 101–136. In: *Public Health Papers and Reports* 11, American Public Health Association, 1885. Concord, NH: Republican Press, 1886.

"The Malarial Germ of Laveran," *Science* 7 (Apr 2, 1886):297–299.

"Pasteur's Method for the Prevention of Hydrophobia," *Medical News* 48 (Apr 24, 1886):449–453.

"Inoculation Experiments with Rabies Virus at Baltimore," *Medical News* 48 (Jun 12, 1886):675–676.

"Micrococcus Pasteuri," *American Journal of the Medical Sciences* 92 (Jul 1886):123–131.

"The Bacillus of Typhoid Fever (Typhus Bacillus of Eberth)," *Medical News* 49 (Aug 21 1886):197–202.

"The Liquefaction of Gelatine by Bacteria," *Medical News* 50 (Apr 2, 1887):372–373.

"The Thermal Death-Point of Pathogenic Organisms," *American Journal of the Medical Sciences* 94 (Jul 1887):146–160.

Report upon the Prevention of Yellow Fever by Inoculation. United States Marine Hospital Service, Washington, DC: Government Printing Office, Mar 1888.

"Investigations Relating to the Etiology and Prophylaxis of Yellow Fever," *Medical News* 52 (Apr 28, 1888):449–456.

"President's Address," 1–21. In: *Public Health Papers and Reports* 13, American Public Health Association, 1887. Concord, NH: Press, 1888.

"Preliminary Note on a New Method of Treating Yellow Fever," *Therapeutic Gazette* 4 (1888): 524–526.

Disinfection and Disinfectants: Their Application and Use in the Prevention and Treatment of Disease, and in Public and Private Sanitation, Committee on Disinfectants, American Public Health Association. Concord, NH: Republican Press, 1888.

"Glanders," *Brooklyn Medical Journal* 3 (Jan 1889):63–64.

"Bicarbonate of Sodium and Bichloride of Mercury in the Treatment of Yellow Fever," *Therapeutic Gazette* 5 (1889):298–304.

"Additional Note on the Treatment of Yellow Fever," *Therapeutic Gazette* 5 (1889):388.

"The Etiology of Croupous Pneumonia – Parts 1 & 2," *Medical Record* 35 (Mar 23, 1889):281–285, 309–312.

"Bacillus Diphtheriae (Loeffler)," *Brooklyn Medical Journal* 3 (1889):145–153.

"Hunting Yellow Fever Germs," *Medical News* 54 (1889):253–256.

"Disinfection," *Brooklyn Medical Journal* 3 (Jun 1889):337–349.

"Fevers, Continued: Typho-Malarial Fever." In: Albert H. Buck, ed. *Reference Handbook of the Medical Sciences*. New York: William Wood, 1889, 93–95.

Report on the Etiology and Prevention of Yellow Fever. United States Marine Hospital Service, Washington, DC: Government Printing Office, 1890.

"Dr. Freire's Protective Inoculation: Facts versus Figures," *Medical Record* 37 (May 10, 1890):524–526.

"Bacteriological Researches in Yellow Fever," *Transactions of the New York Academy of Medicine* 7 (1890):313–316.

"Facts Versus Figures. Yellow Fever Inoculation," *Journal of the American Medical Association* 15 (Jul 26, 1890):142–144.

"Cocoanut-Water as a Culture Fluid," *Medical News* 57 (Sep 13, 1890):262–263.

"The Disinfection of Excreta," *Journal of the American Medical Association* 17 (Aug 22, 1891):290–294.

"Dr. Finlay's Mosquito Inoculations," *American Journal of the Medical Sciences* 102 (1891):627-630.

"Micrococcus Pneumoniae Crouposae," *Medical News* 60 (Feb 6, 1892):153-154.

"Infectious Diseases, Causation and Immunity," *Popular Science Monthly* 41 (May-Oct 1892):616-635.

"Practical Results of Bacteriological Researches," *Transactions of the Association of American Physicians* 7 (1892):68-86.

"The Biological Characters of the Cholera Spirillum – Spirillum Cholerae Asiaticae ("Comma Bacillus" of Koch) – and Disinfection in Cholera," *Medical Record* 42 (Oct 1, 1892):387-391.

"Protective Inoculations in Infectious Diseases," 273-291. In: *Public Health Papers and Reports* 18, American Public Health Association, 1892. Concord, NH: Republican Press, 1893.

"Disinfection at Quarantine Stations, especially against Cholera," *New York Medical Journal* 57 (Jan 21, 1893):57-62.

"The Prevention and Treatment of Cholera by the Naphthols and Bacteriological Report," (with D. D. Stewart, MD), *American Journal of the Medical Sciences* 105 (Apr 1893):388-393.

"How Can We Prevent Cholera," *Medico-Legal Journal* 11 (1893):1-8.

Manual of Bacteriology. New York: William Wood, 1893.

"Report on Typhoid Fever at Madison Barracks," 45-49. In: *Annual Report of the Army Surgeon General*, 1893. Washington, DC: Government Printing Office, 1893.

"Address to Members of the Pan-American Medical Congress," *Journal of the American Medical Association* 21 (Sep 9, 1893):369-375.

"The Bacteriology of Pyelonephritis," *American Journal of the Medical Sciences* 107 (1894):664-669.

"A National Health Bureau," *North American Review* 158 (May 1894):529-533.

"What Shall be the Methods Followed in Determining the Relation of Bacteria to Temperature?" 411-414. In: *Public Health Papers and Reports* 20, American Public Health Association, 1894. Concord, NH: Republican Press, 1895.

"The Action of Sunlight on Micro-organisms," *Medical Record* 46 (Nov 10, 1894):607-608.

- "Explanation of Acquired Immunity from Infectious Diseases," *Science* 1, No. 13 (Mar 29, 1895):346–349.
- "Report on Immunity against Vaccination Conferred upon the Monkey by the Use of the Serum of the Vaccinated Calf and Monkey," (with Major Walter Reed), *Transactions of the Association of American Physicians* 10 (1895):57–69.
- Immunity, Protective Inoculations in Infectious Diseases and Serum Therapy*. New York: William Wood, 1895.
- "The Proofs of Progress," *Medical Record* 48 (Oct 12, 1895):508–512.
- Introductory Address at Georgetown University, *Journal of the American Medical Association* 25 (Oct 26, 1895):689–696.
- "Pasteur," *Science* 3 (Feb 7, 1896):185–189.
- "The History and Geographical Distribution of Yellow Fever," *Janus* 1 (1896):195–201.
- "Scientific Researches Relating to the Specific Infectious Agent of Smallpox and the Production of Artificial Immunity from this Disease," *Journal of the American Medical Association* 26 (May 9, 1896):919–928.
- "The Etiology and Classification of Infectious Diseases," *American Journal of the Medical Sciences* 112 (1896):649–667.
- "Presidential Address," *Proceedings, 5th Annual Meeting, Association of Military Surgeons of the United States*. Cincinnati: Earhart & Richardson, Superior Printers, 1896:7–22.
- "The Bacillus Icteroides of Sanarelli (Bacillus X of Sternberg)," *American Journal of the Medical Sciences* 114 (1897):303–322.
- "Preventive Medicine," *Sanitarian* 38 (Mar 1897):193–194.
- "The Malarial Parasite and Other Pathogenic Protozoa," *Popular Science Monthly* 50 (1897):628–641.
- "Bacillus Icteroides and Bacillus N," *Journal of the American Medical Association* 30 (Jan 29, 1898):233–234.
- "Dr. Klebs' Ameba of Yellow Fever," *Journal of the American Medical Association* 30 (Apr 30, 1898):1054–1055.
- "The Address of the President," *Journal of the American Medical Association* 30 (Jun 11, 1898):1373–1380.
- "The Medical Department of the Army," *Medical Record* 54 (Aug 6, 1898):213–214.

"The Medical Department of the Army – Letter from Gen. Sternberg," *Medical News* 73 (Aug 6, 1898):182–183.

"General Sternberg's Answer to His Critics," *Medical News* 73 (Sep 10, 1898):335–337.

"The Sanitary Regeneration of Havana," *Century* 56 (1898):578–583.

"Official Summary of the Annual Report of the Surgeon General of the Army: The Work of the Medical Department during the Spanish-American War," *New York Medical Journal* 68 (Nov 26, 1898):793–798.

"The Bacteriology of Yellow Fever," *Johns Hopkins Hospital Bulletin* 8 (1898):119–120.

"The Surgeon General of the Army and the American National Red Cross," *National Medical Review* 8 (1899):252–253.

"Surgeon General Sternberg's Report on the Bill for the Employment of Female Army Nurses," *Trained Nurse and Hospital Review* 22 (Mar 1899):123–125.

"Antivivisection in the District of Columbia," *Boston Medical & Surgical Journal* 140 (1899):198.

"Sanitary Lessons of the War," *Journal of the American Medical Association* 32 (Jun 10, 1899):1287–1294.

"The Bacillus Icteroides as the Cause of Yellow Fever: A Reply to Professor Sanarelli," *Medical News* 75 (Aug 19, 1899):225–228, 767.

"Surgeons Wanted in the Philippines," *New York Medical Journal* 71 (Feb 10, 1900):205–206.

"Medical and Sanitary History of the Troops in the Philippines," *Philadelphia Medical Journal* 5 (Apr 14, 1900):826–830.

"Yellow Fever Etiology," *Journal of the American Medical Association* 35 (Oct 20, 1900):1039–1040.

"Yellow Fever and Mosquitoes," *British Medical Journal* 2 (Nov 10, 1900):1391.

"The Transmission of Yellow Fever by Mosquitoes," *Popular Science Monthly* (Jul 1901):225–241.

"The Function of the Army Medical School," *American Medicine* 3 (Apr 1902):547–551.

"Sanitary Problems Connected with the Construction of the Isthmian Canal," *North American Review* 175 (Sep 1902):378–387.

"Preventive Medicine," *Popular Science Monthly* 62 (Feb 1903):348–358.

- "Address of Welcome," 13-16. In: *Public Health Papers and Reports* 29, American Public Health Association, 1903. Columbus, OH: Fred J. Heer, 1904.
- Infection and Immunity, with Special Reference to the Prevention of Infectious Diseases*. New York: G. P. Putnam, 1903.
- "Housing Conditions in the Nation's Capital," *Charities Review* 12 (Jul 23, 1904):2-4.
- "Sanatorium Treatment," *Washington Medical Annals* 3 (1905):305-308.
- "Preventive Medicine," *George Washington University Bulletin* 5 (1906):55-64.
- "First Fifty Cases of Tuberculosis Treated at the Starmont Sanatorium," *Washington Medical Annals* 5 (1907):337-347.
- Preliminary Report of the President's Homes Commission*, Submitted to the President June 29, 1907 and published with his permission. Washington, DC: n. p.
- "Report of the Committee on Building of Model Homes," 1-111. In: *Report of the President's Homes Commission*. Washington, DC: President's Homes Commission, 1908.
- "Housing the Working Classes, a Factor in the Prevention of Tuberculosis," *Journal of the Outdoor Life* 10 (Nov 1910):319-326.
- "The Results of Treatment in the Starmont Sanatorium," *Washington Medical Annals* 10 (May 1911):50-56.
- "Chlorine Peroxide in the Treatment of Tuberculosis," *George M. Sternberg: Collected Papers, 1897-1914*, v2, 1925 (no pagination).
- "Washington Sanatorium Company, Report of the President for the Year Ending December 31, 1913," *George M. Sternberg: Collected Papers, 1897-1914*, v2, 1925 (no pagination).
- "Rational Treatment of Tuberculosis," *Journal of the Outdoor Life* 10 (Dec 1913).
- "Home Treatment of Pulmonary Tuberculosis," *Journal of the Outdoor Life* 10 (Apr 1914):110-111.
- "The Metchnikoff Theory," *Journal of the American Medical Association* 63 (1914):1779-1780.
- Small Houses Within the City Limits for Unskilled Wage Earners*. New York: National Housing Association Publication #27, 1915.
- "Researches Relating to the Etiology of Yellow Fever," *Pan-American Surgical & Medical Journal* 21 (1916):16-20.

Published Sources

Books

Adams, Charles, ed. *Report of the Jacksonville Auxiliary Sanitary Association of Jacksonville, Florida Covering the Work of the Association During the Yellow Fever Epidemic, 1888*. Jacksonville, FL: Times-Union Printing, 1889.

Adams, George Worthington. *Doctors in Blue: The Medical History of the Union Army in the Civil War*. Dayton, OH: Morningside House, 1985.

Alger, Russell A. *The Spanish-American War*. New York: Harper & Brothers, 1901.

Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 25, 1852. Albany, NY: Joel Munsell, 1852, 4–7.

Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 23, 1854. Albany, NY: Joel Munsell, 1854.

Annual Catalog of the Officers and Students of Hartwick Theological and Classical Seminary, Academic Year Ending Aug. 26, 1857. Albany, NY: Joel Munsell, 1857.

Annual Report, Association for the Prevention of Tuberculosis, 1908–1915.

Annual Report of the Citizens Relief Association and of the Associated Charities of the District of Columbia, November 1899. Washington, DC: Saxton, 1900.

Annual Reports, 1892–1915, Garfield Memorial Hospital, Washington, DC, 4 vols. Washington, DC: Gibson Brothers.

Armes, George. *Ups and Downs of an Army Officer*. Washington, DC, 1900.

Ashburn, Percy M. *A History of the Medical Department of the United States Army*. New York: Houghton Mifflin, 1929.

Ashford, Bailey K. *A Soldier in Science*. New York: William Morrow, 1934.

Atkinson, William B., ed. *The Physicians and Surgeons of the United States*. Philadelphia: Charles Robson, 1878.

Atlas of Otsego County. New York: F. W. Beers, 1868.

Austrian, Robert. *Life with the Pneumococcus: Notes from the Bedside, Laboratory, and Library*. Philadelphia: University of Pennsylvania, 1985.

- Bailey, Ronald H. *Hartwick College: A Bicentennial History*. Oneonta, NY: Hartwick College, 1997.
- Baldwin, William H. *Report of the Committee on Improvement of Existing Houses and Elimination of Insanitary and Alley Houses*. Washington, DC: Government Printing Office, 1908.
- Barker, William H. V. *Early Families of Schoharie County*. n. p., 1985.
- Barton, Clara. *The Red Cross*. Washington, DC: American National Red Cross, 1898. Reprint, *Classics of Medicine Library*. Birmingham, AL: Gryphon Editions, 1992.
- Battle and Leaders of the Civil War*, 4 vols. New York: Castle Books, 1956.
- Bayne-Jones, Stanhope. *The Evolution of Preventive Medicine in the United States Army, 1607–1939*. Washington, DC: Office of The Surgeon General, Department of the Army, 1968.
- Beal, Merrill D. “I Will Fight No More Forever:” *Chief Joseph and the Nez Perce War*. Seattle: University of Washington, 1963.
- Bean, William. *Walter Reed; a Biography*. Charlottesville: University of Virginia, 1982.
- Beaver, Daniel. *Modernizing the American War Department: Change and Continuity in a Turbulent Era, 1885–1920*. Kent, OH: Kent State University, 2006.
- Beisner, Robert L. *From the Old Diplomacy to the New, 1865–1900*, 2nd ed. Arlington Heights, IL: Harlan Davidson, 1986.
- Bilby, Joseph G. and William C. Goble, “Remember You Are Jerseymen!”: *A Military History of New Jersey’s Troops in the Civil War*. Hightstown, NJ: Longstreet House, 1998.
- Billings, Elden E. “Military Activities in Washington in 1861.” In: Francis Coleman Rosenberger, ed., *Records of the Columbia Historical Society of Washington, DC, 1960–1962*. Washington, DC: Washington Historical Society, 1962.
- Billings, John S. *A Report on Barracks and Hospitals with Descriptions of Military Posts, Circular #4, War Department, Surgeon General’s Office*. Washington, DC: Government Printing Office, 1870.
- _____. *A Report on the Hygiene of the United States Army, with Descriptions of Military Posts, Circular #8, War Department, Surgeon General’s Office*. Washington, DC: Government Printing Office, 1875.
- Biographical Review of Otsego County, 1893*. Boston: Biographical Review Publishing Co., 1893.
- Birtle, Andrew J. *U.S. Counterinsurgency and Contingency Operations Doctrine, 1860–1941*. Washington, DC: Center of Military History, 1998.

Blackford, W. W. *War Years with JEB Stuart*. New York: Scribners, 1945.

Bloom, Khaled. *The Mississippi Valley's Great Yellow Fever Epidemic of 1878*. Baton Rouge: Louisiana State University, 1993.

Bonner, Thomas Neville. *Becoming a Physician: Medical Education in Great Britain, France, Germany, and the United States, 1750–1945*. New York: Oxford University, 1995.

Borchert, James. *Alley Life in Washington*. Chicago: University of Illinois Press, 1980.

Brands, H. W. *Bound to Empire: The United States and the Philippines*. New York: Oxford University, 1992.

_____. *The Reckless Decade: America in the 1890s*. Chicago: University of Chicago, 1995.

Brinton, John H. *Personal Memoirs of John H. Brinton, Civil War Surgeon, 1861–1865*. Reprint. Carbondale: Southern Illinois University, 1996.

Brock, Thomas D. *Robert Koch: A Life in Medical Science and Bacteriology*. Washington, DC: American Society of Microbiology, 1999.

Brown, Harvey E. *The Medical Department of the United States Army from 1775 to 1873*. Washington, DC: Surgeon General's Office, 1873.

_____. *Report on Quarantine on the Southern and Gulf Coasts of the United States*. New York: William Wood, 1873.

Brown, J. Graham. *Medical Diagnosis. A Manual of Clinical Methods*. New York: E. B. Treat, 1887.

Brown, Mark H. *The Flight of the Nez Perce: A History of the Nez Perce War*. New York: G. P. Putnam, 1967.

Bruce, Robert V. *The Launching of American Science, 1846–1876*. New York: Alfred A. Knopf, 1987.

Bryan, Wilhelmus Bogart. *A History of the National Capital: From Its Foundation through the Period of the Adoption of the Organic Act, 1815–1878*, 2 vols. New York: Macmillan, 1916.

Bulloch, William. *The History of Bacteriology*. London: Oxford University Press, 1938.

Burke, John. *Buffalo Bill, the Noblest Whiteskin*. New York: G.P. Putnam's Sons, 1973.

Bynum, W. F. *Science and the Practice of Medicine in the Nineteenth Century*. Cambridge: Cambridge University, 1996.

- Campbell, Charles. *Anglo-American Understanding, 1898–1903*. Baltimore: Johns Hopkins, 1957.
- Carmer, Carl. *The Hudson*, 15th ed. New York: Fordham University Press, 1989.
- Carrigan, Jo Ann. *The Saffron Scourge: A History of Yellow Fever in Louisiana, 1796–1905*. Lafayette: University of Southern Louisiana, 1994.
- Carriker, Robert C. *Fort Supply, Indian Territory: Frontier Outpost on the Plains*. Norman: University of Oklahoma Press, 1990.
- Carriker, Robert C., and E. R. Carriker, eds. *An Army Wife on the Frontier: The Memoirs of Alice Blackwood Baldwin*. Salt Lake City, UT: Tanner Trust Fund, 1975.
- Cashman, Sean Dennis. *America in the Gilded Age*, 3rd ed. New York: New York University, 1993.
- Chambers, John Whiteclay. *The Tyranny of Change: America in the Progressive Era, 1890–1920*, 2nd ed. New Brunswick, NJ: Rutgers University, 1992.
- Chaumont, F., ed. *Parkes' Hygiene*. New York: William Wood, 1883.
- Cherny, Robert W. *American Politics in the Gilded Age, 1868–1900*. Wheeling, IL: Harlan Davidson, 1997.
- Chesney, Alan M., and William H. Howell. *The Johns Hopkins Hospital and the Johns Hopkins University School of Medicine, A Chronicle*, 3 vols. Baltimore: Johns Hopkins University, 1943.
- Cirillo, Vincent. *Bullets and Bacilli: The Spanish-American War and Military Medicine*. New Brunswick, NJ: Rutgers University Press, 2004.
- Clark, George, and Frederick Kasten. *History of Staining*, 3rd ed. Baltimore: Williams & Wilkins, 1983.
- Clark, Paul F. *Pioneer Microbiologists of America*. Madison: University of Wisconsin, 1961.
- Clary, David A. and Joseph W. A. Whitehorne. *The Inspectors General of the United States Army, 1777–1903*. Washington, DC: Center of Military History, 1987.
- Coddingham, Edwin B. *The Gettysburg Campaign: A Study in Command*, 2 vols. New York: Scribners, 1968.
- Coffman, Edward. *The Old Army: A Portrait of the American Army in Peacetime, 1784–1898*. New York: Oxford University, 1986.

Collected Papers of Joseph, Baron Lister, 2 vols. Oxford: Clarendon, 1909. Reprint: *Classics of Medicine Library*. Birmingham, AL: Gryphon Editions, 1979.

College of Physicians and Surgeons in the City of New York, Fifty-fourth Annual Catalogue of the Regents of the University, and of the Trustees, Faculty, and Students of the College, Session of 1860–61. New York: Baker & Godwin, 1861.

College of Physicians and Surgeons in the City of New York, University of the State of New York, Fifty-third Annual Catalogue of the Regents of the University, and of the Trustees, Faculty, and Students of the College, Session of 1859–60. New York: Baker & Godwin, 1860.

Connell, Evan S. *Son of the Morning Star*. Norwalk, CT: Easton Press, 1984.

Connelly, Donald B. *John M. Schofield and the Politics of Generalship*. Chapel Hill: University of North Carolina, 2006.

Correspondence Relating to the War with Spain, 2 vols. Washington, DC: Center for Military History, 1993.

Cosmas, Graham A. *Army for Empire*, 2nd ed. Shippensburg, PA: White Mane, 1994.

Cunningham, Horace H. *Field Medical Services at the Battle of Manassas*, University of Georgia Monographs No. 16. Athens: University of Georgia, 1968.

Curtin, Philip D. *Disease and Empire: The Health of European Troops in the Conquest of Africa*. New York: Cambridge University Press, 1998.

Cushing, Harvey. *The Life of Sir William Osler*, 2 vols. Oxford: Oxford University, 1925.

Custer, Elizabeth. *Tenting on the Plains*. New York: Harper Bros., 1895. Reprint. Norman: University of Oklahoma, 1994.

Custer, George A. *My Life on the Plains or Personal Experiences with Indians*. Reprint. Norman: University of Oklahoma, 1962.

Cutler, William G. *History of the State of Kansas*. Chicago: A.T. Andreas, 1883.

Daggett, A. S. *America and the China Relief Expedition*. n. p., 1903. Reprint. Nashville: The Battery Press, 1997.

Daniels, George H. *American Science in the Age of Jackson*. Tuscaloosa: The University of Alabama, 1968.

Davis, George B., Leslie Perrin, and Joseph W. Kirkley. *The Official Military Atlas of the Civil War*. New York: Arno Press, 1978.

- Davis, William C. *The Battle at Bull Run: A History of the First Major Campaign of the Civil War*. Baton Rouge: Louisiana State University, 1977.
- DeMontravel, Peter R. *A Hero to His Fighting Men: Nelson A. Miles, 1839–1925*. Kent: Kent State University, 1998.
- Diner, Steven J. *A Very Different Age: Americans of the Progressive Era*. New York: Hill and Wang, 1998.
- Dobak, William A. *Fort Riley and its Neighbors: Military Money and Economic Growth 1853–1895*. Norman: University of Oklahoma, 1998.
- Dormandy, Thomas. *The White Death: A History of Tuberculosis*. New York: New York University, 2000.
- Duffy, John. *The Rudolph Matas History of Medicine in Louisiana*, 2 vols. Baton Rouge: Louisiana State University, 1962.
- _____. *A History of Public Health in New York City, 1866–1966*. New York: Russell Sage Foundation, 1974.
- _____. *The Healers: A History of American Medicine*. Urbana: University of Illinois, 1979.
- _____. *The Sanitarians: A History of American Public Health*. Urbana: University of Illinois, 1992.
- Duncan, Louis C. *The Medical Department of the United States Army in the Civil War*. No original publisher given. Reprint. Gaithersburg, MD: Olde Soldier Books, 1987.
- Dykstra, Robert R. *The Cattle Towns: A Social History of the Kansas Cattle Trading Centers, Abilene, Ellsworth, Wichita, Dodge City, and Caldwell, 1867–1885*. New York: Alfred Knopf, 1971.
- Eales, Anne Brunner. *Army Wives on the American Frontier: Living by the Bugles*. Boulder, CO: Johnson Books, 1996.
- Easby-Smith, James S. *Georgetown University in the District of Columbia, 1789–1907*, 2 vols. New York: Lewis Publishing, 1907.
- Edson, John N. *Brooklyn First: A Chronicle of the Long Island College Hospital, 1858–1990*. New York: n. p., 1993.
- Eggerth, Arnold H. *The History of the Hoagland Laboratory*. New York: n. p., 1960.
- Eleventh Annual Announcement of the Medical Department of the University of Buffalo, Session 1856–57*. Buffalo, NY: Thomas & Lathrop, 1857.

Ellis, John H. *Yellow Fever and Public Health in the New South*. Lexington: University of Kentucky, 1992.

Evans, Alfred S. and Philip S. Brachman. *Bacterial Infections of Humans*, 2nd ed. New York: Plenum Medical Books, 1991.

Evans, Richard J. *Death in Hamburg: Society and Politics in the Cholera Years, 1830–1910*. Oxford: Clarendon Press, 1987.

Fairchild, Charles B. comp. *History of the 27th Regiment New York Volunteers*. Binghamton, NY: Carl & Matthews, 1888.

Fee, Elizabeth. *Disease and Discovery: A History of the Johns Hopkins School of Hygiene and Public Health, 1916–1939*. Baltimore: Johns Hopkins University, 1987.

Fee, Elizabeth, and Roy M. Acheson, ed. *A History of Education in Public Health*. New York: Oxford University, 1991.

Feldberg, Georgina D. *Disease and Class*. New Brunswick, NJ: Rutgers University, 1995.

53rd Annual Catalogue, College of Physicians and Surgeons in the City of New York, 1859–60. New York: Baker & Godwin, 1860.

Fishbein, Morris. *A History of the American Medical Association, 1847–1947*. Philadelphia: W. B. Saunders, 1947.

Fisher, Irving. *Report on National Vitality, Its Wastes and Conservation*. Washington, DC: Government Printing Office, 1909.

Flexner, Abraham. *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching*. Boston: D. B. Updike, Merrymount Press, 1910.

Flexner, Simon. *William Henry Welch and the Heroic Age of American Medicine*. New York: Viking, 1941.

Foner, Jack D. *Blacks and the Military in American History*. New York: Praeger, 1974.

Foner, Philip. *Spanish-Cuban-American War and the Birth of American Imperialism*. New York: Monthly Review Press, 1972.

Foote, Shelby. *The Civil War: A Narrative*, 3 vols. New York: Random House, 1963.

French, Richard D. *Antivivisection and Medical Science in Victorian Society*. Princeton, NJ: Princeton University, 1975.

Furman, Bess. *A Profile of the United States Public Health Service, 1798–1848*. Washington, DC: Department of Health, Education, and Welfare, 1973.

- Garrison, Fielding H. *John Shaw Billings, a Memoir*. New York: Putnam's Sons, 1915.
- _____. *An Introduction to the History of Medicine*, 4th ed. Philadelphia: W. B. Saunders, 1929.
- Gates, John Morgan. *Schoolbooks and Kraggs: The United States Army in the Philippines, 1898–1902*. Westport, CT: Greenwood, 1973.
- Geison, Gerald L. *The Private Science of Louis Pasteur*. Princeton, NJ: Princeton University, 1995.
- Gerber, David A. *The Making of an American Pluralism, Buffalo, New York, 1825–60*. Urbana: University of Illinois, 1989.
- Gibson, John M. *Soldier in White*. Durham, NC: Duke University, 1958.
- Gillett, Mary C. *The Army Medical Department, 1818–1865*. Washington, DC: Center of Military History, 1987.
- _____. *The Army Medical Department, 1865–1917*. Washington, DC: Center of Military History, 1995.
- Gillson, Gordon E. *Louisiana State Board of Health: The Formative Years*. No publisher, 1967.
- Glabb, Charles N., and A. Theodore Brown. *A History of Urban America*. New York: Macmillan, 1967.
- Gorgas, William C. *Sanitation in Panama*. New York: D. Appleton, 1915.
- Gould, Lewis L. *The Spanish-American War and President McKinley*. Lawrence: University of Kansas, 1982.
- Green, Constance McLaughlin. *Washington: Village and Capital, 1800–1878*. Princeton, NJ: Princeton University, 1962.
- Guralnick, Stanley M. *Science and the Ante-Bellum American College*. Philadelphia: American Philosophical Society, 1975.
- Hagedorn, Hermann. *Leonard Wood: A Biography*, 2 vols. New York: Harper Brothers, 1931.
- Haller, John S. *American Medicine in Transition, 1840–1910*. Urbana: University of Illinois, 1981.
- Hamersly, Lewis R. *The Records of Living Officers of the U.S. Navy and Marine Corps*. Philadelphia: J. B. Lippincott, 1878.
- Hampton, Bruce. *Children of Grace: The Nez Perce War of 1877*. New York: Avon Books, 1994.

Harrington, Fred H. *Fighting Politician: Major General Nathaniel P. Banks*. Westport, CT: Greenwood Press, 1948.

Hart, Herbert M. *Tour Guide to Old Western Forts*. Boulder, CO: Pruett, 1980.

Haynes, Douglas M. *Imperial Medicine: Patrick Manson and the Conquest of Tropical Disease*. Philadelphia: University of Pennsylvania Press, 2001.

Haynes, Martin A. *A History of the Second Regiment, New Hampshire Volunteer Infantry in the War of the Rebellion*. Lakeport, NH: n. p., 1896.

Heitman, Francis B., comp. *Historical Register and Dictionary of the United States Army*. Washington, DC: Government Printing Office, 1903.

Hennessey, John. *First Battle of Bull Run*, 2nd ed. Lynchburg, VA: H. E. Howard, 1989.

Henry, R. S. *The Armed Forces Institute of Pathology, Its First Century, 1862–1962*. Washington, DC: Surgeon General's Office, 1964.

Hess, Earl J. *The Union Soldier in Battle*. Lawrence: University of Kansas, 1997.

History of Otsego County, New York. Philadelphia: Evarts and Fariss, 1878.

Hofstadter, Richard. *The Age of Reform*. New York: Vintage Books, 1955.

Hoig, Stan. *The Battle of the Washita*. Garden City, NY: Doubleday, 1976.

Holt, Roberta B. *The Associated Charities of Washington, D.C., 1882–1935: A History of Activity and Decision of the Board of Managers*. n. p., 1986.

Howard, Helen Addison. *War Chief Joseph*. Caldwell, ID: Caxton, 1941.

Howard, Oliver O. *My Life and Experiences Among Our Hostile Indians*. Reprint. New York: DaCapo Press, 1972.

Howard-Jones, Norman. *The Scientific Basis of the Sanitary Conferences, 1851–1938*. Geneva: World Health Organization, 1975.

Hume, Edgar Erskine. *Victories of Army Medicine*. Philadelphia: J. B. Lippincott, 1943.

Humphreys, Margaret. *Yellow Fever and the South*. New Brunswick, NJ: Rutgers University, 1992.

Jacobs, Henry Eyster. *A History of the Evangelical Lutheran Church in the United States*, 4th ed. New York: Charles Scribner's Sons, 1893.

Jenner, Edward. *An Inquiry into the Causes and Effects of the Variolae Vaccinae*. London: n.p., 1798. Reprint: *Classics of Medicine Library*. Birmingham, AL: Gryphon Editions, 1978.

- Jensson, J. C. *American Lutheran Biographies*. Milwaukee, WI: A. Houtkamp, 1890.
- Jessup, Philip. *Elihu Root*, 2 vols. New York: Dodd, Meade, 1938.
- Jocelyn, Stephen P. *Mostly Alkalai*. Caldwell, ID: Caxton Printers, 1953.
- Johnson, Ludwell H. *Red River Campaign: Politics and Cotton in the Civil War*. Baltimore: Johns Hopkins University, 1958.
- Johnston, Robert Mattheson. *Bull Run: Its Strategy and Tactics*. Carlisle, PA: John Kallmann, 1996.
- Joklik, Wolfgang K., Hilda P. Willett, D. Bernard Amos, and Catherine M. Wilfert, eds. *Zinsser Microbiology*, 20th ed. Norwalk, CT: Appleton & Lange, 1992.
- Jones, William H. *The Housing of Negroes in Washington, D.C.* Washington, DC: Howard University, 1929.
- Jonsen, Albert R. *A Short History of Medical Ethics*. New York: Oxford University, 2000.
- Joseph, Alvin M. *The Nez Perce Indians and the Opening of the Northwest*. New York: Houghton Mifflin, 1997.
- Kaester, Carl F. *Pillars of the Republic: Common Schools and American Society, 1780–1860*. New York: Hill and Wang, 1983.
- Kappler, C. J., ed. *Indian Treaties, 1798–1883*. New York: Interland, 1972.
- Keim, De B. Randolph. *Sheridan's Troopers on the Borders: A Winter Campaign on the Plains*. London: Rutledge, 1885. Reprint. Lincoln: University of Nebraska, 1985.
- Kelly, Howard A. and Walter L. Burrage. *Dictionary of American Medical Biography*. New York: D. Appleton, 1928.
- Knight, Oliver. *Life and Manners in the Frontier Army*. Norman: University of Oklahoma, 1978.
- Knopf, S. Adolphus. *Prophylaxis and Treatment of Pulmonary Tuberculosis*. Philadelphia: P. Blakiston's Sons, 1899.
- _____. *A History of the National Tuberculosis Association*. New York: National Tuberculosis Association, 1922.
- Kober, George M. *Report on the Housing of the Laboring Classes in the City of Washington, D.C.* Washington, DC: Government Printing Office, 1900.
- _____. *The History and Development of the Housing Movement in the City of Washington, D.C.* Washington, DC: Washington Sanitary Improvement Company, 1907.

- _____. *Report of the Committee on Social Betterment*. Washington, DC: Government Printing Office, 1908.
- _____. comp. & ed. *Complimentary Banquet to General George M. Sternberg, M.D., LL.D. on his Seventieth Birthday*. Washington, DC: n. p., 1908.
- _____. *Charitable and Reformatory Institutions in the District of Columbia*, Senate Document No. 207. Washington, DC: Government Printing Office, 1927.
- _____. *Reminiscences*, v1. Washington, DC: Georgetown University, 1930.
- Kreider, Harry J. *History of the United Lutheran Synod of New York and New England*. Philadelphia: Muhlenberg Press, 1954.
- Kuenning, Paul P. *The Rise and Fall of American Lutheran Pietism*. Macon, GA: Mercer University, 1988.
- Lamb, Daniel Smith. *History of the Medical Society of the District of Columbia, 1817–1909*. Washington, DC: Medical Society of the District of Columbia, 1909.
- Laufe, Abe, ed. *An Army Doctor's Wife on the Frontier*. Pittsburgh: University of Pittsburgh, 1962.
- Leckie, Shirley, ed. *The Colonel's Lady on the Western Frontier: The Correspondence of Alice Kirk Grierson*. Lincoln: University of Nebraska, 1989.
- Leckie, William H. *The Military Conquest of the Southern Plains*. Norman: University of Oklahoma, 1963.
- _____. *The Buffalo Soldiers: A Narrative of the Negro Cavalry in the West*. Norman, OK: University of Oklahoma, 1967.
- Leech, Margaret. *Reveille in Washington 1860–1865*. New York: Harper Brothers, 1941.
- _____. *In the Days of McKinley*. New York: Harper Brothers, 1959.
- Lesch, John E. *Science and Medicine in France*. Cambridge, MA: Harvard University, 1984.
- Letterman, Jonathan. *Medical Recollections of the Army of the Potomac*. New York: Appleton, 1866.
- LeVay, David. *The History of Orthopaedics: An Account of the Study and Practice of Orthopaedics from the Earliest Times to the Modern Era*. Park Ridge, NJ: Parthenon Publishing, 1990.
- LeVay, David. *The History of Orthopedics*. Casterton Hall, UK: Parthenon, 1990.
- Lightman, Bernard, ed. *Victorian Science in Context*. Chicago: University of Chicago, 1997.

- Linn, Brian McAllister. *The Philippine War, 1899–1902*. Lawrence: University of Kansas, 2000.
- Livermore, S. T. *A Condensed History of Cooperstown*. Albany, NY: J. Munsell, 1862.
- Lowry, Thomas P. *The Civil War Bawdy Houses of Washington, D.C.* Fredericksburg, VA: Sergeant Kirkland's Museum and Historical Society, 1997.
- Lubove, Roy. *The Progressive and the Slum*. Pittsburgh: University of Pittsburgh, 1963.
- Ludmerer, Kenneth M. *Learning to Heal: The Development of American Medical Education*. Baltimore: Johns Hopkins University, 1996.
- Machoian, Ronald G. *William Harding Carter and the American Army, A Soldier's Story*. Norman: University of Oklahoma, 2006.
- Magnin, Antoine. *Bacteria*, George M. Sternberg, trans. Boston: Little Brown and Company, 1880.
- Manson, Patrick. *Tropical Diseases*. London: Cassell and Company, 1898. Reprint: *Classics of Medicine Library*. Birmingham, AL: Gryphon Editions, 1984.
- Marcus, Benjamin, ed. *Washington During Wartime: A Series of Papers Showing the Military, Political, and Social Phases during 1861–1865*. Official Souvenir of the 36th Annual Encampment of the GAR. Washington, DC: Committee on Literature for the Encampment, 1902.
- Markel, Howard. *Quarantine!: Eastern European Jewish Immigrants and the New York City Epidemics of 1892*. Baltimore: Johns Hopkins University, 1997.
- McDermott, John Dishon. *Forlorn Hope: A Study of the Battle of White Bird Canyon, Idaho and the Beginning of the Nez Perce Indian War*. Division of History, Office of Archeology and Historic Preservation, National Park Service, U.S. Department of the Interior, Washington, DC, June 1, 1968.
- McGee, Anita Newcomb. *Women Nurses in the American Army*. Columbus, OH: Berlin Printing, 1900.
- McWhorter, Lucullus V. *Hear Me My Chiefs*. Caldwell, ID: Caxton, 1952.
- The Medical and Surgical History of the Civil War*, 12 vols. Wilmington, DE: Broadfoot, 1990.
- Medical and Surgical History of the War of the Rebellion*, 6 vols, Washington, DC: Government Printing Office, 1879–1882.
- Metchnikoff, Olga. *Life of Elie Metchnikoff, 1845–1916*. Boston: Houghton Mifflin, 1921.
- Mettler, Cecilia C. *History of Medicine*. Philadelphia: Blakiston, 1947.

Meyer, K. F. *Disinfected Mail*. Holton, KS: Gossip Printery, 1962.

Miles, Nelson A. *Serving the Republic: Memoirs of the Civil and Military Life of Nelson A. Miles*. n. p., 1911. Reprint. Cranbury, NJ: The Scholars Bookshelf, 2006.

Miles, Wyndham. *A History of the National Library of Medicine*. Bethesda, MD: National Library of Medicine, 1982.

Miley, John D. *In Cuba with Shafter*. New York: Scribners Sons, 1899.

Mitgang, Herbert, ed. *Noah Brooks, Washington, D.C. in Lincoln's Time*. Chicago: Quadrangle Books, 1971.

Moore, John H. *The Cheyenne Nation: A Social and Demographic History*. Lincoln: University of Nebraska, 1987.

Morgan, H. Wayne. *William McKinley and His America*. Syracuse, NY: Syracuse University, 1962.

Morris, Edmund. *Theodore Rex*. New York: Random House, 2001.

Mundy, James H. *Second to None: The Story of the Second Maine Volunteers: "The Bangor Regiment."* Scarborough, ME: Harp, 1992.

Musicant, Ivan. *Empire By Default: The Spanish-American War and the Dawn of the American Century*. New York: Henry Holt, 1998.

Neill, John, and Francis Gurney Smith. *An Analytical Compendium of the Various Branches of Medical Science, for the Use and Examination of Students*. Philadelphia: Blanchard and Lea, 1859.

Nenninger, Timothy K. *The Leavenworth Schools and the Old Army: Education, Professionalism, and the Officer Corps in the United States Army, 1881–1918*. Westport, CT: Greenwood, 1978.

Nevins, Allan. *Grover Cleveland: A Study in Courage*. New York: Dodd, Meade, 1932.

Noble, David N. *The Progressive Mind, 1890–1917*. Chicago: Rand McNally, 1970.

Norwood, William Frederick. *Medical Education in the United States Before the Civil War*. Philadelphia: University of Pennsylvania, 1944.

Official Army Register. Washington, DC: Adjutant General's Office, 1893.

Official Army Register. Washington, DC: Adjutant General's Office, 1898.

Oliva, Leo E. *Fort Hays*. Topeka: Kansas State Historical Society, 1980.

- _____. *Fort Wallace: Sentinel on the Smoky Hill Trail*. Topeka: Kansas State Historical Society, 1998.
- _____. *Fort Harker: Defending the Journey West*. Topeka: Kansas State Historical Society, 2000.
- _____. *Fort Riley: Citadel of the Frontier West*. Topeka: Kansas State Historical Society, 2000.
- Osler, William. *The Principles and Practice of Medicine*. New York: D. Appleton, 1892. Reprint: *Classics of Medicine Library*. Birmingham, AL: Gryphon Editions, 1978.
- _____. *Aequanimitas*, 3rd ed. Philadelphia: Blakiston, 1905.
- Otis, George A. *Report on the Transport of Sick and Wounded by Pack Animals, Circular #9*. Washington, DC: Government Printing Office, 1877.
- Otis, George H., and Alan D. Gaff. *The Second Wisconsin Infantry*. Dayton, OH: Press of Morningside Bookshop, 1984.
- Ott, Katherine. *Fevered Lives: Tuberculosis in American Culture since 1870*. Cambridge, MA: Harvard University, 1996.
- Phisterer, Frederick, comp. *New York in the War of the Rebellion, 1861–1865*, 3rd ed., 6 vols. Albany, NY: J. B. Byron, 1912.
- Pierce, John, and James Writer. *Yellow Jack: How Yellow Fever Ravaged America and Walter Reed Discovered Its Deadly Secrets*. Indianapolis: Wiley, 2005.
- Plotkin, Stanley, and Walter Orenstein. *Vaccines*, 3rd ed. Philadelphia: W. B. Saunders, 1999.
- Porter, Roy. *The Greatest Benefit to Mankind: A Medical History of Humanity*. New York: W. W. Norton, 1997.
- Preston, Diana. *The Boxer Rebellion: The Dramatic Story of China's War on Foreigners That Shook the World in the Summer of 1900*. New York: Berkley Books, 2000.
- Prudden, T. Mitchell. *Biographical Sketches and Letters*. New Haven, CT: Yale University, 1927.
- Read, J. Marion, and Mary E. Mathes. *History of the San Francisco Medical Society*. San Francisco: San Francisco Medical Society, 1958.
- Reed, Walter, Victor C. Vaughn, and Edward O. Shakespeare. *Origin and Spread of Typhoid Fever in U. S. Military Camps During the Spanish War of 1898*. Washington, DC: Government Printing Office, 1900.

Reese, Timothy J. *Sykes' Regular Infantry Division, 1861–1864: A History of Regular United States Infantry Operations in the Civil War's Eastern Theater*. Jefferson, NC: McFarland, 1990.

Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain, 8 vols. Washington, DC: Government Printing Office, 1900.

Report of the Committee on Public Health of the Medical Society of the District of Columbia on the Water Supply and Sewage Disposal in the District of Columbia. Washington, DC: Government Printing Office, 1898.

Report on Typhoid Fever in the District of Columbia Submitted by the Medical Society of the District of Columbia to the Committee on the District of Columbia of the U. S. House of Representatives, June 14, 1894. Washington, DC: Government Printing Office, 1894.

Reynolds, J. Russell, ed. *A System of Medicine*, v1. Philadelphia: Lippincott, 1866.

Rickey, Don, Jr. *Forty Miles a Day on Beans and Hay*. Norman: University of Oklahoma, 1963.

Rodgers, Daniel T. *Atlantic Crossings: Social Politics in a Progressive Age*. Cambridge, MA: Belknap, 1998.

Rogers, Katherine. *A Dinosaur Dynasty: Sternberg Fossil Hunters*. Missoula, MT: Mountain Press, 1991.

Roosevelt, Theodore. *An Autobiography*. Norwalk, CT: Easton Press, 2004.

Rosenberg, Charles E. "The Practice of Medicine in New York a Century Ago," 125–154. In: Charles E. Rosenberg, *Explaining Epidemics and other Studies in the History of Medicine*. Cambridge: Cambridge University, 1992.

_____. *The Cholera Years: The United States in 1832, 1849, and 1866*. Chicago: University of Chicago, 1962.

_____. *The Care of Strangers: The Rise of the American Hospital System*. Baltimore: Johns Hopkins University, 1985.

Ross, Ronald. *Memoirs with a Full Account of the Great Malaria Problem and its Solution*. London: John Murray, 1923.

Rothschuh, Karl E. *History of Physiology*. Huntington, NY: Robert E. Krieger, 1973.

Rothstein, William G. *American Physicians in the 19th Century: From Sects to Science*. Baltimore: Johns Hopkins University, 1985.

- Sarnecky, Mary T. *A History of the U.S. Army Nurse Corps*. Philadelphia: University of Pennsylvania, 1999.
- Saxton, William. *Soldiers in the Sun: An Adventure in Imperialism*. Harrisburg, PA: Military Service Publishing, 1939.
- Schofield, John M. *Forty-Six Years in the Army*. New York: Century, 1897. Reprint. Norman, OK: University of Oklahoma, 1998.
- Scott, H. Harold. *A History of Tropical Medicine*, 2 vols. Baltimore: Williams & Wilkins, 1942.
- Sears, Stephen W. *George B. McClellan: The Young Napoleon*. New York: Ticknor & Fields, 1888.
- _____. *To the Gates of Richmond*. New York: Houghton Mifflin, 1992.
- Sentz, Lilli, ed. *Medical History in Buffalo, 1846–1996: Collected Essays*. Buffalo, NY: Friends of the Health Sciences Library and School of Medicine and Biomedical Sciences, 1996.
- Sexton, William Thaddeus. *Soldiers in the Sun: An Adventure in Imperialism*. Harrisburg, PA: Military Service Publishing, 1939.
- Sheridan, Philip H. *Personal Memoirs of Philip H. Sheridan*, 2 vols. New York: Charles L. Webster, 1888.
- Sherman, William T. *Memoirs of William T. Sherman*, 4th ed., 2 vols. New York: Charles L. Webster, 1891.
- Shrady, John, ed. *The College of Physicians and Surgeons of New York and Its Founders, Officers, Instructors, Benefactors and Alumni: A History*, 2 vols. New York: Lewis Publishing, 1902.
- Shryock, Richard Harrison. *National Tuberculosis Association, 1904–1954*. New York: Arno, 1957.
- _____. *Medicine and Society in America: 1660–1860*. Ithaca, NY: Cornell University, 1960.
- _____. *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved*. Madison: University of Wisconsin, 1979.
- _____. *American Medical Research*. New York: Commonwealth Fund, 1947.
- Silverstein, Arthur M. *A History of Immunology*. New York: Academic Press, 1989.
- Smith, Cornelius C., Jr. *Fort Huachuca: History of a Frontier Post*. Washington, DC: Government Printing Office, 1979.

Smith, George Winston. *Medicines for the Union Army: The United States Army Laboratories During the Civil War*. New York: Haworth Press, 2001.

Snowden, Frank M. *Naples in the Time of Cholera, 1884–1911*. Cambridge: Cambridge University, 1995.

Starr, Paul. *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry*. New York: Basic Books, 1982.

Steiner, Paul E. *Disease in the Civil War: Natural Biological Warfare in 1861–1865*. Springfield, IL: Charles C Thomas, 1968.

Sternberg, Charles H. *Life of a Fossil Hunter*. New York: Henry Holt, 1909.

Sternberg, Levi. *The Story of My Life* (privately published by Martin A. Lambert, Decatur, AL, 1997).

Sternberg, Martha. *George Miller Sternberg: A Biography*. Chicago: American Medical Association, 1920.

Stille, Charles J. *History of the United States Sanitary Commission, Being the General Report of its Work during the War of the Rebellion*. Philadelphia: J. B. Lippincott, 1866. Reprint. Gansevoort, NY: Corner House, 1997.

Tauber, Alfred I., and Leon Chernyak. *Metchnikoff and the Origins of Immunology: From Metaphor to Theory*. New York: Oxford University, 1991.

Thomas, Benjamin P. and Harold M. Lyman. *Stanton, The Life and Times of Lincoln's Secretary of War*. New York: Knopf, 1962.

Tomes, Nancy. *The Gospel of Germs*. Cambridge, MA: Harvard University, 1998.

Trachtenberg, Alan. *The Incorporation of America*. New York: Hill and Wang, 1982.

Transactions, 6th International Congress on Tuberculosis, 8 vols. Philadelphia: William Fell, 1908.

Trask, David F. *The War With Spain in 1898*. New York: Macmillan, 1981.

Traxel, David. *1898: The Birth of the American Century*. New York: Vintage Books, 1998.

Truby, Albert. *A Memoir of Walter Reed*. New York: Paul E. Hoeber, 1943.

Trudeau, Edward Livingston. *An Autobiography*. Garden City, NY: Doubleday, Doran, 1944.

The Union Army: A History of Military Affairs in the Loyal States 1861–65 Records of the Regiments in the Union Army, v1. Madison, WI: Federal Publishing, 1908.

- Utley, Robert M. *Frontier Regulars: The United States Army and the Indians 1866–1891*. Lincoln: University of Nebraska, 1973.
- _____, ed. *Life in Custer's Cavalry: Diaries and Letters of Albert and Jennie Barnitz, 1867–1868*. Lincoln: University of Nebraska, 1977.
- Walsh, James J. *History of Medicine in New York*, 4 vols. New York: National Americana Society, 1919.
- Wangensteen, Owen H., and Sarah D. Wangenstein, *The Rise of Surgery: From Empiric Craft to Scientific Discipline*. Minneapolis: University of Minnesota, 1978.
- War of the Rebellion: Official Records of the Union and Confederate Armies*, 70 vols. Washington, DC: Government Printing Office, 1881–1902.
- Warner, Ezra J. *Generals in Blue: Lives of Union Commanders*. Baton Rouge: Louisiana State University, 1964.
- Warner, John Harley. *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820–1885*. Princeton, NJ: Princeton University, 1997.
- _____. *Against the Spirit of System: The French Impulse in Nineteenth Century American Medicine*. Princeton, NJ: Princeton University, 1998.
- Weigley, Russell F. *History of the United States Army*. New York: Macmillan, 1967.
- _____. *The American Way of War: A History of United States Military Strategy and Policy*. Bloomington: Indiana University, 1973.
- Weller, Charles. *Neglected Neighborhoods*. Philadelphia: John Winston, 1909.
- Wernsdorfer, Walther H., and McGregor, Sir Ian, eds. *Malaria: Principles and Practice of Malariology*, 2 vols. London: Churchill Livingstone, 1988.
- White, Benjamin. *The Biology of Pneumococcus*. New York: Commonwealth Fund, 1938.
- Widmer, Jeff. *The Spirit of Swiftwater: 100 Years at the Pocono Labs*. Scranton, PA: University of Scranton, 1998.
- Wiebe, Robert H. *The Search for Order, 1877–1920*. New York: Hill & Wang, 1967.
- Williams, Ralph C. *The United States Public Health Service, 1798–1950*. Washington, DC: Commissioned Officers Association of the United States Public Health Service, 1951.
- Winslow, C. E. A. *The Life of Hermann M. Biggs*. Philadelphia: Lea and Febiger, 1929.

Wolf, Edmund Jacob. *The Lutherans in America*. New York: J. A. Hill, 1890.

Wolff, Leon. *Little Brown Brother*. n. p., 1961. Reprint: New York: History Book Club, 2006.

Wood, George B. *A Treatise on the Practice of Medicine*, 5th ed., v1. Philadelphia: J. B. Lipincott, 1858.

Woodbury, Augustus. *The Second Rhode Island Regiment: A Narrative of Military Operations*. Providence, RI: Valpey, Angell, 1875.

Woodward, Joseph J. *Circular #1, Report on the Epidemic Cholera and Yellow Fever in the Army of the United States, During the Year 1867*. Washington, DC: Government Printing Office, 1868.

_____. *Circular #5, Report on the Epidemic Cholera in the Army of the United States During the Year 1866*. Washington, DC: Government Printing Office, 1867.

Wooster, Robert. *The Military and United States Indian Policy*. New Haven: Yale University, 1988.

Young, Kenneth Ray. *The General's General: The Life and Times of Arthur MacArthur*. Boulder, CO: Westview, 1994.

Zornow, William Frank. *Kansas: A History of the Jayhawk State*. Norman: University of Oklahoma, 1957.

Articles

"Abstract of Discussions, and Minutes of the Sixth Annual Meeting," 352–391. In: *Public Health Papers and Reports* 4, American Public Health Association, 1877–78. Boston: Houghton, Osgood and Co., 1880.

Agramonte, Aristides, "The Inside History of a Great Medical Discovery," *Scientific Monthly* 1 (Dec 1915):209–237.

Allen, Seabury W., "The Conditions at Camp Wikoff," *Boston Medical and Surgical Journal* 139 (Sep 29, 1898):326–327.

Almy, Kenneth J., "Thof's Dragon and the Letters of Capt. Theophilus H. Turner, M. D., U.S. Army," *Kansas History* 10 (Aug 1987):170–200.

Anonymous, "Article IX, The Tubercle Bacillus," Chicago Pathological Society, *Chicago Medical Examiner* 45 (Nov 1882):516–518.

Annual Reports of the War Department for the Fiscal Year Ending June 30, 1902. Report of the Lieutenant-General Commanding the Army. In Seven Parts. Washington, DC: Government Printing Office, 1902.

- Archinard, P. E. "Experiments Performed at the Charity Hospital of New Orleans and Elsewhere, with Sanarelli's Anti-Amarylic Serum in the Fall of 1898," *New Orleans Medical and Surgical Journal* 52 (Aug 1899):79–86.
- Archinard, P. E., R. S. Woodson, and John J. Archinard, "The Serum Diagnosis of Yellow Fever," *New Orleans Medical and Surgical Journal* 50 (Feb 1898):455–470.
- Ashford, Bailey K., "Observations on the Campaign in Western Porto Rico During the Spanish–American War," *Journal of the Association of Military Surgeons of the United States* 15 (1904):157–168.
- "Association News," *Journal of the American Medical Association* 38 (Apr 19, 1902):1023–1025.
- Austrian, Robert, "The enduring pneumococcus: unfinished business and opportunities for the future." In Tomasz, A., ed. *Streptococcus Pneumoniae: Molecular Biology and Mechanisms of Disease*. Larchmont, NY: Mary Ann Liebert, Inc., 2000:3–7.
- Bache, Dallas, "The Place of the Female Nurse in the Army," *Journal of the Military Service Institution* 25 (Nov 1899):307–328.
- Baldwin, J. F., "The Detmold Method of Controlling Inoperable Hemorrhage," *Military Surgeon* 72 (Jan 1933):34–36.
- Baldwin, William H., "General George M. Sternberg: An Appreciation," *Journal of the Outdoor Life* 12 (Dec 1915):388–389.
- Barnhard, F. A. P., "The Germ Theory of Disease and its Relations to Hygiene," *Public Health Papers and Reports* 1, American Public Health Association, 1873. New York: Hurd and Houghton, 1875.
- Bartholaw, Roberto, "Dr. Sternberg's View of the Action of Potassium as an Antiseptic," *Medical News* 66 (Jan 17, 1885):83.
- Bean, William B., "Walter Reed and the Ordeal of Human Experiments," *Bulletin of the History of Medicine* 51 (1977):75–92.
- Behring, Emil, and Shibasaburo Kitasato, "The mechanism of immunity in animals to diphtheria and tetanus." In: Thomas D. Brock, ed. *Milestones in Microbiology, 1546–1940*. Washington, DC: ASM Press, 1999: 138–140.
- Behring, Emil, and Shibasaburo Kitasato, "Studies on the mechanism of immunity to diphtheria in animals." In: Thomas D. Brock, ed., *Milestones in Microbiology, 1546–1940*. Washington, DC: ASM Press, 1999: 141–144.
- Belfield, William T., "Letters from Vienna Concerning Koch's Announcement of the Discovery of the Tubercle Bacillus," *Chicago Medical Journal and Examiner* 44 (Jun 1882):613–617, 45 (Jul 1882):37–39, and 45 (Aug 1882):170–173.

Bell, A. N., "Report of the committee on disinfection of rags." In: *Public Health Papers and Reports* 12, American Public Health Association, 1886. Concord, NH: Republican Press, 1887: 170–197.

Bemiss, S. M., "The Fever on the Lower Mississippi," *National Board of Health Bulletin* 2 (Oct 9, 1880):553–557.

Bibel, Debra Jan, "Sternberg, Metchnikoff, and the Phagocytes," *Military Medicine* 147 (Jul 1982):550–553.

Billings, Frank, "Recent Work at the Pathobiological Laboratory State University," *Medical Register* 5 (Apr 6, 1889):328–330.

Book review, *American Journal of the Medical Sciences* 81 (Apr 1881):496–497.

Book review, *Medical Record* 19 (Mar 12, 1881):298.

Borden, William C., "Hospital Corps Instruction at Military Posts," 401–412. *Proceedings of the Fifth Annual Meeting of the Association of the Military Surgeons of the United States*, 1895. Cincinnati, OH: Earhart & Richardson, 1896.

Breckinridge, Joseph C., "Report of the Inspector-General: Medical Department," 432–443. In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1902. Volume I. Report of the Secretary of War and Reports of Bureau Chiefs*. Washington, DC: Government Printing Office, 1903.

Brieger, Gert H., "American Surgery and the Germ Theory of Disease," *Bulletin of the History of Medicine* 40 (1966):135–145.

Brown, Ira C., "Camp Wikoff, Montauk Point, New York, in 1898," *Military Surgeon* 28 (Jan 1911):270–287.

Bruns, J. Dickson, and J. P. Davidson, "The Rice Fever," *New Orleans Medical and Surgical Journal* 8 (Oct 1880):382–398.

Burtenshaw, J. H., "Caring for the Sick and Wounded at Camp Wikoff, Montauk Point, Long Island," *Medical News* 73 (Sep 1898):234–238.

Bylebyl, Jerome J., "William Beaumont, Robley Dunglison, and the 'Philadelphia Physiologists,'" *Journal of the History of Medicine and Allied Sciences* 25 (1970):3–21.

"Camp Wikoff: An Account of the Diseases Prevalent There," *New York Medical Journal* 68 (Oct 1, 1898):491–493.

"Carmona's Yellow Fever Inoculation," *New Orleans Medical and Surgical Journal* 13 (Feb 1886):626–629.

- Carpenter, Dudley N., "The Condition of the Sick and Wounded in the Santiago Campaign – Inefficiency in Providing Hospital Supplies," *Medical News* 73 (Aug 6, 1898):172–179.
- Carter, Henry Rose, "A Note on the Interval between Infecting and Secondary Cases of Yellow Fever from the Records of the Yellow Fever at Orwood and Taylor, Mississippi in 1898," *New Orleans Medical and Surgical Journal* 52 (May 1900):617–636.
- Cassedy, James H., "The Microscope in American Medical Science, 1840–1860," *Isis* 67 (1976):76–97.
- _____, "An American Clerical Crisis: Minister's Sore Throat, 1830–1860," *Bulletin of the History of Medicine* 53 (1979):23–38.
- Calvins, Harold, "The National Quarantine and Sanitary Conventions of 1857 to 1860 and the Beginning of the American Public Health Association," *Bulletin of the History of Medicine* 13 (Jan 1943):404–426.
- Chaffee, Adna R., "China Relief Expedition." In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1900. Report of the Lieutenant-General Commanding the Army. In Seven Parts.* Washington, DC: Government Printing Office, 1900: 5–43.
- _____, "Report of Maj. Gen. Adna R. Chaffee, U.S. Army, Commanding the Division of the Philippines." In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1902. Volume IX. Report of the Lieutenant-General Commanding the Army and Department Commanders.* Washington, DC: Government Printing Office, 1902: 186–206.
- Chaille, Stanford E., "The Yellow Fever, Sanitary Condition, and Vital Statistics of New Orleans during Its Military Occupation, the Four Years 1862–5," *New Orleans Medical and Surgical Journal* 23 (1870):563–598.
- Clapsaddle, David K., "Conflict and Commerce on the Santa Fe Trail," *Kansas History* 16 (Summer 1993):124–137.
- Clary, David A., "The Role of the Army Surgeon in the West: Daniel Weisel at Fort Davis, Texas, 1868–1872," *Western Historical Quarterly* 3 (Jan 1972):53–66.
- Coleman, William, "Koch's Comma Bacillus: The First Year," *Bulletin of the History of Medicine* 61 (1987):315–342.
- Culbertson, J. C., "Surgeon General of the United States Navy," *Journal of the American Medical Association* 20 (May 27, 1893):594.
- Culbertson, J. C., "The Surgeon General of the United States Army," *Journal of the American Medical Association* 20 (June 3, 1893):617.

Curry, Joseph J., "U.S. Army Pathological Laboratories in the Philippine Islands," *Boston Medical and Surgical Journal* 144 (Feb 21, 1901):175–177.

Curtis, Edward, "On the cryptogamic origin of disease, with special reference to recent microscopic investigations on that subject." In: *Transactions of the American Medical Association* 20. Philadelphia: Collins Printers, 1869: 467–472.

Duffy, John, "The History of Asiatic Cholera in the United States," *Bulletin of the New York Academy of Medicine* 47 (Oct 1971):1152–1168.

Duncan, Louis, "The Strange Case of Surgeon General Hammond," *Military Surgeon* (Jan 1929):98–110 and (Feb 1929):252–261.

Dunnington, F. P., "A Sketch of Dr. John Mallet," *Journal of Chemical Education* 5 (Feb 1928):183–188.

Dykstra, Robert R., "Ellsworth, 1869–1875: The Rise and Fall of a Kansas Cowtown,"

Editorial, *Buffalo Medical Journal* 13 (Jul 1857):2, 13 (Jan 1858):8, 14 (Aug 1858):3.

Editorial, "Criminal Incompetency in the Army – Prompt Action Demanded," *Medical News* 73 (Aug 6, 1898):177–179.

Editorial, "The Health of the Army in the Spanish War," *Boston Medical and Surgical Journal* 139 (Dec 29, 1898):662–663.

Editorial, "The Hospital at Portsmouth, R.I.," *Boston Medical and Surgical Journal* 67 (1862):114–118.

Editorial, "Sanarelli and the Pathogenic Role of the Bacillus Icteroides," *Medical News* 75 (12 Aug 1899):209–210.

Editorial, "The Surgeon-General of the Army and His Critics," *New York Medical Journal* 48 (Dec 8, 1898):820–822.

Editorial, "Surgeon-General Sternberg: Two Opinions," *Journal of the American Medical Association* 32 (Mar 18, 1899):620.

Editorial, "Yellow Fever and Its Transmission," *Journal of the American Medical Association* 36 (23 Feb 1901):508.

Editorial, "The Yellow Fever Commission and the American Public Health Association," *New Orleans Medical and Surgical Journal* 6 (Dec 1878):496–504.

Ehrlich, Paul, "A method for staining the tubercle bacillus," 118–120. In: Thomas D. Brock, *Milestones in Microbiology, 1546–1940*, Washington, DC: ASM Press, 1999.

- Faget, J. C., "Type and Specific Character of True Yellow Fever, as Shown by Observations Taken with the Assistance of the Thermometer and Second-hand Watch," *New Orleans Medical and Surgical Journal* 1 (Sep 1873):145–168.
- Farrow, Edward S., "The assembling of the soldiers and the Battle of Clearwater." In: Cyrus T. Brady, ed., *Northwestern Fights and Fighters*. Garden City, NY: Doubleday Page, 1913: 151–163.
- Fee, Elizabeth, and Evelyn M. Hammonds, "Science, politics, and the art of persuasion: promoting the new scientific medicine in New York City." In: David Rosner, ed., *Hives of Sickness: Public Health and Epidemics in New York City*. New Brunswick, NJ: Rutgers University, 1995: 155–196.
- Finlay, Carlos J., "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever," *Medical Classics* 2. Baltimore: Williams & Wilkins, 1937:590–612.
- _____, "Yellow Fever: Its Transmission by Means of the Culex Mosquito," *American Journal of the Medical Sciences* 92 (Oct 1886):395–406.
- _____, "Inoculations for Yellow Fever by Means of Contaminated Mosquitoes," *American Journal of the Medical Sciences* 102 (Sep 1891):264–268.
- _____, "Transmission of yellow fever by the culex mosquito." In: Cesar R. Exposito, comp., *Obras Completas*, v3. Havana: Academia de Ciencias de Cuba, 1967: 181–189.
- Flaumenhaft, Eugene, and Carol Flaumenhaft, "Evolution of America's Pioneer Bacteriologist: George M. Sternberg's Formative Years," *Military Medicine* 158 (Jul 1993):448–457.
- Forest, W. E., "The Cost of Yellow Fever Epidemics – The Epidemic at Decatur, Ala., in 1888," *Medical Record* 35 (Jun 8, 1889):620–626.
- "Freire's Yellow Fever Microbe," *New Orleans Medical and Surgical Journal* 13 (Jan 1886):547–551.
- Fye, W. Bruce, "H. Newell Martin – A Remarkable Career Destroyed by Neurasthenia and Alcoholism," *Journal of the History of Medicine and Allied Science* 40 (Apr 1985):133–166.
- _____, "Growth of American physiology, 1850–1900." In: Gerald L. Geison, ed. *Physiology in the American Context, 1850–1940*. Bethesda, MD: American Physiology Society, 1987: 47–65.
- Gage, Simon Henry, "Microscopy in America (1830–1945)," *Transactions of the American Microscopical Society* 83, Supplement (Oct 1964):9–105.
- Garfield, Marvin H., "Defense of the Kansas Frontier, 1866–1867," *Kansas Historical Quarterly* 1 (Aug 1932):326–344.

Garipey, Thomas P., "The Introduction and Acceptance of Listerian Antisepsis in the United States," *Journal of the History of Medicine and Allied Sciences* 49 (Apr 1994):167–206.

Geddings, H. D., "The causal relationship of the bacillus icteroides (sanarelli) to yellow fever." In: *Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States*. Washington, DC: Government Printing Office, 1900: 703–706.

Gernsheim, Helmut and Alison, "The Photographic Arts: Photography." In: Charles Singer, E. J. Holmyard, A. R. Hall, and Trevor I. Williams, eds., *A History of Technology, Late Nineteenth Century, 1850–1900*, vol. 5. Oxford: Clarendon Press, 1958: 716–733.

Gillett, Mary C., "A Tale of Two Surgeons," *Medical Heritage* 1 (Nov/Dec 1985):404–413.

_____, "Medical Care and Evacuation during the Philippine Insurrection, 1899–1901," *Journal of the History of Medical and Allied Sciences* 42 (Apr 1987):169–185.

_____, "U. S. Army Medical Officers and Public Health in the Philippines in the Wake of the Spanish-American War, 1898–1905," *Bulletin of the History of Medicine* 64 (1990):567–587.

Girard, Alfred C., "Report on the materials used in Lister's system," Circular Orders No. 3, August 20, 187, 1–12. In: *Circulars Orders, etc.*, Surgeon General's Office, 1876–1878, Historical Division, National Library of Medicine. Bethesda, MD.

Godfrey, Edward S., "Some Reminiscences, Including an Account of General Sully's Expedition against the Southern Plains Indians," *U.S. Cavalry Journal* 36 (Jul 1927):417–425.

_____, "Some Reminiscences, Including the Washita Battle, Nov 27, 1868," *U.S. Cavalry Journal* 37 (Oct 1928):481–500.

Gossel, Patricia Peck, "William Henry Welch and the Antivivisection Legislation in the District of Columbia, 1896–1900," *Journal of the History of Medicine and Allied Sciences* 40 (Oct 1985):397–419.

Greenleaf, Charles R., "A brief statement of the sanitary work so far accomplished in the Philippine Islands, and of the present shape of their sanitary administration." In: *Public Health Papers and Reports* 27, American Public Health Association, September 1901. Columbus, OH: Berlin Printing, 1902: 157–165.

Greenleaf, Henry S., "The United States Army Medical Department in the Field," *New York Medical Journal* 48 (Aug 6, 1898):196–198.

Guiteras, Juan, "Experimental Yellow Fever at the Inoculation Station of the Sanitary Department of Havana with a View to Producing Immunization," *American Medicine* 2 (1901):809–817.

- Hannold, Elizabeth, "Comfort and Respectability: Washington's Philanthropic Housing Movement," *Washington History* 4 (Fall/Winter 1992-93):21-39.
- Hardy, Anne, "Cholera, Quarantine, and the English Preventive System, 1850-1895," *Medical History* 37 (1993):250-269.
- Havard, Vallery, "Sanitation and Yellow Fever in Havana," *Sanitarian* 47 (1901):13-21, 121-128.
- Herrick, S. S., "Review of Yellow Fever in New Orleans, 1869-1874," *New Orleans Medical and Surgical Journal* 6 (Mar 1875):645-652.
- Herron, James S., "Yellow Fever at Pensacola in 1874," 195-199. In: *Annual Report, Supervising Surgeon-General of the Marine Hospital Service of the United States for the Fiscal Year 1874*. Washington, DC: Government Printing Office, 1874.
- _____, "Yellow Fever at Barrancas, near Pensacola, Fla., in 1875," 139-143. In: *Annual Report, Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1875*. Washington, DC: Government Printing Office, 1876.
- Hiller, Henrietta, "Biography of Rev. G. B. Miller, DD." In: *Memorial Volume of the Semi-Centennial Anniversary of Hartwick Seminary*. Albany, NY: Joel Munsell, 1867: 71-80.
- Hoff, John van R., "What is the most practicable plan of sanitary organization for active service in the United States Army." In: *Proceedings of the Sixth Annual Meeting of the Association of Military Surgeons of the United States*, 1896. Cincinnati, OH: Superior Publishing, 1897: 207-230.
- Holt, Joseph M., "The Yellow Fever Commission," *New Orleans Medical and Surgical Journal* 13 (Feb 1886):623-624.
- Hook, Edward W., and H. Hunter Handsfield, "Gonococcal infections in the adult." In: King K. Holmes, Per-Anders Mardh, P. Frederick Sparling, and Paul J. Wiesner, eds., *Sexually Transmitted Diseases*, 2nd ed. New York: McGraw-Hill, 1990: 149-159.
- Howard-Jones, Norman, "Cholera Therapy in the Nineteenth Century," *Journal of the History of Medicine and Allied Sciences* 27 (Oct 1972):373-395.
- Hume, Edgar E., "The Sternberg Medal." In: "Medals of the United States Army Medical Department and Medals Honoring Army Medical Officers," *Numismatic Notes and Monographs* No. 98. New York: American Numismatic Society, 1942: 30-40.
- Jacobs, Philip P., "A Tuberculosis Preventorium for Children," *Journal of the Outdoor Life* 6 (Dec 1909):361-363.

Kalisch, Philip, "Heroines of '98: Female Army Nurses in the Spanish-American War," *Nursing Research* 24 (Nov-Dec 1975):411-429.

Kansas Historical Quarterly 37 (Summer 1967):161-192.

Kelly, Howard, "George Miller Sternberg, 1838-1915," *Bulletin of the Johns Hopkins Hospital* 32 (Jan 1921):1-5.

Kinyoun, Joseph J., "Preliminary Report on the Treatment of Variola by its Antitoxine," *Abstract of Sanitary Reports* 10 (Jan 18, 1895):31-35.

Knopf, S. Adolphus, "Sanitariums for the Treatment and Prophylaxis of Pulmonary Phthisis," *New York Medical Journal* 58 (Oct 5, 1893):419-465.

_____, "The urgent need of sanatoria for the consumptive poor of our large cities." In: *Public Health Papers and Reports* 23, American Public Health Association, 1897. Concord, NH: Republican Press, 1898: 302-309.

Kober, George M., "General Albert J. Myer and the United States Weather Bureau," *Military Surgeon* 65 (Jul 1929):65-82.

Koch, Robert, "Methods for the study of pathogenic organisms." In: Thomas D. Brock, ed., *Milestones in Microbiology, 1546-1940*. Washington, DC: ASM Press, 1999: 101-108.

_____, "The etiology of tuberculosis." In: Thomas D. Brock, ed., *Milestones in Microbiology, 1546-1940*. Washington, DC: ASM Press, 1999: 109-115.

Kolpinski, Louis, "The Santiago Campaign," *Journal of the American Medical Association* 31 (Dec 3, 1898):1355-1356.

Lamb, Daniel Smith, "The Army Medical Museum in American Anthropology," *Proceedings of the Nineteenth International Congress of Americanists*, 1915: 625-632.

_____, "The Army Medical Museum, Washington, D.C.," *Military Surgeon* 53 (Aug 1923):89-140.

Landis, H. R. M., "The Reception of Koch's Discovery in the United States," *Annals of Medical History* 4 (n.s.) (1932):531-537.

Leidy, Joseph, "Contributions to the extinct vertebrate fauna of the western territories." In: Hayden, F. V., ed., *Report of the United States Geological Survey of the Territories*, 5 vols. Washington, DC: Government Printing Office, 1873: 269-303.

Leiker, James N., "Voices from a Disease Frontier: Kansas and Cholera, 1867," *Kansas History* 17 (Winter 1994-95):236-252.

- Leonard, Carol, and Isidor Wallimann, "Prostitution and Changing Morality in the Frontier Cattle Towns of Kansas," *Kansas History* 2 (1979):34–53.
- Litzerich, "Fungus as a Cause of Whooping Cough," *Half-Yearly Abstract of the Medical Sciences* 52 (Jul 1871):49.
- Lippincott, Henry, "Reminiscences of the Expedition to the Philippine Islands." In: *Proceedings of the 8th Annual Meeting of the Association of Military Surgeons of the United States, 1899*. Columbus, OH: Berlin Printing, 1900: 168–174.
- MacArthur, Arthur, "Annual Report of Maj. Gen. Arthur MacArthur, U. S. V., Commanding Division of the Philippines, Military Governor in the Philippine Islands." In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1900. Report of the Lieutenant-General Commanding the Army. In Seven Parts, Part 3*. Washington, DC: Government Printing Office, 1900: 59–72.
- _____, "Annual Report of Maj. Gen. Arthur MacArthur, U. S. V., Commanding Division of the Philippines, Military Governor in the Philippine Islands." In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1901. Report of the Lieutenant-General Commanding the Army. In Four Parts, Part 2*. Washington, DC: Government Printing Office, 1901: 89–114.
- "Malaria and Mosquitoes," *Journal of the American Medical Association* 35 (Oct 20, 1900):1039.
- Malkin, Harold M., "The Trials and Tribulations of George Miller Sternberg (1838–1915) – America's First Bacteriologist," *Perspectives in Biology and Medicine* 36 (Summer 1993):666–678.
- Manson, Patrick, "On the Development of the *Filaria Sanguinis Hominis* and on the Mosquito Considered as a Nurse," *Transactions Linnean Society* 14 (Aug 31, 1878): 304–311.
- Mason, Charles F., "Equipment and Instruction of Sanitary Soldiers of the U. S. Army and National Guard." In: *Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States, 1894*. St. Louis: Buxton & Skinner, 1894: 361–384.
- McFarland, Joseph, "The Beginning of Bacteriology in Philadelphia," *Bulletin of the History of Medicine* 5 (1937): 149–200.
- "Memorial Meeting in Honor of George Miller Sternberg," *Washington Medical Annals* 15 (Mar 1916):81–95.
- Miles, Nelson A., "The War With Spain – I-III," *North American Review* 168 (May 1899):513–529, (Jun 1899):749–760, and 169 (Jul 1899):125–137.

Miller, George B., "A Letter from Rev. G.B. Miller, D.D., Written to His Daughter Henrietta, Now Mrs. A. Hiller, 55 Years Ago," *The Monthly*, Hartwick Seminary, Oct 1908:3–6.

Moleschott, Jacob, W. Erhardt, and George M. Sternberg, trans., "Abstract of the Conclusions Adopted and Propositions Rejected by the Technical Commission of the International Sanitary Conference of Rome," 279–303. In: *Annual Report, Supervising Surgeon-General of the Marine Hospital Service of the United States*, 1886. Washington, DC: Government Printing Office, 1886.

"Notes and News," *Science* 6 (Dec 18, 1885):535.

Nott, Josiah Clark, "On the Natural History of Yellow Fever," *Medical Record* 6 (Dec 1871):451–456.

"Obituary, Dr. J. O. Hirschfelder," *California State Journal of Medicine* 19 (Apr 1920):137–138.

Oblensky, Florence E., "John Shaw Billings, 12 April 1838–11 March 1913: On the One Hundred and Twenty-ninth Anniversary of his Birth," *Military Medicine* 132 (Apr 1967):286–291.

Ogawa, Mariko, "Uneasy Bedfellows: Science and Politics in the Refutation of Koch's Bacterial Theory of Cholera," *Bulletin of the History of Medicine* 74 (Winter 2000):671–707.

Omer, George E., "An Army Hospital: From Dragoons to Rough Riders – Fort Riley, 1853–1903," *Kansas Historical Quarterly* 23 (Winter 1957):337–367.

Otis, Ewell S., "Report of Major-General E. S. Otis, U. S. Army, Commanding the Division of the Philippines, and Military Governor of the Philippine Islands." In: *Annual Reports of the War Department for the Fiscal Year Ending June 30, 1900. Report of the Lieutenant-General Commanding the Army. In Seven Parts, Part 2*. Washington, DC: Government Printing Office, 1900: 199–340.

Parker, Dangerfield, "The regular infantry in the first Bull Run campaign." In: *United Service Journal* 13. New York: T. H. S. Hamersley, 1885: 521–531.

Parkes, Edmund, *Parkes' Hygiene*. New York: William Wood, 1883.

Parnell, William R., "The Salmon River expedition." In: Cyrus T. Brady, ed., *Northwestern Fights and Fighters*. Garden City, NY: Doubleday Page, 1913: 127–136.

Pasteur, Louis, "Sur une maladie nouvelle provoquee par la salive d'un enfant mort de rage," *Compt. Rend. Acad. D. Science de Paris* 92 (1881):92, 159.

Peltier, Leonard F., "A Brief History of Traction," *Journal of Bone and Joint Surgery* 50–A8 (Dec 1968):1603–1617.

- Powers, Ramon, and Gene Younger, "Cholera on the Plains: The Epidemic of 1867 in Kansas," *Kansas Historical Quarterly* 37 (Winter 1971):351–343.
- Powers, Ramon, and Gene Younger, "Cholera and the Army in the West: Treatment and Control in 1866 and 1867," *Military Affairs* 39 (April 1975):49–54.
- Prescott, W. H., "Camp Wikoff, Montauk, L. I.," *Boston Medical and Surgical Journal* 140 (Jan 26, 1899):82–84.
- Pritchard, William Broadus, "A True Pen-Picture of Camp Wikoff," *Medical News* 73 (Sep 10, 1898):331–334.
- Prudden, T. Mitchell, "On the Occurrence of the Bacillus Tuberculosis in Tuberculous Lesions," *Medical Record* 23 (Apr 14, 1883):397–400.
- _____, "On the Occurrence of Tubercles in which the Bacillus Tuberculosis Is Not Demonstrable by the Ordinary Method of Staining," *Medical Record* 23 (Jun 16, 1883):645–649.
- Rauch, John, "Coast defenses against Asiatic cholera." In: *Public Health Papers and Reports* 11, American Public Health Association, 1885. Concord, NH: Republican Press, 1886: 125–153.
- Ravenel, Mazyck P., "The relation between human and bovine tuberculosis." In: *Public Health Papers and Reports* 29, American Public Health Association, 1903. Concord, NH: Republican Press, 1904: 31–38.
- Reasoner, M. A., "The Development of the Medical Supply Service," *Military Surgeon* 63 (Jul 1928):1–21.
- Reed, Walter, "The germicidal value of trikresol." In: *Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States*. St. Louis: Buxton and Skinner Stationery, 1894: 199–208.
- _____, and James Carroll. "Bacillus Icteroides and Bacillus Cholerae Suis: A Preliminary Note," *Medical News* 74 (Apr 29, 1899):513–514.
- _____, and James Carroll. "The Etiology of Yellow Fever: A Supplemental Note," *American Medicine* 3 (Feb 22, 1902):301–305.
- _____, and James Carroll, Aristides Agramonte, and Jesse Lazear. "The Etiology of Yellow Fever: A Preliminary Note," *Philadelphia Medical Journal* 6 (Oct 27, 1900):790–796.
- _____, and James Carroll, Aristides Agramonte, and Jesse Lazear. "The Etiology of Yellow Fever: An Additional Note," *Journal of the American Medical Association* 36 (Feb 16, 1901):431–440.

_____, "The Propagation of Yellow Fever: Observations Based on Recent Researches," *Medical Record* 60 (Aug 10, 1901):201–209.

_____, "Recent Researches Concerning the Etiology, Propagation, and Prevention of Yellow Fever, by the United States Army Commission," *Journal of Hygiene* 2 (Apr 1, 1902):101–119.

Reilly, Frank W., "The Yellow-Fever Epidemic of 1873." In: *Annual Report, Supervising Surgeon-General of the Marine-Hospital Service of the United States, for the Fiscal Year 1874*. Washington, DC: Government Printing Office, 1874: 203–245.

Reynolds, James B., "Report on the housing of the poor." In: Sternberg, George, ed., *Preliminary Report of the President's Homes Commission*. Washington, DC: Published by the Commission, Jun 29, 1907: 2–6.

Rosen, George, "From Frontier Surgeon to Industrial Hygienist," *American Journal of Public Health* 65 (Jun 1975):638–643.

_____, "The Committee of One Hundred on National Health and the Campaign for a National Health Department, 1906–1912," *American Journal of Public Health* 62 (1972):261–263.

Ruhrah, John, "Willard Parker," *Annals of Medical History* 5 (May 1933):205–214.

Sanarelli, Giuseppi, "Some Observations and Controversial Remarks on the Specific Cause of Yellow Fever," *Medical News* 75 (Aug 12, 1899):194–199.

Schaeffer, Harold F., "Nineteenth Century American Microscopy," *Microscope and Crystal Front* 14 (1965):464–469.

Schenk, Jerome M., "Sternberg and the Fort Harker Cholera Epidemic of 1867," *Journal of the Kansas Medical Society* 45 (May 1944):161–163.

Schuppert, M., "The Results of Lister's Antiseptic Treatment of Wounds in German Hospitals, and Remarks on the Theory of Septic Infection," *New Orleans Medical and Surgical Journal* 4 (Mar 1876):613–642.

Senn, Nicholas, "Mission of the Association of the Military Surgeons of the National Guard," *Journal of the American Medical Association* 18 (Apr 30, 1892):546–550.

_____, "Conservative surgery on the battlefield and first aid to the wounded." In: *Proceedings of the Fifth Annual Meeting of the Association of Military Surgeons of the United States, 1895*. Cincinnati, OH: Superior Printers, 1896: 123–142.

_____, "The Returning Army," *Journal of the American Medical Association* 31 (Sep 17, 1898):652–654.

- _____, "The National Cry," *Journal of the American Medical Association* 31 (Sep 17, 1898):654–656.
- _____, "Our Relief Societies," *Journal of the American Medical Association* 31 (Sep 17, 1898):656–658.
- _____, "Recent Experiences in Military Surgery after the Battle of Santiago," *Journal of the American Medical Association* 31 (Nov 12, 1898):1164–1172.
- _____, "The Surgery at Camp Wikoff," *Journal of the American Medical Association* 31 (Nov 26, 1898):1295–1301.
- Shafter, William R., "The Capture of Santiago de Cuba," *Century* 57 (Feb 1899):612–630.
- Shrady, George F., "The Wounded After Siboney," *Medical Record* (Jul 30, 1898):161–162.
- _____, "Who Is to Blame for the Neglect of the Sick and Wounded?" *Medical Record* (Aug 20, 1898):269.
- Smart, Charles, "Surgeon-General Sternberg: Two Opinions," *Journal of the American Medical Association* 32 (Mar 25, 1899):678.
- Smith, Dale C., "Austin Flint and Auscultation in America," *Journal of the History of Medicine and Allied Sciences* 33 (Apr 1978):129–149.
- _____, and Lorraine Sanford. "Laveran's Germ: The Reception and Use of a Medical Discovery," *American Journal of Tropical Medicine and Hygiene* 34 (1985):2–20.
- _____, "A Historical Overview of the Recognition of Appendicitis – Part I," *New York State Journal of Medicine* 86 (Nov/Dec 1986):571–647.
- _____, "Nicholas Senn and the Origins of Association of Military Surgeons of the United States," *Military Medicine* 164 (Apr 1999):243–246.
- _____, "The Rise and Fall of Typhomalarial Fever: I. Origins," *Journal of the History of Medicine and Allied Sciences* 37 (Apr 1982):182–220.
- _____, "The Rise and Fall of Typhomalarial Fever: II. Decline and Fall," *Journal of the History of Medicine and Allied Sciences* 37 (Jul 1982):287–321.
- Smith, William M., "The New York Quarantine Establishment." In: *Public Health Papers and Reports* 15, American Public Health Association, 1889. Concord, NH: Republican Press, 1890: 201–207.
- Stark, William C., "The United States General Hospital at Cleveland, Ohio, 1862–1865," *Lincoln Herald* 85 (1983):122–132.

Sternberg, Levi, "The Lord's Supper," *Evangelical Quarterly Review* 14 (1863):558–578.

Sutton, R. Stansbury, "A Story of Chickamauga," *Journal of the American Medical Association* 31 (Sep 17, 1898):665.

"The Army and Quarantine," *Medical Record* 54 (Jul 30, 1898):161.

"The National Academy of Sciences on the Proposed Legislative Restriction of Vivisection," *Boston Medical and Surgical Journal* 134 (May 14, 1896):498–499.

"The Responsibility for Army Medical Defects," *New York Medical Journal* 48 (Sep 24, 1898):453–454.

"The Wounded After Siboney," *Medical Record* 54 (Jul 30, 1898):161–162.

"The Yellow Fever Commission," *New Orleans Medical and Surgical Journal* 13 (Feb 1886):629–632.

"The Yellow Fever Commission," *New Orleans Medical and Surgical Journal* 13 (Mar 1886):722–728.

"The Yellow Fever Commission," *New Orleans Medical and Surgical Journal* 13 (Jun 1886):964–972.

"This Week," *American Medical Times* 6 (Jan 3, 1863):10.

Thompson, Erwin N., "The Summer of '77 at Fort Lapwai," *Idaho Yesterdays* 21 (Summer 1977):11–15.

Tomes, Nancy J., "American Attitudes toward the Germ Theory of Disease: Phyllis Allen Richmond Revisited," *Journal of the History of Medicine and Allied Sciences* 52 (Jan 1997):17–50.

Trent, Josiah C., "The Story of Yellow Fever VI: George Miller Sternberg, 1838–1915," *North Carolina Medical Journal* 7 (Jun 1946):259–261.

Trimble, Joel G., "The Battle of the Clearwater." In: Cyrus T. Brady, ed., *Northwestern Fights and Fighters*. Garden City, NY: Doubleday, Page, 1913: 137–150.

Tryon, J. Rufus, "Epidemic of yellow fever at the Navy Yard, Pensacola, FLA. during the summer and fall of 1874." In: H. C. Nelson, ed., *Sanitary and Medical Reports for 1873–74 by Officers of the U. S. Navy*. Washington, DC: Government Printing Office, 1875: 451–470.

Turrill, H. S. "Instruction of the Hospital Corps of the U. S. Army." In: *Proceedings of the Fifth Annual Meeting of the Association of the Military Surgeons of the United States*, 1895. Cincinnati, OH: Earhart & Richardson, 1896: 394–400.

- Utley, Robert M., "Oliver Otis Howard," *New Mexico Historical Review* 62 (Jan 1987):55–64.
- Vaughn, Victor, "The Care of the Wounded at Santiago," *Medical Record* 54 (Aug 27, 1898):323–324.
- Ward, R. A., "The Influence of Ronald Ross upon the Early Development of Malaria Vector Control Procedures in the United States Army," *American Journal of Tropical Medicine and Hygiene* 22 (Aug 1973):207–209.
- Warner, Deborah Jean, "The Campaign for Medical Microscopy in Antebellum America," *Bulletin of the History of Medicine* 69 (1995):367–386.
- Warner, John Harley, "The fall and rise of professional mystery." In: Andrew Cunningham and Perry Williams, eds., *The Laboratory Revolution in Medicine*. Cambridge: Cambridge University, 1992: 110–141.
- Warner, Margaret, "Hunting the Yellow Fever Germ: The Principle and Practice of Etiological Proof in Late Nineteenth-Century America," *Bulletin of the History of Medicine* 59 (1985):361–382.
- Wengert, James W., "The Contract Surgeon," *Journal of the West* 36 (Jan 1997):67–76.
- White, Lonnie J., "The Cheyenne Barrier on the Kansas Frontier, 1868–1869," *Arizona and the West* 4 (Spring, 1962):51–64.
- _____, "General Sully's Expedition to the North Canadian, 1868," *Journal of the West* 11 (1972):75–98.
- Woodward Obituary, *Journal of the American Medical Association* 3 (Aug 30 1884):249–251.
- Woodworth, John M., "A brief review of the organization and purpose of the Yellow Fever Commission." In: *Public Health Papers and Reports* 4, American Public Health Association, 1877–78. Boston: Houghton Osgood, 1880: 167–168.
- "Yellow Fever," *New Orleans Medical and Surgical Journal* 16 (Oct 1888):313–314.
- "Yellow Fever Inoculation," *New Orleans Medical and Surgical Journal* 14 (Feb 1887):623–624.
- Zwink, Timothy A., "E. W. Wynkoop and the Bluff Creek Council, 1866," *Kansas Historical Quarterly* 43 (Summer 1977):217–239.

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