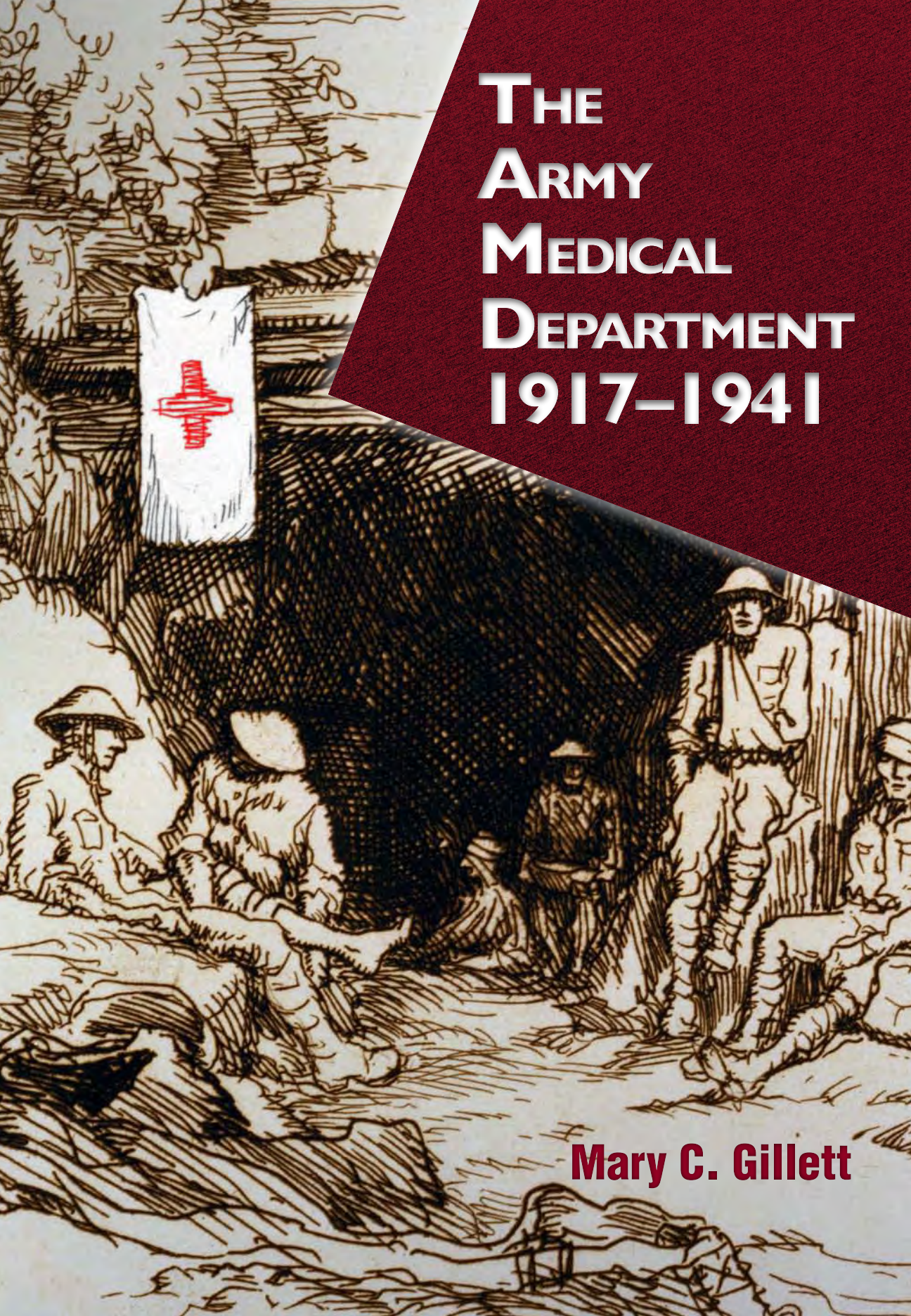


# THE ARMY MEDICAL DEPARTMENT 1917-1941



**Mary C. Gillett**

**THE  
ARMY MEDICAL DEPARTMENT  
1917-1941**

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by this sign-

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Caduceus.



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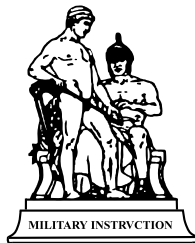
Operating Room Work

Barby  
Maffeson  
Lieut. U.S.A.  
5

*ARMY HISTORICAL SERIES*

**THE  
ARMY MEDICAL DEPARTMENT  
1917-1941**

*by  
Mary C. Gillett*



*CENTER OF MILITARY HISTORY  
UNITED STATES ARMY  
WASHINGTON, D.C., 2009*

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Krenzlok of the Veterinary Corps in WW I Web site (courtesy of [www.ancestry.com](http://www.ancestry.com)); pp. 2, 57, 81 (bottom), 125 (bottom), 126 (top), 129, 179, 220, 231, 239, 253 (top), 257 (bottom), 261, 263, 303, 307, 315, 316, 325, 328, 337, 352, 356, 360, 364, 418, 464, 487, 527, 551, and 553, National Archives and Records Administration; pp. 5 (left), 6, 27, 29, 35, 46, 67 (right), 80, 226, and 294, Archives of the American College of Surgeons; pp. 5 (right), 100, 398, 461, 508, 509, 540, 543, and 567, Department of the Army; pp. 525 and 560, Department of the Air Force; pp. 17, 49, 60, 67 (left), 79, 96, 97, 98, 103, 107, 110, 117, 150, 152, 153, 169, 199, 217, 237, 238, 243, 271, 287, 324, 330, 341, 358, 395, 397, 410, 415, 439, 458, 469, 510, and 519, Armed Forces Institute of Pathology; pp. 30, 70, 71, 72, 88, 118, 126 (bottom), 180, 181, 182, 183, 204, 205, and 213, *How America Went to War: The Road to France* (vol. 1); pp. 207, 208, and 210, *How America Went to War: The Road to France* (vol. 2); pp. 257 (top), 259, 420, 421, 423, 426, 430, 432, 435, 437, 449, and 495, *How America Went to War: Demobilization*; pp. 39, 306, and 393, *How America Went to War: The Armies of Industry* (vol. 2); pp. 38, 101, 158, 218, 282 (top/middle), 362, 394, 490, and 529, U.S. Army Central Historical Collection; pp. 268, 281, 290, 340 (bottom/paperback cover), and 361, U.S. Army Art Collection; p. 41, John H. Patrick Papers, 1885–1962, Western Historical Manuscript Collection, Columbia, Missouri; pp. 81 (top), 125 (top), 269, and 368, *Collier's New Photographic History of the World's War*; pp. 83, 133, 147, and 409, National Library of Medicine; p. 87, Ron Crawley of the South Carolina History Net ([www.schistory.net](http://www.schistory.net)); pp. 122 and 505, Bentley Historical Library, University of Michigan; pp. 123, 146, 188, and 189, Thomas R. Bayles Collection, Longwood Public Library, Middle Island, New York; p. 202, Virginia War Museum, Newport News, Virginia; pp. 282 (bottom), 311, 376, 433, 443, 447, 452, and 453, Office of Medical History, Office of The Surgeon General, Army Medical Department; p. 314, U.S. Army Medical Department Museum; p. 521, Asterion, Creative Commons; p. 567, Cultural Resources Management Program, Fort Benning, Georgia.

## Foreword

Long-awaited, Mary C. Gillett's final work *The Army Medical Department, 1917–1941*, completes her four-volume study covering the years from 1775 to 1941. Although the Medical Department had improved medical standards and practices because of the latest advances in scientific medicine and was making significant progress toward creating an organizational structure and a supply system able to handle the demands of a conflict of any size, its reserves of trained personnel and supplies were seriously inadequate when the nation entered World War I in the spring of 1917. The narrative first describes the struggle of an unprepared department to meet the myriad demands of a war of unprecedented size and complexity, then follows postwar efforts to meet the needs of the peacetime army during nearly two decades of continental isolationism and budgetary neglect, and finally covers the brief period of growing awareness of America's probable involvement in another major conflict and the intensive preparation efforts that ensued.

Taken together, Gillett's four volumes provide a wealth of information on the development of the Army Medical Department and its contributions to scientific medicine. They also challenge long-standing myths that during times of crisis effective medical organizations can be created with relative ease and that the advances in one or more medical specialties do not have a deep and lasting impact on the profession's many other fields of endeavor, from hospital organization to emergency medical procedures and evacuation policies and methods.

In sum, Gillett's four-volume compendium will be a welcome addition to command libraries of all officers responsible for the health of their soldiers while also benefiting greatly those interested in the history of military medicine. However, *The Army Medical Department, 1917–1941*, has a much broader application than the basic subject matter would suggest. Its major lessons tell much about how the Army continually attempts to transform itself to meet the exigencies of its ever-changing environment; underscore the impact of key leaders in times of crisis; and highlight the value of careful planning, organizational flexibility, and decisive implementation to achieve the most beneficial results.

Washington, D.C.  
30 June 2009

JEFFREY J. CLARKE  
Chief of Military History

## The Author

After attending Wellesley College for three years, Mary C. Gillett received B.A., M.A., and Ph.D. degrees from The American University in Washington D.C. From 1966 to 1969 she worked as a historian with the Naval History Division of the Office of the Chief of Naval Operations. After a brief hiatus, she continued in her profession by joining The Historical Unit of the U.S. Army Medical Department in 1972. Four years later, with the transfer of The Historical Unit to the U.S. Army Center of Military History, Dr. Gillett became a member of the Center's Histories Division. She worked as a senior historian and branch chief up until her retirement in 1996. In addition to her four-volume history of the Army Medical Department covering the years from 1775 to 1941, she has authored numerous articles on the history of military medicine in the United States.

## Preface

In writing *The Army Medical Department, 1917–1941*, I followed the precedents established in my preceding three volumes. As a result, I made no attempt to provide coverage of military operations or developments in the world of civilian medicine and in the armed forces of other major powers beyond that necessary to understand the challenges facing the Medical Department in carrying out its complex missions.

In the course of writing my four volumes, I accumulated many debts to many professional colleagues—fellow historians, archivists, librarians, physicians, and editors. Among them is Col. Robert J. T. Joy, MC (USA Ret.), now professor emeritus at the Uniformed Services University of the Health Sciences, whose knowledge of military medicine is encyclopedic. In my work on this final volume I was particularly fortunate to have benefited from the advice and encouragement of Edward M. Coffman, an authority on the history of the Army and author of volumes concentrating on the period of World War I, as well as that of Graham E. Cosmas, whose understanding of the Army as an institution is profound. They, together with Colonel Joy, were key members of my peer review panel. I also appreciate the time and effort devoted to the manuscript by the other panel members: Andrew J. Birtle, John Parascandola, Douglas V. Johnson, Richard W. Stewart, and Jeffrey J. Clarke. I had the unique privilege to have as an adviser, mentor, and friend my former supervisor Albert E. Cowdrey, who proved that institutional writing could actually be fun as well as challenging. In addition, I enjoyed the support of two successive heads of the Histories Division, the late Col. William T. Bowers (USA Ret.) and Col. Clyde L. Jonas (USA Ret.).

Many archivists provided help when needed, but I owe much to Stephen J. Greenberg and his staff members at the National Library of Medicine for their especially valuable assistance.

At the U.S. Army Center of Military History I would like to thank cartographer Sherry L. Dowdy for her patience in preparing the maps and handling the myriad problems that surfaced; designers Beth F. MacKenzie and Michael R. Gill for their creative desktop publishing talents; and librarians James B. Knight and Patricia A. Ames for their mutual efforts on my behalf to obtain several volumes that proved so useful in my research.

I am profoundly in debt to my editor, Joanne M. Brignolo, who also edited volume 3. Because my husband and I chose to retire in the mountains of West Virginia, a long way from the District of Columbia area and its rich resources, and because of my husband's relentlessly deteriorating health, I was unable to personally complete many of the wrap-up functions for finalizing my manuscript, among them reviewing the soundness of the argument in the narrative, acquiring additional facts to settle legitimate queries, checking citations for accuracy, and

gathering appropriate illustrations. Ms. Brignolo's determination and imagination, together with her rich supply of contacts, more than adequately filled the gap to bring my volume to fruition. I never met most of those upon whom she relied, but for their invaluable assistance and spirit of cooperation I would like to extend my personal thanks to Ann Cipriano Venzon, who completed the index; Darren R. Jones of the Library of Congress; Judy Jordan of the National Library of Medicine; Kathleen M. Furukawa of the Stimson Library, Army Medical Department Center and School; Lenore K. Garder, James A. Tobias, David I. Goldman, Julia B. Simon, Renee Klish, Walter H. Bradford, J. Terry Dougherty, Robert S. Rush, Keith R. Tidman, Diane S. Arms, Hildegard J. Bachman, and Bryan J. Hockensmith of the U.S. Army Center of Military History; Debra L. Gerlock and Lisa M. Budreau of the Office of Medical History, Office of The Surgeon General, Army Medical Department; Lt. Col. Richard M. Prior, ANC, of the Uniformed Services University of the Health Sciences; Susan Rishworth and Dolores J. Barber of the American College of Surgeons; Malgosia Myc of the Bentley Historical Library, University of Michigan; Cynthia Sciacca of the Longwood Public Library (Middle Island, New York); Michael G. Rhode and Kathleen Stocker of the Armed Forces Institute of Pathology; G. Richard Hoffeditz Jr. of the Virginia War Museum; Ron Crawley of the South Carolina History Net ([www.schistory.net](http://www.schistory.net)); Greg Krenzelok of the Veterinary Corps in WW I Web site (courtesy of [www.ancestry.com](http://www.ancestry.com)); Candace Sall of the Museum of Anthropology, University of Missouri; and Christopher E. Hamilton of the Cultural Resources Management Program, Fort Benning, Georgia. Most of all, however, I want to thank Ms. Brignolo herself.

Finally, I would be remiss if I did not thank my family for their help and encouragement. My husband never complained about the time I spent working with the manuscript when we were, in theory, both retired, and he offered a sympathetic ear when it was most needed. Our older son, R. Clark Gillett Jr., M.D., was always ready to answer questions about medical matters, while our younger son Glenn D. Gillett, our oldest daughter Mary C. Means, and our son-in-law Duff D. Means II repeatedly brought their considerable skills with computers to my aid, even on short notice so that my relative isolation from the resources of the Center of Military History would not handicap my work. Our youngest daughter Blakeney D. Gillett, an experienced hydrogeologist, provided understanding of the spread of diseases in lakes, rivers, and streams and how it can be limited. Though far away in Seattle, our second daughter Priscilla E. Parr never failed to commiserate when commiseration was needed.

Inevitably and to my great regret, errors find their way into the manuscript. The responsibility for them is mine alone.

With the closure of my four-volume work on the Army Medical Department and of my career as a historian, I would like to borrow the words of a poet/historian of long ago. To those who have found my work useful or, perhaps, even interesting, and to the friends I have made along the way: *Ave atque vale* (Hail and farewell)!

Washington, D.C.  
30 June 2009

MARY C. GILLETT

**THE  
ARMY MEDICAL DEPARTMENT  
1917-1941**



## Prologue

# THE POSSIBILITY OF WAR



Before his resignation in June 1915 Secretary of State William Jennings Bryan showed his disdain for the concept of military preparedness by maintaining that, should it ever prove necessary, “a million men would spring to arms in a day.” How long a time would be required to train the million men and how the million arms to which they were to spring would be found were among the many fundamental questions that Bryan would not be called upon to answer.<sup>1</sup>

The belief that the United States could avoid being drawn into the war in Europe by merely being careful was also common. Preparing to participate was, according to this line of argument, actually unnecessary and might even precipitate involvement. Those who anticipated the possibility of war assumed that it would occur should the victor of the European conflict be tempted by the nation’s recently acquired Caribbean and Philippine territories. Even military reformers, who were convinced that preparation for war was necessary, thought in terms of fighting another Spanish-American War rather than the one then taking place in Europe. The famous Harvard brain surgeon Harvey W. Cushing recalled a the words of friend who commented a few days after the declaration of war that he could not understand ““all this confusion about preparedness”” because the United States would never be invaded.<sup>2</sup>

Although the United States was not threatened with invasion, the nation found itself in the spring of 1917 about to enter a war being fought on a scale that before World War I would have been beyond comprehension. In 1914, in the first four months of the war alone, the French, who suffered the heaviest casualties, had lost 300,000 men killed, 600,000 wounded. By contrast, in the four years of the Civil

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<sup>1</sup> As quoted in Autobiography, p. 177, Ms C14, Jefferson R. Kean Papers, National Library of Medicine (NLM), Bethesda, Md. Unless otherwise indicated, overall coverage of the history of the Army is based on Russell F. Weigley, *History of the United States Army*; S. L. A. Marshall, *World War I*, and Maurice Matloff, ed., *American Military History*. Material concerning the Medical Department’s prewar preparations for war is based on Mary C. Gillett, *The Army Medical Department, 1865–1917*.

<sup>2</sup> James G. Harbord, *The American Expeditionary Forces*, p. 60; Benedict Crowell and Robert Wilson, *How America Went to War*, 2:19; Peyton C. March, *The Nation at War*, p. 169; Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917–1919*, p. 31; Harvey Cushing, *From a Surgeon’s Journal, 1915–1918*, p. 90 (quoted words).



War—the worst conflict in America’s experience before 1917—deaths from all causes on both sides were fewer than 500,000 men.<sup>3</sup>

Congress’ principal acknowledgment of the possibility of war, the National Defense Act of 1916, represented “a decision that the United States would *not* arm immediately to meet the menaces of a world at war.” Thus, although in 1917 the Army and its Medical Department were actually better prepared for war than they had ever been before, they were inevitably unprepared for war fought on such a scale. Unable even after the war to accept the fact that being prepared for war did not mean being prepared for World War I and ignoring the fact that some attempts to prepare for a conflict had taken place, General of the Armies John J. Pershing wrote angrily about the “false and fatuous theory that it was unnecessary in time of peace to make even preliminary preparations for war.” Making full use of hindsight, he reminisced that it was “almost inconceivable that there could have been such an apparent lack of foresight in administration circles regarding the probable necessity for an increase of our military forces and so little appreciation of the time and effort which would be required to prepare them for effective service.”<sup>4</sup>

To deal with threats to the health of a wartime army, the National Defense Act called for a number of specific organizational changes. While abolishing



*John J. Pershing*

<sup>3</sup> John Keegan, *The First World War*, pp. 6–7, 135–36; University of Michigan Library Documents Center, *Statistical Resources on the Web* at <http://www.lib.umich.edu/govdocs/stats.html> under Military (Armed Forces, Wars, Weapons)/Military and Defense/America’s Wars (Library Spot)/America’s Wars and Casualties. By the war’s end the French would lose almost 2 million men and the Germans even more, yet in all the wars the Americans have fought—from the Revolutionary War through the Persian Gulf War—the total number of deaths in combat was barely more than 1 million.

<sup>4</sup> John P. Finnegan, *Against the Specter of a Dragon*, p. 153 (first quotation); John J. Pershing, *My Experiences in the World War*, 1:8 (remaining quotations), 334–35.



the Medical Department's Hospital Corps for enlisted men, it created a Veterinary Corps within the department, authorized assignment of five medical officers to work with the American Red Cross in its Military Relief Department, and established a cooperative arrangement with the Red Cross concerning medical supply. But the larger proportion of medical officers to men—7 to every 1,000—mandated by the act was still inadequate when compared to the 10 to 1,000 required by the British. The act also assigned responsibility for accepting or rejecting candidates for the Aviation Section of the Signal Corps to a five-member Aviation Board, two of whose members were to be medical officers, but the quest for adequate physical standards for aviators, started in 1912, was still under way.<sup>5</sup>

Having neither the personnel nor the equipment necessary to meet the demands of a future large-scale war, the Medical Department had concentrated in the years before 1917 on improving the management of personnel. It divided department officers among five corps: the Dental Corps, the Army Nurse Corps, the Medical Corps for career medical officers, the Veterinary Corps to oversee food supplies and animal care, and the Medical Reserve Corps for credentialed civilian physicians willing to help the Army in time of need.<sup>6</sup>

<sup>5</sup> See the discussion of the Medical Department's situation immediately preceding U.S. entry into World War I found in Gillett, "In the Shadow of War," in *Army Medical Department, 1865–1917*, pp. 377–411; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1949)*, p. 6; idem, *Medical Support of the Army Air Forces in World War II*, pp. 6–8.

<sup>6</sup> War Department, Surgeon General's Office, *The Surgeon General's Office*, p. 1205 (hereinafter WD, SGO, SGO); Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States, 1775–1945*, pp. 373–74.

In persuading Congress to accept the concept of a Medical Reserve Corps, the Medical Department had taken an important step toward reducing the confusion caused in wartime by the influx of hordes of physicians totally unfamiliar with the demands of military medicine. By means of this corps a body of physicians with peacetime exposure to the demands of military medicine was created within the civilian medical community. In the process of accepting applicants, the department was also able to screen and classify civilian physicians before their services were actually needed.<sup>7</sup>

For many years before the United States entered World War I, training medical personnel, whether regulars or reservists, had involved instruction at the Army Medical School in Washington D.C. and the Army Service Schools in Fort Leavenworth, Kansas, or correspondence courses conducted through Fort Leavenworth, as well as courses for enlisted men at field hospitals and in ambulance companies and detachments. Opportunities for practical training in the field had been very limited until hostilities developed along the border with Mexico in 1916. The necessity for stationing men for many months in the Southwest provided an opportunity to train the officers and enlisted men of the Medical Department in the field; to standardize the approach to training; to develop a list of experienced instructors; and to test the department's new field organization, which, like that of the Army itself at this time, was based on the division.

Unfortunately, many of the Medical Department's preparations for the possibility of war existed chiefly on paper. In theory, the divisional medical organization included four 216-bed field hospitals, four ambulance companies, as many dressing stations as needed, a transport column, two 423-bed evacuation hospitals, a base hospital, and a supply depot. In practice, because of the shortage of personnel, medical support on this scale could be provided for only half the Regular Army. The perennial shortage of experienced personnel for the Medical Department would, both directly and indirectly, remain one of the department's greatest problems despite all its efforts.

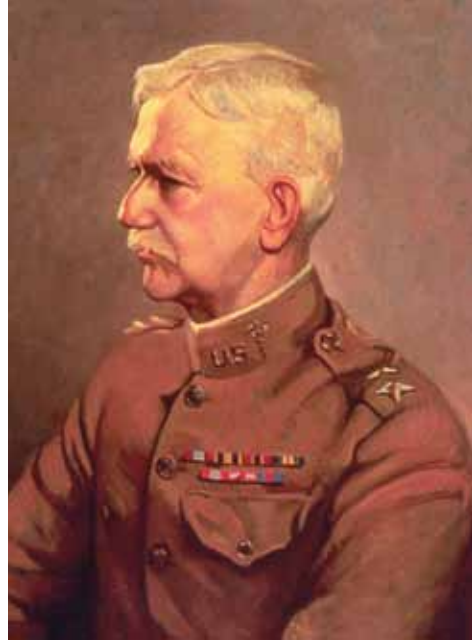
While the war raged in Europe, the civilian arm of the government and the civilian community joined the military in increasing their efforts to prepare the United States for a possible conflict. A vast complex of councils and commissions and committees developed to reinforce efforts to mobilize all the nation's resources, civilian as well as military. The first such organization to be created was the Council of National Defense, an advisory body whose responsibility it was to "integrate economic and military power." Named in October 1916 to serve on the council were six cabinet members: the secretaries of War, the Navy, the Interior, Agriculture, Commerce, and Labor. The council in turn named a seven-man advisory commission of civilians, each with expertise in a specific area. One of its members was physician Franklin H. Martin, head of the American College of

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<sup>7</sup> Kreidberg and Henry, *History of Military Mobilization*, p. 225; A. Macphail, *Official History of the Canadian Forces in the Great War, 1914-1919*, p. 13. Although the fact was not publicized, the physicians accepted into the Medical Reserve Corps were grouped by age into three groups: those over fifty, who would, as a rule, be used only as consultants or for duty at base hospitals; those between thirty-five and fifty, whose services were to be utilized wherever needed except at the front; and those between twenty-five and thirty-five, whose services were particularly sought because no restrictions were to be placed on their assignments. See Henry Page, "Civil Physicians and National Defense," p. 391.



*Franklin H. Martin*



*Surgeon General Gorgas*

Surgeons, who was chosen for his competence not only in the field of medicine in general but also in the field of medical supply.<sup>8</sup>

Thanks in large measure to Martin's efforts, a plethora of government-sponsored civilian organizations that would assist the Medical Department then began to appear. Serving on one or more of these various committees were some of the most prominent civilian and military experts in the field of medicine, including Surgeon General William C. Gorgas. One such body made up of Army, Navy, Public Health Service, and Red Cross representatives was the Committee on Standardization. Its overall mission was standardizing "essential medical and surgical supplies and equipment" to speed up their production and reduce costs. The committee, which appointed subcommittees from the various medical specialties and manufacturers, began its work in February 1917 and found that, on the whole, manufacturers were cooperative, even appointing their own subcommittees to deal with the various specialties.<sup>9</sup>

<sup>8</sup> Edward M. Coffman, *The War To End All Wars*, pp. 15 (quoted words), 16; Crowell and Wilson, *How America Went to War*, 2:18–20; Harold J. Tobin and Percy W. Bidwell, *Mobilizing Civilian America*, pp. 13, 14; Otto L. Nelson, *National Security and the General Staff*, pp. 236–37; Robert D. Cuff, *The War Industries Board*, p. 46; *Second Annual Report of the Council of National Defense for the Fiscal Year Ended June 30, 1918*, p. 101; WD, SGO, *SGO*, p. 82; James A. Huston, *The Sinews of War*, p. 309; Kreidberg and Henry, *History of Military Mobilization*, p. 338; Franklin Martin Diary, 1914–1919, pp. 37, 43, Ms C284, NLM.

<sup>9</sup> Tobin and Bidwell, *Mobilizing Civilian America*, p. 14; WD, SGO, *SGO*, pp. 4, 81–82, 96, 97, 221, 559; Stanhope Bayne-Jones, *The Evolution of Preventive Medicine in the United States Army, 1607–1939*, pp. 148–49; Martin Diary, p. 55, Ms C284, NLM; Franklin H. Martin, *Fifty Years of Medicine and Surgery*, pp. 373–74, 391; idem, "Council of National Defense, Committee on



*Committee on Standardization*

Some purely civilian professional organizations responded to the need for preparedness more rapidly than the government, among them the American Medical Association and the American College of Surgeons, which together formed the Committee on Medical Preparedness. Among the committee's first contributions was a survey of the nation's medical resources, including physicians, nurses, hospitals, and equipment. Believing that a nation at war would need "its entire medical personnel," committee members led a drive to have medical schools make courses in military sanitation mandatory. Martin launched a drive to persuade members of the American College of Surgeons to sign up in the Medical Reserve Corps.<sup>10</sup>

The National Academy of Sciences also offered to bring the skills of its members to bear on the problem of mobilization. For this purpose, the academy created the National Research Council, which included the heads of many

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Medicine," pp. 549–50 (quoted words); George Crile, *An Autobiography*, 1:270–71, 272; Jonathan H. Jaffin, "Medical Support for the American Expeditionary Forces in France During the First World War," M.A. thesis, p. 29; War Department, *[Annual] Report of the Surgeon General, U.S. Army, to the Secretary of War, 1918*, p. 269 (hereinafter cited as WD, *ARofSG*, year).

<sup>10</sup> Jaffin, "Medical Support," p. 26; Martin, *Fifty Years*, pp. 368, 373–74; Autobiography, p. 182, Ms C14, Kean Papers, NLM; *Second Annual Report of the Council of National Defense*, p. 101; WD, SGO, SGO, pp. 80–81; "Preparing the Medical Profession of the Country for War," p. 74 (quoted words); Clark W. Nelson and John M. Kutch Jr., "The Doctors Mayo and Military Medicine," p. 294.

government bureaus, investigators from national educational institutions and research foundations, and representatives of industrial and engineering research organizations. This new council opened its offices in the District of Columbia in the same building as the Council of National Defense, of which it became a department.<sup>11</sup>

On 2 April 1917, just four days before the United States entered the war, the secretary of war authorized Martin to appoint yet another board, the “General Medical Board” with representatives from civilian medical organizations, the Public Health Service, and the Army and Navy Medical Departments, to help plan the mobilization. The goal of the new organization, which assumed the work of the Committee on Medical Preparedness, was assisting with the “enormous expansion of the various Government bureaus” and with coordinating the work of those bureaus with the “resources and talent of the civilian medical profession.” As a result of the work of the General Medical Board, “American doctors were enabled to work in the army in line with their civilian experience for the first time in history.”<sup>12</sup>

Of all the civilian organizations that supported the U.S. Army in World War I, the Red Cross was probably the best prepared to respond to the challenges that mass casualties would present the Medical Department. At the request of the secretary of war, the Red Cross stood ready to provide organized units or individual personnel, from physicians to stenographers, from nurses to lab assistants. Those already on duty with the Army were subject to military law and regulations, although they could not be assigned to the front except in an emergency.<sup>13</sup>

The Red Cross experience in dealing with the casualties of World War I had begun in 1916, when, under the guidance of Col. Jefferson R. Kean, MC, it started to assist the Allied armies involved in the conflict. Future surgeon general Major Robert U. Patterson, who had been detailed to work with the Red Cross, organized forty-seven Red Cross ambulance companies, all of which were transferred to the Medical Department once the United States entered the war. Unlike the department’s ambulance companies, many of which were still horse-drawn, those organized by Patterson for the Red Cross were all motorized. The Red Cross had supplied the French with eighteen of what were termed *hospital units*, formed primarily of college and university students and designed to be attached to base hospitals rather than to function independently. It then began to organize similar but larger units, 500-bed base hospitals, for the U.S. Army. The Red Cross assumed responsibility for equipping these units, using its own funds to buy items listed in the Medical Department’s supply tables. This action was particularly helpful because the Medical Department had neither the

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<sup>11</sup> WD, *ARofSG*, 1917, p. 416; WD, SGO, *SGO*, pp. 28, 566; Robert M. Yerkes, “The Relation of Psychology to Military Activities,” p. 371.

<sup>12</sup> *Second Annual Report of the Council of National Defense*, p. 101 (first quoted words); Martin, “Council of National Defense,” p. 549 (second and third quoted words) and p. 550 (final quotation); idem, *Fifty Years*, pp. 374–75; Nelson and Kutch, “Doctors Mayo” p. 294; WD, SGO, *SGO*, pp. 560, 562.

<sup>13</sup> WD, SGO, *SGO*, pp. 543, 693, 696. On the role of the Red Cross in the Spanish-American War, see Gillett, *Army Medical Department, 1865–1917*.

money nor the storage space to permit the accumulation of significant amounts of base hospital equipment in peacetime.<sup>14</sup>

The Red Cross base hospital units were so designed that, when called up, they could easily meet Army personnel and equipment requirements. Hospital staff members would be reservists; once activated, they would serve under Medical Corps officers. From five to thirteen Regular Army enlisted men would also join each staff, at which point all connection with the Red Cross would be severed. Although in April 1917 thirty-three base hospitals had been authorized in the United States and universities in Canada had agreed to participate in the effort, brain surgeon Cushing maintained that even the Red Cross had no sense of urgency in forming the base hospitals. The Red Cross assumed that “the creation of an army . . . [would] have to go on in a leisurely way” and that, therefore, there would be “plenty of time” to organize the hospitals.<sup>15</sup>

The formation of Red Cross base hospitals recognized the shortage not only of personnel but also of supplies in the Medical Department. The department had succeeded in setting aside what it deemed to be enough for a peacetime army for three years, but its goal of a four-year accumulation remained elusive. Even with troops mobilized along the Mexican border, Congress refused to vote funds to make possible the accumulation of supplies beyond those used in the course of a single year. The situation was further complicated by the fact that resupply was sometimes slow because manufacturers’ supplies overseas, especially of surgical instruments, had been drawn down to meet the needs of the belligerents. Although by 1917 U.S. manufacturers were expanding their capacity, as late as February Surgeon General Gorgas pointed out that at least eight to twelve months would be required to acquire and pack for shipment the medical supplies needed for a million-man army.<sup>16</sup>

The supply picture was not uniformly dark, however. In the course of meeting the needs of the troops mobilized along the border with Mexico, the Medical Department had established a working relationship with firms handling medical supply. It had also instituted standardized packaging as part of a unit system of supply. The items needed for each unit—whether a field hospital, a recruiting depot, a camp infirmary, or a base hospital ward—were grouped. The supply table even had a list of standard laboratory supplies, to which more elaborate items

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<sup>14</sup> WD, SGO, *SGO*, pp. 92, 356–57; Jaffin, “Medical Support,” pp. 29–30; Autobiography, pp. 177, 179, Ms C14, Kean Papers, NLM; H. C. Connor, “The American Red Cross Assistance to the United States Medical Department in the United States,” pp. 232, 234, 235–36; S. J. Morris, “History of the Overseas Division, Surgeon General’s Office, During the War Period,” p. 180. The prototype of this type of base hospital had been developed by Dr. George Crile; see Gillett, *Army Medical Department, 1865–1917*, p. 405.

<sup>15</sup> Jaffin, “Medical Support,” pp. 27–29; Martin, *Fifty Years*, pp. 395–96; WD, SGO, *SGO*, pp. 91, 92, 98, 100, 545–46, 695; Crile, *Autobiography*, 1:268, 270–71; WD, *ARofSG*, 1918, p. 265; 1916–1918 folder, Ms C451, Marion A. Blakenhorn Papers, NLM; Cushing, *From a Surgeon’s Journal*, p. 81, 86 (quoted words); Macphail, *Canadian Forces in the Great War*, p. 44.

<sup>16</sup> WD, SGO, *Finance and Supply*, pp. 25–26, 27, 83, 166, 525, 526–27; James A. Tobey, *The Medical Department of the Army*, p. 38; Coffman, *War To End All Wars*, p. 32; Memo, Acting SG for President, 19 Oct 1904, pp. 3–4, in folder Memoranda, 1904, 1911, Ms C14, Kean Papers, NLM; Kreidberg and Henry, *History of Military Mobilization*, p. 234.

could be added as needed. A system for inspecting the items to be bought by the Medical Department was also in place. With many demands already burdening every medical officer, the time to train medical officers to conduct these inspections was not easily found.<sup>17</sup>

The Medical Department's enforced reliance on purchasing by other bureaus complicated attempts to standardize its supplies and equipment. No central agency coordinated supply, the department being but one of five relatively independent supply bureaus (the Ordnance, Quartermaster, and Medical Departments, and the Signal and Engineer Corps). The department itself bought medicine and medical instruments (even its own motor vehicles during the crisis with Mexico), but the Quartermaster Corps provided subsistence, transportation vehicles, animals, clothing, and building construction; the Corps of Engineers electrical supplies; and the Ordnance Department personal and horse equipment and harnesses. Although in theory, the Army chief of staff coordinated the work of the various supply bureaus, in practice they operated for the most part independently, as if responsible directly to the secretary of war. With no centralized agency setting policy for supply, little coordination existed between them and none was prepared to meet the demands of war.<sup>18</sup>

The Army and the Medical Department could not even turn to American industry or the American transportation system for help in mitigating their predicament. Neither was ready for the challenge, and in the spring of 1917 the U.S. government was by no means prepared to direct and coordinate all the elements involved in manufacturing and delivering to U.S. ports the supplies necessary for the successful conduct of the war. The shortage of American ships initially made moving both men and materiel in the necessary quantity overseas impossible, thus resulting in heavy reliance on British shipping.

Despite these major problems, the Medical Department had significant strength in other arenas—in particular, preventive medicine. Having kept abreast of advances in the state of the art, the department knew more than ever before about preventing the diseases that had in the past devastated armies and about managing wounds. The newly acquired ability to identify the organisms causing specific diseases made possible research to determine how they could be prevented. The improved sanitation that resulted, together with a newly developed typhoid vaccine, had defeated typhoid fever as a significant threat to the Army. Research also revealed the role of flies in spreading the so-called filth diseases, including diarrhea and dysentery as well as typhoid fever, inspiring strong efforts to limit the contact of that insect with food; the evidence that contaminated water could spread dysentery and diarrhea gave additional impetus to efforts to maintain high standards of sanitation. Medical laboratory testing made it possible both to diagnose venereal disease and to ascertain the success of treatment, which as far as syphilis was concerned was complex.

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<sup>17</sup> WD, SGO, *SGO*, pp. 4, 83, 84; idem, *Administration, American Expeditionary Forces*, p. 16; idem, *Finance and Supply*, pp. 24–25, 36, 67, 165, 195–96, 465; Huston, *Sinews of War*, p. 318. See also Crile, *Autobiography*.

<sup>18</sup> Kreidberg and Henry, *History of Military Mobilization*, pp. 229–33; Coffman, *War To End All Wars*, pp. 31, 34; Huston, *Sinews of War*, p. 324; Erna Risch, *Quartermaster Support of the Army*, p. 599; Nelson, *National Security*, pp. 43, 228–29.



Several successful medications were in use, each with its own set of side effects. By 1917 only respiratory diseases remained as a major threat to life; little was as yet understood, either about treatment or prevention. Still unknown, too, was the nature of the threats that might endanger the health and effectiveness of airplane pilots, research in this area being in its infancy.<sup>19</sup>

Wound management was a familiar subject to the Medical Department, which had learned much from surgeons caring for casualties in Europe. The wisdom of assuming that all wounds were infected and acting accordingly had been rediscovered. Massive and often repeated doses of antitetanus serum had already proved their value by saving more than half of the patients who were beginning to show signs of tetanus. Although some surgeons had also concluded that the best way to treat a wound was to keep the deeper part of it flooded with an antiseptic (often hypochlorite of lime), a few had discovered the effectiveness of debridement in dealing with the threat of wound infection. For those undergoing surgery, both general and local anesthetics were available to prevent pain.<sup>20</sup>

When U.S. troops first landed in Europe in June of 1917, Medical Department leaders were thoroughly familiar with the best standards of disease prevention and medical care as they were then understood. But a widespread refusal to consider the possibility of U.S. entry into World War I doomed the department to bear an essentially unbearable burden once war had been declared.

The events that led to the entry of the United States into the war in Europe, despite its best hopes to remain aloof, began on 31 January 1917 with Germany's announcement that it was resuming unrestricted submarine warfare against all ships found in the waters around Great Britain, France, and Italy, regardless of their nationality. On 3 February President Woodrow Wilson announced that the United States had ended diplomatic relations with Germany and asked that Secretary of War Newton D. Baker draft a bill calling for conscription. Barely more than three weeks later, Wilson learned of a secret proposal by the German Foreign Secretary; should the United States enter the war against Germany, Mexico would be given the states of Texas, New Mexico, and Arizona in return for entering the conflict as a German ally. In March the Russian czar was forced from power, an event that became a prelude to the complete withdrawal of Russia from the war in the fall of 1917, thus enabling the Germans to concentrate their troops on the Western Front. And on 18 March German submarines sank three U.S. merchant ships without warning, causing many deaths. On 2 April President Wilson came before Congress to announce: "The day has come when America is privileged to spend her blood and her might for the principles that gave her birth." Four days later, 6 April 1917, the president signed the

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<sup>19</sup> United States, Army Medical School, *Immunization to Typhoid Fever*, pp. 13, 21, 22; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 310; Levy M. Hathaway, "Aspects of Aviation Medicine," p. 735; W. H. Wilmer, "The Early Development of Aviation Medicine in the United States," p.121; WD, SGO, *SGO*, p. 5. For a discussion of the various drugs used for treating syphilis, see Gillett, *Army Medical Department, 1865–1917*.

<sup>20</sup> John Smyth, "Lessons of the War Which May Be Applicable to Civil Practice," p. 102; Macphail, *Canadian Forces in the Great War*, pp. 106, 109, 111.

document that finally brought a reluctant United States “into the most terrible and disastrous of all wars,” a war of attrition and stalemate later described by Surgeon General Merritte W. Ireland as a war “not . . . of armies but of nations.”<sup>21</sup>

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<sup>21</sup> Czar Nicholas II lost power in March 1917. The newly formed Russian Provisional Government lasted until early November, when the Bolsheviks took over. See Arthur S. Link, *Woodrow Wilson and the Progressive Era, 1910–1917*, pp. 266, 268, 271, 274. Wilson as quoted in *ibid.*, p. 282; Ireland as quoted in WD, SGO, *SGO*, p. 7. Ireland held the position from 4 October 1918 to 31 May 1931, having the distinction of becoming The Surgeon General in 1924 when War Department General Order 2 authorized the word *The* to be capitalized in the title designation of four department heads—The Judge Advocate General, The Quartermaster General, The Inspector General, and The Surgeon General.



## Chapter 1

# THE DAY HAS COME



On 6 April 1917 the United States entered a war on a scale never before contemplated. The British and the French, already on the verge of defeat, were soon clamoring desperately for, as French Marshal Joseph Joffre put it, “men, men, men.” Forced to confront the necessity of preparing for war and participating in it simultaneously, the Army would have to speedily establish large training camps to train hundreds of thousands of new soldiers; because reserves were essentially nonexistent, it would also have to procure large amounts of supplies and equipment. All of this would have to be accomplished before Germany succeeded in completely overwhelming Great Britain and France. Yet neither the administration in Washington nor Congress showed a sense of urgency. Progress in preparing for war depended on the president and Congress agreeing on how large the wartime force would be and how the men who would form it would be obtained. Because of strong opposition to universal military service on the grounds that it was un-American, Congress did not pass the Selective Service Act until 18 May 1917.<sup>1</sup>

The Medical Department, according to Johns Hopkins–organized Base Hospital No. 18 medical director John M. T. Finney, was “in the same general state of unpreparedness as the other branches of the military service.” Its plans always dependent on those of the Army, its needs always secondary to those of the Army as a whole, the department was in no position in the earliest weeks of the war to make much more than the most basic moves toward preparing to support U.S. forces. Surgeon General William C. Gorgas could not know how large his department would have to be until he knew how large the Army would be. He could not make more than generalized plans for training until he knew how many would have to be trained and what facilities the Army would establish to house trainees. He could not solidify plans for medical supply until the department knew what and how much would be needed, how it would be obtained, and where it could be

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<sup>1</sup> Arthur S. Link, *Woodrow Wilson and the Progressive Era, 1910–1917*, p. 282; Bryon Farwell, *Over There*, p. 37 (Joffre quoted words); Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States, 1775–1945*, pp. 234, 241, 242–43, 343, 374, 375; Fielding H. Garrison, *Our New Army Medical Department*, p. 1; Frank E. Vandiver, *Black Jack*, 2:679–80; John Mahon, *History of the Militia and the National Guard*, p. 155; Edward M. Coffman, *The Hilt of the Sword*, p. 41. Unless otherwise indicated, background material on World War I is based on idem, *The War To End All Wars*.

stored. Until the government decided what role, if any, the Medical Department would play in dealing with gas warfare, Gorgas could not prepare to meet this new challenge. He and his office found their efforts falling prey to considerable confusion, and impromptu improvisation became the rule.<sup>2</sup>

### *The First Steps*

In creating a National Army of draftees, bringing the Regular Army and the National Guard up to full wartime strength of 286,000 and federalizing the entire National Guard, the Selective Service Act of 1917 took the first steps toward providing answers to two of the most pressing questions facing the nation's leaders: who and how many would serve in the wartime Army. The legislation permitted President Wilson to call up 1 million men in two increments of 500,000 each, on a schedule of his own choosing, but it also allowed continued volunteer enlistment in the Regular Army and the National Guard. Finally, on 22 May, when the judge advocate general, Maj. Gen. Enoch H. Crowder, was named provost marshal general to manage the draft, "the work of organization," as Secretary of War Newton H. Baker put it, "began."<sup>3</sup>

Ten million men between the ages of twenty-one and thirty registered for the draft on 5 June 1917. Secretary Baker believed that a total of 16 National Army camps, another 16 National Guard camps, 2 embarkation camps, and 1 quarter-master training camp would be necessary to house new draftees while they were trained, but available housing was barely adequate for the slightly more than 200,000 officers and men then serving in the Regular Army. As a result, the Army could not call up for immediate training even the men already available for service through membership in the various reserve organizations (approximately 128,000 men), the federalized National Guard (80,000 men) and the National Guard in state service (101,000 men).<sup>4</sup>

While the U.S. government was making the first hesitant steps toward creating an army that could hope to wage war on an unprecedented scale, the Allies in Europe moved swiftly from disaster to disaster. Shortly after the United States entered the war, the French Nivelle offensive, for which much hope had been held, fell apart, causing the morale of the French Army to reach a nadir. As many as 120,000 casualties had been suffered in the vain and vainglorious attempt, and mutiny soon crippled 54 divisions—half of the French Army. By June 1917 not a single trustworthy

<sup>2</sup> John M. T. Finney, *A Surgeon's Life*, pp. 154, 156 (quoted words); War Department (WD), Surgeon General's Office (SGO), *Finance and Supply*, pp. 171, 173.


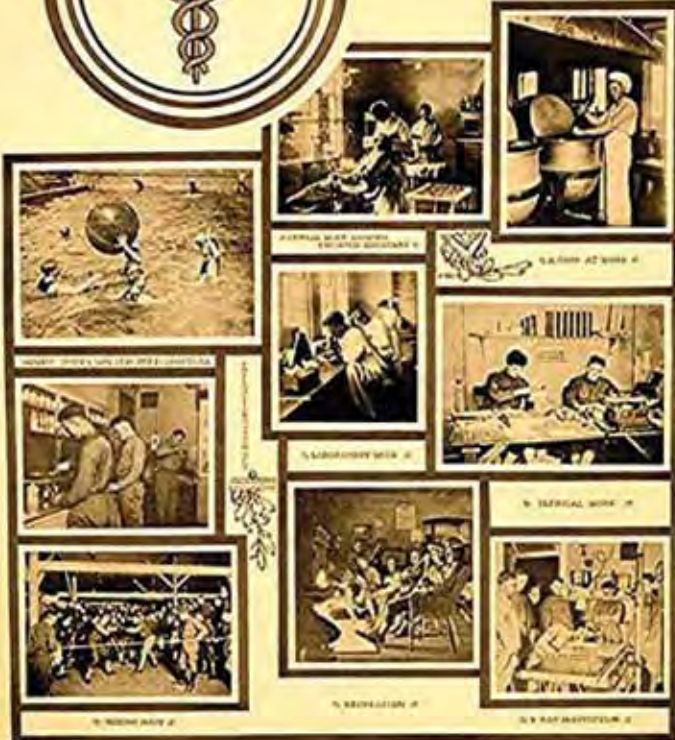
<sup>3</sup> WD, [Annual] *Report of the Secretary of War*, 1917, pp. 6, 9 (quoted words) (hereinafter cited as *ARofSW*, year); Kreidberg and Henry, *History of Military Mobilization*, pp. 242, 244, 294; WD, SGO, *The Surgeon General's Office*, p. 140 (hereinafter cited as *SGO*); idem, *Training*, p. 292; Mahon, *Militia and National Guard*, p. 155.

<sup>4</sup> Mahon, *Militia and National Guard*, pp. 154–55; Coffman, *Hilt of the Sword*, pp. 41, 42; WD, [Annual] *Report of the Surgeon General*, 1919, p. 16 (hereinafter cited as *ARofSG*, year); Kreidberg and Henry, *History of Military Mobilization*, pp. 227, 311; War Diary, p. 2, Ms C117, Merritte E. Ireland Papers, 1911–1931, National Library of Medicine (NLM), Bethesda, Md.; Ltr, William Lyster to Gorgas, 3 May 1917, Gorgas Family Papers, W. S. Hoole Special Collections, University of Alabama (UA), Tuscaloosa, Ala.; John J. Pershing, *My Experiences in the World War*, 1:60. By June 1917 all officers in the Army Reserve were required to join the new Officers' Reserve Corps.

**MEDICAL DEPARTMENT**  
UNITED STATES ARMY

Opportunities for Qualified Men to Learn

X-Ray Work	Laboratory Work
Practical Pharmacy	Nursing
Veterinary Practice	Operating Room Work
Dentistry	Cooking, Mess Management

**APPLY AT**

French division stood between the Germans and Paris. French morale, both civilian and military, plummeted, and the French were barely able to avoid “still worse disaster.” The British, now almost alone in facing the Germans, supported the French plea that at least a division of American troops be sent at once to Europe.<sup>5</sup>

The situation in France placed an increasingly heavy burden on the British at a time when German submarines were sinking a fourth of the ships leaving England, for only one in ten of those lost could be replaced. By April Great Britain was “within measurable distance of strangulation”; its food supplies were sufficient for

<sup>5</sup>Russell F. Weigley, *History of the United States Army*, p. 355 (quoted words); Gordon Wright, *France in Modern Times*, p. 398.

no more than forty-five days, and its materiel reserves were dangerously low. By the summer of 1917 British attacks against the Germans in Flanders were proving to be both “hopeless and costly.”<sup>6</sup>

### *The Surgeon General*

At this crucial time, the Medical Department was led by “a very kindly old man” who, according to one observer, “had no more time than inclination for the details of office work.” Although a great scientist, Surgeon General Gorgas was well past his prime and had been considering retirement only a few months before the United States declared war. During the first weeks he was reported to be obviously tired, but he retained his low key and casual approach to office work and was “answering his own telephone, which is not even in reach of his chair” while “piles of unopened mail lay] on his desk.” Having gained fame as the conqueror of mosquito-borne disease, Gorgas clearly remained more interested in a worldwide battle against yellow fever and other epidemic diseases than in administration. And so, in May 1917, although faced with the massive and unfamiliar challenges of readying the Medical Department for a conflict of unprecedented size and complexity, he sailed off to Puerto Rico “as President of a board to determine whether some cases of unusually severe dengue fever might not be yellow fever.”<sup>7</sup>

General Gorgas may have been both past his prime and lacking an interest in administration, but he made valuable contributions to the wartime Medical Department. His undeniable charm—possessing “the personal qualities of mind, heart and character which inspire respect and singular devotion and loyalty”—enabled him to obtain for the Medical Department the much-needed assistance of many eminent civilian physicians. He was also able both to recognize and to encourage unstintingly the efforts of talented and experienced subordinates. And he brought the skills of an experienced and dedicated scientist to the struggle to prevent disease in the wartime Army.<sup>8</sup>

### *Organizing the Surgeon General’s Office*

On the day when the United States declared war, the Medical Department’s Surgeon General’s Office was as it had always been—small in size and simple in

<sup>6</sup> Shepard B. Clough, Otto Pflanze, and Stanley G. Payne, eds. *Modern Times*, 3:1111, 1113, 1119 (quoted words).

<sup>7</sup> Paul B. Magnuson, *Ring the Night Bell*, p. 161 (first quoted words); Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 307 (second quoted words) (hereinafter cited as *History of MD*); Harvey Cushing, *From a Surgeon’s Journal, 1915–1918*, pp. 81, 86, 98 (third and fourth quoted words); Bailey Kelly Ashford, *A Soldier in Science*, p. 194 (fifth quoted words); Mtg Notes, Rockefeller Foundation Executive Committee, 8 and 20 Apr 1915, Gorgas Papers, UA.

<sup>8</sup> Autobiography, p. 188, Ms C14, Jefferson R. Kean Papers, NLM; Ms B120, Alexander Taylor Cooper Autobiography, p. 226, NLM; Ashburn, *History of MD*, p. 307; Garrison, *New Medical Department*, p. 4; Ltr, Welch to Woodrow Wilson, 15 Jul 1918, Gorgas Papers, UA (quoted words); A[rthur] D. Bevan, “Organization of the Medical Profession for War,” p. 602; draft of editorial to be published in *Southern Medical Journal* 11 (1918), p. 1, Gorgas Papers, UA; Marie D. Gorgas and Burton Hendrick, *William Crawford Gorgas*, pp. 309–10; Wilson Thompson Davidson, *Years of an Army Doctor*, p. 49.



*Surgeon General's Office, Washington D.C.*

organization. Six medical officers and a civilian staff of 146, organized into five divisions, assisted the surgeon general in managing the five separate corps and the enlisted men who had once formed the Hospital Corps.<sup>9</sup>

Also a part of the Surgeon General's Office, but only on an informal basis, was the office of the attending surgeon in Washington, which was technically responsible directly to the War Department rather than to the surgeon general. The three medical officers of the attending surgeon's office watched over the health of active-duty officers and men and their families in the area and that of retired officers and enlisted men living in Washington. The federal government was also responsible for the care of civilian employees injured on the job, adding an increasing burden to the office of the attending surgeon as the size of the Army's civilian staff grew.<sup>10</sup>

Active-duty medical personnel, officers, enlisted, and nurses in the Regular Army and the Army Reserve numbered less than 8,500. Included in this figure were 491 Medical Corps officers and 342 active-duty Medical Reserve Corps officers. With 121,797 enlisted men in the Army on 1 April, this ratio was slightly lower than the 7 medical officers for every 1,000 enlisted men required by the National Defense Act and much below the ratio of 10 for every 1,000 that the surgeon general

<sup>9</sup> James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 466; Ashburn, *History of MD*, p. 305; WD, SGO, *SGO*, pp. 137, 245; idem, *Finance and Supply*, pp. 45–46. No one without a medical degree was allowed to join the Medical Department. See "'Sects' Not for Medical Service," pp. 1468–69.

<sup>10</sup> WD, SGO, *SGO*, p. 529; WD Bulletin no. 49, 22 Aug 1917, p. 9.



maintained a wartime Army should have. Another 9 doctors were working for the Army under contract, while 1,267 more physicians, half of them inexperienced, served the 181,620 officers and men of the National Guard. For the hypothetical 500,000-man Army, an additional 1,400 to 3,000 doctors beyond those already in the Regular Army, in the Army Reserve, and in the National Guard would be needed, and this number would have to come from among the nation's 150,000 civilian physicians, many of whom were too old to serve in the military.<sup>11</sup>

The Medical Department's physicians were responsible for caring for the 65 officers and 1,000 men in the Signal Corps' Air Service Section. Aviation medicine was in its infancy, and none of these physicians could be classified as flight surgeons. Although Lt. Col. Theodore C. Lyster, MC, an experienced ophthalmologist, together with two Signal Corps officers, had been named in 1916 to a board to develop guidelines, standards were not set until May 1917. At this time thirty-five aviation boards were appointed to conduct physical examinations throughout the country for the burgeoning numbers of would-be aviators, with a medical officer detailed to guide them in their work.<sup>12</sup>

Also part of the Medical Department on 6 April were 86 Dental Corps officers, all but 60 of whom were contract or acting dental surgeons, while an additional 250 served in the National Guard. The U.S. Army was the only army to give dentists extensive training in both military and professional subjects and had more of them subject to military call, including those in the Regular Army, the Army Reserve, and the National Guard, than France and Britain combined. Both dental surgeons and acting dental surgeons in the U.S. Army had to pass lengthy examinations to determine their competence; Army dentists were expected to have "a thorough knowledge of oral surgery," and a small number were also competent to perform "operations about the face." The civilian sector was solidly behind the effort to keep the Army well provided with qualified dentists; various dental schools were quick to set up free courses of special instruction, designed with Medical Department assistance, for candidates for the Army Reserve. The total number of dentists actually in the Army varied but ideally approximated 1 for every 1,000 in the line, and only 15 could rise as far as the rank of major.<sup>13</sup>

Those applying for the 118 positions available in the newly created Veterinary Corps were also subject to professional examinations to enter, and they, too, could rise no higher than major. As needed, the surgeon general could appoint reserve veterinarians. At the beginning of the war the number of veterinarians in the Medical

<sup>11</sup> WD, SGO, *SGO*, pp. 3, 76, 142, 151, 176; Pershing, *My Experiences*, 1:159, 160; "Annual Report of the Surgeon General of the Army," pp. 88–92; see also *Military Surgeon* 44 (1919): 463.

<sup>12</sup> Lee Kennett, *The First Air War, 1914–1918*, p. 117; Pershing, *My Experiences*, 1:27, 160; WD, SGO, *SGO*, pp. 488, 489, 494; Lyster Biography, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, NLM. The place of the air service in the Army's organization changed several times in the period 1917–1941. See Maurer Maurer, *Aviation in the U.S. Army, 1919–1939*, pp. xxi, 191.

<sup>13</sup> Testimony, Gorgas to House Committee on Military Affairs, 1:586 (quoted words), in Record Group 287, Publications of the United States Government, National Archives and Records Administration, College Park, Md.; WD, *ARofSG*, 1917, p. 441; 1918, pp. 413–14; A. Macphail, *Official History of the Canadian Forces in the Great War 1914–1919*, p. 230; WD, SGO, *SGO*, pp. 77, 191, 561, 768–70; Franklin H. Martin, "Council of National Defense, Committee on Medicine," pp. 551–52.

Department was still 56 short of the 118 authorized slots, and thus examinations to fill them could be given promptly. Good veterinary schools trained their students in food inspection, but veterinarians already in the Army tended to lack training in the inspection of meats and dairy products. Their work in this regard, as a result, was not uniform.<sup>14</sup>

The Army Nurse Corps consisted of 403 women, 233 regular nurses and 170 reserve nurses on active duty, none of whom held rank, as well as a reserve of more than 8,000 Red Cross unmarried nurses who could be called upon in time of emergency. In addition to the pool of nurses, the Red Cross supplied the uniforms for all nurses sent overseas. The responsibilities that these women might be expected to undertake were growing; the use of nurses as anesthetists, for example, had long been accepted at such prominent institutions as the Mayo Clinic.<sup>15</sup>

The remaining members of the Medical Department included enlisted men and civilians. When the war began, enlisted personnel totaled 6,619. Except in time of emergency, the number was limited to no more than 5 percent of the total number of enlisted men in the Army. Civilian employees could be hired as needed to serve as cooks, clerks, messengers, as male nurses (apparently used chiefly in the care of the violently insane), and as female nurses.<sup>16</sup>

For a small Army, a large network of complex facilities had not been needed. Even after the mobilization along the border with Mexico in 1916, the Medical Department operated only a handful of large hospitals and major laboratories, including a room at the Army Medical Museum specifically set up for the manufacture of typhoid vaccine. Four of the Army's six major hospitals were known as general hospitals, run directly through the Surgeon General's Office, while the remaining two were department hospitals, under the direct control of the commanding officer of the geographical departments in which they were located. Only one hospital train was available to move patients from one hospital to another.<sup>17</sup>

In the spring of 1917 the Medical Department also had available the personnel for seven field hospitals and nine ambulance companies, as well as for thirty-eight field hospitals and twenty-six ambulance companies in the National Guard. The department had stored the equipment needed to set up nineteen evacuation hospitals near the Mexican border, but none were in operation. Expert opinion maintained that these facilities should be larger than had originally been envisioned, and the stored equipment was out of date. The department's field supplies, adequate for only an Army of 300,000, were held in six medical supply depots. No uniformity existed in their management, for each depot was operated according to the inclinations of the medical officer in charge.<sup>18</sup>

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<sup>14</sup> WD, *ARofSG*, 1918, pp. 415, 416; WD, SGO, *Training*, pp. 437–48.

<sup>15</sup> Macphail, *Canadian Forces in the Great War*, p. 238; WD, SGO, *SGO*, pp. 176, 777, 783–84; idem, *Sanitation*, p. 641; Marianne Bankert, *Watchful Care*, pp. 34–35.

<sup>16</sup> WD, SGO, *SGO*, pp. 139, 170, 561; A. E. Brownrigg, "Neuropsychiatric Work in the Army," pp. 458–60.

<sup>17</sup> WD, SGO, *SGO*, pp. 4, 5, 327, 328, 334; idem, *Finance and Supply*, p. 465; idem, *Military Hospitals in the United States*, pp. 180–81; James A. Tobey, *The Medical Department of the Army*, p. 38.

<sup>18</sup> WD, SGO, *SGO*, pp. 4, 5, 67, 328, 344; idem, *Finance and Supply*, pp. 23, 25, 290, 300, 686; Tobey, *Medical Department*, p. 38.

With the responsibilities of the Medical Department growing rapidly, the need for a thorough reorganization of the Surgeon General's Office was obvious. In spite of "tentative plans" for the reorganization, formulated in May 1917, many of the changes in the Surgeon General's Office in the weeks that followed bore the signs of hasty improvisation. A medical officer familiar with the office at that time later commented that "it appears that some of the new divisions established in the office of the Surgeon General arose from organizations and men injecting themselves into office." Certainly the process of expansion was handled in a curious and often haphazard manner.<sup>19</sup>

Little of the reorganization was actually accomplished before U.S. troops sailed for Europe. The first division that Surgeon General Gorgas received specific permission to form within the Surgeon General's Office was never actually created. In May the adjutant general approved a plan to create a Division of Hospitals, Sanitary Inspection, and Medico-Military Training. When this division was actually created a year later, it was known as the Division of Medical Department Training, responsible only for medical military training, and consisted of but one officer—Col. Edward L. Munson, MC. For the formation of the Division of Internal Medicine, "no formal order was issued," although the Medical Department's history of World War I concluded that the division was established "shortly after the United States entered the war." To judge from the Surgeon General's annual report for 1918, this division was created as a result of a decision to name a group of reserve medical officers to check the Army for tuberculosis. The first officer of this group, which became the Tuberculosis Section of the Division of Internal Medicine, reported for duty on 6 June 1917, and a week later the surgeon general issued instructions to guide the group's work. The creation of the Cardiovascular Section of the Division of Internal Medicine at approximately the same time dated from the assignment of the first officer to deal exclusively with this specialty. Also in June 1917 Surgeon General Gorgas ordered the creation of the Division of Infectious Diseases and Laboratories. Vital though the work of Medical Department laboratories was during the war, evidence that this organization was actually functioning by the time the first U.S. troops sailed for Europe is lacking.<sup>20</sup>

### *Training*

Even though he had no definite information about how large the Army would be, Surgeon General Gorgas devoted much of his attention toward planning for the training of Medical Department from the moment war was declared. One of his first steps was to approve a report submitted on 6 April 1917 by Colonel Munson, who had for many years written and lectured on training. In this document Munson set out in general terms the principles he believed the Medical Department would have to follow to deal with any major expansion. He pointed out that for a hypothetical Army of 1 million men, the department would require 7,000 medical officers, as well as another 1,000 to cover what he called "wastage." Munson concluded

<sup>19</sup> WD, SGO, *SGO*, p. 126 (quoted words); Ashburn, *History of MD*, p. 305 (quotation).

<sup>20</sup> WD, *ARofSG*, 1918, pp. 343–46; WD, SGO, *SGO*, pp. 126 (first quoted words), 213–14, 217, 286, 373 (second quoted words), 377–78, 383, 796–97.

that of the physicians who could be called on to make up this total, only 500 were reasonably well trained while another 1,000 were partly trained. The remaining 6,500 of the total needed were yet to be trained. The million-man Army would also require the services of 100,000 Medical Department enlisted men. Munson estimated those who were totally untrained would have to fill 90,000 of these slots. Providing the training required by such large numbers of officers and would obviously “strain every resource of the inadequately manned Medical Department.” Munson stressed the “urgent need for the immediate creation of some effective administrative machinery capable of transforming the above mass into efficient, trained sanitary personnel, without unnecessary delay and difficulty.”<sup>21</sup>

As Colonel Munson envisioned it, the Surgeon General’s Office was responsible for issuing the basic training plan and the actual trainers for adapting it to their individual circumstances. Each field army and each division would have its own training officer, under whom a medical officer charged with removing “at their source all the present great difficulties connected with the paper work of untrained officers” would serve—a step that Munson believed would save much time and effort by eliminating inaccuracies. Munson recommended that such publications as *Military Surgeon* as well as the various orders, circulars, and bulletins issued by the Surgeon General’s Office be widely circulated as training aids. Ideally, any training should be timed so that those already in the Army were trained first and were thus available to instruct those who joined the service after them.<sup>22</sup>

Upon receiving this report, Surgeon General Gorgas immediately ordered Munson to work with the Army’s Bureau of Militia Affairs, which had already formulated a training program for the medical service of the National Guard, to prepare an overall scheme for dealing with the Medical Department’s pool of newly mobilized men. On 21 April 1917 Gorgas forwarded the plan that had been developed to the adjutant general. In the cover letter he emphasized the need for prompt action and called for medical training camps to be established to coincide with the opening of the “general training camps” for officers on 15 May. The department would provide physicians to conduct physical examinations of all officer-trainees and to care for the sick and injured among them. He also recommended that each training camp have a staff of 1 medical officer serving as instructor for every 50 students. An ambulance company and a field hospital were to be present from the outset wherever medical officers were being trained, with three more of each being organized as soon as possible thereafter. A sufficient number of other enlisted men was to be sent to each camp to form six regimental sanitary detachments, to be trained to deal with camp sanitation, and to allow students to see medical organizations and equipment in action in the field. The training course for medical officers was scheduled to last three months and that for enlisted men six months.<sup>23</sup>

Because of the shortage of qualified instructors, Surgeon General Gorgas suggested that four medical officers training camps be established in conjunction with

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<sup>21</sup> WD, SGO, *Training*, pp. 1–4 (quoted words). Those responsible for maintaining the Army’s health were increasingly referred to at this time as “sanitary personnel” rather than “medical personnel.” The units accompanying the Army into battle were referred to, for example, as sanitary trains.

<sup>22</sup> *Ibid.*, pp. 2–4 (quoted words).

<sup>23</sup> WD, *ARofSG*, 1918, p. 289; WD, SGO, *SGO*, p. 213; *idem*, *Training*, p. 5 (quoted words).

the general officers training camps being constructed at Fort Oglethorpe (Georgia), Fort Riley (Kansas), Camp Leon Springs (Texas), and Fort Benjamin Harrison (Indiana). Ultimately, a network of sixteen general officers training camps ran from 15 May to 11 August 1917. Gorgas also envisioned sending the students into the field for six months further training after they had finished the three months in camp.<sup>24</sup>

The adjutant general did not respond to the suggestions of Surgeon General Gorgas and Colonel Munson until 11 May, four days before Gorgas had proposed opening the medical officers training camps. At this point, he granted permission for the department to open the camps at the sites that Gorgas had proposed by 1 June 1917. The camps were to have a maximum of 600 officer-trainees each and to be directly controlled by the surgeon general. No increase in the number of regular officers in the Medical Corps and no change in their grade structure was to result from their operation.<sup>25</sup>

All increases in the number of physicians in the Army were, with few exceptions, to take place through the Medical Reserve Corps or its successor, the medical officers section of the Officers' Reserve Corps. Unlike members of the Medical Reserve Corps, those in the medical section of the Officers' Reserve Corps were required to serve for five years and might be ordered to active duty without their consent. They could be promoted as high as the rank of major. Unless their qualifications were such that they would not be assigned to field duty, they were required to take correspondence courses that, in a four-year period, would cover administration, camp hygiene, and the duties of medical officers.<sup>26</sup>

On 15 May 1917 the War Department issued guidelines for training medical personnel. The goal was to give "all the untrained medical officers now in, or hereafter to enter, the service . . . reasonable insight into their new functions, and into those of their subordinated, with the least possible delay." The officer who had completed the three-month course should be able to handle his duties "without supervision of more experienced officers" and to instruct his "own subordinates, both commissioned and enlisted." The regulations issued at this time also outlined the subjects to be covered during the three four-week periods into which the instruction was to be divided, beginning with purely military topics and eventually including military sanitation, military surgery, war-engendered psychological problems, injuries resulting from poison gas, and the role of medical units.<sup>27</sup>

<sup>24</sup> WD, SGO, *SGO*, p. 214; idem, *Training*, p. 4; Weigley, *History*, p. 373.

<sup>25</sup> WD, SGO, *SGO*, p. 214; idem, *Training*, pp. 5, 6; S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 185.

<sup>26</sup> Many in and outside of the Army continued to refer to what was technically the medical officers section of the Officers' Reserve Corps as the Medical Reserve Corps. See Kreidberg and Henry, *History of Military Mobilization*, pp. 373–74; WD, SGO, *SGO*, p. 1205; "A Plan for Creating an Adequate Medical Reserve for the Army," pp. 558–59; Ltr, Birmingham to Officers of the Medical Reserve Corps, 1 Nov 1916, correspondence folder, Ms C451, Marion A. Blankenhorn Papers, NLM.

<sup>27</sup> WD, *Special Regulations No. 49a, Course of Instruction for Medical Officers of the National Guard and Officers' Reserve Corps at Medical Officers' Training Camps, 1917*, pp. 3–8 (quotations).

On 16 May Surgeon General Gorgas, moving quickly to take advantage of the issuance of guidelines, sent to the commandants of the new camps a letter of instruction detailing how training should be handled so as to achieve uniformity. He emphasized the need for intense instruction so that thousands of medical officers could be ready as soon as possible to train the many more thousands of raw recruits slated to be Medical Department enlisted men. He planned to assign additional instructors to the camps to maintain the ratio of 1 for every 50 students but added that he might have to assign qualified National Guard medical officers to maintain this proportion. Dental and veterinary surgeons were to take the general training course, but with subjects appropriate to their respective specialties substituted for those intended solely for medical officers.<sup>28</sup>

Because each camp would need many more medical personnel to manage camp sanitation and to care for the draftees, the Medical Department had to act promptly to increase its numbers and begin its training programs. Surgeon General Gorgas' request to have the ratio of department enlisted men to the total number of enlisted men increased from 5 percent to 10 percent was granted on 15 June, with the stipulation that all enlisted medical personnel, including those from any federalized units, be included in calculating the ratio. By 30 June 1917 a total of 16,773 enlisted men were serving in the Medical Department, many having been transferred from the line without any significant understanding of their future duties.<sup>29</sup>

In its attempts to find physicians to train for service as medical officers, the Medical Department received valuable help from the American Medical Association, which made available its extensive membership roster, its printing facilities, and some of its office space. As many as two-thirds of the nation's physicians, both general practitioners and specialists, belonged to this organization, which had files on the background and training of all the nation's approximately 145,000 physicians and medical students but also a "most complete list of quacks, irregular practitioners, cults, 'pathies, etc.'" Surgeon General Gorgas assigned a Medical Corps officer to the association to supervise the dispatch of an appeal to every physician under the age of fifty and, if no reply was received, a follow-up letter. During the five-month period from May to September 1917 that it worked on the project, the association mailed almost 69,000 letters. Editorials in the *Journal of the American Medical Association* also emphasized the need for medical officers and urged physicians to join the Medical Reserve Corps. The issues of 21 April and 26 May 1917 even contained blank application forms. Beginning 2 June, the *Journal* listed the names of physicians who had accepted commissions.<sup>30</sup>

<sup>28</sup> WD, SGO, *Training*, pp. 7–12.

<sup>29</sup> WD, *ARofSG*, 1918, pp. 48, 49; WD, SGO, *SGO*, pp. 170–71; WD, *ARofSW*, 1917, p. 23; John W. Chambers, "Conscripting for Colossus," in Peter Karsten, ed., *The Military in America from the Colonial Era to the Present*, pp. 275–76. Draft physicals were revealing about the health and physical characteristics of the nation's young men. Among their revelations was the fact that Texans were, on the average, indeed an inch taller than men from other states. See Albert G. Love, Eugene L. Hamilton, and Ida L. Hellman, *Tabulating Equipment and Army Medical Statistics*, pp. 75, 81.

<sup>30</sup> "The American Medical Association's War Service," pp. 557–58, 559–61, 568; WD, SGO, *SGO*, pp. 574, 575 (quoted words), 576–77; Bevan, "Organization of the Medical Profession," pp. 597–98. The shortage of candidates for commissions in the Army's medical reserves was exacerbated

The American Medical Association worked closely with the Surgeon General's Office concerning the qualifications of the nation's physicians, permitting it to consult association records in making decisions about applicants for the Medical Reserve Corps. The association's specially trained clerks searched records for derogatory information, which they forwarded to the surgeon general. The association was even willing to conduct special searches, if requested, checking with the officers of the medical society serving the part of the country where an applicant lived.<sup>31</sup>

Because of the shortage of medical officers, the Surgeon General's Office attempted to find ways in which nonmedical officers could be used. Acting under the provisions of the Selective Service Act, President Wilson created two new components for the Medical Department—an ambulance service requested by the French, to be known as the U.S. Army Ambulance Service, and the Sanitary Corps. Although they accepted physicians, the new organizations also afforded opportunities to those who were not medical officers, veterinarians, or dentists. They even allowed enlisted men to rise to commissioned rank.<sup>32</sup>

The U.S. Army Ambulance Service, formally established on 23 June 1917, was patterned after the volunteer service created by Americans living in Paris. Congress required that its existence, like that of the Sanitary Corps, terminate with the end of the war. The hope was to have men serving in the sixty volunteer sections already in France join the new service, but so many either did not want to join the Army or preferred to serve in a combatant capacity that only twenty-eight sections could be formed. Two Medical Corps officers were initially assigned to the Ambulance Service, along with others from the new medical section of the Officers' Reserve Corps, which had by this point replaced the Medical Reserve Corps. The goal, however, was to have these officers eventually replaced by non-physicians, promoted from among the enlisted ranks of the Ambulance Service. Enlisted men for the Ambulance Service were obtained through volunteering or the draft, and they became members of the medical section of the Enlisted Reserve Corps. Once ambulance company personnel had been recruited and a commander selected, the unit was turned over to the Army for training under the direction of Lt. Col. Elbert E. Persons. Most of the men started as privates and were promoted on the basis of ability after their arrival at camp.<sup>33</sup>

The Sanitary Corps, created on 30 June 1917, allowed the department in wartime to utilize the talents of sanitary engineers, chemists, bacteriologists, administrators, and those with similar skills, with a majority assigned to hospitals as adjutants. Medical Reserve Corps officers, but not Medical Corps officers, could

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by the fact that higher ranks were available for medical officers in the U.S. Navy. See C. J. Mayo, "Medical Service in the United States Army," pp. 352–53.

<sup>31</sup> WD, SGO, *SGO*, pp. 574–75.

<sup>32</sup> *Ibid.*, p. 174; WD, SGO, *Training*, p. 292; WD GO no. 80, 30 Jun 1917.

<sup>33</sup> WD GO no. 75, 23 Jun 1917; *ibid.*, no. 124, 20 Sep 1917; WD, *ARofSG*, 1918, p. 268; *ibid.*, 1919, 1484; Autobiography, pp. 177, 190, Ms C14, Kean Papers, NLM; Ashburn, *History of MD*, pp. 322–23; WD, SGO, *SGO*, pp. 6, 152, 171, 355, 606; *idem*, *Administration, American Expeditionary Forces*, p. 19 (hereinafter cited as *Administration, AEF*); *idem*, *Training*, pp. 292, 293, 294, 300. The National Defense Act of 1916 established the Enlisted Reserve Corps to organize specialists for the Medical Department and other Army bureaus. See Weigley, *History*, pp. 348, 358.

also join. The number of officers in this corps was not to exceed 0.1 percent of the total Army strength, with the secretary of war determining how many enlisted men served. The proportion of officers in each rank was to be identical to that in the Medical Corps, but no rank above major was allowed.<sup>34</sup>

The influx of commissioned officers, the number increasing from fewer than 500 to more than 10,000 in the first three months of the war, placed an enormous burden on the Medical Department for training them. For the most part, those who joined the department after the United States entered the war were totally unfamiliar with the demands that the Army would soon be placing upon them. The greatest challenge, however, involved giving thousands of physicians in the space of a few weeks “a general idea of the basic duties of a medical officer” and preparing them for service in the field to the point where they could function without either the supervision of an experienced medical officer or the help of an experienced noncommissioned officer. Given the shortage of experienced personnel to conduct training, priorities had to be set. Thus the initial courses of instruction were designed to meet the most pressing need, namely, that for medical officers for the regiments and divisions in the process of being organized. These officers would have to be trained not only to care for the Army’s sick and wounded but also to instruct divisional medical personnel, including enlisted men. Courses for Line of Communications personnel, for nonmedical branches of the department, and for the various medical specialties had to be postponed.<sup>35</sup>

Establishing the four medical officers training camps where the desperately needed new medical officers could be trained did not go smoothly. From the outset, the deficiency of experienced men to handle instruction proved to be the greatest handicap. One of its first manifestations was the cancellation of plans for the medical officers training camp at Leon Springs, located in the Southeastern Department and thus farthest from East Coast points of embarkation. To make up for the cancellation, the Medical Department received authority to increase the capacity of the remaining camps to 1,000, thus raising the total number to be trained from 2,400 to 3,000 men in spite of the abandonment of the plans for Leon Springs.<sup>36</sup>

Further difficulties arose from the fact that officers and men began arriving at the camps before the Quartermaster Corps, “strained to the limit” by demands for new construction, had completed its work. At Fort Riley the site selection occurred only a few days before the 1 June opening of the training camp and the arrival of the 34 students and 9 Medical Corps instructors. On 4 June instruction started for 74 men in the first company. Five days later 15 noncommissioned officers and 523 enlisted men reported for duty. National Guard officers and men began arriving for training on the twentieth. The numbers continued to grow, and by the end of the month more than 1,800 officers and men occupied the camp. The last buildings,

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<sup>34</sup> WD, SGO, *SGO*, pp. 174, 666; idem, *Administration, AEF*, pp. 100, 102; WD GO no. 80, 30 Jun 1917.

<sup>35</sup> WD, SGO, *Training*, pp. 7, 301; Ashburn, *History of MD*, p. 304; Autobiography, p. 190, Ms C14, Kean Papers, NLM. In late May the General Staff decided that National Guard troops being trained would be sheltered in tents and thus that cantonment construction would be required only for the sixteen National Army camps. See Erna Risch, *Quartermaster Support of the Army*, p. 607.

<sup>36</sup> WD, SGO, *SGO*, p. 214; idem, *Training*, p. 6.



however, were not completed for another month. Classes had to be conducted and men housed in existing structures.<sup>37</sup>

The situation at the other training camps was similar to that at Fort Riley. At Fort Oglethorpe, where the medical training camp became known as Camp Greenleaf, the belief that the barracks could handle 1,000 men proved to be an illusion; they were designed to hold only 650. Furthermore, only tents were available to shelter the men, although “rough, unceiled, wooden one-story buildings” were soon erected. More difficulties arose as a result of the fact that the only area available for new construction was surrounded by a swamp; after a heavy rain, the water might be five feet deep. An attempt to postpone the arrival of the students for two weeks while the drainage ditch was widened “failed through clerical error in the War Department, and considerable numbers of student medical officers arrived at these camps on June 1, and thereafter.”<sup>38</sup>

Sanitation was always a challenge. When students arrived at Fort Oglethorpe on 1 June, bringing hygiene and sanitation up to standards became a training exercise. Formal training did not start until the fifteenth. At Fort Benjamin Harrison the rapid influx of large numbers of people, both military and civilian, to manage construction and to run the camp, resulted in a rapid increase both in the pollution of the soil and in the fly population. Because of the Army’s rapid expansion, all camps experienced a shortage of clothing, equipment, and other supplies.<sup>39</sup>

A camp where enlisted medical personnel could be trained—variously referred to as the Medical Department Training Camp, the 18th Recruit Company, Medical Department Training Company A, and Medical Department Training Units—was established in May at Fort Ethan Allen, Vermont. The shortage of trained instructors handicapped camp operations. As a result, men showing the greatest promise were selected for special training, with successful completion followed by promotion to noncommissioned officer status so that they could, in turn, serve as instructors.<sup>40</sup>

Plans called for sending personnel taught at the various medical training camps out to the divisions upon completion of their instruction. At the division level their responsibilities would include training still more officers and enlisted men. Division surgeons were to be responsible for forming a staff of instructors and assigning them to teach in fields where they had particular expertise, with due consideration for the fact that many were only partially qualified as instructors. Among the pupils would be enlisted men taking advanced instruction preparatory to promotion or to specialized assignments as nurses, surgical assistants, dispensary assistants, dental surgeon’s assistants, and clerks.<sup>41</sup>

The Army Ambulance Service’s training site at Camp Crane, Allentown, Pennsylvania, came to be used by Medical Department units that, because of their nature, had to be called up before the rest of the National Army. It was almost an ideal location, on the grounds of the Lehigh County Agricultural Society, where

<sup>37</sup> WD, SGO, *Training*, pp. 67 (quoted words), 181–82.

<sup>38</sup> *Ibid.*, pp. 12, 17; WD, *ARofSG*, 1918, pp. 290 (quoted words), 407 (quotation).

<sup>39</sup> WD, SGO, *Training*, pp. 6, 18, 259; Ashburn, *History of MD*, p. 309.

<sup>40</sup> WD, SGO, *Training*, pp. 360, 361.

<sup>41</sup> *Ibid.*, pp. 301, 303.



*Thomas W. Goodwin*

stood several stoutly constructed permanent buildings, easily accessible to troops and supplies, all equipped not only with running water and electric lights but with “large lavatories in which there were over 100 modern flush toilets.” Even restaurant facilities were available. The site was formally turned over to the government on 1 June 1917, after which barracks, a camp infirmary, and officers quarters were hastily erected.<sup>42</sup>

At military posts not used for mobilization camps, the Medical Department envisioned having post surgeons conduct training programs similar to those at the medical officers training camps. Surgeon General Gorgas sent an outline for instruction to the senior surgeon of each of the geographical departments that formed the Army’s major commands. In turn, the department surgeon was responsible for seeing that his subordinates carried out the prescribed

training program for sanitary personnel. Because department surgeons had to provide hundreds of enlisted men in all grades to the units that were forming within these commands, some of the more important posts had to set up training schools for large detachments. At the smallest posts, on the other hand, instruction might consist principally of reading, an approach deemed especially appropriate for the older and less fit medical officers who tended to replace the younger officers siphoned off for overseas service. Physicians up to the age of fifty-five could be accepted in the Officers’ Reserve Corps, but many came from rural districts and were often “deplorably deficient in the scientific practice of their profession.” Thus they might suffer more than their youthful counterparts should they not promptly receive copies of service manuals and Army regulations.<sup>43</sup>

While the medical training camps attempted to indoctrinate all the new medical officers of the National Army and the National Guard, the handful of physicians joining the Medical Corps rather than the Medical Reserve Corps continued to be trained at the Army Medical School. By the end of June 1917 the size of the detachment of enlisted men used there to assist medical officers and to train students had roughly doubled, from 20 to 39. A valuable lecturer in the spring of 1917 was Col. Thomas W. Goodwin, a British medical officer who was part of a military mission sent to the United States. Goodwin also shared what he had learned during three years of active service at the front in Europe with physicians at various

<sup>42</sup> *Ibid.*, pp. 291 (quoted words), 292.

<sup>43</sup> *Ibid.*, pp. 359, 360 (quoted words); WD, SGO, *SGO*, p. 789.

camp and cities and at the meetings of various professional societies in the United States.<sup>44</sup>

Many medical officers at the Army Medical School were assigned to give physical examinations, eventually 1,000 a day. Those they examined were usually civilian candidates for the various sections of the Officers' Reserve Corps, although some were men being inducted as Medical Department privates or officers either scheduled for promotion or being examined to determine their fitness for overseas assignment. Beginning in May, applicants for the Aviation Section of the Signal Corps Reserve were all sent for examination to one specific Medical Corps officer, who became responsible within the Surgeon General's Office for all aviation work. Examination of candidates for commissions as regulars in the Aviation Section, Signal Corps, however, continued to be the responsibility of the Aviation Board.<sup>45</sup>

### *Base Hospitals*

Giving much of his attention to the problems related to training personnel unfamiliar with military routines, Surgeon General Gorgas delegated the task of mobilizing the various Red Cross base hospitals to his experienced subordinate guiding the Red Cross since 1916, Col. Jefferson R. Kean, MC. These hospitals were the only ones available when the first American troops went overseas in the summer of 1917, and they provided most of their own equipment and personnel who had completed basic military training. At the request of Colonel Goodwin, the first six sent abroad served British rather than American forces. The personnel of the hospitals serving the British Army were to be paid by the United States while on this mission and according to the pay scale of the U.S. Army, which was also to "provide their personal outfit." Each hospital was to be commanded, once activated, by a regular U.S. Army medical officer. As far as their duties were concerned, however, they were to be "entirely at the disposal of the British authorities" to provide not only their equipment but also their training.<sup>46</sup>

Other Army medical personnel also went to help the British. Trained orthopedic surgeons being rare—and not particularly highly regarded—in England, Colonel Goodwin asked that orthopedists be sent to England to help care for disabled soldiers. Because the British had accomplished much in the field of physical reconstruction, Surgeon General Gorgas agreed to send 20 specialists, with the understanding that they would be called upon report to him on what they had learned. He also agreed to send the British 200 doctors and 200 nurses (other than those with base hospitals) each month in June, July, and August 1917. These medical officers were

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<sup>44</sup> WD, SGO, *Training*, p. 395; Tobey, *Medical Department*, pp. 38–39; W. G. Macpherson et al., eds., *Medical Services . . .*, 1:147; T. H. Goodwin, "The Collection and Evacuation of Sick and Wounded from Front to Base," p. 609.

<sup>45</sup> WD, SGO, *SGO*, p. 488; idem, *Training*, p. 422.

<sup>46</sup> Macpherson et al., eds., *Medical Services . . .*, 1:148 (quoted words); WD, SGO, *SGO*, pp. 410–11; idem, *Administration, AEF*, pp. 19–20; idem, *Finance and Supply*, p. 493; Diary, p. 1, and Autobiography, pp. 189, 190, Ms C14, Kean Papers, NLM; Ltr, Gorgas to Sir Alfred Keogh, 1 May 1917, Gorgas Papers, UA.

credited with adding “in a large measure to the maintenance of the Royal Army Medical Corps services which were so severely tried” during the war.<sup>47</sup>

Colonel Kean’s experience could not spare the officers of the base hospitals from the trials that were afflicting other medical organizations. Problems concerning the rank of Medical Reserve Corps officers surfaced initially in connection with the staffs of Red Cross base hospitals. The first episode had its comic aspects. In the Surgeon General’s Office many new and inexperienced clerks had been on the job long before their overworked seniors could indoctrinate them in their duties. Some of the female clerks became confused about ranks: When awarding commissions to the base hospital physicians, rather than giving the highest ranks to the most experienced, they instead issued lieutenant’s commissions to the oldest and most eminent doctors and major’s commissions to the youngest. Beyond this comedy of errors, however, was the fact that the commissions came through very slowly; Colonel Kean concluded that one of Gorgas’ top administrators, Lt. Col. Robert E. Noble, was responsible for the “very dilatory . . . issuing of commissions to the Reserve Officers of my Base Hospitals.”<sup>48</sup>



*George W. Crile*

The first base hospital to go overseas, Base Hospital No. 4, was formed by the Lakeside Hospital from Cleveland, Ohio. At its head was Dr. George W. Crile, a major in the Medical Reserve Corps, the originator of the base hospital concept, and a professor of surgery at Western Reserve University. Crile had served in Europe as part of a unit sent by Western Reserve and was therefore familiar with the medical side of the conflict. After Surgeon General Gorgas asked him to call his personnel together on 28 April 1917, Major Crile gave his people two days to report for duty. On 3 May, when Maj. (later Lt. Col.) Harry L. Gilchrist, MC, arrived to take command of Base Hospital No. 4, the hospital’s personnel were still without the proper clothing. Even Crile’s wife assisted in a hasty and eventually successful effort to locate the proper uniforms and get them to the men before the

<sup>47</sup> WD, SGO, *Administration, AEF*, pp. 19–20; Macpherson et al., eds., *Medical Services . . .*, 1:150 (quoted words); WD, SGO, *SGO*, pp. 410–11; Ltr, Gorgas to Sir Alfred Keogh, 1 May 1917, Gorgas Papers, UA; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, pp. 8, 12. The term *base hospital* as used during World War I referred to the personnel, not the equipment.

<sup>48</sup> Autobiography, pp. 187 (quoted words), 188, Ms C14, Kean Papers, NLM; WD, SGO, *SGO*, p. 100.



*Harvard hospital unit leaving Boston, May 1917*

unit left Cleveland on 6 May. On 8 May Gilchrist, Crile, and Base Hospital No. 4 personnel set sail, reaching England nine days later. Other than military attaches, observers, and a military mission to France, they were the first elements of the U.S. Army to arrive in Europe.<sup>49</sup>

<sup>49</sup> Wallis L. Craddock, "Harvey Cushing," p. 271; WD, SGO, *Administration, AEF*, p. 19; Jonathan H. Jaffin, "Medical Support for the American Expeditionary Forces in France During the First World War," M.A. thesis, p. 1; George Crile, *An Autobiography*, 1:272–73, 274–75; Diary, p. 1

Another hospital in the first group to go overseas was the Harvard-organized Base Hospital No. 5, which experienced the same haste and confusion that had afflicted Base Hospital No. 4. Army Reserve Maj. Harvey W. Cushing, the well-known brain surgeon who for three months in 1915 had served as a civilian with a team from the Harvard unit, led the base hospital. When Cushing endeavored to get the necessary tents for his hospital, he was unsuccessful; none was on hand, for the Quartermaster Corps had cornered all the duck needed to make new ones. He also learned at this time that the department's standard medical chests contained instruments dating back to the Civil War and that instrument manufacturers were handicapped by the flight of many of their workers to munitions shops and the higher salaries offered there.<sup>50</sup>

If Cushing is to be believed, future surgeon general Maj. Robert U. Patterson assumed a troublesome burden when he was appointed to command Base Hospital No. 5: "Contradictory orders from Washington—one day one thing, the next another. Poor Patterson in a panic there about our commissions. Last-minute shifts in personnel and even officers. New physical-examination papers requested for depot in Adjutant General's Office. Harry Forbes's glass eye was a stickler, but we assured P. he could see through it. Gracious, how we need universal training!"<sup>51</sup>

The majority of the Red Cross base hospitals deployed to France, with a few remaining in England and another in Italy because of its Italian-speaking staff. For most, the trip across the Atlantic was uneventful. One exception to the rule was Base Hospital No. 12 from Chicago, which suffered a misfortune at sea while on board the *Mongolia* bound for England. Apparently some personnel found the firing of antisubmarine guns fascinating. When one shell was fired, a metal disk that lay between the powder and the shell of the cartridge hit a wave. Without warning, the disk came back at the ship "like a boomerang," killing two nurses.<sup>52</sup>

### *Medical Supply*

Like training, supply was one of the Medical Department's major concerns during the entire war. The overall question of the department's wartime supply needs became one of the concerns of the new General Munitions Board after its establishment as a branch of the Council of National Defense on 8 April 1917. This advisory body was composed of representatives of the various supply bureaus of the Army and Navy, including the Army Medical Department, and of representatives from several committees of the Advisory Commission, including

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and Autobiography, p. 177, Ms C14, Kean Papers, NLM; 1916–1919 folder, correspondence folder, and new releases folder, Ms C451, Blankenhorn Papers, NLM. The numbers from 1 through 100 were set aside for the Red Cross base hospitals, with any other base hospitals formed in the course of the war being given numbers beginning with 101 (see Autobiography, p. 206, Ms C14, Kean Papers, NLM). The Canadians began sending general hospitals organized by universities overseas in 1915 (see Macphail, *Canadian Forces in the Great War*, pp. 43–44).

<sup>50</sup> Cushing, *From a Surgeon's Journal*, pp. 89, 93.

<sup>51</sup> *Ibid.*, p. 99 (quotation); Ltr, Cushing to Gorgas, 28 Apr 1917, Gorgas Papers, UA; WD, SGO, SGO, pp. 92, 94–95; Craddock, "Cushing," pp. 269–71; Diary, p. 1, and Autobiography, p. 190, Ms C14, Kean Papers NLM; H. C. Connor, "The American Red Cross Assistance to the United States Medical Department in the United States," p. 235.

<sup>52</sup> Autobiography, p. 190, Ms C14, Kean Papers, NLM.

the Committee on Medicine. Its basic purpose was coordinating buying, including that of medicines and medical supplies, between the Army and the Navy so as to preclude competition between the various government agencies. Procurement continued to be decentralized on the Army level as well, handled independently by each of the supply bureaus. As recalled by Peyton C. March, who was the Army chief of staff from March 1918 to May 1921, the supply system also suffered from a “rigid accountability for expenditures of appropriations made by Congress.” As a result, any officer who did not follow to the letter the laws governing procurement had to cover the expense of the purchase out of his salary. The result was “completely destructive of any initiative on the part of supply officers. It made them timid.”<sup>53</sup>

Congress granted the Medical Department \$1 million for supplies, equipment, and miscellaneous expenses in its regular appropriation bill for fiscal year 1918, which was, of necessity, passed before the nation entered the war. After war was declared, legislators initially failed to pass an “urgent deficiency appropriation bill” against which the department’s deficiency spending could be debited. Secretary of War Baker decided to avoid asking for money for anything except for the unexpected requirements that were overlooked in the estimates sent to Congress. Only when Baker authorized making commitments and contractors agreed to start work on the basis of informal understandings was seemingly inevitable disaster avoided. Finally, on 15 June 1917, the legislature granted the department almost \$30 million. By this point, however, a shortage of skilled labor was beginning to affect the department’s sources of supply. Many employees enlisted rather than rather than waiting for the draft, while other industries, navy yards, and firms handling the construction of cantonments paid tempting wages.<sup>54</sup>

Storage space was not a problem in the early weeks of the war, but the Medical Department moved promptly to be prepared for the time when supplies began coming in in quantity. After obtaining Secretary of War Baker’s approval, the department began expanding its network of storage depots by setting up new ones at Philadelphia, Chicago, Atlanta, and Louisville (Kentucky) sites chosen because they were conveniently located in relation to the mobilization camps. Unfortunately, the Philadelphia warehouse, although regarded as the best available in the city, was not on a railroad siding and the streets around it were narrow and crowded.<sup>55</sup>

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<sup>53</sup> Risch, *Quartermaster Support*, p. 601, 604, 604n; Kreidberg and Henry, *History of Military Mobilization*, p. 229, 339, 375; WD, SGO, *Finance and Support*, p. 170; Peyton C. March, *The Nation at War*, pp. 164–65 (quoted words). See the prologue for a discussion of the committees and commissions related to the Council of National Defense.

<sup>54</sup> WD, SGO, *Administration, AEF*, p. 621; idem, WD, SGO, *Finance and Supply*, pp. 133, 171–73, 174 (quoted words), 344, 697, 701–02; March, *Nation at War*, p. 165; WD, *ARofSG*, 1918, p. 320. Because of the expenses of dealing with the mobilization along the Mexican border, care must be exercised in drawing conclusions from comparisons between the funds voted as part of the regular appropriations bill for Medical Department expenses for fiscal year 1917 and those voted for fiscal year 1918. Nevertheless, it is worth noting that in September 1916 Congress voted \$4.5 million for supplies and various other expenses other than salaries for fiscal year 1917 but in May 1917 only \$1 million for the same expenses for fiscal year 1918. See WD Bulletin no. 33, 9 Sep 1916, pp. 8, 11, 30–31; *ibid.* no. 30, 22 May 1917, pp. 8, 10–11, 27–28.

<sup>55</sup> WD, SGO, *Finance and Supply*, pp. 72, 74.

Much effort was devoted to improving the New York depot by obtaining a new building and running a railroad spur to it. Both new and old buildings quickly filled up, necessitating storing some of the supplies to be sent overseas at the department's embarkation depot and in June adding a warehouse on the waterfront at North (Hudson) River to the department's storage facilities. By this point, however, a shortage of inspectors for the enormous amounts of supplies destined for overseas shipment was posing significant difficulties. The Medical Department resorted to using customs appraisers as inspectors, sending them to the manufacturers to examine items before they were shipped to Medical Department warehouses.<sup>56</sup>

As far as ambulances were concerned, however, the Medical Department was in a position to move relatively promptly to prepare for wartime demands because in the summer of 1916 Congress had authorized the secretary of war to buy these vehicles without competitive bidding. Nevertheless, not until 18 April 1917 did the board of Medical Department and Quartermaster Corps representatives handling the question of design meet to decide on the question of what model of ambulance to adopt. Having concluded from the Mexican border experience that light ambulances were too fragile to meet the Army's needs, the Motor Ambulance Board recommended adopting a new design with a stronger chassis made by the General Motors Company; Surgeon General Gorgas decided to rely exclusively on this model. On 13 June the Medical Department signed a contract for 2,308 standard ambulance bodies, with 1,000 to be delivered by 1 September and the balance by 15 November 1917.<sup>57</sup>

### *Preparing To Prevent Disease*

Unlike questions of supply and training, the question of what approach the Army should take to prevent disease was among the few that could be taken up in general terms without knowing how many men would be called up or how large the camps would be. Receiving more widespread attention than any other threatening the new recruits who would soon be gathering at the camps was venereal disease. No longer a topic considered unmentionable, venereal disease inspired wild, pathetic stories of innocent lives blighted and society endangered. Public fears were fed by the common belief that venereal disease could be spread not only by sexual intercourse but by "whistles, pens, pencils, toilets, medical procedures, tattoos, and toothbrushes," as well as by "eating utensils, towels and bedding." Bearing children was a woman's duty to society, but gonorrhea led to sterility. In a newborn it produced blindness. The horrors of syphilis in children inspired many dramatic calls to protect innocents from the sins of their fathers, who, by infecting their innocent wives, condemned their children to lives of horror. Unlike other diseases that might threaten the new army, venereal disease was the result of sin

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<sup>56</sup> Ibid., pp. 200, 660–61, 663, 713.

<sup>57</sup> Ibid., pp. 337, 352–53; Ltr, SG to AG, 7 Apr 1917, Entry 28, Record Group 112, National Archives and Records Administration—College Park, College Park, Md. The last ambulance body involved in this order was actually not delivered until 11 May 1918, but this delay apparently caused no difficulties.



and corruption. The possibility that thousands of young men might return from their military service to spread the fruits of immorality to their innocent families and thereby to undermine society produced a nationwide “battle against venereal disease . . . unprecedented in magnitude and intensity,” one that involved civilian and military organizations alike.<sup>58</sup>

On 17 April the Council of National Defense adopted a resolution that proclaimed the venereal diseases to be both among the most disabling to which a soldier or sailor could fall victim and a danger to the civilian population. The council urged military authorities to do what they could to exclude prostitutes from the proximity of training camps, to make approved forms of recreation available, and to plan other means of controlling venereal disease. In May Congress authorized Secretary of War Baker to take all the steps he deemed necessary to deal with the menace. Vividly recalling the problems encountered in camps along the border with Mexico in the previous year, Secretary Baker appointed various social leaders to the Commission on Training Camp Activities, headed by lawyer Raymond B. Fosdick. The commission dedicated itself to battling venereal disease by supplying “the normalities of life” at the training camps and keeping “the environs of those camps clean and wholesome.” It supervised the work of such organizations as the Young Men’s Christian Association and the Knights of Columbus in providing recreation, classes, and similar distractions.<sup>59</sup>

Among other organizations involved in the effort against venereal disease was the General Medical Board’s Committee on Hygiene and Sanitation. The committee made specific suggestions about dealing with the danger. It urged that a zone be outlined around training camps that could be kept under military control as part of the attempt to protect troops from exposure; it also favored prohibiting the sale of alcohol inside the camps and the zones around them. The General Medical Board’s Committee on Legislation saw to it that these recommendations were placed in the first rough draft of the bill that would soon initiate conscription nationwide. On 24 May Congress authorized the president, as commander-in-chief, to prohibit the sale or possession of alcoholic beverages in or near camps and the service of such beverages to officers and enlisted men of the Army in uniform except in a private home. The American Social Hygiene Association offered plans for preventing venereal disease, such as setting up a Social Hygiene Board, eliminating prostitution in the vicinity of camps, launching educational campaigns, and isolating and treating infected prostitutes.<sup>60</sup>

Venereal disease was an old and well-recognized foe, but the condition that became known as shell shock had also been identified as a threat. The problem of the mentally wounded had received little attention until the Russo-Japanese War of 1904–1905. By 1917 hordes of these patients were overwhelming British and French hospitals. Surgeon General Gorgas and mental health experts in the United States were concerned about shell shock, which produced “a new type of casualty

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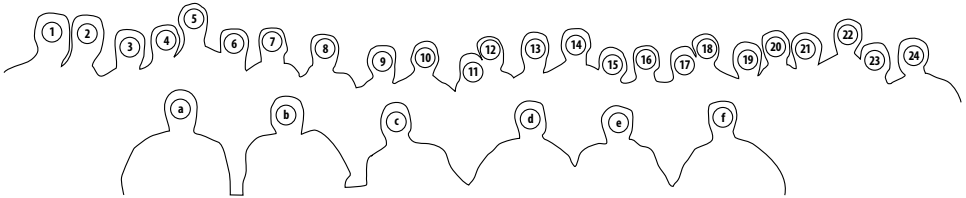
<sup>58</sup> Allan M. Brandt, *No Magic Bullet*, pp. 14–19, 21 (quoted words), 26, 52 (final quoted words).

<sup>59</sup> *Ibid.*, pp. 59, 63, 78; William F. Snow, “The Control of Venereal Diseases,” p. 720; WD, SGO, SGO, pp. 560–61, 581; WD, *ARofSW*, 1917, p. 30 (quoted words); Jerome H. Greenberg, “Venereal Disease in the Armed Forces,” p. 178.

<sup>60</sup> Franklin H. Martin, *Fifty Years of Medicine and Surgery*, pp. 387, 388–89; *idem*, “Council of National Defense,” pp. 551–52; WD, *ARofSG*, 1917, pp. 17–18; Ashburn, *History of MD*, pp. 316–17.



*Commission on Training Camp Activities, also known as the Fosdick Commission*



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|---|---|--|
| <p>a. Secretary of Agriculture<br/>David F. Houston</p> <p>b. Secretary of Interior<br/>Franklin K. Lane</p> <p>c. Secretary of the Navy<br/>Josephus Daniels</p> <p>d. Secretary of Commerce<br/>William C. Redfield</p> <p>e. Secretary of Labor<br/>William B. Wilson</p> <p>f. Council of National<br/>Defense director Walter<br/>S. Gifford</p> | <p>1. Hollis Godfrey</p> <p>2. Irving Fisher</p> <p>3. M. J. Rosenau</p> <p>4. Howard Coffin</p> <p>5. Bernard M. Baruch</p> <p>6. Franklin H. Martin</p> <p>7. William A. Evans</p> <p>8. Daniel Willard</p> <p>9. William H. Welch</p> <p>10. Julius Rosenwald</p> <p>11. Samuel Gompers</p> <p>12. Surgeon General<br/>(USN) William C.<br/>Braisted</p> | <p>13. Surgeon General (USA)<br/>William C. Gorgas</p> <p>14. Surgeon General<br/>(USPHS) Rupert Blue</p> <p>15. Victor C. Vaughan</p> <p>16. Frank F. Simpson</p> <p>17. Abraham Flexner</p> <p>18. Jefferson R. Kean</p> <p>19. Frederick A. Besley</p> <p>20. Alonzo E. Taylor</p> <p>21. Raymond B. Fosdick</p> <p>22. Haven Emerson</p> <p>23. William F. Snow</p> <p>24. Theodore Janeway.</p> |
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which might threaten most seriously the manpower of armies.” They gave attention both to identifying susceptibles so that they could be prevented from going overseas and to treating those who fell ill. A month before the United States entered the war Surgeon General Gorgas had formed a committee of three distinguished civilian psychiatrists to study the problem of mental and nervous diseases in war. These physicians—Pearce Bailey, Stewart Paton, and Thomas W. Salmon—were also

expected to make recommendations about how the Medical Department should deal with this problem.<sup>61</sup>

On 12 April 1917 the members of the new committee reported back to the surgeon general. Committee members had clearly concluded that the Army was not ready to handle mental and nervous casualties on the scale that would be encountered in wartime. They noted ominously that their studies of the experiences of European armies suggested that many of the difficulties that the Canadians and the British were having dealing with the victims of shell shock (or hysteria as it was sometimes known) had resulted from a failure to prepare for this type of problem. They emphasized that the French had discovered that prompt treatment of these patients while they were isolated from other patients generally produced “striking results.” Based on a hypothetical army of 500,000 men utilizing statistics concerning the rate of all types of mental problems found in soldiers serving along the border during the crisis with Mexico, they predicted that the Army’s 1,500 annual peacetime figure for mental disorders would be tripled by war or even by rapid mobilization. The committee suggested that part of U.S. preparations to deal with cases of mental illness involve identifying a group of nurses and physicians familiar with these problems to be drawn upon when the need arose.<sup>62</sup>

Having pointed out that the Army should be prepared to handle mental cases of any type all along the chain of evacuation, from the front back to the United States, the committee urged prompt planning for wards and other facilities specifically intended and staffed to care for the Army’s mentally ill. It recommended that a psychiatrist and a neurologist be attached to each field hospital company and offered a plan for a system of psychiatric wards at base hospitals, backed up by similar wards in general hospitals and in civilian facilities. The psychiatrists concluded by announcing that the National Committee for Mental Hygiene, one more of the civilian organizations involved in the war effort, had appointed yet another committee—initially called the Committee on Furnishing Hospital Units for Nervous and Mental Disorders for the United States Government until redesignated as the War Work Committee—to locate hospital units for psychiatric patients (including recruits who became insane before enlistment or immediately after it) who were to be cared for at the expense of the states from which they came. Gorgas authorized the National Committee for Mental Hygiene to begin at once creating neuropsychiatric units, checking on the credentials of those applying to serve in the Army’s mental facilities, and working with the surgeon general concerning their induction into service.<sup>63</sup>

The three psychiatrists also considered what could be done to attack the problem of mental and nervous illness at its roots. Having observed that many of the problems the Canadians and British were having with mentally ill or incompetent

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<sup>61</sup> WD, SGO, *Neuropsychiatry*, pp. 1 (quoted words), 5, 489; Brownrigg, “Neuropsychiatric Work,” p. 458.

<sup>62</sup> WD, SGO, *Neuropsychiatry*, pp. 7, 8, 489, 508 (quoted words); Frank G. Norbury, “The Relation of Defective Mental and Nervous States to Military Efficiency,” p. 27; F. H. Sexton, “Vocational Rehabilitation of Soldiers Suffering from Nervous Diseases,” p. 266; T. A. Williams, “Management of Hysteria in War,” p. 549. See also other articles in bibliography dealing with hysteria.

<sup>63</sup> WD, SGO, *SGO*, pp. 384, 1118; idem, *Neuropsychiatry*, pp. 5–6, 7, 8–9, 489–91, 494–95.

soldiers could have been avoided by a more careful screening of recruits, they called for using experts in mental problems to screen recruits for signs of mental illness—or “constitutional psychopathic conditions”—so that those with a weakness of this type need never be sent overseas. They also pointed out that the incidence of disciplinary problems could also be lowered by a more careful screening of recruits, for men in this category often proved to be suffering from constitutional psychopathic conditions or nearing mental breakdown. An additional benefit to be derived from recognizing this type of recruit and separating him promptly from the service was improving the morale of those who remained in his unit.<sup>64</sup>

The committee having made its initial report, the members fanned out to conduct further studies of the way in which the Allies were handling psychiatric casualties of the war. In May Bailey and Paton traveled to Canada, and in June Salmon, apparently with the assistance of the Rockefeller Foundation, went to England to study the British and French approach to managing psychiatric casualties near the front. His conclusions in his detailed report supported those of his colleagues and reinforced the necessity for preparing in advance to deal with the problems posed by those unable to bear the stress of combat. He warned against confusing shell shock with insanity, reiterated his conviction that those likely to become mental or nervous casualties should be weeded out from among troops being sent overseas, and urged that trained personnel be located to deal with this type of case. In addition, he stressed that planning for the facilities where these patients would receive care was of great importance. Furthermore, he cautioned that the patients must not be sent home for treatment. This would inevitably lead to an increase in the incidence of war neuroses, if only because “in the unending conflict between duty, honor, and discipline, on the one hand, and homesickness, horror, and the urgings of the instinct of self-preservation on the other, the neurosis, as a way out, is already accessible enough in most men without calling attention to it by the adoption of such an administrative policy.”<sup>65</sup>

### *Preparing for Gas Warfare*

Unlike venereal disease and shell shock, gas warfare did not initially draw great attention. Yet, based on British documents, the War Department did issue guidance for the use of medical officers in the “Memorandum on Gas Poisoning in Warfare with Notes on Its Pathology and Treatment.” Reports from abroad may have led military leaders to the erroneous conclusion that poison gas was not often used and had little significant effect when it was. The Council of National Defense established a committee headed by the director of the Bureau of Mines to study poisonous gases. The committee worked with, among others, many representatives of other government agencies, including the Medical Department, the Navy’s Bureau of Medicine and Surgery, and the Corps of Engineers. It studied literature on the subject of gas warfare from Great Britain and France and was undoubtedly further influenced by the British introduction on 9 April of a new method of delivering poison gas. It concluded that developing effective gas masks for the Army was the

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<sup>64</sup> WD, SGO, *SGO*, p. 571; idem, *Neuropsychiatry*, pp. 7, 489 (quoted words), 490.

<sup>65</sup> WD, SGO, *Neuropsychiatry*, pp. 6–8, 498–99, 511–12 (quotation).



*Small box respirator gas mask, adopted by the AEF from the British*

most urgent task at hand. Actually doing so proved difficult, and the first models were unsatisfactory.<sup>66</sup>

The question about which agency should be responsible for designing and making gas masks and other protective devices had been much discussed as early as 1915. When the quartermaster general raised the subject in February 1917 and the adjutant general turned for an answer to the surgeon general, Gorgas had replied that, if given the resources and the legal authority to do so, the Medical Department would accept this responsibility. Nevertheless, it was not until 16 May that Secretary of War Baker actually gave the order. At this point, he ordered the surgeon general to provide the Army with 1.1 million gas masks, 8,500 chemical sprayers for

<sup>66</sup> WD, SGO, *SGO*, p. 505; idem, *Medical Aspects of Gas Warfare*, p. 35; Charles E. Heller, *Chemical Warfare in World War I*, pp. 35–40, 53 (quoted words); Robert Harris and Jeremy Paxman, *A Higher Form of Killing*, p. 121; Leo P. Brophy, “Origins of the Chemical Corps,” p. 219. Poison gas was initially delivered in clouds, subject to the vagaries of the wind, and then by mortar shell. The new British Livens projector was a steel tube that could project considerable quantities of gas with relative accuracy 1,450 yards or more. See Alden H. Waitt, *Gas Warfare*, pp. 90–92, and Edward M. Spiers, *Chemical Warfare*, pp. 23–25.



*Wearing gas mask in the "alert"  
position*

decontaminating trenches, and 1,000 devices for administering oxygen to the victims of a gas attack for the coming fiscal year. Barely more than three weeks later, a committee of the National Research Council, one of whose members was a medical officer, arranged to set up a central laboratory at American University in Washington, D.C., to study the use of poison gas in warfare. This facility would direct the efforts of the many chemists and laboratories that volunteered to assist in this effort.<sup>67</sup>

### *The Yanks Are Coming*

The first concrete step toward sending U.S. troops to Europe was taken in early May 1917, when Secretary of War Baker named Maj. Gen. John J. Pershing to head what would become known as the American Expeditionary Forces or the AEF. The assignment was not publicly announced until 18 May, when Baker also announced that one

division would be sent to France as soon as possible. No one, not even General Pershing or Surgeon General Gorgas, knew at that time how large the AEF would eventually be. Indeed, how many men the initial division would contain was still a question mark. Both Allied and German divisions contained 12,000 men, and early planning for the U.S. division assumed that the unit would be of a similar size. After some study, however, Pershing decided that the division should have 27,000 combat troops, with 13,000 additional men in supporting positions. This change was obviously of considerable importance to those planning medical support for the division. While tables of organization and equipment were hastily revised and plans were reworked, confusion reigned.<sup>68</sup>

The first representatives of the Medical Department to go overseas did not wait for Pershing. While Gorgas was answering his own telephone amidst piles of unopened mail, the Red Cross base hospitals, now part of the Army, and various unattached medical personnel were crossing the Atlantic. By 25 May all six of the base hospitals promised to the British had sailed. The orthopedic surgeons requested by Colonel Goodwin accompanied the personnel of Base Hospital No.

<sup>67</sup> WD, SGO, *SGO*, pp. 504–05, 506, 1328; idem, *Gas Warfare*, p. 27; Ashburn, *History of MD*, p. 314.

<sup>68</sup> March, *Nation at War*, p. 250; Otto L. Nelson, *National Security and the General Staff*, p. 246; Vandiver, *Black Jack*, 2:683, 690; Pershing, *My Experiences*, 1:55, 74; Donald Smythe, *Pershing*, p. 10; Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917–1919*, pp. 82–83.

21, the unit from Washington University, St. Louis, Missouri. All were apparently received with enthusiasm and promptly dispatched to orthopedic hospitals in Great Britain. Major Crile's Base Hospital No. 4, having landed first at Liverpool, became the first AEF unit in France when it arrived at Rouen on 25 May to replace the 1,540-bed British General Hospital No. 9. Each hospital that replaced a British facility in this manner came under dual control; British patients and medical personnel were commanded by British medical officers remaining in the hospital, and U.S. personnel and patients continued to be responsible to the U.S. commanding officer. Crile himself, however, was detached from his hospital and sent to Paris as the U.S. representative to the second session of the Interallied Surgical Congress. He noted with wry amusement that he experienced some difficulty carrying out the assignment because, with no U.S. Army headquarters in France, he had to make out his own orders. For a time, as he put it, "I was the U.S. Army!"<sup>69</sup>

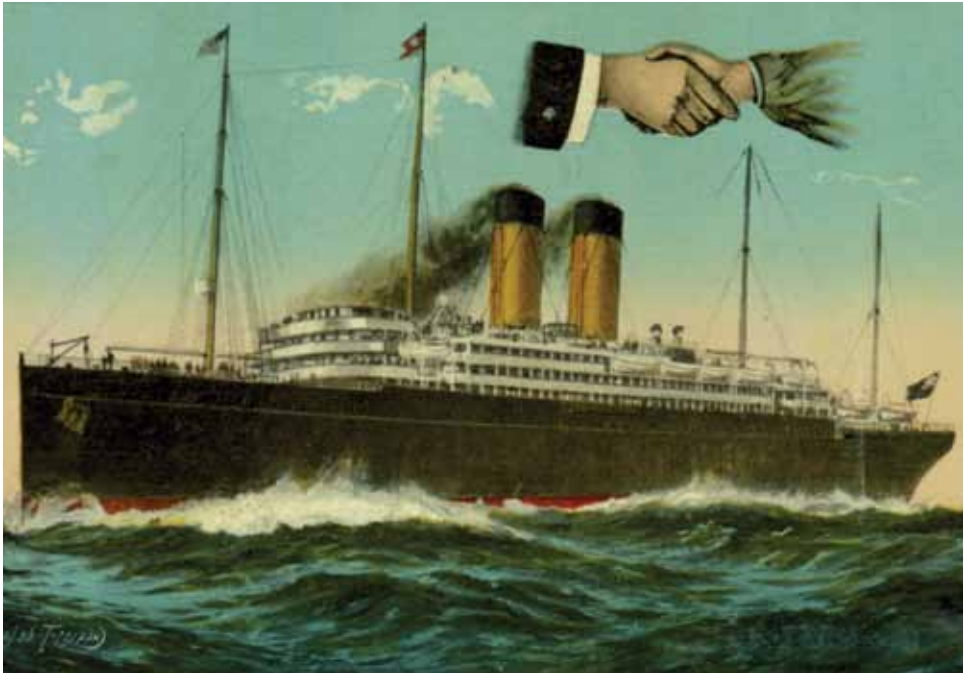
Major Crile would not be the U.S. Army in Europe for long. General Pershing, accompanied by 190 officers and enlisted men, set sail from New York on 28 May 1917, bound for England. In the group with Pershing were four Regular Army medical officers, including Col. Merritte W. Ireland, MC, whom Pershing wanted as his chief surgeon. Two of the remaining officers served as Ireland's assistants, while the third was a supply officer. Ireland had all 191 men immunized for typhoid and paratyphoid while on board ship, a process that had been started on 23 May before boarding and was apparently continued after landing. Also on board were the personnel of Base Hospital No. 18, the Johns Hopkins unit, chosen at the last moment to set up the first base hospital for U.S. troops in France. The fact that most of the passengers on board the S.S. *Baltic* were military was to be concealed, and all were supposed to wear civilian clothes. Thus, after having gone to great lengths to have two uniforms made for him in the space of four days, Maj. Hugh H. Young of the Johns Hopkins unit found himself chastised for coming on board in uniform.<sup>70</sup>

Because of the haste with which the decision to send the first U.S. division overseas had been made, many fundamental questions remained unanswered. While on the *Baltic*, Pershing spent the entire time trying to decide how large the AEF should ultimately be, how this force could be moved to Europe, how it should be organized, when it should go into action, and what its relationship to other Allied armies should be. He also consulted extensively about the threat posed by venereal disease to U.S. forces with Major Young, who was an eminent urologist,

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<sup>69</sup> Macpherson et al., eds., *Medical Services*, 1:148, 149 and 2:99–100; WD, SGO, *Administration, AEF*, pp. 19–20; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 333; Crile, *Autobiography*, 1:277, 278 (quoted words), 279–80; Jaffin, "Medical Support," M.A. thesis, p. 1.

<sup>70</sup> Smythe, *Pershing*, p. 13; *Autobiography*, p. 191, Ms C14, Kean Papers, NLM; Jaffin, "Medical Support," M.A. thesis, p. 38; WD, SGO, *SGO*, p. 103; Hugh Young, *Hugh Young*, pp. 266, 269; War Diary, pp. 1–3, Ms C117, Ireland Papers, NLM. Thirty of the thirty-two medical students from Johns Hopkins had completed three years of study and, after they had spent a year serving Base Hospital No. 18 in France, were given not only their medical degrees but also their commissions. The two medical students who had not completed a year in France were sent back to complete their studies at Hopkins. See Finney, *Surgeon's Life*, pp. 157–58.



S.S. Baltic

and he had Young give a talk on the subject to his fellow passengers. Not long after arriving in England on 8 June, Pershing also sent a message back to Washington that a senior dental officer should accompany the second convoy of troops to sail for France; an order to this effect was issued on 25 June. The dental officer chosen succeeded in getting permission to take six more dentists with him, along with regulation field equipment.<sup>71</sup>

After arriving in London, Major Young continued his study of the problems that venereal disease might pose for the AEF. He discovered that prostitutes sought out the best-paid soldiers, preferring troops coming from Britain's far-flung empire to those from Great Britain itself. On being informed of this fact, General Pershing requested that the War Department retain half the pay of U.S. soldiers, presumably to reduce their exposure to temptation. Young was soon assigned to a four-man "special urological commission to study the venereal problem in the English and French Army," the other members apparently being English. His examination, whether official or unofficial, of the way in which the various Allied forces handled venereal disease prevention revealed a wide variety of approaches. The British considered relying on prophylaxis as "condoning an immoral act" and trusted entirely to education, an attitude that Young viewed as the cause of their high disease rate. The chief surgeon of the Australian forces had concluded that prophylaxis was more

<sup>71</sup> Smythe, *Pershing*, p. 14; WD, SGO, *Administration, AEF*, p. 105; Vandiver, *Black Jack*, 2:710; Young, *Hugh Young*, pp. 270, 274; War Diary, p. 3, Ms C117, Ireland Papers, NLM.



effective than lectures about continence. Challenged by the Bishop of London, who maintained that the Australians seemed to believe that chaste men were nonexistent, he reportedly replied: “Yes, Bishop, there are chaste men, but all of them are impotent.” The senior-ranking medical officers of the New Zealand forces, Young learned, considered venereal disease an appropriate punishment for sin and refused to consider prophylaxis. The Canadian approach most closely resembled that of the Americans, a reliance on both education and prophylaxis.<sup>72</sup>

General Pershing’s authority over the American Expeditionary Forces was essentially absolute, and the role of U.S. troops in Europe was his to define. One of the decisions he had to make concerned the organization of the medical service for the American Expeditionary Forces. Surgeon General Gorgas suggested that Col. Alfred E. Bradley, MC, then serving as an observer with the British, become the AEF chief surgeon bearing the same responsibilities as Gorgas himself had for the Medical Department as a whole. Despite his preference for Colonel Ireland, Pershing acquiesced in the appointment of Colonel Bradley, to whom the adjutant general then wrote of the decision on 28 May 1917. Although Bradley was to give up his position as military observer with the British, as late as 11 June he had not received official notice of his change in position and, as a result, “could neither act nor advise in an authoritative manner.”<sup>73</sup>

After a short time in England, General Pershing and his staff sailed for France, where they landed at Boulogne on 13 June 1917 to a tumultuous welcome. After moving to France with the AEF headquarters, Colonel Bradley organized his office: the 4 medical officers who crossed the Atlantic with Pershing, 2 Medical Department enlisted men, and 4 civilian clerks. Bradley detailed the management of supply to one of his staff, and this officer, having no supplies on hand to manage, initiated a fact-finding study to ascertain what the European market could offer and where a medical supply depot should be located. Wishing to be better informed on the problems that might be involved in creating hospitals for the 1st Division, due to arrive in France by the end of the month, Bradley himself set out on a tour of inspection of base ports and the Line of Communications. One of the two U.S. medical officers who had been serving as medical observers in England under Bradley soon joined his office in France, as did an officer who had been serving as an observer with the French, bringing the total number of Regular Army medical officers in Paris with Bradley to 7.<sup>74</sup>

The second of the two observers initially assigned to England with Colonel Bradley remained there to serve as liaison with the British. He soon received the title of chief surgeon of U.S. forces serving with the British, a position analogous to that of a chief surgeon of a geographical department in the United States. Although the medical officers serving with base hospitals in England kept in close contact with the AEF chief surgeon through the liaison officer, those not attached to base

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<sup>72</sup> Smythe, *Pershing*, 2:14; War Diary, p. 4 (first quoted words), Ms C117, Ireland Papers, NLM; Young, *Hugh Young*, pp. 272 (second quoted words), 273 (third quoted words), 274.

<sup>73</sup> Vandiver, *Black Jack*, 2:695; WD, SGO, *Administration, AEF*, pp. 20 (quoted words), 21, 39.

<sup>74</sup> Vandiver, *Black Jack*, 2:714, 722–24; Ashburn, *History of MD*, p. 326; Jaffin, “Medical Support,” M.A. thesis, p. 38; WD, SGO, *Administration, AEF*, pp. 39, 42; idem, *Finance and Supply*, p. 747; War Diary, p. 10, Ms C117, Ireland Papers, NLM.

hospitals—referred to as “casuals”—often did not. Ignorant of rules and regulations, they did not routinely report their location and status and often served months with the British before the chief surgeon’s office entered them in its records.<sup>75</sup>

In France preparations for the arrival of the men of the 1st Division had begun on 1 June 1917, when U.S. military observers recommended that these men disembark at St. Nazaire. Some of the difficulties that arose as both U.S. and French authorities hastened to prepare a cantonment to house the Americans resulted from the initial assumption that the 1st Division would consist of no more than 20,000 men. Only after construction was well under way was word received that the size of the division had been increased to 28,000. As a result, the 300-bed hospital being built for the 1st Division had to be converted into a barrack. The French then agreed to turn both a 250-bed military hospital and a second 500-bed facility at nearby Savenay over to the Americans, an offer not without its drawbacks; the water supply there was inadequate, and supplementary supplies would have to be brought in by boat from Nantes. Plans to transfer several other French hospitals to U.S. use were delayed until General Pershing’s arrival.<sup>76</sup>

By the end of June medical officers already in France were harried and harassed. “Many questions of first importance are coming up every moment,” Colonel Ireland noted in his diary, “and we are at our wits end all the time to be able to meet the calls that are placed upon us.” As they arrived, base hospitals and other personnel recruited through the Red Cross had to be given their assignments. An offer from the Red Cross to establish in France a plant to make nitrous oxide (commonly known as laughing gas) was well received, and Ireland concluded that “the Red Cross is going to be of great assistance to us under its present very efficient management.” Inspecting docks at various ports and possible hospital and campsites, checking on their water supplies, and attempting to take realistic steps to control prostitution (and thus the venereal disease threat) all required attention. Ireland favored giving all prostitutes in the area of AEF camps twice weekly medical inspections, hospitalizing those with venereal disease until they were considered not to be infectious and isolating those with satisfactory examinations in a restricted area, but he had little hope of getting official approval of this approach.<sup>77</sup>

In the haste with which the first convoy of 1st Division troops—14,000 men, most of them untrained, amateur soldiers—departed the United States on 14 June 1917, the division surgeon, Col. Bailey K. Ashford, MC, was forced to leave behind “the entire equipment of the Medical Department for field operations.” Regimental and ambulance company equipment accompanied the men, but not hospital tents, dressings, or litters. When the convoy arrived at St. Nazaire on 26 June, measles, mumps, and even a case of cerebrospinal meningitis had developed among them, causing apprehension concerning future inroads of infectious disease.<sup>78</sup>

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<sup>75</sup> WD, SGO, *Administration, AEF*, pp. 14, 21, 71, 72, 73.

<sup>76</sup> *Ibid.*, pp. 17, 18, 229, 241; War Diary, p. 4, Ms C117, Ireland Papers, NLM; Sanford H. Wadhams and Arnold D. Tuttle, “Some of the Early Problems of the Medical Department, A. E. F.,” pp. 638–39.

<sup>77</sup> War Diary, pp. 5, 6 (final quoted words), 8, 9 (initial quotations), 10, Ms C117, Ireland Papers, NLM.

<sup>78</sup> *Ibid.*, p. 1, Ms C117, Ireland Papers, NLM; Ashford, *Soldier in Science*, pp. 193–94 (quoted words), 196–97; Young, *Hugh Young*, p. 286; Smythe, *Pershing*, pp. 24, 26, 28, 29–30.

In the early months of U.S. participation in World War I the Medical Department found itself in a state of confusion and uncertainty, a state compounded by procrastination on the part of the nation's political leaders and by the resultant confusion and uncertainty of the Army. Without an understanding of how the Army was going to handle training, the department could not proceed promptly to train its own personnel or to create plans for caring for nonmedical trainees. Without an adequate number of trained men and women and without dependable information on how large the wartime force would be, it could not take the steps necessary to provide adequate support to the Army. Although Surgeon General Gorgas seemed almost immune to the alarms of those around him, he brought his own strengths to bear where they were most needed. He supported and encouraged talented physicians, both civilian and military, in their efforts to prepare the Medical Department for the demands of a terrible war fought on a scale never before encountered by any nation.

## Chapter 2

# ORGANIZATIONAL TURMOIL



Throughout the war the Surgeon General's Office remained awash in a sea of confusion. The Army's rapid expansion made it impossible to find either the time or the experienced personnel necessary for creating an organization that was coherent from the top down. As the Medical Department's official historians admitted, "Many . . . Medical Department activities at the outbreak of the war . . . grew up without formal order or organization." During the twenty months of hostilities the proliferation of divisions and subdivisions within the Surgeon General's Office reflected an acknowledgment of functions already being performed rather than a response to present or future needs. Confusion and turmoil were inevitable, all the more so because strong direction at the top was lacking.<sup>1</sup>

### *Surgeon General's Role*

Surgeon General William C. Gorgas tended to confine much of his effort to levels above his office and even above the Army. Using both his influence with important people and his considerable personal charm to further the Medical Department's interests, he faithfully attended meetings of the General Medical Board, developed a "cordial and helpful" relationship with Secretary of War Newton D. Baker, and used his charisma and reputation to influence legislators. Called upon to testify before Congress on behalf of the department, by his "frank appeal and satisfactory explanation, [Gorgas] literally saved the situation and avoided a national scandal," according to Dr. Franklin H. Martin of the Advisory Commission of the Council of National Defense.<sup>2</sup>

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<sup>1</sup> Susan M. Reverby, *Ordered To Care*, p. 181; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 305 (hereinafter cited as *History of MD*); War Diary, p. 20, Ms C117, Merritte W. Ireland Papers, 1911–1931, National Library of Medicine (NLM), Bethesda, Md.; United States, Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917–January 1918*, p. 2039 (hereinafter cited as *Investigation of the War Department* (65th Cong., 1st sess.)); War Department (WD), Surgeon General's Office (SGO), *Sanitation*, p. 23 (quoted words).

<sup>2</sup> Ltr, Baker to Gorgas, 16 Oct 1918, and Franklin Martin carbon, n.d., p. 1 (first quoted words), Gorgas Family Papers, W. S. Hoole Special Collections, University of Alabama (UA), Tuscaloosa, Ala.; Marie A. Gorgas and Burton J. Hendrick, *William Crawford Gorgas*, pp. 319–21; Franklin Martin Diary, 1914–1919, p. 58 (second quoted words), Ms C284, NLM; *Investigation of the War Department* (65th Cong., 1st sess.), especially pp. 1966, 1967, 1970, 1972, 1988–89, 2040.



*Executive Committee of the General Medical Board: (standing) Frank F. Simpson, Victor C. Vaughan, William H. Welch; (upper inset) William J. Mayo, Cary T. Grayson, Charles H. Mayo; (seated) Surgeon General (USN) William C. Braisted, Surgeon General (Army) William C. Gorgas, Surgeon General (USPHS) Rupert Blue, Franklin H. Martin; (lower inset) Jefferson R. Kean*

With the backing of the General Medical Board, Surgeon General Gorgas concentrated particularly on persuading Congress to create openings at the higher ranks for his department. Except for the surgeon general, the Medical Department initially offered no ranks above colonel. Their lower rank proved to be a handicap for medical officers working with counterparts in the medical services of other armies. The question of rank and promotions for the Army's physicians became more pressing and more confusing as reservists and National Guard physicians joined the Medical Department. National Guard physicians were federalized with whatever rank they had in the guard, regardless of their age. As a result, many held higher ranks than some of the more experienced Regular Army medical officers who traditionally had entered military service as first lieutenants and had to wait five years to become eligible for promotion.<sup>3</sup>

In theory, the creation of the National Army in the summer of 1917 resolved the problem of inadequate rank. Medical officers for whom higher rank was deemed desirable could, as the president chose, be given appointments in the National Army, where the limits placed on regulars and reservists did not apply. Unfortunately,

<sup>3</sup> WD, SGO, *Surgeon General's Office*, pp. 153–54 (hereinafter cited as *SGO*).

the president was remarkably reluctant to use the National Army as a vehicle for promoting reserve officers, preferring to have Congress legislate higher rank for them. On the other hand, Secretary of War Baker and the War Department General Staff maintained that the president's ability to have medical officers appointed to the National Army made such legislation unnecessary. The Medical Department had no representative on the General Staff, even though a medical officer served as adviser to the Army War College. Thus, Surgeon General Gorgas had little influence with the General Staff. For all practical purposes, higher ranks remained closed to regular and reserve medical officers for many months.<sup>4</sup>

Medical officers in the Officers' Reserve Corps, who formed an ever-increasing majority of the Army's physicians, were at an even greater disadvantage than regular medical officers. Until 1 January 1918, with rare exceptions, they could rise no higher than major—a rank often below that given to others with less distinguished backgrounds—and they could not be fully utilized in the United States. The commanding officer of a base hospital, for example, had to have the rank of lieutenant colonel or above. Older physicians permitted to join the Medical Corps only because they had some military background could also rise no higher than the rank of major. Decisions were, however, usually made on a case-by-case basis, a tedious process necessitated by the lack of any regulatory guidance on the matter.<sup>5</sup>

When testifying before the Senate's Committee on Military Affairs in early 1918, Surgeon General Gorgas acknowledged that a new law was not needed for the benefit of reservists and thus focused his efforts on obtaining more high-ranking positions for regular Medical Corps officers. Gorgas pointed out that service abroad could be particularly humiliating, primarily because other armies ranked a higher percentage of their medical officers as generals. He noted that if the same ratio were followed as that used in the U.S. Navy, the U.S. Army's regular Medical Corps would have a major general and two brigadier generals, in addition to 4 percent of the regulars ranked as colonels. Furthermore, because medical officers could only advise their commanding officers about the health of their commands, Gorgas stressed that the medical opinions of those with higher rank were more likely to be taken seriously. A senator countered this argument by observing that the problem could be managed by ordering line officers to heed the advice of their surgeons. When he testified before the House's Committee on Military Affairs in the spring of 1918, however, Gorgas, in the face of a strong attack by one committee member, returned to the cause of reserve medical officers, emphasizing the importance of giving distinguished physicians grades appropriate to their achievements and reputations in civilian life.<sup>6</sup>

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<sup>4</sup> United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, pp. 7–8, 10, 15, 22, 23, 32, 33 (hereinafter cited as *Hearings . . . on S. 3748* (65th Cong., 2d sess.)).

<sup>5</sup> *Ibid.*, pp. 13, 21, 25, 30; WD, SGO, *SGO*, pp. 153–54; United States, Congress, House, Committee on Military Affairs, *Proposed Legislation Affecting the Medical Corps of the United States Army*, pp. 59, 63 (hereinafter cited as *Proposed Legislation Affecting the Medical Corps* (65th Cong, 2d sess.)); *Investigation of the War Department* (65th Cong., 1st sess.), p. 2045; Autobiography, pp. 218–19, Ms C14, Jefferson Randolph Kean Papers, NLM.

<sup>6</sup> WD, SGO, *SGO*, p. 153; *Proposed Legislation Affecting the Medical Corps* (65th Cong., 2d sess.), pp. 39, 42, 46, 51, 54–55; *Hearings . . . on S. 3748* (65th Cong, 2d sess.), pp. 3, 4, 11, 12, 13, 15, 16, 17, 23. Gorgas himself held the rank of major general by act of Congress; however, without a change in the law, his successor would receive the rank of a brigadier general (*ibid.*, p. 4).

Gorgas' efforts eventually bore fruit. At the time he was testifying before Congress, four regular medical officers were serving as brigadier generals in the National Army. By July their numbers had grown to seven. Congress finally acted to open the ranks of lieutenant colonel and colonel for medical officers in the Officers' Reserve Corps. For medical officers in the Regular Army, the legislature also created the new ranks Gorgas had requested: one for an assistant surgeon general, who ranked as major general and served as chief surgeon in the American Expeditionary Forces; and two more for assistant surgeon generals, who ranked as brigadier generals. The pathway to promotion for all medical officers, however, opened shortly thereafter on 7 August 1918, when the War Department eliminated all distinctions between the various branches as far as commissions were concerned. All, whether temporary or permanent, would be held in the Army of the United States. By the end of October 1918 two medical officers other than the surgeon general held the rank of major general and nine that of brigadier general.<sup>7</sup>

For his efforts before Congress when Secretary of War Baker was overseas, Surgeon General Gorgas paid a price. Assistant Secretary of War Benedict C. Crowell felt free to attack Gorgas on the grounds that as an Army officer he was forbidden to "interest himself in legislation." And although Gorgas eventually gained some of the openings he wanted, the confusions of his office and the lack of any systematic plan for promotions delayed giving many officers the ranks to which they now had access.<sup>8</sup>

Gorgas was successful in opening the path to promotions for medical officers, but the administrative failings of the Surgeon General's Office resulted in further delay. Effective administration was rapidly on its way to becoming both an art and a science, and a young and vigorous surgeon general who was a talented administrator would undoubtedly have had greater success than did the elderly Gorgas in dealing with these and similar problems. Col. Jefferson R. Kean, MC, believed that Gorgas "would have been a happier man if he . . . had not been called on to be at the head of the vast and turbulent machine which ran the Surgeon General's Office . . . during the World War." The idea of resigning may have been tempting, as it would free Gorgas to concentrate on the work he loved with communicable diseases, but he did not have the option of resignation. His reputation and the respect in which he was almost universally held made it unthinkable for him to take a step that could be seen as deserting his post in wartime. At least some in the medical profession wanted this distinguished scientist to continue as

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<sup>7</sup> WD, SGO, *SGO*, pp. 153, 158; WD, [Annual] *Report of the Surgeon General*, 1918, pp. 388–90 (hereinafter cited as *ARofSG*, year); *ibid.*, 1919, p. 1114; C. J. Mayo and A. Caswell, "Surgeon General's Great Organization," p. 257; WD Bulletin no. 43, 22 Jul 1918, pp. 40–41; *Hearings . . . on S. 3748* (65th Cong, 2d sess.), p. 7.

<sup>8</sup> Franklin Martin, *Major General William Crawford Gorgas*, pp. 44–45; Gorgas and Hendrick, *Gorgas*, pp. 315, 316 (quotation), 317; *Second Annual Report of the Council of National Defense for the Fiscal Year Ended June 30, 1918*, p. 110; Martin carbon, n.d., p. 2., Gorgas Papers, UA; A. Macphail, *Official History of the Canadian Forces in the Great War, 1914–1919*, pp. 351–52; WD, SGO, *Administration, American Expeditionary Forces* (hereinafter cited as *Administration, AEF*), pp. 97–99, 102; Autobiography, pp. 212–19, Ms C14, Kean Papers, NLM; *Hearings . . . on S. 3748* (65th Cong, 2d sess.), p. 3.



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surgeon general beyond the term of his appointment as the head of the Medical Department, but he was not allowed to succeed himself when his four years ended on 4 October 1918.<sup>9</sup>

With Gorgas distracted by his efforts to further the Medical Department's interests at the highest levels, Lt. Col. Robert E. Noble, who had worked with Gorgas in the Panama Canal Zone, functioned as *de facto* surgeon general within the Surgeon General's Office. Although a man of lofty ambitions, Noble was not the skilled administrator the office needed. Although some allowance should be given to Noble because of the confusions caused by the nation's sudden entry into the war, future surgeon general Merritte W. Ireland noted in November 1917 that he believed that "there is nothing to be gained in writing to Noble. Certainly he has no time to attend to anything if he is in the muddle he was in with his work when I was in the office. . . ."<sup>10</sup>

Colonel Noble quickly became comfortable with his role as "the actual power in the office," both "the Medical Department's chief of staff" and the surgeon general's executive officer, feared by his subordinates rather than inspiring the complete confidence of those "in the camps, posts and hospitals," as a colleague commented. As the months passed, Noble managed to increase his power within the Surgeon General's Office, taking direct personal

charge of several of the major divisions because of his *de facto* position as acting surgeon general. He laid claim to serving as head of the Personnel Division from October 1914 to October 1918 (although in fact it appears that he turned the responsibility over to another officer) and to becoming head of the Hospital

<sup>9</sup> Autobiography, p. 247 (first quotation), Ms C14, Kean Papers, NLM; Thomas Childs Cochran, *The American Business System*, pp. 11, 68.

<sup>10</sup> War Diary, p. 19 (quotation), Ms C117, Ireland Papers, NLM; George Crile, *An Autobiography*, 2:322; Noble Biography, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, NLM.



Division in February 1918. The official history of the Medical Department states that he became head of the Overseas Hospital Division at the time of its creation in July 1918.<sup>11</sup>

Given his experience in managing the wartime Medical Department, Colonel Noble might have been expected to succeed Gorgas as surgeon general, but he did not. Nor did he become chief surgeon of the American Expeditionary Forces, in spite of his scheming to do so when Merritte Ireland left that position to become surgeon general. Having actually obtained Ireland's major general billet; however, Noble arrived in France, "accompanied by quite a retinue," only to find himself assigned "to a subordinate position" because Maj. Gen. John J. Pershing refused to accept him as Ireland's successor.<sup>12</sup>

When Ireland succeeded Gorgas less than a month before the war's unexpected end, "everyone of the regular army," a medical officer recalled, "was pleased with the appointment. Ireland was a comparatively young man for the office, being only a year or two over fifty, energetic and brilliant. His subsequent work as Surgeon General undoubtedly tagged him as one of the greatest surgeon generals that the Army has had."<sup>13</sup>

### *Personnel Division*

Although the Personnel Division had been part of the Surgeon General's Office for a decade, it never confronted the problems of mobilizing medical personnel for war until the spring of 1917. By the summer of 1917 the division was thoroughly involved in a frantic attempt to obtain medical, dental, veterinary, and nursing personnel for an Army that grew in less than two years from under 200,000 to over 3 million men. The division's most obvious problems resulted from the sheer numbers involved, not only in the Army as a whole but also within the Medical Department, which grew from less than 9,000 personnel to more than 350,000.<sup>14</sup>

By January 1918 Surgeon General Gorgas had concluded that the shortage of physicians was the department's most basic personnel problem, and by the end of June 1918 this shortage had forced modifications in several well-established Medical Department rules. The department was forced to use nonphysicians from the Sanitary Corps to handle some of the medical officers' responsibilities. Largely because of the increasing need for medical officers to serve on the growing number of examining boards established in large cities and at Army posts, the absolute ban against foreign-born physicians was eliminated; under certain carefully delineated circumstances, even those born in Austria or Germany were accepted for board service. The department also revived the old custom of hiring contract surgeons to

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<sup>11</sup> Alexander Taylor Cooper Autobiography, p. 227 (first and third quoted words), Ms B120, NLM; Ashburn, *History of MD*, pp. 295, 307 (second quoted words); James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 485; WD, SGO, *SGO*, p. 1331.

<sup>12</sup> Autobiography, pp. 215, 228 (first quoted words), Ms C14, Kean Papers, NLM; Cooper Autobiography, pp. 240 (second quoted words), 241, Ms B120, NLM.

<sup>13</sup> Cooper Autobiography, p. 242, Ms B120, NLM.

<sup>14</sup> WD, *ARofSG*, 1919, p. 38.

supplement the work of medical officers, although only eighty-eight were serving by war's end.<sup>15</sup>

In the effort to obtain the services of more physicians, the Medical Department resorted to using female doctors. The American Medical Association favored commissions for women physicians, although it noted its opposition to having women serve with units in combat. In August 1917 the judge advocate general used the fact that Army regulations did not mention gender as criteria for entry into the corps to justify having women serve as contract surgeons. But the lack of precedents and an almost universal male belief in the inherent frailties of the opposite sex denied women commissions. Armed with the approval of the judge advocate general, the Personnel Division began signing contracts with women. By 27 October 1918 fifty-five women physicians were serving the Army in this capacity, most of them as dispensary doctors, anesthetists, and laboratory technicians.<sup>16</sup>

Finding enough medical officers to care for the health of the thousands of men scheduled to arrive at mobilization camps in September was a pressing challenge for the Personnel Division, and the matter of their assignment contributed significantly to the confusion within the division. In the early months of the war other divisions of the Surgeon General's Office, particularly the Division of Sanitation, selected men they believed to be especially qualified for the type of work they did without waiting for the Personnel Division to act.<sup>17</sup>

The responsibility for assigning nurses was also a source of confusion, even, apparently, to Surgeon General Gorgas himself. The Hospital Division assigned nurses for a relatively brief period, and Gorgas suggested at one point that the corps was part of a separate Army Nurse Corps Division. The Medical Department's official historians referred only vaguely to "a time during the war period when both the Nurse Corps and the Army School of Nursing" functioned as part of the Hospital Division, "reverting to their proper places in the Personnel Division" at the end of the war.<sup>18</sup>

Surgeon General Gorgas' uncertainty about the Army Nurse Corps extended to the matter of whether the number of nurses available for service was adequate to the need. He maintained in his testimony before the Senate's Committee on Military Affairs in January 1918 that no shortage of nurses existed, even though the requirements of the many hospitals being opened in the fall of 1917 could not be adequately met. In actual fact, obtaining adequate numbers of nurses remained the major challenge for those responsible for Nurse Corps personnel. Thanks to the assistance of such organizations as the American Red Cross and the Committee on

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<sup>15</sup> Ibid., 1918, p. 17; WD, SGO, *SGO*, pp. 6, 140, 142–44, 148–49, 845; idem, *Military Hospitals in the United States*, p. 124; Ashburn, *History of MD*, p. 305; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, p. 6; *Investigation of the War Department* (65th Cong., 1st sess.), p. 2011.

<sup>16</sup> WD, SGO, *SGO*, pp. 151–52; Kimberly Jensen, "Uncle Sam's Loyal Nieces," pp. 676–77, 678–79, 682–83, 685, 688.

<sup>17</sup> WD, SGO, *SGO*, pp. 158, 173; WD, *ARofSG*, 1919, p. 38; Gorgas, *Inspection of Medical Services*, p. 6; *Investigation of the War Department* (65th Cong., 1st sess.), p. 2011.

<sup>18</sup> WD, SGO, *SGO*, pp. 176 (quoted words), 333; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 289; WD, *ARofSG*, 1918, pp. 312, 395, 428–32; Reverby, *Ordered To Care*, p. 161.

Nursing of the Council of National Defense, the number of female nurses increased more than tenfold in twelve months beginning 1 July 1917, but the supply of those who were appropriately trained remained small in proportion to the need. Yet when black nurses signed up with the Red Cross, indicating their readiness to serve the Army, the Surgeon General's Office adamantly opposed accepting them to care for black troops, allegedly because separate quarters would have to be found for them and because assigning white and black nurses to the same posts was not considered advisable. In the confusion an attempt to gain relative rank for members of the corps fell temporarily by the wayside.<sup>19</sup>

As in its effort to obtain the services of more physicians, the Medical Department was similarly forced to resort to contracts to deal with the shortage of nurses and to make various changes in the regulations. It allowed contract nurses, both graduate and nongraduate, with sufficient hospital experience to be sent on inspection trips to camp hospitals within the United States. It assigned some too old to join the Army Nurse Corps to work as instructors. It extended the age limit for those joining the corps and began to accept foreigners who were citizens of an Allied nation. It also accepted regular nurses, like reserve nurses, for the duration of the war rather than for three years. And, finally, to increase the supply of graduate nurses, it established the Army School of Nursing.<sup>20</sup>

The Personnel Division encountered varying problems with the other corps within the Medical Department. Obtaining qualified dental surgeons presented fewer difficulties than those presented by any other personnel category, largely because of the continued efforts of the dental profession, represented by such organizations as the Preparedness League of American Dentists and the Dental Committee of the Council of National Defense. On the other hand, no powerful civilian organizations stood behind the Veterinary Corps, and by July 1917, when Surgeon General Gorgas finally approved plans for a veterinary organization for the National Army, the number of experienced veterinarians in the Army was woefully small. Although having a group of especially trained enlisted men to serve as a permanent part of the corps to conduct the "vigorous grooming" that was crucial to the care of sick animals, the corps did not receive authorization to have its own enlisted force until October 1917.<sup>21</sup>

As the burdens of the Personnel Division became more complex, new sections were formed to handle the needs of other groups in the Medical Department. At some unspecified point a medical education section evolved to manage medical students and interns with less than a year of hospital service, classifying them somewhere between commissioned officers and enlisted men. By volunteering for the Enlisted Reserve Corps, medical students escaped the draft, becoming instead subject to call while being tentatively allowed to continue in an inactive status. Regulations adopted in October 1917 included dental students in this program and

<sup>19</sup> WD, SGO, *SGO*, pp. 176–80, 563; idem, *Army Nurse Corps*, p. 290; WD, *ARofSG*, 1918, p. 17; *Proposed Legislation Affecting the Medical Corps* (65th Cong, 2d sess.), pp. 3–4, 5–8, 14, 15, 18, 25; Mary M. Roberts, *American Nursing*, pp. 170–71; Emmett J. Scott, *Scott's Official History of the American Negro in the World War*, pp. 448–51.

<sup>20</sup> WD, SGO, *SGO*, pp. 176, 177; WD, SGO, *Army Nurse Corps*, pp. 291, 292–93.

<sup>21</sup> WD, SGO, *SGO*, pp. 171, 192, 197, 199, 1163 (quoted words); idem, *Finance and Supply*, p. 452; WD, *ARofSG*, 1918, p. 416.

a month later hospital interns, dentists, veterinarians, and veterinary students as well. In the fall of 1918 the Surgeon General's Office issued a memorandum noting that it would not recommend any member of the Enlisted Reserve Corps or the newly organized Students' Army Training Corps for commissions until he spent a year as an intern in a hospital.<sup>22</sup>

On 9 August 1918 the War Department, having little interest in building a reserve corps during active hostilities, forbade additional enrollments in the Enlisted Reserve Corps during the war. Those already in the corps were to be transferred to the Students' Army Training Corps, established on 10 October 1918. The transfer started thereafter, but proved to be slow and tedious. Clerks were too few, the influenza epidemic decimated the staff, and the whereabouts of some students was difficult to trace. After the Armistice, transfers ended to avoid causing an apparent increase in the size of the active-duty Army.<sup>23</sup>

### *Division of Sanitation*

Like the Personnel Division, the Division of Sanitation kept its name despite the organizational changes that occurred. It eventually became responsible for sanitary inspections; for formulating and disseminating policy in connection with sanitation; for gathering and studying statistics in connection with disease, wounds, and the physical attributes of men joining the Army; for assigning medical officers to camps and depots; and for naming those who were to work as epidemiologists. Once again, because no records of the orders creating the various sections of the wartime Division of Sanitation exist, dating their creation precisely is impossible.<sup>24</sup>

The work of sanitary inspection became another victim of the lack of control and coordination at the top level of the Surgeon General's Office. Like so many other offices within the Surgeon General's Office, the sanitary inspection service "grew up without formal order or organization." Inspections of the mobilization camps that opened in September 1917 began before the formal organization of the service on 13 November 1917 and its activation as a section of the Division of Sanitation on 1 January 1918. Traditionally, the senior medical officer of each command was expected to handle its sanitary inspection, but the surgeon general's wish to keep close watch over camp sanitation by sending out inspectors from his office inevitably led to difficulties and confusion.<sup>25</sup>

The sanitary inspection service consisted of two to three medical officers (a chief and an assistant or two) and a team of four to eight inspectors. Most

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<sup>22</sup> WD, SGO, *SGO*, pp. 160, 161, 166, 170, 824, 825. Gorgas became alarmed about the future supply of physicians for the nation as a whole when the draft age was lowered in May 1918. His fear proved justified when the number attending medical school in the fall of 1918 fell markedly. Only the unexpected end of the war in November prevented serious consequences for the medical profession (*ibid.*, pp. 164–65, 167).

<sup>23</sup> *Ibid.*, pp. 165, 169, 824.

<sup>24</sup> *Ibid.*, pp. 246–47; Ashburn, *History of MD*, pp. 305, 310; WD, *ARofSG*, 1918, pp. 274–75, 280.

<sup>25</sup> Ashburn, *History of MD*, pp. 305, 334; WD, SGO, *Sanitation*, p. 21, 23 (quoted words); WD, *ARofSG*, 1918, p. 273.

inspectors were medical officers, although some were Sanitary Corps experts in sanitary engineering or food and nutrition. An officer loaned by the Public Health Service inspected mosquito control and allied problems. The number of inspectors, however, proved inadequate for conducting inspections with the frequency that was believed necessary. When the Sanitary Division organized extra inspections in the East and the Midwest during the influenza epidemic of the fall of 1918, officers from other divisions of the Surgeon General's Office assisted the regular inspectors. These efforts were later deemed to have been good for morale, for it led both the men and the public to believe at a time of near panic that the Army was doing everything possible to meet the situation.<sup>26</sup>

The section of communicable diseases presumably gained official recognition within the Division of Sanitation in January 1918. Using reports coming to the Surgeon General's Office from epidemiologists and other experts, this section considered suggestions and conducted research in the effort to develop improved approaches to the control of communicable diseases. Although a plan to actually train epidemiologists through this section never came to fruition, its work led to a new emphasis on detecting communicable disease in recruits before they entered the camp and on refraining from moving men from one camp to another without checking them once again for symptoms of communicable disease. On 2 November 1918, at the direction of Surgeon General Ireland, the Surgeon General's Office moved the communicable disease section from the Division of Sanitation to the Division of Infectious Diseases and Laboratories.<sup>27</sup>

Also among the various sections of the Division of Sanitation were a sanitary engineering section, responsible for inspecting the management of such problems as water supply, sewage disposal, and mosquito control in camps and other stations; a section of current statistics; a personnel section, responsible for choosing and training administrative personnel and for controlling the assignment and reassignment of this type of personnel; and a medical records section, which distributed figures to the press and other bureaus of the War Department. The Surgeon General's Office planned to organize these records so that, together with notebooks kept by medical officers in the field, they could be easily utilized by anyone writing a medical history of the war once the conflict came to an end. A miscellaneous section within the division was responsible for, among other things, eliminating lice in troops preparing to deploy overseas and for administering the divisional camps' development battalions that worked with men who were not initially fit for service.<sup>28</sup>

Although the physical examinations given to new soldiers as soon as they arrived at mobilization camps was a Division of Sanitation responsibility, in practice the division had little control over this work. As was the case with sanitary inspections, the line between the responsibilities of the Division of Sanitation and

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<sup>26</sup> WD, SGO, *Sanitation* pp. 24, 26–27, 28, 365; Scrapbook, History and Military Record, p. 5, Ms C16, Albert E. Truby Papers, 1898–1953, NLM; WD, *ARofSG*, 1918, p. 273.

<sup>27</sup> WD, SGO, *SGO*, pp. 995, 1004; idem, *Sanitation*, pp. 70, 71, 79–80, 82; WD, *ARofSG*, 1918, p. 273.

<sup>28</sup> WD, *ARofSG*, 1918, pp. 274, 286–87; WD, SGO, *SGO*, pp. 278–80, 572, 1307; idem, *Sanitation*, pp. 79, 86, 90; Ashburn, *History of MD*, p. 310.

that of the various specialty divisions was not clear. The parties involved finally reached an understanding that made the so-called professional divisions of the Surgeon General's Office responsible for the "purely professional aspects" of the physical examinations. The Division of Sanitation remained responsible for compiling some of the physical standards used to guide the examiners.<sup>29</sup>

### *Finance and Supply and Administrative Divisions*

In the fall of 1917, in an attempt to bring greater logic and order to the management of the Medical Department, the Surgeon General's Office reshuffled burdens and created new divisions to replace the Records, Correspondence, and Examining Division and the Supply Division. Responsibility for examining claims and maintaining financial records and all supply functions fell to the new Finance and Supply Division. Oversight for building and repairing hospitals shifted from the old Record, Correspondence, and Examining Division to the new Hospital Division, with those functions that remained becoming the purview of the new Administrative Division.<sup>30</sup>

As the Surgeon General's Office grew, the Administrative Division increased in size and complexity until it included at war's end more than 260 commissioned officers and 1,600 civilians, mostly women. As initially established, its operations did not contribute to the shortage of medical officers, for its commissioned personnel, including the two officers who served as chiefs, were all from the Sanitary Corps. Medical officers and a few prominent civilian physicians, however, became involved in clearing manuscripts written for publication by Medical Department personnel, a traditional activity of the Surgeon General's Office placed under the Administrative Division.<sup>31</sup>

The Finance and Supply Division initially consisted of four sections, groupings that followed a familiar pattern, because changes were made "as the need arose . . . , although there was no formal organization to that effect." Under them, subordinate groupings were formed "largely by function." Among the subdivisions were those for procurement, created early in 1918 with the buyers chosen from the industries supplying the Medical Department; for administration, which included a subsection devoted to selecting and training enlisted men to work in the supply service; and for storage and issue, run by a Sanitary Corps officer and established in the fall of 1917 when the first combat division was ordered overseas.<sup>32</sup>

A large majority of the personnel of the Finance and Supply Division, like those of the Administrative Division, came from the Sanitary Corps. Through this new corps the Surgeon General's Office was able to obtain the services not only of those trained as supply officers, purchasing agents, and accountants but also of those having expertise with automobiles, X-ray equipment, and other items needed by the Medical Department. Staffed by these professionals, the division worked

<sup>29</sup> WD, SGO, *SGO*, pp. 273–76, 378 (quoted words), 1333; idem, *Sanitation*, p. 453.

<sup>30</sup> WD, SGO, *SGO*, p. 132.

<sup>31</sup> Ibid., plus pp. 7, 133, 136, 520, 522, 523, 1303, 1328–29; James A. Tobey, *The Medical Department of the Army*, p. 39.

<sup>32</sup> WD, SGO, *Finance and Supply*, pp. 46, 54 (quoted words), 55, 63, 64, 186–87, 333, 333n.

with “smoothness and efficiency . . . , a marked and wholesome contrast with conditions in previous wars.”<sup>33</sup>

Nevertheless, a shortage of trained medical supply personnel hampered Medical Department supply operations. The Medical Department required that all medical supply officers be thoroughly familiar with regulations, yet it did not have enough regular medical officers or enlisted men to allow all to receive the necessary training. On May 1917 Congress attempted to deal with the problem by passing legislation to permit the hiring of retired noncommissioned officers of the Regular Army to handle supply, and these men became a part of the Sanitary Corps when it was formed in June. When the number of men in this category proved inadequate, a few active-duty noncommissioned officers were transferred into the Sanitary Corps as well. The two trained and experienced Sanitary Corps officers who became inspector-instructors had to visit every mobilization camp once every two months to check on the work of medical supply personnel and to further their instruction.<sup>34</sup>

Within the Medical Department, three separate depots—New York City, St. Louis, Missouri, and Washington D.C.—handled almost all purchasing. The St. Louis depot procured veterinary supplies and occasionally other items having a more favorable price than that offered in the New York City area. The Washington D.C. depot, initially the center for buying field equipment, grew in importance as the War Industries Board established its control over raw materials, necessitating increasing numbers of conferences between the supply bureaus and the Washington representatives of the various industries. As a result, in January 1918, the Medical Department began to gradually centralize procurement operations in Washington. This newly formed agency, whose commissioned officers were all from the Sanitary Corps, continued to function until after the Armistice on 11 November. It did not, however, store the items it purchased, its responsibility ending with the moment when they were shipped by the manufacturer. The pharmaceuticals it bought were not tested until they reached the distributing depots.<sup>35</sup>

Multiple problems interfered with the Finance and Supply Division’s efforts to provide the needed items in a timely fashion. Although shortages of raw materials did not seriously affect the production of medical supplies, Red Cross efforts to assist the Medical Department produced a “double procurement system” that increased the difficulty of acquiring scarce items. Initial estimates of the quantities needed of some items proved to be woefully inadequate. Some articles were supplied by other government agencies, over which the division had no control. Problems besetting suppliers, among them shortages of skilled personnel, fuel, electric power, and transportation, bedeviled those responsible for department supplies. The Surgeon General’s Office did what it could to ease the situation. Among the steps it took was advising manufacturers of the procedures necessary to obtain draft exemptions for their employees and moving skilled workers already in the Army to the Enlisted Reserve Corps, putting them on the inactive list, and returning them to work in industry. Although the Surgeon General’s Office had

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<sup>33</sup> Ashburn, *History of MD*, p. 308 (quoted words); WD, SGO, *Training*, p. 563.

<sup>34</sup> WD, SGO, *Finance and Supply*, pp. 411, 414, 416, 422.

<sup>35</sup> *Ibid.*, pp. 165, 177, 186–88, 191, 203, 643.



*St. Louis medical supply depot*

assisted in resolving manufacturers' shortages of skilled labor, fuel, and electric power, the manufacturers still had to contend with a shortage of the freight cars necessary to transport both the raw materials and the finished products, requiring the transportation branch of the Finance and Supply Division to work closely with railroad officials.<sup>36</sup>

Handling or preventing major difficulties occasionally required ingenuity. High prices, especially on such products as the opiates and quinine, led to attempts to find substitutes. The department also used opium seized from smugglers and negotiated a special contract with the neutral government of the Netherlands to obtain a larger supply of the bark from which quinine was made. To deal with increasing

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<sup>36</sup> *Ibid.*, pp. 104, 105, 133, 134, 135–36, 137, 138, 219, 525–26, 804 (quoted words). The Quartermaster Corps, for example, traditionally supplied all forms of transportation except motor ambulances, including animals and forage for them and the wagons they drew; clothing and equipment; and storage facilities (see WD, SGO, *SGO*, p. 115).



prices and decreasing quality of wool, the Medical Department had specifications changed so that blankets could be made of a part cotton fabric. Difficulty finding enough absorbent gauze for bandages led to several experiments with “re-use knitted gauze,” which resembled knitted underwear and could be made into many shapes and sterilized for reuse. Sphagnum moss and treated wood fiber were also used as a substitute for gauze, to mixed reviews. When the sudden demands overwhelmed commercial supplies of vaccines and sera, the department divided up orders among several suppliers. The Rockefeller Institute for Medical Research provided a vaccine for meningitis that could not be otherwise obtained.<sup>37</sup>

A few specific items, especially veterinary supplies and instruments, were exceptionally difficult to obtain, possibly because of the enormously increased demand, the difficulties involved in predicting needs and in drawing adequate attention to them, and the newness of the Veterinary Corps itself. The Medical Department did not become officially responsible for buying veterinary supplies until 1 July and did not publish its first veterinary supply table until the fall of 1917. The Army Medical School provided veterinary vaccines, and later a veterinary laboratory set up in Philadelphia began making some drugs needed for animals. In some instances the department bought instruments from veterinary officers when they joined the Veterinary Corps. Particular difficulty was encountered in providing horse ambulances, because the Army had never purchased such an item before.<sup>38</sup>

The Surgeon General’s Office used a system of inspections, as it did before the war, to control the quality of the supplies obtained by the Finance and Supply Division. Whenever possible, inspections were conducted at the production site so that items could be sent directly to the camp needing them or to ports of embarkation, minimizing the need for storage. Using this approach, the division had manufacturing oversight at the point where the raw materials entered the process. Inspecting pharmaceuticals in greater quantity than ever before initially presented little difficulty, largely because the work was handled at Medical Department laboratories that could be enlarged and for which added personnel could be found with relative ease. By the summer of 1918, however, the Army’s laboratories were so burdened that supply depots in a few major cities were asked to arrange to have colleges of pharmacy examine samples.<sup>39</sup>

Inspecting nonpharmaceutical items became a far more complex matter. Trained men to handle the myriad items were not available, and drawing up definitive specifications proved difficult. The lack of knowledge of those inspecting laboratory instruments and apparatus was so serious that the Medical Department

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<sup>37</sup> WD, SGO, *Finance and Supply*, pp. 65, 139–40, 144–45, 465, 466–67, 468, 469, 551, 552–53 (quoted words), 804–05; “War Work of the Rockefeller Institute for Medical Research, New York,” pp. 498–99, 501, 502, 503, 510–11. Created in 1903, the Rockefeller Institute for Medical Research was for many years thereafter “the focal point of much of American’s fundamental research in bacteriology.” See James H. Cassidy, *Medicine in America*, pp. 78, 84 (quoted words).

<sup>38</sup> WD, SGO, *Finance and Supply*, pp. 103, 104, 452, 631, 632, 647, 651–52, 653–54; WD GO no. 13, 22 Aug 1917. The appearance of the professional veterinarian was of recent origin. Traditionally, farriers and those with on-the-job experience cared for the Army’s animals. See Mary C. Gillett, *The Army Medical Department, 1865–1917*, p. 385.

<sup>39</sup> WD, SGO, *Finance and Supply*, pp. 195–96, 197, 202–03, 204, 673.

had to turn to outside experts for help. Imports having decreased significantly since the start of the war, the Treasury Department offered the assistance of the expert appraisers of the Customs Service, a proposal the surgeon general eagerly accepted. On occasion, other outside experts also assisted in inspections, among them Bureau of Standards scientists.<sup>40</sup>

In the spring of 1918, in response to an Army-wide near breakdown in supply, the War Department created a new Purchase, Storage, and Traffic Division responsible for the purchase of items bought by more than one supply agency. The division then assigned one supply bureau to purchase each specific item for the entire Army. As the requisitioning agency, the Medical Department retained control over specifications for what it needed. Its protests against having other agencies buy such items as oxygen and nitrous oxide, used for anesthesia, were in vain. Once it had assumed the responsibility for purchasing, the Purchase, Storage, and Traffic Division transferred all personnel, equipment, and records pertaining to medical supply from the Finance and Supply Division of the Surgeon General's Office to the office of its own director of purchase and storage. The Surgeon General's Office assigned liaison officers to the various other bureaus responsible for buying items for the Medical Department. Delays in the delivery of needed items were frequent under this system, especially in the first weeks of its existence.<sup>41</sup>

### *Museum and Library Division*

Created in 1883, the Museum and Library Division was one of the oldest institutions of the Surgeon General's Office. It was organized into a museum, a library, and an administrative section, with subdivisions under each. For the museum portion of the division and, to a lesser extent, for the library as well, World War I was a gold mine of opportunity in that it produced both many interesting specimens of wounds and disease-damaged organs and tissues and much significant medical literature. The war basically salvaged the reputation of the museum, which by October 1917 had for some time been "a supreme joke" as far as contributions to medical progress were concerned, its teaching limited largely to ineffectively displayed Civil War specimens.<sup>42</sup>

During World War I the process of collecting specimens and autopsy reports was difficult because hospital laboratories were generally equipped for clinical, not pathological work, and thus few had the services of trained pathologists. Nevertheless, and despite the many demands on medical officers during the last hectic weeks of the war, when in the fall of 1918 influenza victims were pouring into hospitals already overstrained by hordes of wounded, the museum had already started to accumulate many specimens of influenza-pneumonia. Appeals were sent

<sup>40</sup> *Ibid.*, pp. 197–98, 200–201, 235, 533–34, 693.

<sup>41</sup> *Ibid.*, pp. 64, 78, 177, 186–87, 208–09, 210, 211, 212, 213, 217–18, 219, 220, 226, 430; Erna Risch, *Quartermaster Support of the Army*, pp. 641–42; "Army Educational Service," p. 1623; "General Ireland Discusses Army Reorganization," p. 1224; Phyllis A. Zimmerman, *The Neck of the Bottle*, pp. 42, 59, 60, 153.

<sup>42</sup> Wyndham D. Miles, *A History of the National Library of Medicine*, p. 162; WD, SGO, *SGO*, pp. 512, 517, 1296; Robert S. Henry, *The Armed Forces Institute of Pathology*, p. 165 (Robert W. Shufeldt's quoted words) (hereinafter cited as *AFIP*).



*Army Medical Museum and Library Building, Washington D.C. In October 1918 Lt. Morris L. Bower captured Army Medical Museum curator Col. William O. Owen's dream of a new museum and library building, which never materialized.*



out to camp pathologists during the epidemic, but these items were obtained chiefly by a member of the museum staff detailed to Camp Wheeler, Georgia. Among the other difficulties faced by those gathering specimens was the fact that, for a brief period, autopsies were forbidden on the grounds that military reasons for conducting them were not clear.<sup>43</sup>

The instruction section provided materials for the Army in general as well as for the Medical Department, including films about venereal disease for troops undergoing training, and still photographs, slides, moving pictures, medical and surgical drawings, and wax models to be used by both civilians and soldiers. Because many specimens and illustrations of specimens were obtained in France, special units also went abroad in the summer of 1918, probably at the request of General Pershing himself, to collect specimens for the museum and "to supply the graphics of the movements of hospitals and other medical units."<sup>44</sup>

The museum's expertise in entomology took on special significance when the danger of louse-borne disease joined the more customary threat from malaria. Identifying various flies, mosquitoes, and other insects found at Army camps and posts became a routine part of the work of the museum in the fall of 1917; starting in 1918, the Division of Sanitation required division surgeons to have specimens sent there for classification. By the end of World War I museum scientists had identified disease-bearing mosquitoes at all but eight camps and stations.<sup>45</sup>

The wartime work of the librarians of the Museum and Library Division was little changed from that of peacetime, but it gradually became associated with a new and major undertaking in the form of a history of the Medical Department's work during the war. On 23 August 1917 the surgeon general appointed a historical board for this purpose, with the members assigned to concentrate on areas with which they had personal familiarity. The board encouraged medical officers to keep diaries and to maintain as complete records as possible; it also sent out questionnaires to the various hospitals so as to make it possible to form individual histories for each.<sup>46</sup>

### *Hospital Division*

When the United States first entered the war, Surgeon General Gorgas presumably continued to handle all matters involving hospitals personally. Following the creation of the Hospital Division in July 1917, he selected the ubiquitous Colonel Noble as division chief. Noble's new division was responsible for establishing hospitals at the mobilization camps that would open in the fall and for overseeing the general and specialized facilities to care for not only those sent back from overseas but also those in the United States who contracted illnesses requiring lengthy treatment. The division also organized all medical units for overseas, including

<sup>43</sup> Henry, *AFIP*, pp. 68, 71, 160, 161–63, 164, 165; WD, SGO, *SGO*, pp. 514.

<sup>44</sup> Henry, *AFIP*, pp. 171, 176, 179; WD, SGO, *SGO*, pp. 512 (quoted words), 515, 516; B. Wilson, "Museum and Art Service of the American Expeditionary Forces," p. 165.

<sup>45</sup> C. S. Ludlow, "One Phase of the Mosquito Work Connected with Army Camps in 1918," p. 314; Henry, *AFIP*, pp. 175–76; WD, SGO, *SGO*, p. 516.

<sup>46</sup> WD, SGO, *SGO*, pp. 11, 516–17, 518, 525, 526, 1307, 1332.

base/evacuation/field hospitals, ambulance companies, hospital trains, and hospital ships. In the same somewhat casual manner characteristic of other divisions, Noble divided his organization into variously named sections to handle specific responsibilities, among them the Army School of Nursing.

In time the War Department took over many of the responsibilities that had initially been the province of the Hospital Division, including those of the planning section and of the procurement section, which was set up to find hospital sites, to obtain funding, and to determine how large the facilities should be in each instance. To finalize the plans and to manage the actual construction, the War Department set up a hospital section in its own Construction Division. In June 1918, when the transfer of function was made, a medical officer served as liaison between the Construction Division and the Medical Department.<sup>47</sup>

For Army hospitals, the path from plan to the start of construction remained long and paved with red tape. The route to obtaining funding ran through the Construction Division to the General Staff's Purchase, Storage, and Traffic Division to the War Industries Board, back through the Purchase, Storage and Traffic Division to the General Staff's Operations Division to receive the approval of Secretary of War Baker before being returned to the Construction Division for the start of the actual building. The facilities that resulted from all of this were far from ideal, described by one medical officer as "something incredible—great sprawling mazes of one-story wooden buildings and miles and miles of corridors, as fireproof as a box of shavings and miserably hard to administer."<sup>48</sup>

Finding personnel for mobilization hospitals proved a major challenge, because their staffs consisted largely of men and women who were initially unfamiliar with the Army's way of administering hospitals or managing patients. Few medical officers with the skills needed to handle the administration of a large hospital were available, despite a strong effort to find civilians with the necessary experience. These hospitals moved overseas with the units they served, requiring the Hospital Division to become involved in creating facilities to serve camp personnel who remained behind. With so many medical officers destined for overseas assignments, camp hospitals were forced to rely on a pool of officers assigned temporarily either for observation and training or for instruction because of their substandard rating.

The Hospital Division also had charge of preparing facilities for the sick and wounded returning from overseas. In the summer of 1917, as a first step in planning these accommodations, the division surveyed civilian hospitals to determine whether they could be utilized for these men. It decided that using civilian hospitals would not be wise both because these facilities were needed for civilians and because relying on them would require dividing up military patients into such small groups as to render impossible either keeping them under military control or adding rehabilitation to their care. Furthermore, military hospitals required quarters for those working in them, guardhouses, post exchanges, and other facilities not usually provided by civilian institutions. The Hospital Division undertook, there-

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<sup>47</sup> *Ibid.*, p. 337; WD, SGO, *Military Hospitals*, pp. 29–30.

<sup>48</sup> WD, SGO, SGO, pp. 119, 337; *idem*, *Military Hospitals*, p. 30; Paul B. Magnuson, *Ring the Night Bell*, p. 163 (quoted words).

fore, to create a new general hospital in every draft district and to have the number of beds in each based on the number of men taken from that area. Assuming that the number of inpatients would gradually increase because of the lengthy hospitalization required for some cases, it set a goal of providing beds for 3.5 percent of the men serving overseas. The preferred approach for finding space for these hospitals involved converting some Army posts into hospitals and leasing large buildings as well as constructing new ones. The leasing process, initially handled by the procurement section of the Hospital Division, was one of the functions taken over in the summer of 1918 by the War Department's Purchase, Storage, and Traffic Division.<sup>49</sup>

The new general hospitals joined a number of preexisting general facilities, among them Walter Reed General Hospital in Washington D.C. and Letterman General Hospital in San Francisco. Designed to have 500 beds and to be easily expanded to hold many more patients, these facilities handled a broad spectrum of cases. In comparison to other hospitals, they treated cases of a more serious nature or those needing a more prolonged period of recovery.<sup>50</sup>

Even before the war, a few general hospitals took in only certain types of cases. The general hospital at Fort Bayard, New Mexico, specialized in patients with pulmonary tuberculosis and continued to do so after the U.S. entry into the war. In February 1918 a New Haven hospital was leased to house additional victims of this disease. Eventually a total of eight more facilities for tuberculosis patients were built, with a combined capacity of more than 6,000 beds. The Medical Department also set up special hospitals for those suffering from mental illness and amputations.<sup>51</sup>

Other types of hospitals planned under Hospital Division auspices during the war included embarkation and disembarkation facilities and aviation hospitals. Despite the myriad ports used by troops going to and returning from Europe, only those at New York and Newport News, Virginia, had embarkation hospitals to care for the men who fell ill while waiting to board transports and for the sick and wounded returning from overseas. Aviation hospitals tended to resemble peacetime post facilities, small in size to serve small communities. Congress did not vote funds for these facilities until July 1917, when it gave the responsibility for setting them up to the Air Service chief surgeon.<sup>52</sup>

An overseas section of the Hospital Division was responsible for gathering, equipping, and scheduling for shipment overseas the medical units, including replacement units, destined to serve the American Expeditionary Forces. Included were not only base/field/evacuation hospitals, ambulance companies, convalescent camps (usually attached to base hospitals), laboratories, and veterinary hospitals but also a host of specialized units of varying size. The various branches of the Surgeon General's Office furnished the overseas section with the names of

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<sup>49</sup> WD, *ARofSG*, 1918, p. 305; WD, SGO, *SGO*, pp. 119, 337; idem, *Military Hospitals*, pp. 28, 31–32, 124, 305–06; Ashburn, *History of MD*, p. 309.

<sup>50</sup> WD, SGO, *Military Hospitals*, pp. 117–18.

<sup>51</sup> *Ibid.*, pp. 37, 51; WD, SGO, *SGO*, p. 629; idem, *Training*, p. 559; WD GO no. 142, 13 Nov 1917; Ashburn, *History of MD*, p. 309.

<sup>52</sup> WD, SGO, *Military Hospitals*, pp. 398, 426.

specialists whose services might be required. The overseas section also assumed responsibility for the organization of units of the U.S. Army Ambulance Service after the service's headquarters went overseas. The actual movements of units that were part of the organizational structure of the divisions they served were not under Medical Department control.<sup>53</sup>

As more men joined the American Expeditionary Forces, the work of the overseas section grew. Its goal was creating enough hospital beds to handle 15 percent of the troops overseas. Setting priorities for shipments became a complex duty, and a particularly frustrating one because the Surgeon General's Office had no control over the shipping itself. Medical Department equipment often left the United States at a different time from the unit itself, sometimes never catching up. The section's responsibilities also included the cable service for communications between the American Expeditionary Forces and the Surgeon General's Office.<sup>54</sup>

The personnel of the overseas section never exceeded six officers, taken from both the Medical and Sanitary Corps, and thirteen enlisted and civilian clerks, but by May 1918 the surgeon general had decided that the significance of its burden necessitated making it a separate division. On 10 July 1918 the Overseas Division officially came into being, with the well-worn Colonel Noble as its first chief. The new division included sections to set priorities for shipments; to oversee cable message traffic; to manage liaison with other organizations; and to handle American Expeditionary Forces requests.<sup>55</sup>

### *Division of Special Hospitals and Physical Reconstruction*

The Surgeon General's Office recognized from the outset that some of the wounded returning from Europe would require extensive rehabilitation before they returned to civilian life. In early July 1917 plans were made to establish a general hospital in Baltimore, Maryland, to train and educate those who lost their sight; the hospital did not actually open for another ten months. In August 1917, after consultation with military orthopedists and experts in vocational education, the Surgeon General's Office set up the Division of Special Hospitals and Physical Reconstruction, later renamed the Division of Physical Reconstruction. The medi-

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<sup>53</sup> WD, SGO, *SGO*, pp. 352, 355, 357; S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," pp. 187, 188, 191, 193–94, 196.

<sup>54</sup> WD, SGO, *SGO*, pp. 327, 354, 371, 1331; Morris, "Overseas Division," pp. 191, 193, 198, 199; Ashburn, *History of MD*, pp. 309–10; "Some Accomplishments of the Services of Supply," 2d ed. (Prepared by Statistics Branch, General Staff, Headquarters, Services of Supply, American Expeditionary Forces, [1919]), p. 107, copy in Library, U.S. Army Center of Military History, Washington D.C. An apparent contradiction exists between WD, SGO, *Finance and Supply*, and WD, SGO, *SGO*. *Finance and Supply* states on p. 301 that 89 evacuation hospitals were "assembled and issued" during the war, with 86 "shipped . . . to the American Expeditionary Forces"; *SGO* states on p. 354 that "59 evacuation hospitals were organized in this country," with only 40 "actually transported for duty overseas." The latter figures are echoed in the Morris article. The most likely explanation, other than error, is that *Finance and Supply* refers to equipment, while both *SGO* and Morris refer to the complete hospital, i.e., staff and equipment. Given the equipment, the staffs of some evacuation hospitals could have been formed overseas.

<sup>55</sup> Morris, "Overseas Division," pp. 181; WD, SGO, *SGO*, pp. 344, 345, 346, 347, 371, 1331; Ashburn, *History of MD*, p. 309.

cal officer assigned as chief of the new division coordinated the efforts of experts from all areas of medicine and surgery to assist in preparing the seriously injured soldier for his return to civilian life. Separate sections grew up within the division to handle education, physiotherapy, and special hospitals.<sup>56</sup>

The new division's assumption of responsibility for inspecting and leasing property for rehabilitation facilities resulted in some confusion, as this function was among those handled by the Hospital Division. Because of this situation, the Hospital Division formed a new section to handle all matters involving new construction, especially financing and real estate procurement. Subsequent conferences with government and civilian organizations established the roles to be played in reconstruction by the Medical Department and by civilian agencies.<sup>57</sup>

### *Professional Services*

In the course of staffing the new hospitals being established both within the United States and in Europe, the role of specialists received increasing recognition. As long as the assignment a medical officer was most likely to receive was to a small post where he had to deal single-handedly with whatever diseases or injuries afflicted the garrison, the generalist reigned supreme in the Army. The scale of World War I, however, made it possible to utilize the skills of specialists as never before. Soldiers were gathered into large units and cared for in large hospitals. Whether they were being given physical examinations or receiving care while sick or disabled, their numbers required the services of many physicians, making possible the assignment of physicians by specialty. Initially, however, the Surgeon General's Office went no further in officially recognizing the role of the specialist than to call for separate administrative and professional divisions in the staffing of general hospitals and, within each professional division, for a medical service and a surgical service.<sup>58</sup>

Surgeon General Gorgas' prestige within his profession brought him considerable influence with many prominent specialists, and his contacts made identifying the nation's specialists and persuading them to join the Medical Department easier than it might otherwise have been. Various specialty groups within the profession, working independently or through organizations such as the various committees and subcommittees of the Council of National Defense, enthusiastically joined his effort to draw the best of their number into the wartime Medical Department.<sup>59</sup>

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<sup>56</sup> WD, SGO, *SGO*, pp. 426, 428, 474, 476, 477, 1330; idem, *Military Hospitals*, pp. 141, 142; idem, *Physical Reconstruction*, pp. 4–5; William Seaman Bainbridge, *Report on Medical and Surgical Developments of the War*, pp. 161–77; A. F. Mastellone, "Physical Medicine in the Army," p. 641; Frank Billings, "Modern Military Medical and Surgical Reconstruction and the Measures of Cooperation Practiced by the Medical Department of the Army and Federal Board for Vocational Education," p. 10.

<sup>57</sup> WD, SGO, *SGO*, p. 337; idem, *Physical Reconstruction*, p. 5.

<sup>58</sup> Reverby, *Ordered To Care*, p. 181; WD, *Manual for the Medical Department, United States Army, 1916, Corrected to June 15, 1918*, pp. 98–100; Bevans, "Function of Consulting Staffs," pp. 465, 483.

<sup>59</sup> Gorgas and Hendrick, *Gorgas*, p. 311; Bevans, "Function of Consulting Staffs," pp. 466–67; WD, SGO, *SGO*, pp. 425, 426, 437, 442, 453, 456, 564.



When the United States entered the war, however, the Surgeon General's Office was not prepared to use the nation's specialists effectively. It had no comprehensive lists of the names of civilians in the various specialties. Thus, for a time, assignments that took no account of their special skills wasted the talents of many. A separate division for internists arose only haphazardly, as a result of the desire to have the most qualified men identify soldiers with tuberculosis. Inexperienced clerks handicapped the work of this division, as did a shortage of medical officers within the Surgeon General's Office and several rearrangements of office space. Even what name this division should be given and how it should be subdivided was apparently never clearly determined; the terms Division of Internal Medicine and Division of General Medicine were both used at one time or another. The Division of Internal Medicine was on some occasions referred to as a section of the Division of General Medicine, and whether this last organization actually existed except to create a paper parallel with the Division of General Surgery is as uncertain as its origins.<sup>60</sup>

A division devoted to general surgery first appeared in the summer of 1917, about the time when Maj. William J. Mayo, MC, became the first of a series of specialists who rotated through the position of adviser to Surgeon General Gorgas on general surgery and the surgical specialties. One of Mayo's responsibilities was recommending candidates to serve on what became known as the Surgical Advisory Board, which consisted of reserve medical officers on rotation in the Surgeon General's Office. Undoubtedly, the representatives from the Allied armies assigned to the Surgeon General's Office advised on surgery as well. The first chief of the Division of General Surgery (also referred to as the Division of Surgery) was eminent Johns Hopkins surgeon Maj. John M. T. Finney, who, as a reservist, could not at that time be given a higher rank.<sup>61</sup>

Separate divisions for head surgery and, shortly thereafter, orthopedic surgery (sometimes referred to as military orthopedic surgery) soon followed. Why these specialties were granted separate divisions was "not . . . quite clear." The Division of Head Surgery grew to include sections for ophthalmology, otolaryngology, brain surgery, and oral and plastic surgery. By the fall of 1917 it had assumed responsibilities in this field that had initially been undertaken by various subcommittees of the General Medical Board. The Surgeon General's Office sent out a medical officer from each section to visit the various mobilization camps to explain the reasons for the creation of the specialties within their hospitals and to ascertain that those operating within the various fields were competent to do so.<sup>62</sup>

The Division of Head Surgery had many and varied functions. One was examining recruits for the Aviation Section of the Signal Corps, which included not only checking their eyes, noses, throats, teeth, and jaws but also caring for aviators who had suffered head injuries. Another was providing eyeglasses for enlisted men;

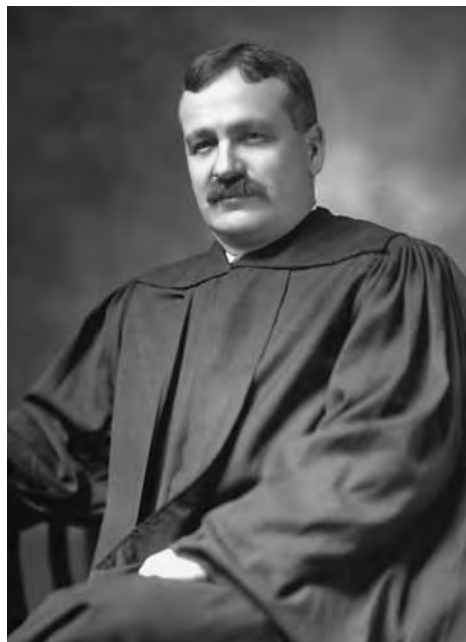
<sup>60</sup> WD, SGO, *SGO*, pp. 373, 373n, 374; Bevans, "Function of Consulting Staffs," pp. 466, 484; George E. Bushnell, "How the United States Is Meeting the Tuberculosis War Problem," p. 127.

<sup>61</sup> WD, SGO, *SGO*, pp. 406, 410, 413, 417, 418 (quoted words), 419, 420; idem, *Finance and Supply*, p. 526; Ashburn, *History of MD*, 312; Mayo and Caswell, "Surgeon General's Organization," p. 257.

<sup>62</sup> Ashburn, *History of MD*, pp. 312 (quoted words), 313; Bevans, "Function of Consulting Staffs," p. 467; WD, SGO, *SGO*, pp. 437, 1051, 1141.



*William J. Mayo*



*John M. T. Finney*

the head of the ophthalmology section arranged to have opticians who had been drafted test the eyes of recruits and for wholesale manufacturers to work through post exchanges to sell the needed glasses. Eventually, however, the Army provided them free of charge to enlisted men. Determining the proper specialists to deal with facial wounds caused particular concern; dentists, trained to set jaw fractures, were not qualified to treat soft tissue damage, while plastic surgeons were not generally trained to handle bone damage. Plans to train teams of dental and plastic surgeons fell short of meeting the need because of the many other calls for the services of these specialists.<sup>63</sup>

Confusion resulted from uncertainty about how to assign responsibility for nerve-damaged patients, the distinction between the field of neurosurgery and neurology not being clear. Initial plans called for having them cared for under the division's brain section, but in time so many men with nerve injuries were received that special hospitals had to be set up exclusively for them. Because these patients were more likely to need the services of a neurologist than a neurosurgeon once back in the United States, they were assigned to the Division of General Surgery. If deemed necessary, neurologists could call in neurosurgeons on a case-by-case basis.<sup>64</sup>

The Division of Orthopedic Surgery, created to limit the crippling caused by wounds, worked independently of the Division of General Surgery. Set up after an

<sup>63</sup> WD, SGO, *SGO*, pp. 440, 445, 458–59; idem, *Finance and Supply*, p. 470.

<sup>64</sup> WD, SGO, *SGO*, pp. 390–91.

orthopedic surgeon sent to England returned to report a “great need of this work,” it became responsible for dealing with foot problems that could render an otherwise fit recruit unable to serve. Based on Surgeon General Gorgas’s direction, the division recruited the necessary personnel, both for the American Expeditionary Forces and for mobilization camps; ensured overseas hospitals had the proper equipment to treat orthopedic patients promptly; and assisted in planning rehabilitation hospitals and retraining the disabled.<sup>65</sup>

General Pershing seems to have wanted command orthopedists to handle “all bone and joint cases, including muscle, nerve and tendon injuries,” without apparently realizing that even in the United States few so-called orthopedists were at that time, according to a physician familiar with the situation, qualified to serve as more than “child-straighteners, specialists in curvatures of the spine, congenital dislocations of the thigh and club foot. Most of them had never even dissected out a nerve.” As late as the summer of 1918, because of the widespread belief that orthopedists did not have the requisite surgical skills, controversy still raged as to whether orthopedists or general surgeons should set fractures located at or near joints. Nevertheless, the demand for the services of orthopedists in Europe was so great that by September 1918 their numbers within the United States had been drastically reduced.<sup>66</sup>

The rivalry between the various surgical specialties within the Surgeon General’s Office grew, leading to “inefficiency and disorder” in the care of the wounded. The hope that the Division of General Surgery could be used to ease the rivalries between the various specialties and to foster better cooperation was apparently not realized until late in the war, when the chief of the division became administrative officer over all the surgical specialties.<sup>67</sup>

Neuropsychiatry, a new specialty for the Army, had its own independent organization. Until World War I, concern for the wounded had almost completely overshadowed concern for the mentally disabled. The division pressed for special neuropsychiatric hospitals to be created and, once they had been established, handled their management. Tests to identify soldiers with neuropsychiatric problems had to be developed and standardized, as did the equipment to be used for the hospitals. Division staff members and experts under contract advised those working in the field and inspected their work, both in identifying men with psychiatric and neurological problems to prevent their being accepted by the Army and in caring for those whose problems were identified after they had been sworn in.<sup>68</sup>

The specialists dealing with psychiatry handled psychological testing, a new field of itself, when the mobilization camps opened in September 1917. Only in January 1918 did the Surgeon General’s Office organize a Division of Psychology to handle the increasing amounts of psychological testing being used in the Army.

<sup>65</sup> *Ibid.*, 426 (quoted words), 428, 432, 433, 434.

<sup>66</sup> *Ibid.*, pp. 1135–36; WD, SGO, *Administration, AEF*, p.602; Magnuson, *Ring the Night Bell*, p. 158 (quoted words); Ashburn, *History of MD*, p. 312.

<sup>67</sup> WD, SGO, *SGO*, pp. 406 (quoted words), 408, 417, 427.

<sup>68</sup> *Ibid.*, pp. 384, 385, 387, 391–92, 394; WD, SGO, *Neuropsychiatry*, pp. 10–11, 22, 30; WD, *ARofSG*, 1919, p. 1079; Pearce Bailey, “War and Mental Disease,” pp. 1, 2, 3; A. E. Brownrigg, “Neuropsychiatric Work in the Army,” p. 458; Ashburn, *History of MD*, pp. 311–12; Frank Garm Norbury, “The Relation of Defective Mental and Nervous States to Military Efficiency,” p. 30.

A member of the Senate's Committee on Military Affairs questioned the need for this division. Noting that he had the impression Gorgas "did not look with favor upon it," he demanded: "Who got up this psychology business?" The surgeon general simply replied that everyone he consulted seemed to be pleased with the idea, so he "submitted it to The Adjutant General" who decided to try the approach for the entire Army. When someone sarcastically suggested that Gorgas set up a "department of astrology," Gorgas disarmed him with his retort: "We need it."<sup>69</sup>

Other specialty divisions also evolved as the need for them arose, but no system of subordination evolved with them. This omission, together with the lack of a coordinating officer within the Surgeon General's Office, led to a similar state of semi-anarchy among the numerous specialties at the level of the individual hospital. Not until early November 1917 did the Surgeon General's Office order that hospitals, whether in the United States or with the American Expeditionary Forces, should have only three services: a surgical service, a medical service, and a laboratory service.<sup>70</sup>

### *Division of Roentgenology*

Before the war only the largest of the Army's hospitals used X-ray equipment. As a result, when the United States entered the conflict, a shortage of equipment and parts became a lasting concern. The American Roentgen Ray Society's equipment committee provided a list that was, with minor modifications, used to guide procurement throughout the war. Various individuals and private firms worked with the Medical Department to meet the difficulties that arose, among them dealing with variations in the type of electricity that was available. The Surgeon General's Office assigned only one medical officer to advise the Supply Division (later the Finance and Supply Division) concerning X-ray equipment, but by the fall of 1918 the division had adopted a standard table of equipment for X-ray devices and had obtained an adequate portable X-ray machine for distribution overseas. The Surgeon General's Office recognized the important role that the use of the X-ray played in diagnosis only in July 1918, when it finally organized a separate Division of Roentgenology.<sup>71</sup>

### *Division of Gas Defense*

Several of the divisions of the Surgeon General's Office could be classified as "not strictly medical." One such division was the Gas Defense Service or the

<sup>69</sup> WD, SGO, *SGO*, p. 395; *Investigation of the War Department* (65th Cong., 1st sess.), pp. 2061 (final quoted words), 2062 (other quoted words).

<sup>70</sup> WD, SGO, *SGO*, pp. 380, 381–82, 406, 407, 408, 454, 1331; idem, *Administration, AEF*, p. 351; idem, *Military Hospitals*, p. 127; idem, *Neuropsychiatry*, p. 10; Bevans, "Function of Consulting Staffs," pp. 466, 467, 483, 501. Surgeon George W. Crile, in his article "Standardization of the Practice of Military Surgery," maintained that "one important defect of the approach to handling the wounded used by the British and French was the failure to enforce uniformity of treatment as the patient was moved back from the front through one hospital after another" (p. 291).

<sup>71</sup> WD, SGO, *SGO*, pp. 465, 467, 472, 1150, 1331; idem, *Finance and Supply*, pp. 579–81, 582–83, 592; Ashburn, *History of MD*, p. 315.



*Employees at government gas mask factory*

Division of Gas Defense, which the Surgeon General's Office did not create until August 1917 because gas research was initially the responsibility of the Bureau of Mines and also because the Medical Department was not responsible for offensive weapons. A number of officers, all but one from the Medical Corps, served as chief of the division during the ten months of its existence. At least one of them entered upon this position dangerously ignorant of the many intricacies of gas warfare and gas weapons. Those serving under the chief initially included 144 commissioned officers and 687 enlisted men, all from the Sanitary Corps.<sup>72</sup>

The Division of Gas Defense consisted of three sections. The field supply section dealt with acquiring, inspecting, storing, and issuing gas masks and other types of gas defense equipment where quality control was of vital importance. Such items were either made under contracts that permitted close inspection or, after the fall of 1917, by a plant run by the government at Long Island City, New York. In less than a year the supply section provided almost 2 million gas masks for human beings, another 154,000 for horses, more than 500,000 extra canisters for gas masks, and 11,000 fans for trenches.<sup>73</sup>

The proper use of gas defense equipment was for a time the responsibility of the division's training section. The War Department ordered that each infantry division assign a medical officer, a chemist functioning as his assistant, and a Medical Department noncommissioned officer for instruction in gas defense. Trained commissioned officers were also necessary to manage and run plants making gas defense equipment. In response to these needs, Surgeon General Gorgas sent three medical officers to serve as instructors in the Gas Defense School opened

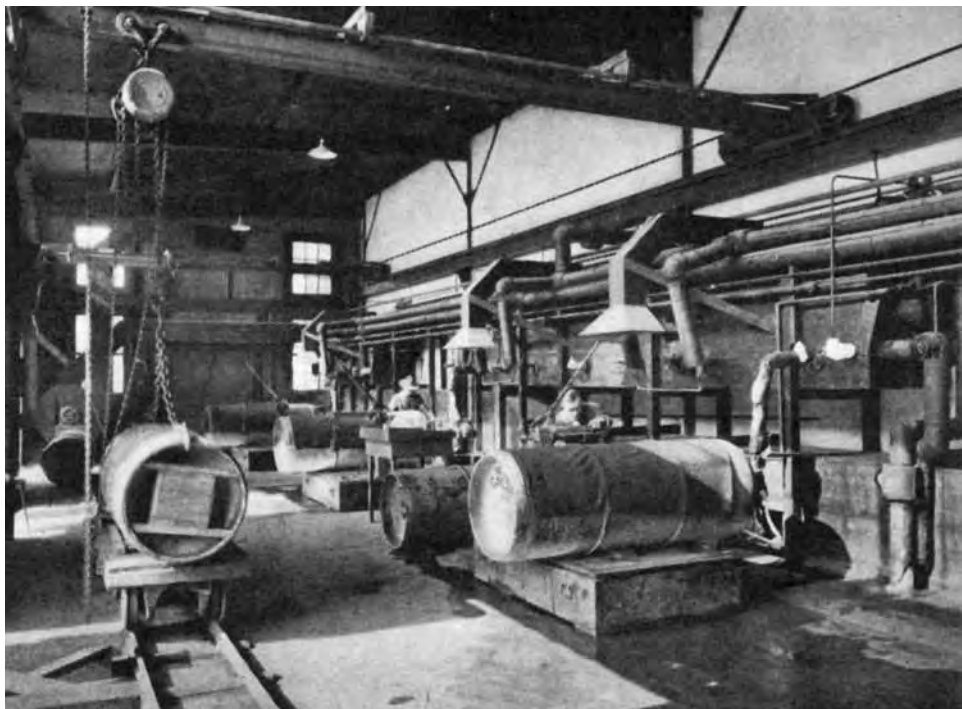
<sup>72</sup> Ashburn, *History of MD*, pp. 305 (quoted words), 315; WD, SGO, *SGO*, pp. 507, 1328; idem, *Medical Aspects of Gas Warfare*, pp. 28, 29, 39; Crile, *Autobiography*, 2:318.

<sup>73</sup> WD, SGO, *SGO*, pp. 507, 508, 509; idem, *Gas Warfare*, pp. 28, 30; Ashburn, *History of MD*, p. 306. The U.S. Army initially used a British type of gas mask but, after some experimentation, developed a form that was satisfactory and that became the official postwar mask. See "Warfare Gases," p. 22.



*Sewing and assembling gas masks*





*Filling drums with phosgene and, in storage, performing a leakage test*



at the Infantry School at Fort Sill, Oklahoma. By October 1917 a sufficient number of gas defense officers, most of them members of the Sanitary Corps, had been trained and subsequently assigned to divisions. As a result, no further courses at Fort Sill were deemed necessary.<sup>74</sup>

Nevertheless, officers in charge of training men for the American Expeditionary Forces occasionally questioned the need for gas defense instruction so seriously that they failed to prepare their men for this aspect of warfare as it was being conducted in Europe. British experts arriving in the United States in the fall of 1917 were convinced that gas defense was not a proper responsibility of medical officers, the position of the divisional gas defense officer being in their view very much a combatant one. Upon their advice, therefore, in February 1918 the responsibility for gas defense training was transferred to the chief of engineers, and the commissioned officers of the Medical Department's gas training section were duly moved to the Corps of Engineers.<sup>75</sup>

The third section of the Division of Gas Defense, the factory protection service, came into being in February 1918 after the Bureau of Mines relinquished responsibility for the safety of the workers in plants manufacturing poison gases. The new organization gave contracts to local physicians and trained them to deal with the health problems of those making poison gases; they, in turn, held sick call, gave physical examinations at specified intervals, and examined all applicants for work at these plants. Arrangements with hospitals were negotiated and emergency facilities were opened at the plants themselves, with all supplies issued through the Surgeon General's Office. Medical officers who were to be involved in inspecting gas plants received instruction at a newly developed course at American University. The service also established research laboratories that sought to develop better protective devices and to understand of the effects of poison gas. It also organized a central office to gather information on problems that might be encountered in laboratories or factories.<sup>76</sup>

The Division of Gas Defense was abolished in late June 1918, when the Medical Department's responsibility for gas defense was transferred to the new Chemical Warfare Service. Taking over all remaining personnel and property concerned with gas defense, the Chemical Warfare Service set up a medical division to which the Surgeon General's Office detailed medical officers to deal with factory inspection.<sup>77</sup>

### *Division of Food and Nutrition*

At some time in the fall of 1917 another "not strictly medical" division, the Food Division, appeared in the Surgeon General's Office. Later known as the Division

<sup>74</sup> WD, SGO, *SGO*, p. 509; idem, *Gas Warfare*, pp. 29–30; Ashburn, *History of MD*, p. 315; Charles E. Heller, *Chemical Warfare in World War I*, pp. 40–41.

<sup>75</sup> WD, SGO, *SGO*, pp. 507, 509–10; idem, *Gas Warfare*, pp. 30–32; Heller, *Chemical Warfare*, 40–43.

<sup>76</sup> WD, SGO, *Gas Warfare*, pp. 33–34.

<sup>77</sup> Ibid., pp. 35, 36; WD, SGO, *SGO*, pp. 119, 509, 610; James E. Hewes Jr., *From Root to McNamara*, p. 48; Heller, *Chemical Warfare*, p. 45; Leo P. Brophy, "Origins of the Chemical Corps," p. 223.



of Food and Nutrition, the new organization became responsible principally for conducting “nutritional surveys” of camps both in the United States and in Europe. As the Surgeon General’s Office intended, the surveys were to ascertain the nutritional value of the food being offered the troops, especially the appropriateness for the duties being performed, and to evaluate mess conditions. At the division’s head was a Sanitary Corps officer. Some of his subordinates had received training at the medical officers training camp at Camp Greenleaf in Georgia before being sent to camps to teach cooks, mess officers, and unit commanders; the enlisted men in the division numbered fifty. Survey parties of four officers and several enlisted men visited each camp in the United States and in France, spending from two to four weeks. In July 1918 authority was received to have either the surgeon general or the camp commanding officer name a nutrition officer from the Medical or Sanitary Corps for every camp of over 10,000 men.<sup>78</sup>

The Division of Food and Nutrition sent scientists to work at the University of Rochester in New York to study the effects of dehydration on the food value of various vegetables. Their research revealed that this process did not destroy all Vitamin C. An officer was detailed to study the processes used to dehydrate vegetables by various manufacturers. At the request of the secretary of agriculture, he was also detailed to head studies of dehydrated food being done for the Department of Agriculture by four Sanitary Corps officers.<sup>79</sup>

### *Air Service Medical*

The position of those responsible for the health of the aviators serving the Army continued to be ambiguous throughout World War I. Even at the maximum of more than 190,000 men, the Army’s Air Service remained comparatively small, and little was known about either the physical attributes that characterized the successful pilot or the problems that he faced. The fact that medical officers dealing with aviators needed special training was eventually accepted, but the need for a separate medical service was a subject of long and vigorous controversy.<sup>80</sup>

The chief medical officer serving Army pilots, Lt. Col. (later Col.) Theodore C. Lyster, MC, was another of the Medical Department’s ubiquitous officers. During much of the time he was working with aviation medicine, he was also serving at least nominally as attending surgeon in Washington D.C. He functioned temporarily as head of the gas defense service and eventually became the coordinating head of the professional services. From October 1917 to March 1918, when he was promoted to colonel, he served in Europe as the ostensible liaison officer for the surgeon general. Once back in the United States, Colonel Lyster headed a three-officer board that reviewed all applications for appointment to or promotion in the Sanitary Corps. Lyster was Mrs. Gorgas’ nephew and, like Noble, had served with

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<sup>78</sup> Ashburn, *History of MD*, pp. 305 (first quoted words), 314; WD, SGO, *SGO*, pp. 214, 308 (second quoted words), 322, 620. See also John R. Murlin correspondence, Ms C151, Francis A. Winter, Paul F. Straub, James M. Phalen et al. Papers, 1918–1924, NLM.

<sup>79</sup> WD, SGO, *Sanitation*, pp. 206, 207.

<sup>80</sup> WD, SGO, *SGO*, p. 488; Ashburn, *History of MD*, pp. 313–14; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1949)*, p. 58.

Gorgas in Panama. In the spring of 1918, when he became a candidate for promotion to brigadier general in the National Army at the young age of forty-three, numerous complaints of nepotism surfaced.<sup>81</sup>

Lyster finally received an office of his own in his capacity as the chief medical officer for the Air Service, but until July 1917 it consisted only of himself, a single enlisted man, and a stenographer. Although its function was limited essentially to physical examinations for would-be pilots, his organization had from the outset a certain independence that the various formal divisions of the Surgeon General's Office did not. When Lyster was appointed chief surgeon for the Aviation Section of the Signal Corps on 6 September 1917, he moved out of the Surgeon General's Office. Eleven days later, on 17 September, the Aviation Section became the Air Division. Lyster likened his position within the new division to that of "the chief surgeon of a field army."<sup>82</sup>

Lyster believed that the medical service needed to work as closely as possible with aviation personnel so as to become familiar with the problems they faced. Thus, he concluded that his organization should actually be completely divorced from and independent of the Surgeon General's Office. He believed that both Surgeon General Gorgas and the chief of the Signal Corps agreed with him. The aviation medical organization should, in Lyster's opinion, be directly subordinate to the commanding general of the Air Division, and medical personnel should be an organic part of the units to which they were assigned. The closer a medical officer became to the aviators he served, however, the farther he grew from his colleagues in the rest of the Army Medical Department, who apparently resented his elevation to a special status.<sup>83</sup>

Lyster's organization was thriving at the beginning of 1918. He had under him an assistant, an executive officer, and sections for personnel; for property, supplies, and accounts; for hospitals; for reports and returns; for the care of fliers; and, as of 9 January, for medical affairs. A commissioned officer headed each section. A post surgeon, a flight surgeon, and various specialists served at each large airfield, and several medical officers could be found at each small one. Beginning in the summer of 1917, money had become available to begin setting up hospitals in the image of post hospitals at all airfields. Permission was received to initiate developing air ambulances. Lyster created an extensive research organization whose goal was determining what characterized the successful pilot and what tests could be used to identify these characteristics. Yet resistance to the idea of a special medical organization for the air service continued to be widespread, both in the U.S. Army and in those of other nations. On 9 May 1918 the War Department removed Colonel Lyster from duty with the Signal Corps in spite of his continued protests.

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<sup>81</sup> Lyster Biography, Ms C44; Autobiographical Sketches . . . , NLM; Cooper Autobiography, p. 227, Ms B120, NLM; WD, SGO, *SGO*, p. 1328. See also Gillett, *Army Medical Department, 1865-1917*, pp. 276, 404.

<sup>82</sup> WD, SGO, *SGO*, p. 488; Ashburn, *History of MD*, pp. 313-14; Mae Mills Link and Hubert A. Coleman, *Medical Support of the Army Air Forces in World War II*, pp. 11, 13, 14 (quoted words from Ltr, Lyster to CG, Air Div, 11 Oct 1917); Lyster Biography, Ms C44, Autobiographical Sketches . . . , NLM; Stephen C. Craig, "The Life of Brigadier General Theodore C. Lyster," p. 1050.

<sup>83</sup> Link and Coleman, *Medical Support*, pp. 14-15; idem, *Origin of Air Force Medical Service*, pp. 43, 58.

Shortly thereafter, when the Air Service became independent of the Signal Corps, he was ordered to report for duty in the Surgeon General's Office, there to head the Air Service Division (often referred to as Air Service Medical), serving the War Department's new Division of Military Aeronautics.<sup>84</sup>

The confusion that characterized the Surgeon General's Office during World War I was inevitable, the result of the lack of preparation of the nation as a whole for war. Multiple changes at higher levels inevitably created difficulties for the department's administration, forcing the Surgeon General's Office more than ever to react in haste because there was no time for considered action. Dealing effectively with this situation and with the results of the explosive increase in the size of the Medical Department depended on a strong and vigorous leadership, which neither Gorgas nor those acting on his behalf managed to exercise whether because of age, want of interest, lack of the necessary skills, or personal ambition. And thus the "chaos" that Maj. George W. Crile discovered "in the Surgeon General's Office" in 1917 continued throughout the war.<sup>85</sup>

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<sup>84</sup> WD, SGO, *SGO*, pp. 489, 497, 1330; idem, *Military Hospitals*, pp. 398–99, 417–19, 421; Link and Coleman, *Medical Support*, pp. 11, 14–15, 16; idem, *Origin of Air Force Medical Service*, p. 45; Lee Kennett, *The First Air War, 1914–1918*, p. 91; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 32, 33.

<sup>85</sup> Crile, *Autobiography*, 2:317 (quoted words); "Our New Army Medical Department," [April 1917], p. 3, folder 2, Ms C38, Glenworth Reeve Butler Papers, 1917–1919, NLM; Magnuson, *Ring the Night Bell*, p. 157; WD, [Annual] *Report of the Secretary of War*, 1919, p. 77.

## Chapter 3

# TRAINING FOR WAR



In the spring and summer of 1917, within both the Medical Department and the Army as a whole, too many inexperienced men needed training and too few experienced men were available to train them. With the number in need of training far exceeding the capacity of the facilities available to house them, the call-up of draftees did not take place until 1 September. Surgeon General Gorgas found himself unable to activate a systematic training program to provide medical troops, both officers and enlisted men, with all of their theoretical instruction and most of their practical training before they went overseas. Because mobilization camps and units in France also urgently needed both physicians and medical enlisted men, the requirement that all go through a three-month training program had to be rethought. The complexity of the problems facing the department increased when its critical need for specialists and the paucity of specialists available within the civilian population became apparent more or less simultaneously. The shortage of specialists seemed more critical than it was because the Medical Department, like the Army as a whole, assumed that the war would last much longer than it actually did and thus that more trained personnel would be needed than proved to be the case. Given the problem of transforming hundreds of generalists into specialists in a short period of time and the difficulties involved in transforming a horde of civilian physicians into medical officers, compromise and improvisation had to become the rule, rather than the exception, lest confusion turn to chaos.<sup>1</sup>

### *Medical Officers Training Camps*

The Medical Department's initial goals—providing enough trained officers to ensure the health of the Army and training new officer and enlisted personnel—were challenging if not unrealistic. The first compromise in the department's plans became necessary even before any training camps were opened, when the shortage of qualified instructors forced the cancellation of plans to open a medical officers

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<sup>1</sup> Edward M. Coffman, *The Hilt of the Sword*, p. 44; War Department (WD), Surgeon General's Office (SGO), *Training*, p. 604; John Whiteclay Chambers II, "Conscripting for Colossus: The Progressive Era and the Origin of the Modern Military Draft in the United States in World War I," in Peter Karsten, ed., *The Military in America from the Colonial Era to the Present*, p. 277; A. D. Bevan, "Organization of the Medical Profession for War," p. 601.

training camp at Leon Springs, Texas. For a few months in 1917, with the addition of a training camp for black medical personnel, the number of fully operational facilities totaled four, but only two of these camps were able to remain open through entire the war. As experienced medical officers began to accompany troops overseas, the dwindling number of medical officers available to train the growing number of new men dictated consolidation in the interests of the most effective use of available resources.<sup>2</sup>

The medical officers training camps created at Forts Benjamin Harrison (Indiana), Riley (Kansas), and Oglethorpe (Georgia) were essentially identical when they opened in June 1917, and all were under the surgeon general's direct control. The Medical Department initially intended that they have the same number of students and offer the same course. Largely as a result of differing problems at the sites where they were located and of the increasing need to consolidate in the interests of efficiency, however, each camp evolved differently.<sup>3</sup>

At Fort Benjamin Harrison, where three Regular Army infantry regiments were among those mobilized before going overseas, the medical officers training camp was able to maintain reasonable standards of sanitation for itself but initially had no control over the sanitation of the rest of the fort. Because of the influx of recruits, soil pollution grew rapidly, and flies increased the danger to the health of those living there. Only after 10 August 1917, when the fort's commanding officer placed the medical camp commandant, Col. Percy M. Ashburn, MC, in charge of sanitation for the entire post, did significant improvement occur. In the course of effecting the changes he found necessary, Colonel Ashburn provided the camp's students with valuable instruction and experience. On 2 December 1917, as part of the effort to consolidate medical training, the Medical Department officially shut down the Indiana camp.<sup>4</sup>

At Fort Des Moines, Iowa, Surgeon General Gorgas envisioned training fifty student officers and ten regimental sanitary detachments, all to be used to train black medical officers and to care for members of black units when they were organized. The camp was closed on 13 November 1917, because heated barracks would not be available for the trainees. "Adequate or satisfactory quarters for the instruction or accommodation of the officers and enlisted men" were provided for only a few weeks before closing, a situation that "seriously interfered with the instruction and training." Nevertheless, although messing, bathing, and housing arrangements were defective, authorities apparently consoled themselves by the thought that the food was "at all times good, well cooked, and adequate in quantity."<sup>5</sup>

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<sup>2</sup> WD, SGO, *Training*, pp.4–6.

<sup>3</sup> *Ibid.*, p. 262; WD, SGO, *The Surgeon General's Office*, p. 348 (hereinafter cited as *SGO*).

<sup>4</sup> WD, SGO, *Training*, pp. 7, 22, 259, 262, 290 (255n); *Zone of the Interior*, 1(pt.2):876; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 301; Ashburn Biography, Ms C44, *Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940*, National Library of Medicine (NLM), Bethesda, Maryland; "Medical Training Camps," p. 137.

<sup>5</sup> WD, SGO, *Training*, pp. 262, 263, 266 (first quoted words), 267 (remaining quoted words), 269, 275; "Medical Training Camps," p. 137; United States, Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917–January 1918*, p. 2021 (hereinafter cited as *Investigation of the War Department*, 65th Cong., 1st sess.); Bruce White, "The American Military and the Melting Pot in World War I," in Karsten, ed., *Military in America*, p. 307.



*Percy M. Ashburn*

The students of the Fort Des Moines program generally lived up to expectations, but for when the Surgeon General's Office decided to block the acceptance of additional black physicians who wanted to serve as medical officers. Of the graduates, many were relegated to serving as enlisted men. Age, or possibly the quality of the education that had been available to older men when they were in medical school, appeared to be a problem for some. The average age of those who failed to complete the course satisfactorily was forty-four years, while that of those who completed it satisfactorily was less than thirty-two. All of the members of the dental reserve, whose average age was under thirty, successfully completed their training. Although a few were assigned to National Guard regiments, most graduates of the Fort Des Moines program became part of the various units of the 92d Division, where with

one exception all regimental surgeons were white. The 92d was regarded as "an experiment," not only because its men were all black but also because plans called for most of its officers to be black as well.<sup>6</sup>

At Fort Riley the medical officers training camp under the command of Lt. Col. (later Col.) William N. Bispham, MC, was 4 miles from Camp Funston, where, beginning in September 1917, thousands of draftees gathered. Particularly promising students of military hygiene and sanitation were detailed to work at Camp Funston, starting their training by accompanying sanitary inspectors on their rounds. Although Fort Riley was twice the size of Fort Benjamin Harrison, sanitation was not the problem it was at the Indiana camp. In the bitter winter of 1917–1918, however, weather complicated training. Housed in wooden buildings that were not winterized, the student officers were forced to improvise to deal with the wind and cold that swirled through the wide gaps left by the shrinkage of the partially cured lumber. They covered the inside of the walls first with newspaper and then with tarpaper bought with company funds, and finally lined them with scrap lumber left over from Camp Funston construction.<sup>7</sup>

<sup>6</sup> WD, SGO, *Training*, pp. 266, 267, 268, 269, 275; Edward M. Coffman, *The War To End All Wars*, p. 72 (quoted word); White, "American Military," in Karsten, ed., *Military in America*, pp. 308–09; Emmett J. Scott, *Scott's History of the American Negro in the World War*, p. 447; DeHaven Hinkson, "The Role of the Negro Physician in the Military Services from World War I Through World War II," p. 75.

<sup>7</sup> WD, SGO, *Training*, pp. 183, 185, 216; E. S. Tenney, "Medical Officers' Training Camp," p. 402.



*William N. Bispham*

Surgeon General Gorgas presumably intended that the closing of the Fort Harrison and Fort Des Moines training facilities be followed by the enlarging of those at Forts Riley and Oglethorpe. Otherwise, the men obtained for the Medical Department in the February draft would have to be sent without training to various hospitals, none of which was ready to undertake their instruction. As early as January 1918 department leaders were considering entirely abandoning the concept of multiple medical officers training camps and consolidating them at Fort Oglethorpe. By the summer of 1918 field equipment shortages joined personnel shortages in lowering the quality of instruction that could be given at Fort Riley, leading to the transfer of the responsibility for training men destined to serve in base and Line of Communications units to the Georgia site. To minimize the expense that would be involved in moving so many to the

East for training, however, the Fort Riley camp remained open for personnel to be assigned to frontline troops, among them evacuation ambulance companies whose training required more field work and less professional instruction than was needed for other medical officers. The fort did not close until February 1919.<sup>8</sup>

As the other medical officers training schools dwindled in size and importance, Camp Greenleaf at Fort Oglethorpe grew. By February 1918 it had a capacity of 5,500 and had received the authority to expand to 7,000. Although this camp was located in Chickamauga Park, where typhoid fever had ravaged units at one of the largest and most disease-ridden of the Spanish-American War mobilization camps, the possibility of water-borne disease had been virtually eliminated through water filtration and chlorination. Those taking showers, however, endured an unintended side effect, sneezing, because so much chlorine was added to the filtered water.<sup>9</sup>

Housing was a continuous problem. Tents had to be used for extended periods to handle the rapid increase in the number of men at the camp. The unusually low

<sup>8</sup> WD, SGO, *Training*, pp. 14, 78, 169, 183, 249–50, 258, 259–60, 602, 603; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1918, pp. 409–10 (hereinafter cited as *ARofSG*, year); From Camp Greenleaf to France folder, p. 79, Ms C308, Thomas Bailey Marquis Papers, 1906–1973, NLM; WD, SGO, *SGO*, p. 871; “Medical Training Camps,” p. 137; Harold E. Eggers, with a report by Ellis H. Kerr, “Communicable Disease at Camp Funston and the Medical Officers’ Training Camp, Fort Riley, Kansas, October 15th, 1917, to January 15th, 1918,” pp. 17, 20; WD, [Annual] *Report of the Secretary of War*, 1917, pp. 6–7.

<sup>9</sup> WD, SGO, *Training*, p. 23; Ashburn, *History of MD*, pp. 302–03; Harold W. Dana, “Doctors in Uniform,” p. 352; “Medical Training Camps,” p. 137.



*Typical Army cantonment; (below) sanitary field appliances constructed at medical officers training camp, Fort Riley, Kansas*





temperatures and heavy rain and snow of the winter of 1917–1918 caused considerable hardship here, too, especially when the supply of wood for fuel was low and recruits without either woolen clothing or raincoats were housed in tents. The arrival of enlisted men from Fort Riley in the late summer of 1918 exacerbated the shortage of space, yet so few laborers were available for construction work that the War Labor Board vetoed a proposal to erect a large cantonment just south of Chickamauga Park.<sup>10</sup>

The camp's location also made problems with supply inevitable. Fort Oglethorpe was 8 miles from the nearest major rail line at Chattanooga, a situation that complicated deliveries when the road to that city, which had not yet been paved, became impassable in the winter of 1917–1918. Moreover, supply was not under the control of the camp commandant but was handled through a Quartermaster Corps subdepot in a town 4 miles away, which retarded deliveries year round. The failure to keep sufficient supplies on hand at the subdepot caused delays in shipping troops overseas. In September 1918 a change in the command of the subdepot brought some improvement. But the new officer was inexperienced, and problems continued to arise in spite of his good intentions. The failure of the highest War Department authorities to be fully aware of the size of the installation, a situation that was apparently regarded as "inevitable," further contributed to the difficulties experienced at the camp.<sup>11</sup>

The reduction and elimination of other training camps exacerbated training problems experienced at Fort Oglethorpe, its size having doubled by the end of March 1918. Camp Greenleaf's ability to promptly fill the demand for medical officers was diminishing. Some who might otherwise be immediately available for assignment overseas or to mobilization camps were being detailed for training to meet the growing need for specialists. Furthermore, as more and more men arrived, the number that had to remain as part of the permanent cadre responsible for running and maintaining the camp also grew. By the summer of 1918 the demand for medical officers was such that, in another major compromise with the original plan, the basic training period had to be reduced from three months to six weeks.<sup>12</sup>

The shortage of medical officers was by no means the only personnel problem acutely felt at Camp Greenleaf. Because divisions were forming new units, enlisted men were also coming and going at a rapid rate. In early June 1918, the Surgeon General's Office insisted that all base and evacuation hospital personnel then at the camp be immediately sent out to other camps and posts "without delay" and that each such organization have at least fifty men with it. This demand seems to have bewildered the new camp commandant, Col. Edward L. Munson, MC, who was the author of the Medical Department's training plans. Pointing out that "these organizations would have long since been created and long since sent away, if the enlisted personnel for them had been provided," Colonel Munson suggested that "these outfits stay here six weeks," during which time they could be filled with their complete quota of personnel and "drilled and disciplined into some semblance of

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<sup>10</sup> WD, SGO, *Training*, pp. 23, 25.

<sup>11</sup> *Ibid.*, pp. 21, 22 (quoted word), 23.

<sup>12</sup> *Ibid.*, pp. 23–24, 25, 26, 53, 81.

soldiers.” Otherwise, he would have to send out men who would have had no more than a week’s service.<sup>13</sup>

The answer that the Surgeon General’s Office sent Colonel Munson suggested the desperation and confusion prevailing at the highest levels in the Medical Department. It informed Munson that units sent out from Camp Greenleaf had to have fifty men, unless they were to go directly overseas, in which case they must have their full complement of men. The office rebuked him because the units that were scheduled to go overseas with the next wave of troops had not joined their organizations at the mobilization camps in April. Whether they resembled soldiers or not had become immaterial; they “must now get hospital training whether they have any other or not.” By September 1918 the shortage of personnel was so great that Colonel Munson had to dispatch men who had not even completed their first two weeks, leaving almost all of their training to be accomplished at the base, camp, or general hospitals to which they were sent for temporary duty before going overseas. He also realized the significant waste of sending out those with specialized training to perform general service.<sup>14</sup>

The situation eased in October 1918, when Colonel Bispham replaced Colonel Munson at Camp Greenleaf. Shortly after Bispham assumed command, an outbreak of influenza ensured that few men came into the camp and few left at this time, allowing a longer period to train those who remained at the camp. Bispham’s most pressing problems evaporated with the Armistice in November. Barely more than a month later Camp Greenleaf was officially designated a demobilization camp, functioning as such until its services were completed in January 1919.<sup>15</sup>

### *Training Camp Programs*

Although the character of the medical training camp programs varied to meet Medical Department expectations, inevitably shortages of trained personnel, space, and time necessitated compromises. Nevertheless, as the need for medical officers, for specialists, and for enlisted medical personnel became ever more urgent, the most fundamental objective was unchanging: The good of the Army, and not that of



*Edward L. Munson*

<sup>13</sup> Ibid., pp. 53, 54 (quoted words).

<sup>14</sup> Ibid., pp. 54–55 (quoted words), 56.

<sup>15</sup> Ibid., pp. 26, 86–87, 286 (187n); Tenny, “Training Camp,” p. 401.

the individual, must be the primary concern. As a physician being trained at Camp Greenleaf in the summer of 1918 ruefully concluded, “In every way the individual soldier may be immolated if such be a benefit to the whole organization.”<sup>16</sup>

With few experienced instructors available, camp programs had to be modified so that the best qualified neophytes could assist in training their colleagues. They often redesigned courses to the extent possible so that those forced to enter them midcycle were not seriously handicapped. The fact that few men would be able to finish the entire course led to still further modifications. Adaptations were also made to ensure that even the least qualified enlisted men sent to the training camps would prove useful to the Medical Department. The goal of providing the maximum possible amount of training to the maximum possible number of men remained unchanged, but the means used to achieve that goal varied according to circumstance and feasibility.<sup>17</sup>

The medical officers training program entailed three months of instruction as preparation for service with troops in the zone of operations. The first step called for a general examination to determine professional competence. A physician who claimed the skills of a specialist was examined in his area of expertise. During this stage the officer’s life resembled that of the enlisted men, an approach believed to provide him with a better understanding of how to manage his subordinates and to teach him “that he is a part of a machine and no longer an individual who can do as he wishes.” The Medical Department had wanted the training companies into which students were organized to be commanded by regular medical officers, but their shortage forced this approach to be abandoned.<sup>18</sup>

Course instruction for medical officers involved recitation rather than lecture, with the main emphasis upon learning through doing. In the early weeks the students learned about Army regulations and similar matters, which became their primary focus; later they received necessarily brief instruction in those aspects of surgery, cardiovascular and pulmonary diseases, orthopedics, and war psychoses and neuroses that were most significant to military medicine. While in training, they performed no professional work but were detailed to various sanitary formations to serve as instructors for new companies, to drill squads of enlisted men, and to teach members of their units about personal hygiene. Because medical officers had to be able to instruct their subordinates in all aspects of field sanitation, they had to learn enough about military tactics to give them an understanding of the goals of the commanding officers of whatever units they served. They also underwent practical training in the areas of managing messes, handling rations, and dealing with paperwork.<sup>19</sup>

The more training an officer had undergone, however, the more likely he was to be assigned to special training or sent to duty elsewhere, given that newly organized units had to take physicians with them. Thus the period that many officers spent in the basic course might be no longer than two or three weeks. After seven

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<sup>16</sup> From Camp Greenleaf to France folder, p. 79 (quotation), Ms C308, Marquis Papers, NLM.

<sup>17</sup> WD, SGO, *Training*, pp. 73, 253–56.

<sup>18</sup> *Ibid.*, p. 603 (quoted words); WD, *ARofSG*, 1919, pp. 1128, 1132.

<sup>19</sup> WD, SGO, *Sanitation*, p. 19; *idem*, *Training*, pp. 2–3, 8, 188, 208; Gustavus M. Blech, “The Military Aspect of Base Hospitals,” p. 508; WD, *ARofSG*, 1919, pp. 1128–31.

months of experience with this system, the commandants of the various medical officers training camps concluded that little would be gained by revising its content. Nevertheless, once the initial needs of units to serve in the field were met, the Medical Department created a two-month “abridged” version of the basic course for those medical officers who, because of their status as members of the Red Cross–formed base hospitals or because of their age or lack of fitness, could not serve at the front and would, therefore, probably be assigned to the Line of Communications. By the summer of 1918 even this course had been shortened to six weeks.<sup>20</sup>

Training enlisted men also formed an important part of the program at the medical officers training camps. Much of the military side of the medical officers’ education involved learning to command subordinates, most of whom were volunteers. After the mobilization camps opened, the War Department sent those who had completed their training at the medical officers training camps to the mobilization camps, to work either in the divisions or in the base hospitals; there they formed the nucleus around which local commanders built units, which were brought up to strength by transferring inductees. All who served in the regimental detachments that manned aid stations, the ambulance companies, and the field hospital companies of a division’s sanitary train, as well as those in evacuation hospitals and their ambulance companies, however, went through the medical officers training camps, as did more than half of the enlisted personnel who served in various other capacities. To meet the high rate of casualties that was anticipated among ambulance units in the American Expeditionary Forces, medical training camps also trained replacement units.<sup>21</sup>

Although instruction at the three major camps was similar for both officers and enlisted men, Camp Greenleaf’s program in time became by far the most complex because of its longevity, eventual size, and the vision of its first commandant, Col. Henry Page, MC. Named to the post on 19 May 1917, Colonel Page endeavored to transform his command into “the greatest clinical center, as well as medical training camp, in the world.” Colonel Ashburn, however, concluded that much of the effort involved in attempting to transform Camp Greenleaf into “a university” was wasted because too much was attempted.<sup>22</sup>

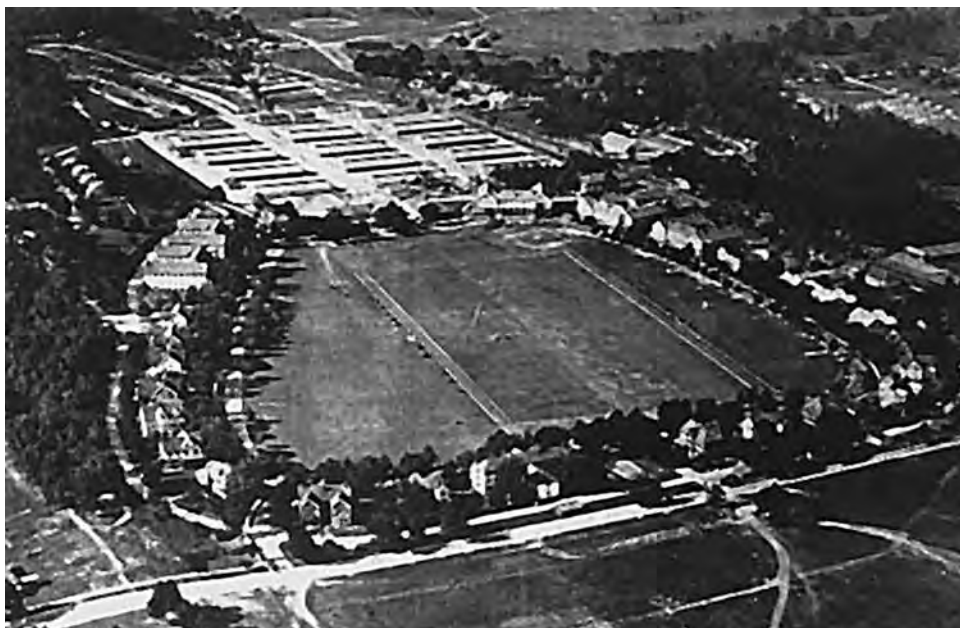
The centerpiece of the training program as Colonel Page envisioned it was the hospital that served the Fort Oglethorpe mobilization camp. He wanted it to have 2,500 beds and the capacity for expansion as far beyond that number as might be needed “to furnish abundant material for clinical courses and adequate instruction.” After the hospital was duly enlarged and put under Page’s command, he reorganized it to serve as a teaching facility, adding students to its staff and placing each clinical department under the control of the school that

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<sup>20</sup> WD, SGO, *Training*, pp. 14 (quoted word), 78, 169, 259–60, 602, 603; WD, *ARofSG*, 1918, pp. 409–10; From Camp Greenleaf to France folder, p. 79, Ms C308, Marquis Papers, NLM.

<sup>21</sup> WD, SGO, *SGO*, pp. 174, 355; idem, *Training*, p. 604; War Department, Office of Chief of Staff, *Field Service Regulations, United States Army, 1914, corrected to April 15, 1917*, pp. 152–55; S. J. Morris, “History of the Overseas Division, Surgeon General’s Office, During the War Period,” pp. 193–94.

<sup>22</sup> WD, SGO, *Training*, pp. 276 (2n), 603 (first quotation); Ashburn, *History of MD*, p. 303 (second quotation).



*Aerial view of Fort Oglethorpe, Georgia, showing Camp Greenleaf; (below) Camp Greenleaf, showing cantonment buildings*



taught the specialty involved. Cases from the camp itself, together with those specially chosen from among the men at the ten mobilization camps nearest Fort Oglethorpe and from those at Fort Oglethorpe itself, were to be the “abundant material.”<sup>23</sup>

Determining the competence of the newly arrived physicians at Camp Greenleaf was a growing challenge. To a significant extent the cream of the profession joined the Army in the early months of the war, while the skills of some of those reporting for training in the later months were open to serious question. The Army’s need for physicians was too great, however, to dismiss officers of questionable competence without an attempt to salvage them. Those found to be less than well-qualified professionally had to take remedial courses above and beyond the basic course and to pass another examination. Any medical officer who failed the second test went before a special board that decided whether he should be dismissed from the service.<sup>24</sup>

At Camp Greenleaf new recruits were isolated for approximately two weeks so that any diseases they brought with them would not spread to other men, and the new soldiers received immunizations. Because illiteracy was a major problem for the Army, reflecting in part the number of non-English speaking aliens who were drafted, the illiterates among the recruits at the camp were provided with remedial classes; in July 1918 the War Department ordered that schools be set up to teach English Army-wide and that attendance be mandatory. Noncommissioned and commissioned officers trained the recruits as part of their own training. Two-week classes in venereal disease prophylaxis made it possible to send out a few men as “missionaries in the prevention of venereal diseases.” Although various modifications and refinements of the overall approach were tried in the effort to transform enlisted men, some of them green recruits, into noncommissioned officers, the basic concept continued to guide both the training of noncommissioned officers and the organizing of small units, among them sanitary squads, mobile operating units, and convalescent camps.<sup>25</sup>

Until a replacement group could be created at Camp Greenleaf, Medical Department enlisted men went directly from the recruitment camp there either to one of the various medical detachments throughout the United States or to a replacement unit abroad. Thereafter they joined the camp’s replacement unit and left from there to fill in gaps elsewhere. Basic training continued within the replacement group. Camp authorities also attempted to divide and assign men according to their abilities and previous experience, but they sometimes lacked the time required to determine their capabilities. In other instances the calls for men without specific qualifications were so great that necessity dictated sending out men who had special qualifications in response. Because no tables of organization existed to classify personnel until the fall of 1918, camp authorities had to create tables of their own to guide the assignment of men. Authorities could then use the tables

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<sup>23</sup> WD, SGO, *Training*, pp. 88, 603 (quoted words).

<sup>24</sup> *Ibid.*, pp. 71, 72, 89; Dana, “Doctors in Uniform,” pp. 350–51; From Camp Greenleaf to France folder,” pp. 6–7, Ms C308, Marquis Papers, NLM.

<sup>25</sup> WD, SGO, *Training*, pp. 45–46, 58–59 (quoted words), 68; White, “American Military,” in Karsten, ed., *Military in America*, pp. 301–03.



*Cantonment personnel mill and first drill*



to requisition appropriate enlisted personnel from the replacement group for new organizations and quickly initiate intensive training.<sup>26</sup>

In the effort to meet organizational standards, Camp Greenleaf authorities in the summer of 1918 created a development battalion as part of the replacement group. The Army had initially developed this concept in May 1918 in order to treat, train, and salvage for some kind of service those who could not effectively function as members of other units, whether because of orthopedic problems, venereal disease, a lack of effective command of the English language, or some similar problem. Also among those training at the medical camps were conscientious objectors, considered to be “useless for any military purpose.” Even including conscientious objectors, however, the Medical Department never had more than a fourth to a third of the enlisted men called for by organizational standards. As a result, because their services were so acutely needed elsewhere, some trainees had to be pulled out of training as soon as they could be equipped.<sup>27</sup>

### *Specialty Training*

Nevertheless, for both enlisted and officers, the need for training well beyond indoctrination in military customs was soon obvious. Experience had revealed that the instruction in the specialties offered by civilian medical schools was inadequate to familiarize the physician with the Army’s unique needs and thus that even those who were specialists in civilian life required further training to enable them to meet the Medical Department’s qualifications. Some attempt was made at all three camps to offer this type of training, but this instruction was more likely to qualify students to be assistants than true specialists in their fields.<sup>28</sup>

In June 1918 a conference between the Training Division and the various professional divisions of the Surgeon General’s Office inspired a formula to guide decisions about how many medical officers should be trained for each major specialty or area of concentration. Half of every 1,000 medical officers being trained, all of them physically and mentally vigorous, were to be prepared to work in the zone of operations. Of this number, half should be ready to work at the regimental level and the other half with either field hospitals or ambulance companies. The first 500 men should be general practitioners or men with experience in sanitation and should ideally undergo basic training for three months; the remaining 500 should go through a minimum of two months of basic training before assignment to the services of the Line of Communications. The latter group could include older or less vigorous men, for whom a less demanding physical training program and/or specialized training would be organized.<sup>29</sup>

<sup>26</sup> WD, SGO, *Training*, pp. 20–21, 43, 44, 45, 52, 85, 86.

<sup>27</sup> *Ibid.*, p. 604; WD, *ARofSG*, 1918, pp. 409–10; White, “American Military,” in Karsten, ed., *Military in America*, p. 303; Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States, 1775–1945*, p. 309; Dana, “Doctors in Uniform,” p. 352 (quoted words).

<sup>28</sup> WD, SGO, *SGO*, p. 353; *idem*, *Training*, pp. 6; WD, *ARofSG*, 1919, p. 1133.

<sup>29</sup> WD, SGO, *Training*, pp. 80, 87–88; From Camp Greenleaf to France folder, p. 47, Ms C308, Marquis Papers, NLM.



The Medical Department expected nonphysician officers to take as much of the basic course as was applicable to their work, but also offered two-month courses at the medical officers training schools specifically for dentists; for veterinarians; and for various specialists from the Sanitary Corps, including sanitary engineers, psychologists, and nutritionists. For the enlisted men who would be assisting these officers at the camps, the department also set up a course to train ward men; surgical, laboratory, or X-ray assistants; clerks; cooks; chauffeurs; and gas engine mechanics. Classes in automobile maintenance were available for both officers and men.<sup>30</sup>

The greatest variety of instruction in the various specialties was found at Fort Oglethorpe's Camp Greenleaf. Some of the courses offered involved specialties not commonly found in civilian life, among them public sanitation. The first specialized institution to open was the School of Military Hygiene, which reflected the conviction that mobilization camp authorities needed an understanding of sanitation from the outset. The training offered was intensive, for sanitation was not a field with which most civilian physicians were familiar. The exact nature of the curriculum evolved with the passage of time. As later discovered, too much time was devoted to theory at the expense of practice. Nevertheless, the school's efforts must have contributed significantly to the excellent sanitation that was characteristic of Camp Greenleaf. As one medical officer trained there noted, "The entire camp and its surroundings are kept clean. Not anything nourishing to a fly is left exposed for its sustenance. . . . Mosquitoes also should find in the natural conditions here an inviting field for breeding and thriving. But they are remarkably scarce. . . . Their elimination has been accomplished by an effort scientific but simple—oiling standing water."<sup>31</sup>

As they did for many specialty courses, camp authorities chose participants in the sanitation course on the basis of any relevant previous experience. As was so often the case in the course of training specialists, they eventually found it necessary cut back on basic training, in this instance to a month, before sending the students on to begin their specialized instruction. Authorities regarded "mental attitude, adaptability, energy, and diplomacy" as important characteristics, promptly sending back to the basic course those who were lacking in this regard but had managed to slip by scrutiny. Beginning in January 1918, sanitary engineers of the Sanitary Corps took a two-month course at a "subschool" of the School of Military Hygiene in order to acquire the "rather broad medico-military knowledge" they would need to take charge of divisional sanitary detachments.<sup>32</sup>

The School of Applied Surgical Mechanics, created in the fall of 1917, addressed a need more common in the Army than in civilian life. Here as many officers as possible received training in caring for gunshot wounds and splinting fractures in a military context. Most of its students were physicians destined for the

<sup>30</sup> "Camps of Instruction," p. 729; WD, SGO, *SGO*, p. 173; idem, *Training*, p. 15; Ashburn, *History of MD*, p. 367; "Medical Training Camps," pp. 137–38.

<sup>31</sup> WD, *ARofSG*, 1919, p. 1139; Ashburn, *History of MD*, pp. 302–03; WD, SGO, *Training*, pp. 89, 91; From Camp Greenleaf to France folder, pp. 19, 20 (quotations), Ms C308, Marquis Papers, NLM.

<sup>32</sup> WD, SGO, *Training*, pp. 91, 92, 93 (first quoted words), 94, 96 (remaining quoted words), 97; WD, *ARofSG*, 1919, p. 1139.

orthopedic service of evacuation hospitals, and much of the work they did at this point involved the use of plaster and gelatin casts, of which they created a museum of casts to be used in teaching military surgery. At about the same time, a school for the care of the feet opened for selected noncommissioned officers and all student medical officers, who learned there how to fit shoes, treat minor foot injuries, and use exercises to reclaim for the servicemen who otherwise would have been discharged because of flatfeet.<sup>33</sup>

In December 1917 the two schools merged to become the School of Military Orthopedic Surgery, where medical officers acquired basic training in orthopedics and orthopedic assistants learned to handle orthopedics in field hospitals and in some instances in base hospitals. As so often happened, the pressure of time forced a shortening of the basic course for the enlisted men and officers involved, but their training in the practical aspects of dealing with foot problems continued. After the Armistice on 11 November 1918 the number of students at the School of Military Orthopedics dwindled, and, until the school closed on 24 December 1918, the emphasis turned to preparing students to deal with surgery involving the problems of convalescents or patients with chronic problems returning from overseas.<sup>34</sup>

With the advent of 1918, another specialized school opened at Camp Greenleaf. In January the School for Military Roentgenologists became the second of its kind, the first being established at Fort Riley's medical officers training camp. The field of roentgenology was relatively new, and selecting those with previous experience or training proved a considerable challenge. The school eventually resorted to picking up all those who had not been assigned to some other specialty but who tested well in surgery, because roentgenologists at the front would be required to work with surgeons to locate foreign bodies and study fractures and because X-rays were not used for treating disease. The school also provided illustrated lectures and demonstrations to students in other schools at the camp.<sup>35</sup>

Turning out the many specialists in roentgenology that the Army needed required more instructors, and authorities had to turn to the school's new graduates to teach subsequent classes. For the more technical and mechanical aspects of instruction, the school relied entirely on Sanitary Corps officers and enlisted men. With the hospital serving Fort Oglethorpe overcrowded and with space a limiting factor, some facilities used tents until a new school building could be completed. Once again, the course had to be shortened so that more students could be trained. Most of the work done overseas was relatively simple and undemanding, but in the belief that these specialists would be needed in military hospitals in the United States even after the war was over, authorities kept the school, unlike many others, in full operation through the end of 1918. The school was closed at the end of the year, and much of its equipment was sent to the Army Medical School in Washington D.C.<sup>36</sup>

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<sup>33</sup> WD, SGO, *Training*, pp. 107, 108.

<sup>34</sup> *Ibid.*, pp. 108, 109, 110, 113, 179; WD, *ARofSG*, 1919, p. 1135.

<sup>35</sup> WD, SGO, *Training*, pp. 137, 140, 141, 210; "Medical Training Camps," pp. 137–38; Willis F. Manges, "The Camp Greenleaf School of Roentgenology," p. 305.

<sup>36</sup> WD, SGO, *SGO*, pp. 469, 470; *idem*, *Training*, pp. 137, 138–39; WD, *ARofSG*, 1919, 1136; Manges, "Roentgenology," pp. 306–08.

Another school at Camp Greenleaf reflected the new but intense hope that those with mental or emotional weakness could be identified before they could precipitate expensive problems for the Army. As a result of the joint efforts of the National Research Council's Committee on Psychology and the Division of Psychology in the Surgeon General's Office, the School of Military Psychology was established in January 1918. Its mission was to provide training in the identification of recruits who might be mentally unsuitable for military service. Until a specific course could be established for them, they received the same basic training as medical officers. Classes were quickly set up to familiarize them with the "subjects they should know under the conditions in which they would practice their specialty," which included what was termed "the system of morale work." The two-month course covered instruction in organizing and administering psychological tests and the related paperwork, in using statistical methods, in conducting both group and individual examinations, and in identifying those who were mentally incompetent as well as those who were malingering. Twenty-five to fifty enlisted men at a time were also to be trained at the school, with the expectation that some eventually could function as commissioned psychologists in the Sanitary Corps.<sup>37</sup>

The medical instructors of the medical officers training camp and the commanding officers of battalions and companies there handled general instruction in matters related to psychology. Class work included lectures on political and religious beliefs of conscientious objectors and on the psychological aspects of the treatment of those who had been seriously injured in mind or body in the course of the conflict. Little formal instruction was possible, however, until 1 October 1918 because psychologists were deeply involved in administering psychological examinations to members of the other organizations at the camp, among them medical officers, a process that provided practical instruction.<sup>38</sup>

Among the many other specialized schools at Camp Greenleaf were the Laboratory School, opened in January 1918, and the School of Urology, especially important in view of the threat of venereal disease, which opened in February. Greenleaf's short-lived cardiovascular school (this instruction continued at Fort Riley) and the equally short-lived school to train students in examining lungs were combined to form the School for Internal Medicine in April 1918. By this point, however, the demand for physicians had become so great that few could complete the entire course. Although the greatest attention continued to be placed on diseases of the upper body, the school also emphasized instruction in handling physical examinations, and in July it added courses in general medicine and gastroenterology. The influenza epidemic in October brought the school's work to a "standstill," with the efforts of all of its instructors and many of its students devoted entirely to the sick, either at Fort Oglethorpe or at other camps.<sup>39</sup>

<sup>37</sup> WD, SGO, *SGO*, pp. 395, 397, 398, 571, 659; idem, *Training*, pp. 100 (first quoted words), 101, 102–14, 179 (second quoted words).

<sup>38</sup> WD, SGO, *Training*, pp. 104, 105, 107; From Camp Greenleaf to France folder, p. 6, Ms C308, Marquis Papers, NLM.

<sup>39</sup> WD, SGO, *Training*, pp. 53, 100 (quoted word), 131–32, 152–53; WD, *ARofSG*, 1919, pp. 1136, 1138–39; Ltrs, SG to Glentworth R. Butler, 1 Apr 1918, and Lewis H. Conner to Butler, 21 May 1918; Ms C38, Glen[t]worth Reeve Butler Papers, 1917–1919, NLM.

Schools to teach otolaryngology and neurosurgery, created in May 1918, also offered lectures given by specialists in related fields. Experts in roentgenology and anesthesiology taught students in otolaryngology, as did the director of the School of Neurosurgery. With many patients at the base hospital to serve as subjects and many students to teach, the School of Otolaryngology grew rapidly. The School of Neurology, however, closed not long after it opened because of the difficulty of finding a sufficient number of either qualified instructors or patients in need of surgery. When it reopened in November 1918 with twenty students, staff members from other schools handled much of the instruction. Instructors included physicians from the other schools, such as Otolaryngology, Roentgenology, Ophthalmology (established in August 1918), and Plastic and Oral Surgery (established in October 1918). Under these circumstances, the school could offer only the most fundamental training, so those in need of further instruction would have to attend other institutions. By the time the School of Neurosurgery closed at the end of December 1918, only seven of the original twenty students were found qualified for assignment as assistants or ward surgeons in the neurosurgery service, many of the remainder having been discharged from the service or transferred before completing the course.<sup>40</sup>

In August 1918 classes started at two more new schools, the School of Military Surgery and the School of Anatomy. The School of Anatomy was initially part of the School of Military Surgery, but it quickly began to take in students from other schools for training, as experience demonstrated that the average physician forgot within a few years much of what he had studied on the subject in medical school. Because of fears about “the undesirable impression sure to be made among the great number of recruits here,” Colonel Munson, who became commandant of Camp Greenleaf in the spring of 1918, agreed to accept the offer of the University of Chattanooga to donate room for anatomy classes. Cadavers came from various sources, among them the University of Chattanooga, Vanderbilt University, and prisons and charitable institutions. Because even these sources did not provide enough material for classes in operative surgery, an order was put out that all dogs found running loose at Fort Oglethorpe “should be caught for this work.”<sup>41</sup>

The School of Military Surgery, whose basic goal was training medical officers to function as surgical assistants, started out as part of the School of Applied Surgical Mechanics. After August 1918 the Surgeon General’s Office required that, having completed two weeks of basic training, all officers destined for work as surgeons enroll in a six-week course at the School of Military Surgery, beginning with study in the School of Anatomy. The office expected those who failed the course in military surgery to be sent back to the basic course and removed from the list of those to be reserved for assignment as surgeons. In retrospect, Surgeon General Merritte W. Ireland later concluded that the course would have been better had less time been given to “lectures of a didactic nature” and more to “the details of surgical diagnosis and technique and to general surgical pathology.”<sup>42</sup>

<sup>40</sup> WD, SGO, *SGO*, p. 457; idem, *Training*, pp. 116, 117, 121, 122, 123, 124, 132, 454.

<sup>41</sup> WD, SGO, *Training*, pp. 113, 145 (second quoted words), 146 (first quoted words); WD, *ARofSG*, 1919, p. 1134.

<sup>42</sup> WD, SGO, *Training*, pp. 113, 114; WD, *ARofSG*, 1919, 1135 (quoted words).

A few schools opened so late in 1918 that their usefulness during the course of the war itself was limited, although, of course, their expertise would be valuable to those receiving treatment for their wounds after the end of the conflict. The School for Plastic and Oral Surgery conducted only two courses, one that ended on 16 November and a second ending a month later. The School of Epidemiology opened at Camp Greenleaf after the down-sizing of the Fort Riley camp and just at the time of the war's abrupt end.<sup>43</sup>

Camp Greenleaf also conducted specialty schools to train officers in the other Medical Department corps. Instruction designed exclusively for veterinary officers began in February 1918, with the formation of a training company. Because of special arrangements, veterinarians were excused from basic course lectures not relevant to their specialty, permitting them to have several hours a day free for "instruction in veterinary matters." Until mid-June, however, no veterinarians were available to serve as instructors at Camp Greenleaf, and even after this date instructors were few in relation to the increasing numbers of students. An instruction company for enlisted men was also set up at the Veterinary School.<sup>44</sup>

Specialized courses for Sanitary Corps officers were offered at the School of Nutrition, established in March 1918. The position of nutrition officer was not authorized until July, however, and teaching did not start until September. Students received instruction about the principles of nutrition, the physiology of digestion, the fundamentals of mess cooking, food inspection, mess accounting and management, and similar topics. In June 1918 a school to train Sanitary Corps officers to be adjutants, registrars, and mess officers also opened, its students all noncommissioned officers chosen for their potential.<sup>45</sup>

The Dental School opened in March 1918 to indoctrinate new dental officers about the military approach to their profession and to provide them with physical conditioning. During the first month the students took the basic course for medical officers; thereafter, they studied such matters as managing paperwork, packing and setting up their equipment, and running a dental clinic, like the one in which they worked to gain practical experience. When necessary, they also attended other schools, especially the School of Military Roentgenology. Late in the summer of 1918 the dental school began to teach about the prostheses that were being used in France. Like the other specialized schools at the camp, it ceased its work not long after the end of the war.<sup>46</sup>

Many dentists and veterinarians who had signed up for the Enlisted Reserve Corps were now being activated as enlisted men, but students in dentistry and veterinary medicine who were still working to obtain their graduate degrees were usually not called up until they received them. After the organization of the Dental and Veterinary Schools, the Medical Department decided to assign dental and veterinary students finishing in the top half of their classes to these schools for further training and to call those in the lower half to duty as privates. The situation in the

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<sup>43</sup> WD, SGO, *SGO*, p. 460; idem, *Training*, p. 132; WD, *ARofSG*, 1919, 1137, 1140.

<sup>44</sup> WD, SGO, *Training*, pp. 163, 164 (quoted words), 166, 177.

<sup>45</sup> *Ibid.*, pp. 155, 157, 158, 159, 169, 170; WD, SGO, *Sanitation*, p. 192.

<sup>46</sup> WD, SGO, *Training*, pp. 160, 161, 162, 163, 178; Franklin Martin, "Council of National Defense, Committee on Medicine," p. 551.

Dental Corps, however, was unique. So many commissions had been granted by the summer of 1918 that the department temporarily halted giving them to new graduates, even to those whose records were so promising that they would otherwise have reasonably expected to become officers.<sup>47</sup>

The schools at Forts Riley and Oglethorpe also offered a specialized course that made no pretense of creating medical specialists, the School of Gas Defense. In late November 1917 the Camp Greenleaf school began operations with the opening of a “gas house” and a “gas field” where gas training could take place. The Army required all, officers and enlisted alike, to participate. Enlisted men took twelve hours of instruction—five involved drill wearing gas masks; two, learning about the various forms of gas and how they spread; and five, training at the gas school. Instruction given officers was similar but more complex, for it included the theories behind the use of gas and defense against it.<sup>48</sup>

### *Army Medical School*

Although a temporary institution, the Army Medical School was the longest-lived of the medical officers training schools. It and the facilities available to it in the Washington area remained a permanent resource for instructing both medical officers and enlisted men for the Medical Department. Formerly used principally to train new members of the Medical Corps in their responsibilities as Army officers, the school was increasingly called upon to arrange additional postgraduate education for both regular and reserve medical officers. It had to add civilians with special skills to the list of lecturers and new courses to the curriculum.<sup>49</sup>

Those attending the Army Medical School during the two twelve-month sessions and part of a third conducted during the war could take a number of new courses, among them instruction in French. A short course for surgeons assigned to transports was also created, and the new course set up in orthopedics utilizing the wards and clinical material available at the Walter Reed General Hospital later became a permanent part of the curriculum. Such skills as making braces and working leather and plaster were taught to enlisted men being prepared to assist orthopedists. While students were being vaccinated against typhoid and two forms of paratyphoid fever and smallpox and trained in gas defense, instructors familiarized officers and men anticipating service overseas with the uniforms that they would be wearing, the equipment they would be using, and the management of their finances. Mobile field laboratories were also organized and their personnel trained at the medical school before being sent overseas.<sup>50</sup>

The school had to make changes in teaching methods to train as many men as quickly as possible. Lectures no longer formed the backbone of the course. To crowd more material into a limited amount of time, quizzes based on material

<sup>47</sup> WD, SGO, *SGO*, p. 168; idem, *Training*, p. 178.

<sup>48</sup> Ashburn, *History of MD*, p. 315; WD, SGO, *Training*, pp. 167 (quoted words), 168, 169, 184, 189; From Camp Greenleaf to France folder, p. 26, Ms C308, Marquis Papers, NLM.

<sup>49</sup> WD, SGO, *Training*, pp. 393–94, 398, 407, 418.

<sup>50</sup> Ibid., pp. 397–407, 411, 413, 417, 422; WD, SGO, *SGO*, p. 429.



*Army Medical School, Washington D.C.*

read became the principal tool of instruction. Laboratory sessions spent conducting chemical examinations of urine, water, milk, samples of bleaching powder, and similar specimens in order to teach what was called sanitary chemistry had to be modified and condensed into a shorter form.<sup>51</sup>

The Medical School laboratory, while continuing and expanding its accustomed role as the site of Wassermann tests for syphilis and similar laboratory examinations and of research in the diseases that most threatened the Army's effectiveness, also contributed to the education of hundreds of enlisted men studying laboratory techniques. Students were classified as either beginners or advanced, and a new class began for each group every month; of 900 trainees, 92 received commissions in the Sanitary Corps. The school also provided classes for enlisted X-ray technicians, teaching them not only about maintaining equipment but about making and developing pictures. Training to handle the latter responsibility required some instruction in "osteology to enable them to intelligently make plates of the parts of

<sup>51</sup> WD, SGO, *Training*, pp. 399–400, 405; "Medical Officers' Training Camps," pp. 561, 562.



*Motion picture film drying racks at the Instruction Laboratory, Army Medical Museum*

the body requested by the surgeon.” All of this activity taking place at the Medical School dictated the rental of additional buildings.<sup>52</sup>

The Army Medical Museum, long a repository for specimens of particular interest to the medical world and a resource for the Army Medical School’s classes in pathology, also contributed to the effort to enable as many medical officers as possible to better meet wartime demands. The museum created an instruction laboratory with three departments, for still photography, for moving pictures, and for anatomical art, to be used not only by the Medical Department but also for the Army as a whole. Slides, moving pictures with such titles as “The Field Hospital Unit,” “Mosquito Eradication,” and “Fighting the Cootie,” paintings, drawings, and models were turned out to be used as teaching aids. Wax models demonstrated wounds, skin diseases, and the results of plastic surgery. Material designed to

<sup>52</sup> WD, SGO, *Training*, pp. 393, 413, 417 (quoted words), 418–19.





*Lantern slide sets developed by Army Medical Museum for instructional use*

educate soldiers about venereal disease or to improve morale emanated from the museum. Lecturers speaking at medical schools throughout the United States used material supplied by the museum to demonstrate what the Medical Department was doing. Even during the last months of the war medical officers and enlisted men were able to see pictures of actual operations taking place in the field in Europe.<sup>53</sup>

### *Other Special Schools and Programs*

Several special schools were created outside the medical officers training camps to train medical personnel. Two of them were designed to assist in preparing veterinary personnel for their duties, the instruction at the medical offi-

<sup>53</sup> Ibid., pp. 422, 466, 467; C. F. Craig, "The Army Medical Museum," p. 683.

cers training camps having been deemed inadequate. The first provided training for veterinarians involved in inspecting the Army's food supplies. The School of Meat and Dairy Hygiene and Forage Inspection was established in August 1917 in Chicago, a site chosen because of its reputation as a packing center. Although the school's first students were officers, enlisted men, most of them "exceptionally good packing-house men, well qualified and with considerable training in this particular line," soon joined them there.<sup>54</sup>

The second school was one specifically designed to provide both military and professional training to the personnel who would be caring for the Army's animals. Established at Camp Lee, Virginia, in January 1918 with a line officer as commandant and the addition of a senior instructor in April, the institution never reached its full potential. No buildings were available for permanent quarters, and for a time some of the students had to be sheltered in tents. When the school was enlarged, tents had to be pitched once again as temporary housing for some of the new students. Although a veterinary hospital was planned for the school, it was not entirely completed by the time the war ended. The lack of complete hospital facilities proved to be a handicap for the school.<sup>55</sup>

Yet another special school opened in May 1918, one for nurses. While the number of nurses already in the Army Nurse Corps plus those available for service in the Red Cross was sufficient to meet immediate needs, Medical Department leaders realized that a training program would be necessary to ensure that future wartime needs could be met. Involved in designing the program for the Army School of Nursing were Army Nurse Corps superintendent Dora E. Thompson; American Red Cross Nursing Bureau director Jane A. Delano, who was the former Army Nurse Corps superintendent; and Army Nurse Corps chief inspecting nurse Annie W. Goodrich, all of whom consulted with the nurses serving on the Council of National Defense's Nursing Committee. Surgeon General Gorgas also appointed a separate advisory council under Delano, consisting of five medical officers, the superintendent of the Navy Nurse Corps, and several nurses prominent in civilian nursing.<sup>56</sup>

The curriculum that was adopted, a standard version prepared by the Education Committee of the National League for Nursing Education supplemented by drill, assumed that students would have had four years of secondary work or its equivalent by the time they entered. Graduates, except for those who had been granted credit for education obtained outside a nursing school, would be eligible for registration in all states. The course was to last three years, with a nursing diploma presented to those who finished successfully. Most of the classes were to be given at the various hospitals, each of which would have its own director of nursing, staff of lecturers and instructors, and teaching equipment. Army student nurses were to study at civilian nursing schools those subjects required by the curriculum but not available at Army hospitals.<sup>57</sup>

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<sup>54</sup> WD, SGO, *Training*, pp. 423, 438 (quoted words), 439–40; Ashburn, *History of MD*, p. 304; James A. Tobey, *The Medical Department of the Army*, p. 49.

<sup>55</sup> WD, SGO, *Activities*, pp. 108–09; idem, *Training*, pp. 423, 424, 425, 427, 434–35.

<sup>56</sup> Ashburn, *History of MD*, pp. 304–05; WD, SGO, *Training*, pp. 442, 443, 469.

<sup>57</sup> WD, SGO, *Training*, pp. 381, 382, 441, 443, 447, 448; idem, *Military Hospitals in the United States*, p. 123; WD, *ARofSG*, 1918, p. 312.



*Dora E. Thompson*



*Jane A. Delano*

Some of the delays experienced in setting up the nursing program resulted from the fact that many of the chief nurses at the various hospitals were not familiar with the problems involved in training student nurses. Those with experience as executives or instructors had already been sent overseas, but the often incomplete educational and professional records of graduate nurses complicated the selection of “an efficient supervising staff” to replace the deploying chief nurses. Other difficulties were blamed on the fact that nurses had not been ranked, and thus a hierarchy with appropriate salaries for each level similar to those found in civilian nursing schools did not exist. Finally, when it was decided that student nurses would replace graduate nurses being sent to England and Europe, delays in moving the trained nurses overseas caused delays in finding adequate housing for new student nurses.<sup>58</sup>

The chief difficulty encountered in setting up the nursing school, however, involved efforts to enroll students. The Medical Department wanted to have prospective students agree to be put on a standby list, promising to sign up formally at any time up to 1 April 1919 if called. The goal was to have the names of 25,000 potential students by mid-August 1918. The Red Cross undertook the first steps of the massive recruiting campaign that was deemed necessary, but the Council of National Defense’s Women’s Committee, in cooperation with the council’s Nursing Committee, Surgeon General Gorgas, and the Red Cross bore the bulk of the burden. The first formal announcement went out on 7 June 1918, and within a week 25,000

<sup>58</sup> WD, SGO, *Training*, pp. 445–46 (quoted words).

This document is not a passport but is issued with the approval of the Department of State.

**UNITED STATES OF AMERICA.**  
**WAR DEPARTMENT.**

Form No. 821-2-A, G. O.  
Ed. Nov. 25, 11-2,000.

**CERTIFICATE OF IDENTITY.**

No. 17616 Place \_\_\_\_\_ Date JUL 30 1918 19\_\_

I certify that Emma Maxwell Broadbent is attached to the sanitary service of the United States Army, is authorized to accompany the Base Hospital No. 45 in the capacity of Nurse and is entitled to the privileges and immunities provided in Chapter III of the International Red Cross Convention of 1906. A brassard as prescribed in Article 20 thereof, which bears the same number as this certificate, has been issued to the person named. Identification data:

Female blue brown  
(Sex.) (Color of eyes.) (Color of hair.)

5' 5" 152 American  
(Height, approximate.) (Weight, approximate.) (Race.)

REMARKS: Small soar on upper lip to left of nose  
(Include here notation of scars, etc., visible when clothed, which will aid in identification.)

*C. H. Day Luff*  
(Signature of issuing officer.)

SARJ. A. H.  
(Rank and title.)





Index finger  
right hand.



Tip of finger  
this one.

*Emma Maxwell Broadbent*  
(Signature of bearer.)

*Certificate of identity for an Army nurse, 1918*

had been issued. Since the deadline was not met, the campaign was extended, but by the Armistice fewer than 11,000 applications had been received. The students had not progressed far in their studies by the time the Armistice was signed and thus “made no contribution, from the standpoint of numbers, to the nursing service in the war.” The Red Cross also provided nurse’s aide training for women without nursing experience so that they could assist nurses in their work.<sup>59</sup>

Because the new student nurses would not be able to make an immediate contribution and nurses were badly needed in both the United States and Europe, other avenues of obtaining nursing help for military hospitals were explored. Only unmarried young women were eligible for the nursing school, but the Medical

<sup>59</sup> Ibid., pp. 382, 443, 444; WD, SGO, *Military Hospitals*, p. 123 (quoted words).

Department decided to allow women who did not qualify because of age or married status to become hospital assistants in convalescent hospitals in the United States. Although technically not part of the Army School of Nursing, these women were administratively organized under a subordinate division. Here, too, plans had little chance to take effect by the time the war ended. For a short time after the Armistice, the nursing school continued to accept students. When the advisory council for the Army School of Nursing met for the final time in February 1919, it recommended that Congress create a permanent nursing school for the Army.<sup>60</sup>

The Medical Department also set up special schools for nonmedical personnel, among them a special school for mechanics opened in part of the Ford Motor Company's building at the ambulance assembly depot at Louisville, Kentucky, in August 1918. These men were temporarily attached to the War Department's Motor Transport Corps for duty, although they remained part of the Medical Department's personnel. Carnegie Institute of Technology in Pittsburgh, where both medical officers and enlisted were taught how to maintain and drive motor vehicles, offered advanced training in automobile engine maintenance.<sup>61</sup>

Mechanics were also among the students at Camp Crane in Allentown, Pennsylvania, which was initially the center for training U.S. Army Ambulance Service units but which eventually trained other organizations as well. Mechanics, needed to maintain the ambulances, a captain, noncommissioned officers, cooks, and privates and privates first class from the Medical Department served each Ambulance Service section. By early July 1917 some of the Medical Department's best noncommissioned officers as well as clothing and supplies had arrived at the camp, and it was settling "down to a comparatively normal routine." The experienced Medical Corps officer who was named head of the service at this time set to work promptly to arrange for incorporating units from both the American Red Cross and the American field service in France into his organization; three base hospitals left Camp Crane for overseas in July. During a brief visit to the camp before sailing for France, he arranged to have the twenty sections for which all the necessary equipment had been obtained follow him over. Fifty-two sections from the camp were in service in France by war's end. Units outside of the hospital and ambulance organizations were also mobilized at Camp Crane, among them optical units destined to supply eyeglasses to the American Expeditionary Forces.<sup>62</sup>

Because so many men were arriving at the same time, the original plan to take all training battalions through the camp's six-week training program in the same order proved impossible to execute. Thus, in the fall of 1917, the Medical Department improvised an approach that required that at any one time some units be in the classroom while others drilled and/or practiced marches. Officers enrolled in the course whenever they arrived. Although Medical Reserve Corps officers were initially assigned to Camp Crane, men promoted from the ranks gradually replaced them. By the time of the Armistice only a few medical officers were on duty with

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<sup>60</sup> WD, SGO, *Training*, pp. 444, 445; H. C. Connor, "The American Red Cross Assistance to the United States Medical Department in the United States," p. 411.

<sup>61</sup> WD, SGO, *Finance and Supply*, pp. 392, 697, 698–99, 705–06, 707; idem, *Training*, pp. 564–65; Ashburn, *History of MD*, p. 304.

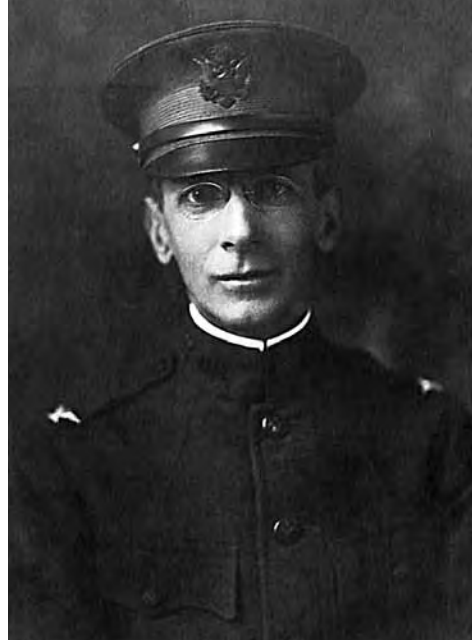
<sup>62</sup> WD, SGO, *SGO*, p. 447; idem, *Training*, pp. 292 (quoted words), 298, 299.

the Army Ambulance Service, with most of the commissions held by men who had entered it as privates. Because so many men and units were trained in spite of the haste, congestion, the shortage of experienced instructors, and the general turmoil that characterized the camp during its lifetime, the training program was regarded as having been, on the whole, a success.<sup>63</sup>

After October 1917 the training for many of the enlisted personnel for the Red Cross base hospitals was provided not through camps but by means of “a fully organized and thoroughly systematized course of instruction” implemented by the institutions sponsoring the hospitals. The men of each base hospital were divided into detachments to be assigned either to a hospital or to the camp. Many were premedical students, graduate students in one of the biological sciences, or even medical students, men for whom the standard courses in nursing and first aid were easily mastered. Hospitals in the same general area of an institution sponsoring a base hospital sometimes cooperated in training small groups.<sup>64</sup>

Programs set up in cooperation with various major civilian medical centers throughout the country provided the most advanced training that the Medical Department offered those selected as best qualified at the medical officers training camps. Unfortunately, the equipment at these civilian facilities was not always identical with that encountered in the Army by the students. The Army’s schools, which were managed through corresponding specialty divisions in the Surgeon General’s Office, functioned as part of these centers. Students whose work at the medical centers was considered unsatisfactory were reassigned, while those who succeeded went on to teach other medical officers.<sup>65</sup>

One of the Army’s schools that worked out a cooperative arrangement with a civilian institution was a laboratory school that started at Fort Leavenworth early in 1918 under the command of Lt. Col. Charles F. Craig, MC, whose skills were honed by his studies of the diseases afflicting the soldiers of the Spanish-American War and the Philippine Insurrection. Initially training in bacteriology was a prerequisite for the course, but the demand was so much greater than the supply of men



*Charles F. Craig*

<sup>63</sup> WD, SGO, *Training*, pp. 294–98, 299–300; Tenney, “Medical Officers’ Training Camp,” p. 405; Morris, “Overseas Division,” p. 193.

<sup>64</sup> WD, SGO, *Training*, pp. 387 (quoted words), 388.

<sup>65</sup> WD, SGO, *SGO*, pp. 162, 166–67; idem, *Training*, pp. 14, 377, 603; Ashburn, *History of MD*, p. 304; Manges, “Roentgenology,” p. 305.

with such training that authorities recognized that officers without this background would have to be included. As a result, two courses were established, one for those with good training in the field and the other for those without. A third course in bacteriology was designed to qualify enlisted men as laboratory technicians, one of its goals being to make the best use of enlisted men who were college graduates. Mobile laboratories were to be formed at Leavenworth and sent to the port of embarkation a month before the scheduled departure of any division.<sup>66</sup>

By the spring of 1918, however, the size of the classes had outgrown the available space, but neither Leavenworth itself nor Camp Greenleaf could provide adequate accommodations. Yale University then offered the Medical Department free laboratory space for 50–100 officers and 50–75 enlisted men located in New Haven, Connecticut, next to the New Haven State Hospital, whose clinical facilities were also made available. The university provided dormitory space for all students, setting the rent for enlisted men at the government allowance for quarters. The Medical Department purchased all equipment, except the largest, and all chemicals and other materials used in teaching. The transfer occurred quickly, and the classes began in their new home on 1 August 1918. The new facilities, too, soon proved inadequate to meet the needs of the rapidly growing student body, but within eighteen days Yale built a new two-room building next to the laboratory where “ideal laboratory classrooms for the school” could hold 100 officers and 200 enlisted men at a time.<sup>67</sup>

All officers studying at Yale took both a five-week clinical microscopy course and a chemistry course. Only two officers worked with each field laboratory, one a chemist and the other a bacteriologist, but authorities concluded it would be wise to have each man familiar with both specialties. Chemists required to study bacteriology generally proved to be most interested in the subject, and some became quite good in the field, but “it was found that it was difficult to make a good chemist of a bacteriologist.” Most of the officers took the course in pathology, which included instruction in autopsy and museum technique, but by the war’s end only a few had completed the classes.<sup>68</sup>

By the end of the war course refinements made it possible to train a skilled laboratory officer within eight weeks and a well-qualified technician in six. The influenza epidemic and the shortage of medical officers in the fall interfered with training in the last weeks of the war and delayed sending units abroad. Other students went for further training to the school at the Rockefeller Institute, to the Bureau of Mines experimental station, to the pathological section of the Chemical Warfare Service, and to similar assignments. With the end of hostilities, officers and enlisted men gradually left the Yale program either for assignments at the various Army laboratories in the United States or for discharge.<sup>69</sup>

The effort to train neuropsychiatrists for the Army also came to involve military-civilian cooperation. The Army’s relatively recent recognition of the mental and emotional problems that a soldier could experience in war, as well as the scar-

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<sup>66</sup> WD, SGO, *SGO*, p. 970; idem, *Training*, pp. 459, 462; “Training,” pp. 229, 231.

<sup>67</sup> WD, SGO, *Training*, pp. 459–60 (quoted words).

<sup>68</sup> Ibid., pp. 463, 464 (quotation).

<sup>69</sup> Ibid., pp. 460–61, 464.

city of psychiatrists, neurologists, psychologists, and attendants with military experience who were familiar with these problems, presented a formidable challenge to the Medical Department. Merely the creation of the Division of Neuropsychiatry in the summer of 1917 represented a significant innovation. A psychiatric department at the Leavenworth Disciplinary Barracks was studying the relationship of psychological abnormalities and criminality and had concluded that this specialty could be useful in dealing with disciplinary problems, but the Medical Department had not developed any examinations to determine the mental fitness of recruits or applicants for commissions. Thus essentially all at one time, the department needed to train large numbers of medical officers in this field and to develop statistics concerning the relationship of mental problems to disciplinary problems.<sup>70</sup>

Several civilian organizations also developed courses in neuropsychiatry for the Army, including among them the Neurological Institute in New York City; the Psychopathic Hospital in Boston; the Psychopathic Hospital at Ann Arbor, Michigan; the Philadelphia General Hospital; the Mendocino State Hospital in Talmage, California; the Phipps Clinic in Baltimore, Maryland; and St. Elizabeth's Hospital in Washington D.C. The directors of the new Army schools were generally the superintendents of the institutions giving the instruction. They, in turn, found many prominent specialists to assist in conducting the classes. In time a course was developed for psychiatric social workers as well, in anticipation of their being needed to assist in the care of patients being returned from Europe.<sup>71</sup>

These schools could not follow the principle adopted for so many other specialty schools, namely, that only those with some experience in the field should be given additional training. Too few students had any background whatever in the specialty of neuropsychiatry. Designing a course was difficult because of the varied training of those named to attend. Some had a strong background in neurology but little in psychiatry, while others were well trained in psychiatry but knew little of neurology. The Army so badly needed specialists in the field that many could not complete the six-week course, which had to be modified to take this fact into account. On the other hand, some students stayed at these institutions even when classes were not in session, once again learning by doing. Only 20 percent of those completing the course were considered to be qualified in neuropsychiatry. The great need for this type of specialist when the mobilization camps first opened meant that not all of those with previous experience in the field could be given military training before being given their assignments. Some officers undergoing military training were accepted for the neuropsychiatric service.<sup>72</sup>

The shortage of personnel familiar with the problems of neuropsychiatric patients included nurses. At the start of the war trained psychiatric attendants were few, and not everyone was easily convinced that those caring for the hospitalized victims of mental illness needed special training. After "a number of quite unnecessary, serious accidents . . . in various psychiatric wards," however, the War Work Committee cooperated with Surgeon General Gorgas in identifying enlisted men

<sup>70</sup> WD, SGO, *Neuropsychiatry*, pp. 10, 11, 29; idem, *SGO*, p. 385.

<sup>71</sup> WD, SGO, *SGO*, p. 388; idem, *Training*, p. 553; idem, *Neuropsychiatry*, pp. 36, 37–38.

<sup>72</sup> WD, SGO, *SGO*, pp. 387, 388; idem, *Training*, pp. 552, 553–54; idem, *Neuropsychiatry*, pp. 30–31, 35.



and draftees with appropriate experience and seeing that they were transferred to the Medical Department, but the authority to draft men directly into special branches of the military was rescinded in July 1918. The committee also persuaded the superintendent of nurses at New York's Bloomingdale Hospital to assist in identifying and obtaining as many as possible of the nation's few nurses with training in neuropsychiatric work. The attempt was not very successful, given the great need for nurses in other areas, but a few psychiatric aides or assistants were trained at Smith College in Northampton, Massachusetts, and then taken into the Army. As a result of these problems, inexperienced attendants had to be sent to St. Elizabeth's or a similar institution for training in the care of the psychiatric patient.<sup>73</sup>

The Medical Department attempted to meet shortages of qualified specialists in other fields in the same manner as it did shortages of general surgeons, laboratory scientists, and psychiatrists. After pressure from the American Roentgen Ray Society's Preparedness Committee, it set up a school to teach roentgenology in the summer of 1917 at Cornell University Medical College in New York City with sections in other cities. In New York a medical officer who was a roentgenologist taught classes about the Army's equipment so that more specialists would be available for service as chiefs of service. The School of Urology was discontinued, however, in favor of reliance on instruction given at Camp Greenleaf. Still other specialty schools set up for military students in civilian institutions included those for plastic and oral surgery, which trained surgeons and dentists to work as a team; a school for orthopedists initially set up at the Harvard University Medical School in an attempt to obtain treatment that was both uniform and skilled; and schools for neurosurgeons, started in the early fall of 1917, in some with an emphasis on brain surgery and in others on nerve surgery. At the Neurological Institute in New York City, where the neurosurgical school worked with nine other institutions in the area, graduates worked in two groups, one for those who could function independently as neurosurgeons and the second for those qualified only to assist in this type of operation.<sup>74</sup>

The Rockefeller Institute in New York City handled instruction for several different kinds of military (Army and Navy) specialists, for civilians, and for civilian and Red Cross nurses. Because many members of its staff "insisted on going into active service with the expeditionary force," Surgeon General Gorgas had to assign some medical officers to the institute so that it could continue to help the Medical Department with its training. The institute had been designed to function as "an institution of pure research for already trained workers" and had no laboratory intended for use in teaching until it joined the effort to train the Army's physicians. It did have a new laboratory building that in the summer of 1917 housed the laboratory for the medical base hospital set up to assist the Medical Department in providing advanced training for its physicians.<sup>75</sup>

<sup>73</sup> WD, SGO, *SGO*, pp. 387, 388; idem, *Training*, p. 558; idem, *Neuropsychiatry*, pp. 27, 28 (quoted words), 29, 35-36.

<sup>74</sup> WD, SGO, *SGO*, pp. 429, 438, 456, 457, 460, 468, 469, 471, 542; idem, *Training*, pp. 184, 471, 532-33, 540, 543, 544, 546, 548, 549, 550, 563.

<sup>75</sup> WD, SGO, *SGO*, p. 420; idem, *Training*, pp. 480 (first quoted words), 481, 485 (second quoted words).

In one major endeavor, the Rockefeller Institute provided intensive training in fractures and war surgery. Each of the classes, which began on 1 August 1917, held fifteen men and lasted two weeks. The students were usually Medical Reserve Corps officers who already had some background in surgery. The classes covered surgical technique, laboratory methods, and the chemistry of antiseptics. Among the lessons that the newly commissioned medical officers had to learn was the doctrine that forbade stitching, scrubbing, probing, or tightly bandaging wounds at the front. Splints were to be applied without removing the clothes and antitetanus serum was to be promptly administered. Only after the patient reached the evacuation or base hospital was an attempt to be made to close the wound, and this only after it had been debrided.<sup>76</sup>



*William H. Arthur*

The Rockefeller Institute placed much emphasis on what was known as the Carrel/Dakin approach to wound management, which required debridement—or the surgical removal of damaged and dead tissue—for all but the most superficial wounds, followed by flooding the wound with a hypochlorite solution. By this means, physicians believed, the antiseptic was kept longer in contact with the infecting bacteria. This method required that material be periodically taken from the wound to check on whether the bacterial count in the wound was falling. According to Col. William H. Arthur, MC, this method was “undoubtedly the most valuable and important advance in the treatment of infected war wounds that has grown out of the experience in the military hospitals of the contending armies in Europe.” Surgeons particularly valued this approach in dealing with gas gangrene, which was caused by several different species of *Clostridia* and blamed on soil that had for untold generations been fertilized with manure. It caused the affected limb to bloat with gas so that a physician pressing on the swelling with his fingers felt “a distinct crackling or tiny bubbling.” Its enthusiasts attributed failures not to the method itself but to faulty use of it, but evidence suggests that the debridement and not the disinfectant was responsible for the success of the Carrel/Dakin method.<sup>77</sup>

<sup>76</sup> WD, SGO, *SGO*, pp. 409–10, 420; idem, *Training*, pp. 481, 482, 495, 496, 497, 499; WD, *ARofSG*, 1918, p. 330.

<sup>77</sup> Edgar Erskine Hume, *History of the Association of Military Surgeons of the United States, 1891–1941*, pp. 110–11; WD, SGO, *Training*, pp. 483, 485, 511; “War Work of the Rockefeller Institute for Medical Research, New York,” p. 494; William H. Arthur, “Carrel’s Method of Wound Sterilization,” pp. 489 (quoted words), 491; John Ellis, *Eye-Deep in Hell*, p. 113.

Because the Medical Department sent a syllabus to the ten other schools conducting classes in war surgery and fractures to guarantee uniformity, instruction tended to be identical at all but the Rockefeller Institute, which emphasized war wounds, and at the Mayo Clinic at Rochester, Minnesota, which placed more emphasis on general surgery. The Mayo Clinic also provided training in anesthesia for a few Army nurses, who in turn trained other nurses.<sup>78</sup>

The Rockefeller Institute also conducted several other types of instruction, including a four-week series of classes started in June 1917 for partly trained laboratory workers in need of further training, as well as carried out research in its laboratory for the Medical Department. Medical officers and enlisted men from the Navy and the Army took courses in bacteriology, serology, and medical chemistry. For medical officers who lived at the hospital and served as interns for six or more weeks, the institute designed classes to teach more about methods of diagnosing and treating pneumonia. The twenty-six who completed this training were sent out to the pneumonia wards of various camp hospitals. The Rockefeller course was so successful in teaching the diagnosis and treatment of pneumonia that one of the medical officers trained there was ordered to establish a similar school at the base hospital at Camp Jackson in South Carolina. Beginning in April 1918, the institute also offered classes in clinical chemistry. To enter this six-week course, students had to have had four years of university-level chemistry, although the institute waived this requirement for a few medical officers whom Surgeon General nominated for this instruction.<sup>79</sup>

Because tuberculosis was also a problem of long-standing concern, the secretary of war approved the leasing of a civilian tuberculosis hospital just outside of New Haven, Connecticut. After patients moved into it in March 1918, the Medical Department established a school of instruction there to train medical officers in the treatment of this disease. More than 250 Army physicians took the six-week course before instruction ended in October 1918 in the face of the demands precipitated by the influenza epidemic.<sup>80</sup>

Desperation spawned by a plethora of measles cases at the mobilization camps in the fall of 1917 gave rise to yet another special training program, this one for female laboratory technicians. The medical division of the National Research Council helped establish the schools and standardize courses of instruction for women with no experience in this field. The most important of these courses were at the Rockefeller Institute, the Women's Medical College of Pennsylvania, the Massachusetts Institute of Technology, and the University of California at Berkeley. By the end of November 1918 almost all female technicians on duty in the Army Laboratory Service were graduates of these schools.<sup>81</sup>

The Medical Department also became heavily involved in instruction in gas defense in August 1917, when the adjutant general established a central gas defense

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<sup>78</sup> WD, SGO, *SGO*, pp. 409, 420; idem, *Training*, p. 496; idem, Part 1 *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 291.

<sup>79</sup> "War Work," pp. 496, 497–98, 501; WD, *ARofSG*, 1918, p. 330; WD, SGO, *Training*, pp. 472, 480, 493.

<sup>80</sup> WD, SGO, *Training*, pp. 473–74; George E. Bushnell, "How the United States Is Meeting the Tuberculosis War Problem," p. 133.

<sup>81</sup> WD, SGO, *Training*, pp. 493, 494, 565, 566.

school at Fort Sill, Oklahoma. Three medical officers served as instructors, with more later ordered to the fort. Apparently none of these physicians had had any experience dealing with gas warfare. A nucleus of men from other branches of the service, both officers and enlisted, as well as detachments of medical officers who would be ordered to various divisions to serve as division gas officers were also trained at Fort Sill. A second gas defense school existed at the American University in Washington D.C., where chemists from the Gas Defense Service received instruction to enable them to serve as advisers to medical officers in charge of the various gas schools. In February 1918, however, gas defense training became the responsibility of the Chief of Engineers. In the belief that instruction was better handled at the division level, the Fort Sill central school was closed.<sup>82</sup>

### *Focus on Flight Surgeons*

Special training was also necessary for those who would be responsible for ascertaining and maintaining the fitness of the Army's aviators for their duties. In this instance, however, when the war began, little was known about how man, flying machine, and the skies they shared interacted. The experiences of the warring nations had made it obvious that more crashes occurred as a result of the failure of the pilot than of that of his machine; the British, in particular, had noted the adverse effects of what they called "staleness," fatigue that could numb the pilot to what was going on around him. Thus those called upon to instruct future flight surgeons inevitably found themselves in the same position that other instructors knew, almost literally teaching today what they had learned only yesterday. More so for the scientists involved in aviation medicine than for those in any other specialty, research and teaching were tightly and almost inseparably intertwined.<sup>83</sup>

The body of knowledge concerning aviation medicine grew rapidly after the fall of 1917, when the Medical Department established its five-member Medical Research Board. Three were from the Medical Reserve Corps—Eugene R. Lewis, William H. Wilmer, and E. G. Seibert; one was from the Sanitary Corps—John B. Watson; and one was a civilian—Yandell Henderson, serving as chief. The board's mission was to investigate the reactions of the human organism to such stresses as oxygen deprivation and rapid three-dimensional motion. In addition to examining all factors that might affect a pilot's effectiveness, these scientists attempted to discover ways in which the aviator could better meet the challenges he was likely to encounter. To facilitate their work, the Medical Department early in 1918 established a laboratory at Mineola, Long Island, New York, near Hazelhurst Field, and later branch laboratories at each flying school.<sup>84</sup>

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<sup>82</sup> *Ibid.*, p. 563; Ashburn, *History of MD*, p. 315; Charles E. Heller, *Chemical Warfare in World War I*, p. 39.

<sup>83</sup> William H. Wilmer, *Aviation Medicine in the A.E.F.*, p. 73 (quoted word); Lee Kennett, *The First Air War, 1914–1918*, p. 144; Edgar Erskine Hume, *Victories of Army Medicine*, p. 183; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1949)*, pp. 42, 45; *idem*, *Medical Support of the Army of the Air Forces in World War II*, pp. 8, 11.

<sup>84</sup> Charles V. Perrill, "High Altitude Syncope," p. 587; Levy M. Hathaway, "Aspects of Aviation Medicine," p. 736; W. H. Wilmer, "The Early Development of Aviation Medicine in the United



*William H. Wilmer, shown here conducting a test with a pilot candidate, served from September to November 1918 as the director of the Air Service Medical Research Laboratories at Issoudon, France.*

Not long after the new laboratory was created, it became the home for a flight surgeon training program based largely on what Lt. Col. Theodore C. Lyster, MC, had learned while talking with British authorities at the front in Europe. Most of its students came from among those who had been serving as examiners for candidates for pilot training, but some were physical trainers who were to be sent to the various flight schools to initiate programs for would-be pilots. Few had had any prior military experience. The laboratory and its staff grew in size and complexity, and their studies pushed ever farther into previously unknown areas, placing these students on the leading edge of a new world of science and exploration. They learned not only about the physical and emotional qualities that made a good pilot but also about the physical and emotional problems that could render even the best of pilots unable to function safely and effectively. Unfortunately, however, because this specialized program was not established until the nation had been at war more than a year, many of the medical officers sent to watch over the health of flyers on duty in Europe had not been able to participate in it.<sup>85</sup>

In the final analysis, despite the Medical Department's attempts to adjust its plans to meet harsh realities, the inevitable haste and the resultant waste involved in preparing for a war even as it was being waged undermined its training efforts. The department had neither the time nor the facilities nor the personnel to train reservists and new recruits on the scale dictated by the size of the mobilization camps that began opening in the late summer of 1917. By the fall the situation was bad, and doomed to become worse. The acute shortage of trained personnel led to the withdrawal of men from training programs before they had completed them. Inability to bring significant numbers of medical officers through the complete training cycle led to a shortage of instructors for the hordes of inexperienced men being drawn into the service in increasing numbers. Although training programs always emphasized learning by doing, as the months went by, growing numbers of men were offered no other way of learning than by doing. And much of the effort to train specialists went for naught. Once medical officers arrived in France for service with the American Expeditionary Forces, they might well receive assignments that had no relationship to the specialized training to which they and the Medical Department had devoted so much time and effort.<sup>86</sup>

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States," pp. 116, 117, 118, 119, 120; E. R. Lewis, "Influence of Altitude on the Hearing and the Motion-Sensing Apparatus of the Ear," p. 1398; Knight Dunlap, "Psychologic Observations and Methods," p. 1393; Stewart Paton, "Effects of Low Oxygen Pressure on the Personality of the Aviator," p. 1399; Edward C. Schneider, "Physiologic Observations and Methods," pp. 1384, 1389; James L. Whitney, "Cardiovascular Observations," p. 1391; W. H. Wilmer and Conrad Berens Jr., "The Effect of Altitude on Ocular Functions," p. 1394; Link and Coleman, *Medical Support*, pp. 11, 13; WD, SGO, *SGO*, p. 499; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 6–7.

<sup>85</sup> Link and Coleman, *Medical Support*, pp. 11, 13, 17–19; idem, *Origin of Air Force Medical Service*, p. 45; Wilmer, "Early Development," pp. 116, 120; WD, SGO, *SGO*, pp. 496–97; Peyton, *Fifty Years*, pp. 30, 32.

<sup>86</sup> Ashburn, *History of MD*, p. 303.



## Chapter 4

# MOBILIZATION CAMPS



At the huge mobilization camps, where draftees and National Guard members began gathering by the thousands in the late summer of 1917, haste again defeated efforts to prepare medical personnel thoroughly for the challenges that lay ahead. Conducting physical examinations, maintaining health in camps that were hastily erected and populated by hordes of men totally unaware of the importance of sanitation, and providing medical personnel for troops going overseas had to take precedence over training. The effort to accomplish in a few weeks what should have taken months or years inevitably upset even the most carefully laid plans, and all other concerns had to be sacrificed to the urgent need of quickly organizing a military force large enough to prevent the German tide in Europe from completely inundating the Allies.

The Medical Department's principal responsibilities at the mobilization camps involved providing trained and appropriately organized medical, dental, and veterinary personnel and supplies for the units preparing to go overseas, culling the unfit from among the fit, and caring for the sick and injured among the trainees. Training medical personnel suffered, as did training in general throughout the Army. Those already experienced with military needs and routines, as well as those who had just finished their own training, tended to be sent overseas. As a result, few well-qualified officers or enlisted men were left behind to familiarize neophytes with what would be expected of them, to conduct physical examinations, and to care for the health of the occupants of the mobilization camps.<sup>1</sup>

### *Preparatory Stage*

The Medical Department's responsibilities at the mobilization camps actually started before the Army could begin the work of turning raw recruits into soldiers. Medical advice was needed when campsites were chosen, the necessary buildings designed and erected, and the officers who would conduct the training selected and instructed in their new duties. Because of the urgency of the need to send troops

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<sup>1</sup> War Department, Surgeon General's Office, *The Surgeon General's Office*, pp. 348, 914 (hereinafter cited as WD, SGO, *SGO*).



overseas as soon as possible, all involved in this preliminary stage were necessarily acting under considerable tension.

The Army assigned boards of experts to conduct the process of selecting the sites for each camp, aviation camp, and coast artillery post. The formation of these boards led to mutual accusations between the Medical Department and Secretary of War Newton D. Baker. The Medical Department's official account of the process cited regulations that required the presence of a medical officer on every board responsible for recommending campsites and suggested both that medical officers did not always serve on it and that the Army approved several sites against the board's advice. Surgeon General William C. Gorgas denied playing any role in site selection. In rebuttal, Secretary Baker somewhat testily informed the Senate's Committee on Military Affairs that a medical officer was on every board working to select sites and that Gorgas had approved every selection, noting: "I am not raising any issue with the Surgeon General. I share the high opinion of his eminent talents and of his great past service and capacity for future service which this committee entertains, and yet I want to have it perfectly understood that in the selection of these sites his representative was a member of every board, and if any question ever arose with regard to the propriety of a site in the process of selection that question was investigated under his direction by my order until they were satisfied as to the propriety of the selection."<sup>2</sup>

Secretary Baker also blamed Gorgas for what he regarded as the flawed design of barracks erected on the sites selected for the mobilization camps. The National Guard camps, however, were not part of the controversy; they relied entirely on tents because they were located in states with mild weather and the men, already having had some training, would be in camp for only a short period of time. The National Army's sixteen cantonments, established in colder areas of the country and intended for longer occupancy than the National Guard camps, utilized heated barracks. Baker maintained that Gorgas had approved plans for these buildings, which called for less space than a board of high-ranking medical officers subsequently concluded was advisable. Even in spite of later improvements, overcrowding remained a problem at mobilization camps and airfield dormitories throughout the war.<sup>3</sup>

Hospital construction at the camps became yet another source of friction between Surgeon General Gorgas and Secretary Baker. Questions that arose about

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<sup>2</sup> By 1918 draftees were being sent to fill out National Guard units as well as to form those of the National Army. See WD, SGO, *Sanitation*, pp. 92, 100–101, 104, 107, 109, 111, 115, 118, 124; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of the War*, 1918, p. 46 [hereinafter cited as *ARofSG*, year]; John Mahon, *History of the Militia and the National Guard*, p. 164; United States, Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917–January 1918*, pp. 1966 (quotation), 1988–89 (hereinafter cited as *Investigation of the War Department* (65th Cong., 1st sess.)).

<sup>3</sup> Mahon, *Militia and National Guard*, pp. 156, 157, 159–60; WD, SGO, *SGO*, pp. 120–21, 328, 609, 1059; idem, *Finance and Supply*, p. 429; idem, *Activities Concerning Mobilization Camps and Ports of Embarkation*, pp. 1, 3, 30; idem, *Sanitation*, pp. 134, 136–37, 139, 143, 144, 145, 147; Edward M. Coffman, *The War To End All Wars*, pp. 30–31; Harold E. Eggers, with a report by Ellis H. Kerr, "Communicable Disease at Camp Funston and the Medical Officers' Training Camp, Fort Riley, Kansas, October 15th, 1917, to January 15th, 1918," p. 19; *Investigation of the War Department* (65th Cong., 1st sess.), pp. 1967, 1989–90; *ibid.* (65th Cong., 2d sess.), pp. 2344–49.

the adequacy of funding delayed erecting these facilities at the National Army sites, where hospitals were to be constructed before barracks. Gorgas maintained that he had objected to the delay, but Baker denied any knowledge of Gorgas' disapproval. As late as 12 February 1918, heating systems at three of the cantonment hospitals and the sewer system at one were not complete. The delay was even greater at National Guard camps; plans called for hospitals to be located in tents, which were in short supply. On the theory that these camps would not be long occupied, sewers, plumbing, and heating were initially considered an unnecessary expense, and Baker made sure that the Senate's investigating committee knew that Gorgas had approved the omissions.<sup>4</sup>

Surgeon General Gorgas concluded that while the total number of hospital beds allowed for the Army, in Europe and the United States combined, should be 25 percent of total strength, the base hospitals at the mobilization camps should provide beds for 3 percent of their commands, assuming that a large proportion of their patients would be the victims of contagious diseases. On this basis, the Medical Department designed both 1,000-bed hospitals and 500-bed hospitals. To distinguish them both from base hospitals overseas, known by numbers, and department base hospitals within the United States, these institutions came to be known as U.S. base hospitals (on 7 August 1918 all distinctions between the National Guard, the National Army, and the Regular Army ended when they were combined under the name United States Army), followed by the name of the camp the individual facility served.<sup>5</sup>

The initial plans for base hospital design soon proved inadequate. When increasing numbers of troops arrived at the camps and disease rates among the new recruits rose, the concept of providing beds for 3 percent of the command had to be abandoned in favor of a 4.5-percent ratio—a goal not all base hospitals were able to achieve. Dealing with the problem required a multipronged approach. Surgeon General Gorgas had initially planned to rely on civilian medical facilities for any overflow from base hospitals and, until Army facilities were operational, for those patients in need of specialized care. A convalescent camp, permitted in connection with a base hospital if the hospital's commanding officer believed it was called for, could be used to reduce the patient load of the hospital itself. Nevertheless, in the final analysis, the Medical Department had to make additions to the hospitals, not only to provide more beds but also to increase the space allotted to such services as laboratories and operating rooms. While hospitals continued to vary in size, some eventually held as many as 3,000 beds or more.<sup>6</sup>

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<sup>4</sup> Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 303 (hereinafter cited as *History of MD*); Alexander Taylor Cooper Autobiography, p. 222, Ms B120, National Library of Medicine (NLM), Bethesda, Md.; Keefer Biography, p. 12, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, NLM; WD, SGO, *Sanitation*, p. 27; United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, p. 26 (hereinafter cited as *Hearings . . . on S.3748* (65th Cong., 2d sess.)); *Investigation of the War Department* (65th Cong., 1st sess.), pp. 1970, 1972, 1992, 1993, 2017, 2040, 2041; *ibid.* (65th Cong., 2d sess.), pp. 2348–52.

<sup>5</sup> WD, *ARofSG*, 1917, p. 13; WD, SGO, *SGO*, p. 118; *idem*, *Military Hospitals in the United States*, pp. 33, 102–03, 108–09, 119, 736–37; *Investigation of the War Department* (65th Cong., 2d sess.), p. 2330.

<sup>6</sup> WD, SGO, *SGO*, pp. 328–29, 668, 1053; *idem*, *Activities*, 192; *idem*, *Military Hospitals*, p. 110.

The Medical Department's involvement with preventing disease at the camps included supervising sanitation and caring for those who suffered injuries or fell ill among workers involved in construction, an effort that brought together Quartermaster Corps personnel, camp guards, and as many as 10,000 or more civilians. The "basic sanitary measures in the area of construction" were the responsibility of the contractor, who had some of his employees police the grounds, remove garbage, and build and care for latrines. Overlooking sanitation at each camp before it opened was a medical officer, usually one of the younger regulars, who also cared for the sick and injured among the soldiers and civilian employees of the federal government. The contractor's workers were not entitled to medical care from the government for minor ills or injuries, but the camp medical officer occasionally treated them in a dispensary set up for this purpose. He also attempted, with apparent success, to persuade them to submit voluntarily to immunization against both smallpox and typhoid fever, hoping both to spare them these contagious and frequently fatal diseases and to have the camp free of major health threats for future military occupants.<sup>7</sup>

For the officers being taught how to train recruits, medical officers conducted physical examinations at the Army Medical School. Initially the shortage of Regular Army physicians seriously retarded the process, but the Medical Department resolved the problem by assigning a large number of Medical Reserve Corps officers to temporary duty at the school. Set to work, assembly-line style, with each handling his own area of expertise, ten physicians proved able to process twenty men an hour. At the medical officers training camps, however, many of the physicians and medical enlisted men who became responsible for the health of the men being trained were, unlike the Medical Reserve Corps officers at the Army Medical School, military neophytes who, because of their work at the camps, had had little or no time for formal training.<sup>8</sup>

Surgeon General Gorgas, impressed by the fact that the few psychiatric exams conducted at the initial medical officers training camps suggested a surprisingly high rate of mental or nervous illness, wanted the staff of each of these camps to include a psychiatrist. Because an adequate number of trained psychiatrists initially proved difficult to find, many new officers received commissions and "positions of military responsibility without a determination of their mental and nervous fitness therefor." By the time a second series of medical officers training camps opened in the late summer in conjunction with the mobilization camps, however, the Medical Department had found and signed contracts with physicians with the appropriate background.<sup>9</sup>

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<sup>7</sup> WD, SGO, *SGO*, pp. 623, 624; idem, *Activities*, pp. 1 (quoted words), 2; idem, *Military Hospitals*, pp. 194–95; Casey A. Wood, "A History of the Base Hospital, Camp Sherman, Chillicothe, Ohio," p. 299.

<sup>8</sup> WD, *ARofSG*, 1918, p. 289; George E. Bushnell, "How the United States Is Meeting the Tuberculosis War Problem," p. 128; Calvin H. Goddard, "A Study of About 2,000 Physical Examinations of Officers and Applicants for Commissions Made at the Army Medical School," p. 578–81. Unless otherwise indicated, material on mobilization is based on Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States: 1775–1945*.

<sup>9</sup> WD, SGO, *SGO*, p. 389; idem, *Neuropsychiatry*, pp. 25 (quoted words), 63; WD, [Annual] *Report of the Secretary of War*, 1917, p. 15 (hereinafter cited as *ARofSW*, year).



*Immunizing soldiers at a camp and at the Army Medical School*





*National Guard members leaving for camp*

Many enlisted volunteers for the Regular Army also trained at the posts serving as training camps for officers, but because they were thoroughly examined for signs of disease and disability before enlistment, the Medical Department assumed that their need for the services of physicians was minimal. Unfortunately, reexamination of regulars and some National Guard members in the summer of 1917 revealed a relatively high number of disabilities among those who had been serving in the Army at the time war was declared.<sup>10</sup>

The arrival of medical personnel from the medical officers training camps less than a week before the mobilization camps were scheduled to open marked the final step in the Medical Department's contribution to the creation of mobilization camps. These 60 medical officers and 310 enlisted men for each mobilization camp formed only the skeleton of a medical service, however, for, according to the War Department's tables of organization issued in August 1917, each division should have 104 medical officers and 1,455 Medical Department enlisted men. Each National Guard division brought a nucleus of its own medical organization when it arrived at camp. Some of the medical staff had had previous military experience as a result of the Spanish-American War in 1898 or along the Mexican border in 1916–1917, while a few had trained at the Field Service and

<sup>10</sup> WD, SGO, *ARofSG*, 1917, pp. 6–7; WD, SGO, *SGO*, p. 328; idem, *Military Hospitals*, p. 33; idem, *Sanitation*, p. 435.

Correspondence School for Medical Officers, a part of the Fort Leavenworth Army Service Schools system. Guard divisions could supply the medical enlisted men required by a majority of the field hospitals and ambulance companies, and plans called for expanding this force to the extent needed with new Guard enlistees and with draftees. The remaining positions in both Guard and National Army divisions would have to be filled directly from civilian life, a situation that revived a historic problem for the Medical Department. Once again, the department became a dumping ground for the men the combat organizations did not want.<sup>11</sup>

### *Camp Medical Organization*

Once the mobilization camps opened for the National Guard and the draftees of the National Army in late August and early September 1917, the Medical Department could begin creating the medical organization that would accompany each division overseas, including medical, dental, and veterinary personnel as well as the animals that were still a vital part of their transportation. It also attempted to provide a separate staff for the camp itself. The major general in command of the division being formed at a camp, be it National Guard or National Army, was soon placed in command of the entire camp, which, after October 1917, included the camp's auxiliary remount depot and its base hospital that was not part of a tactical division.<sup>12</sup>

Until the spring of 1918 the division surgeon also served as the camp surgeon, responsible for sanitation everywhere on the post and for the training of all sanitary troops in the camp except for those assigned to base hospitals. He also served as an adviser to the commanding officer and as an administrative officer, having oversight of the division's Medical Department personnel. He bore the ultimate responsibility for immunizing draftees and for their physical examinations on arrival at camp, as well as for the organization and equipment of medical units and the training and education of medical personnel. Two medical officers served with him at division headquarters, one functioning as his assistant and the second in an advisory capacity as the unit's sanitary inspector. The latter could be assigned administrative responsibilities as well, supervising the command's sanitation whether in the camp or in the field and keeping track of communicable diseases and the steps taken to prevent them. Ultimately, of course, because the Medical Department had "no executive powers . . . save in strictly Medical Department commands," the commanding officer was responsible for the sanitary condition of his command.<sup>13</sup>

Division medical personnel also often included a psychiatrist, for the same belief in the value of these specialists that led to their assignment to medical

<sup>11</sup> WD, SGO, *Activities*, pp. 4–5, 7–8, 11, 122, 206; idem, *Training*, pp. 12, 304; idem, *Sanitation*, pp. 100–101, 104, 107, 109, 111, 115, 118, 124; idem, SGO, pp. 171, 350; WD, *ARofSG*, 1918, p. 407; Ashburn, *History of MD*, p. 308. See also chapters on the Spanish-American War and the mobilization along the Mexican border in Mary C. Gillett, *The Army Medical Department, 1865–1917*.

<sup>12</sup> WD, SGO, *Activities*, p. 122; idem, *Sanitation*, pp. 100–101, 104, 107, 109, 111, 115, 118, 124.

<sup>13</sup> WD, SGO, SGO, pp. 349, 911; idem, *Military Hospitals*, pp. 119–20; idem, *Training*, pp. 308–09; idem, *Finance and Supply*, pp. 285–86; idem, *Activities*, pp. 3, 5, 7–8; idem, *Sanitation*, pp. 17, 18 (quoted words), 19.

officers training camps inspired the desire to have one assigned to each division. This officer was expected to give group examinations to the troops and then to select individuals to be given special examinations for signs of mental or nervous instability or for coordination so poor as to interfere with the ability to act quickly. The work of these specialists set a precedent, because mental tests had never before been used in the Army.<sup>14</sup>

The division's sanitary train included approximately 950 officers and men, while the division's remaining Medical Department officers and men, including 7 medical officers with each infantry regiment, served with other units, for the most part combat units. The train included four ambulance companies under a director and four field hospital companies, also under a director. Because in National Army divisions only one ambulance company and one field hospital company came from a medical officers training camp, the officers and men composing the remaining companies were to a large extent untrained and unfamiliar with the Army. Not many of them, furthermore, were likely to be familiar with using and maintaining motor vehicles, even though by the spring of 1918 standards required three companies to be motorized. With the plans for the division's sanitary train as with other plans developed by the Medical Department, all did not necessarily go as intended and neither equipment nor men necessarily came in as scheduled.<sup>15</sup>

The regimental infirmary, where the regimental surgeon held sick call, also housed his office. The basic plan was actually that each organization with a medical detachment have an infirmary, but the way in which this concept worked in practice changed with changes in the organization of the division. Medical Department plans assumed that the occupants of a regimental infirmary would be men who were either awaiting transportation to the base hospital or suffering from minor ills and injuries; regimental facilities generally had no more than a dozen beds. Although the use of infirmaries for these cases would lighten the burden of the camp's base hospital, the department wished to keep the regimental infirmary supplies that were provided as a unit package intact for use overseas. As a result, an additional allotment was provided to be used at the mobilization camps.<sup>16</sup>

The division dental surgeon, the head of the division's dental staff, served at division headquarters, but tables of organization did not recognize his position, and thus he had to function out of the office of the division surgeon. Most division dentists were members of the Dental Reserve Corps. Shortly after the camps opened, the divisional service was organized into brigade units, with a supervising dental officer and 10 dental surgeons for each brigade. Plans for each brigade to have a dental infirmary proved overly optimistic, and until the spring of 1918 many of these units had to find space wherever they could, often in regimental infirmaries or base hospitals. Portable equipment issued to enable dentists to serve

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<sup>14</sup> WD, SGO, *SGO*, p. 389; Frank Garm Norbury, "The Relation of Defective Mental and Nervous States to Military Efficiency," pp. 30-31; L. Vernon Briggs, "Mental Conditions Disqualifying for Military Service," pp. 143-44; Fielding H. Garrison, *Our New Army Medical Department*, p. 10.

<sup>15</sup> WD, SGO, *SGO*, pp. 638, 914; idem, *Finance and Supply*, pp. 251, 333n, 430, 436; idem, *Activities*, pp. 8-9, 111, 206.

<sup>16</sup> WD, SGO, *Finance and Supply*, pp. 253, 429, 433-34; idem, *Activities*, pp. 9, 207.

units operating far from the dental infirmaries was to be taken to Europe, leaving standard equipment for future camp use.<sup>17</sup>

The division veterinarian initially served as the division surgeon's technical assistant and was directly responsible to him, but by late 1917 he was reporting directly to the division commander. Even though the divisional veterinary organization was responsible for the inspection of meat and dairy products as well as for the care of the division's animals, it was not always promptly formed when a camp was opened. Once organized, it consisted of a meat and dairy inspector, an evacuating section, and several veterinary units. Plans called for the total number of veterinary personnel in a division to number 12 officers and 51 enlisted men, but the Veterinary Corps had no enlisted men until October 1917, and several weeks went by before division veterinary officers began to arrive at the camps in any number. Until and unless a Regular Army veterinarian arrived, organizing veterinary operations progressed slowly, if at all.<sup>18</sup>

In the spring of 1918, when the first divisions organized at the mobilization camps headed overseas, the positions of division surgeon and camp surgeon had to be separated to avoid leaving the camps without a medical organization. The situation became still more complicated if the division surgeon took all medical records with him. The surgeon general, therefore, decided at this point to assign a permanent medical organization of both officers and enlisted to each camp. He urged strongly that in those instances when this organization was not in place by the time the division departed, the division surgeon leave behind a physician and enlisted men from his division to serve the camp.<sup>19</sup>

Surgeon General Gorgas believed that ideally the camp surgeon should command a "complete and coordinated medical organization . . . sufficiently elastic to meet the many emergencies which may arise." In the spring of 1918 he recommended that the camp surgeon rank as colonel and that under him serve a camp dental officer, nutrition officer, sanitary engineer, and sanitary inspector. Under the control of the sanitary inspector should serve a camp epidemiologist. The surgeon general made Col. Victor C. Vaughan, MC, the only surviving member of the Spanish-American War team that had established the role of flies in the spread of typhoid fever, responsible for the work of camp epidemiologists. Unfortunately, finding physicians who were qualified to serve in this capacity proved difficult. When the influenza pandemic reached the United States in the fall of 1918, even some of the largest camps still lacked the services of a trained, full-time epidemiologist. The nutrition officer and the sanitary engineer were drawn from the Sanitary Corps. The camp medical personnel became responsible for the health of the depot brigade, into which draftees were placed when they first arrived.<sup>20</sup>

<sup>17</sup> WD, SGO, *SGO*, p. 1144; idem, *Finance and Supply*, pp. 449–50, 615, 623; idem, *Activities*, pp. 10, 27, 28.

<sup>18</sup> WD, SGO, *SGO*, pp. 1168–69, 1205; idem, *Finance and Supply*, p. 111; idem, *Activities*, pp. 28–29, 163.

<sup>19</sup> WD, SGO, *SGO*, p. 916; idem, *Training*, p. 309.

<sup>20</sup> WD, SGO, *SGO*, pp. 989, 991, 995, 1004; idem, *Activities*, pp. 2, 8; idem, *Sanitation*, pp. 69, 71, 72 (unless otherwise indicated, all information on camp sanitation is based on this volume); idem, *Training*, pp. 309 (quoted words), 310; Gillett, *Army Medical Department, 1865–1917*, pp. 192–93; WD, *ARofSG*, 1919, p. 41.





*Victor C. Vaughan*

Because the need for veterinarians was not taken as seriously as the need for other Medical Department personnel, little effort was initially devoted to creating an organization specifically for the camp. Division veterinarians handled all veterinary needs at the camps, both for animal care and for food inspection. No enlisted men from the Veterinary Corps were assigned to the camp staff, as opposed to that of the division, until June 1918. Up to that point, the Quartermaster Corps was required to provide enlisted men to handle veterinary work. In addition, “lay inspectors” were used to perform inspections of all meat purchased by the corps. Before the spring of 1918, however, the inspection of locally bought meat was actually haphazard—if, indeed, it was done at all. In addition, the milk used at camps had to be pasteurized, primarily because the location of the dairies, often far apart, complicated regular inspections of dairy products. In some instances, the United States Public Health Service eventually assumed this responsibility. When a division and its veterinary personnel left for overseas, the camp veterinarian, working with 1 assistant and 6 enlisted men, usually took over inspecting meat and dairy products as well as caring for the animals at the camp.<sup>21</sup>

Theoretically, the camp medical organization also included the staff of the base hospital. In practice, the hospital worked almost independently. As far as its administration was concerned, it functioned as a general hospital, its commanding officer, who ideally was a regular medical officer, being directly responsible to the surgeon general. This independence did not produce isolation, however. The commanding officers of

<sup>21</sup> WD, SGO, *Activities*, pp. 28, 29 (quoted words), 30, 140, 183.

base hospital staffs, the chiefs of services of base hospitals, and the medical staffs of the regiments in the area served by the base hospital met each week to confer on mutual problems and to further cooperation.<sup>22</sup>

Surgeon General Gorgas' approach to organizing the professional staffs of base hospitals reflected the growing trend toward specialization in the medical profession. In November 1917 he ordered surgical, medical, and laboratory services set up at each camp base hospital. As he envisioned the organization, the chief of each service would be a physician of considerable experience and stature. Under the chief of service for surgery would be physicians who could, in time, also serve as chiefs of service, among them a surgeon qualified to handle general surgery and others able to handle various specialties. Having an orthopedic section was something of an experiment, for the parameters of the specialty and the type of patients to be seen were not clearly established. The surgical service was also to include a roentgenologist and 2 dentists, the latter handling both general dentistry and oral surgery; Medical Department regulations, however, limited base hospital care to those patients requiring dental work extensive enough in its scope to be considered oral surgery. Under the chief of the medical service would be 4 physicians, among them a neurologist and 1 or 2 psychiatrists. The laboratory service, which handled work in connection with sanitation for the camp as well as that related to hospital patients, would consist of a chief of service, his assistant, and various laboratory workers, many of whom came to be female civilian technicians.<sup>23</sup>

The appropriate divisions of the Surgeon General's Office named the principal medical officers for the camp base hospitals. Within each hospital, boards of medical officers, either permanent or created to meet a specific need, decided



*Administering typhoid vaccine*

<sup>22</sup> WD, SGO, *SGO*, pp. 329, 331; idem, *Finance and Supply*, p. 758; idem, *Military Hospitals*, pp. 119–20, 121; idem, *Training*, p. 377.

<sup>23</sup> WD, SGO, *SGO*, pp. 1052, 1101, 1121; idem, *Finance and Supply*, p. 616; idem, *Activities*, p. 28; idem, *Military Hospitals*, pp. 124, 127, 252; Wood, "Camp Sherman," p. 310; Harris P. Mosher, "A Summary of the Activities of the Section of Otolaryngology," p. 639; John L. Kantor, "Experience with a Gastrointestinal Service in an Army Hospital," p. 513; John S. Haller Jr., *American Medicine in Transition, 1840–1910*, pp. 253–54; Lesley H. Spooner, "The Base Hospital Laboratory," p. 64.

who should deal with various aspects of administration. In the event of epidemics, mobile boards were created and sent to facilities in need of assistance.<sup>24</sup>

Female nurses were assigned to base hospitals at the request of hospital commanding officers. The work of those who had been members of the Army Nurse Corps before the war was much admired. On the other hand, some of those who joined in the first months of the war, like those who joined in the last months when the nation's supply of graduate nurses had been almost exhausted, were deemed to be of poor quality, women who "came from small hospitals, and small towns, and were advanced in years." Nurses did not arrive at some camps until late in 1917, but eventually a chief nurse headed the nursing staff at each camp base hospital. In April 1918 the surgeon general emphasized that each ward was to be supervised by nurses and that no nurse should be held responsible for more than 50 patients; his goal was one for every ten patients. When the Army School of Nursing was organized, student nurses became part of the hospital's nursing organization. Inspectors, "well-trained nurses, of large executive experience in the best civil hospitals," were sent to look over the work of the nursing staff. Serving with nurses at camp base hospitals were graduate dieticians, representatives of a new specialty, as many as 10 in a large facility. During the war the Army Nurse Corps managed their work. Although at each facility the chief nurse gave the dietician her assignments and reported through the hospital's commanding officer to the Surgeon General's Office on her work, the hospital's mess officer was her immediate supervisor.<sup>25</sup>

Enlisted men, most of whom were untrained draftees, also worked as nurses and in various other capacities in camp base hospitals. The commander of each camp organized them for overseas service, assigning men to the organization as soon as any relevant skills they possessed had been identified. Obtaining from among them an adequate number qualified to serve as noncommissioned officers proved difficult, as did retaining competent men. At one hospital an experienced hospital mess sergeant and 3 of 7 cooks were reassigned to work as automobile mechanics. A few experienced men were also likely to be removed to serve as a nucleus around which each hospital leaving from a camp for overseas could build its personnel. The supply of either enlisted men or female nurses qualified to specialize in the care of psychiatric patients was always inadequate.<sup>26</sup>

Other personnel who did not belong to the Medical Department also worked at base hospitals. Some were members of a Quartermaster Corps detachment, consisting of an officer and 18 noncommissioned officers and enlisted men; some were volunteers from various civilian "religious and fraternal agencies." In addition, the Young Men's Christian Association occupied a separate building near the hospital so that staff and patients could read; play basketball and other sports; and attend movies, concerts, and religious services. For each hospital the Red Cross also opened a convalescent house, organizing entertainment and handicrafts

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<sup>24</sup> WD, SGO, *Military Hospitals*, pp. 160–61.

<sup>25</sup> WD, SGO, *SGO*, pp. 178, 1062, 1064; idem, *Military Hospitals*, pp. 122–24, 139, 160 (second quoted words), 209 (first quoted words), 212; Wood, "Camp Sherman," p. 301; *Investigation of the War Department* (65th Cong, 1st sess.), pp. 1997–99.

<sup>26</sup> WD, SGO, *SGO*, pp. 352–53; idem, *Military Hospitals*, pp. 123, 206–07, 208, 209, 259.



*Exterior and interior views of typical Young Men's Christian Association hut*





*Typical American Red Cross convalescent house; (below) Red Cross traveling canteen*



instruction, and for the largest hospitals often rented an additional building to provide recreation for nurses.<sup>27</sup>

Base hospital patients were, when Surgeon General Gorgas' wishes were followed, segregated by color "for the best interest of all concerned." He allowed some leeway in this policy because of the necessity of "always keeping in mind that the welfare of the patient, no matter what his race or color, is of first importance." The practice at Camp Grant hospital in Illinois, where draftees were trained, was heavily influenced by the policy of the camp's commanding general, who, before troops began to gather there, had "assembled all unit commanders and instructed them to treat all soldiers alike irrespective of color. He stated that the colored men were drafted for the same purpose as the white men and officially no distinction was to be shown." Until the spring of 1918 "in the hospital, colored patients were placed in the same wards with the whites; there was a common dining room; and they were freely allowed the use of the exchange. Not an instance of racial friction was reported as having occurred between patients in the hospital." Because initiating segregation would have necessitated having twice the hospital space then available at the Camp Grant base hospital, the facility remained integrated even after the receipt of specific instructions from Surgeon General Gorgas to put blacks in separate wards.<sup>28</sup>

Base hospitals and the work of their complex staffs were subject to various forms of inspection. They were covered in the tours of a "group of specially trained medical officers of long service," who made both routine and special inspections of camps but were concerned chiefly with sanitation and administration. The chiefs of the various specialty divisions within the Surgeon General's Office made inspection trips personally or sent representatives. Chiefs of service at all base hospitals were also required to inspect other base hospitals as part of what were termed "consultation tours."<sup>29</sup>

Like the base hospital, the remount depot of each camp, which received as many as 5,000 newly purchased animals and cared for them until the division called for them, operated in considerable independence except for being subject to camp-wide control over sanitation. Because it had the camp's only veterinary hospital, divisions had to send animals in need of hospitalization to the depot. These facilities were located with greater concern for compactness than for topography, a fact that led in some instances to locating corrals on low ground. In addition, the hospitals were often overcrowded, favoring the spread of disease. As much of the needed equipment was not provided, Surgeon General Gorgas permitted the acceptance of aid from the Red Cross and the Red Star Animal Relief. Plans to establish veterinary hospitals outside the remount depots were cut short of completion by the Armistice in November 1918.<sup>30</sup>

Although airfields, unlike mobilization camps, were quite small, their distance from Army hospitals generally dictated that they have their own hospitals.

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<sup>27</sup> WD, SGO, *Military Hospitals*, pp. 124, 165–66 (quoted words), 203; H. C. Connor, "The American Red Cross Assistance to the United States Medical Department in the United States," p. 237.

<sup>28</sup> WD, SGO, *SGO*, pp. 1041 (first quoted words), 1042 (second quoted words); idem, *Military Hospitals*, p. 234 (remaining quotations).

<sup>29</sup> WD, SGO, *Military Hospitals*, pp. 157 (first quoted words), 160 (second quoted words).

<sup>30</sup> WD, SGO, *SGO*, pp. 1175, 1180; idem, *Activities*, pp. 3, 28, 30, 31.

Designed to care for 5 percent of the garrison of the field they served and too small to be known as base hospitals, they were classified as post facilities. The earliest of these facilities were inadequate from the outset, designed without medical input and able to handle safely only twenty-four patients, rather than the forty intended. They had to be enlarged when the anticipated population to be served doubled, tripled, and in some instances, quadrupled. In February 1918 the Signal Corps developed a design for a 50-bed facility, which became the standard for smaller fields, and subsequently a 100-bed type for larger fields.<sup>31</sup>

### *Medical Supply*

Although neither supply nor storage had posed major problems for the Medical Department in the early weeks of the war, major difficulties appeared with the establishment of the mobilization camps. Thereafter, shortages both of the items needed and of men familiar with the Army's supply system exacerbated the difficulties posed by the medical supply needs of the complex network of division and camp organizations and facilities. As far as veterinary supplies were concerned, further problems resulted from ignorance as to the number, location, and status of remount depots. Initial plans called for the creation of a medical supply depot at each camp base hospital, with the officer in charge of the depot serving as supply officer for both the hospital and the division. Although experience had suggested that no one man could effectively handle all three roles without an assistant, the department was initially unable to provide additional personnel. The December 1917 revision of the tables of organization authorized 1 officer and 8 enlisted men for each divisional supply organization, allowing them to assume supply responsibilities but only upon their arrival overseas.<sup>32</sup>

The Medical Department used many approaches in the effort to surmount problems spawned by the shortage of trained supply officers. The New York medical supply depot, which had been used to familiarize supply officers with their duties for some time, was too small to train more than one at a time. Enough men had been taught there, however, to form a nucleus around which a supply organization could be built and to provide instructors for prospective medical supply officers. Before the creation of the Sanitary Corps, however, only physicians could serve in this capacity, for commissions could not be given to nonprofessionals. A search among retired noncommissioned officers was also of little avail, and the surgeon general requested that division surgeons seek out men who might qualify for such work at their camps. Attempts to prepare for the challenge by utilizing noncommissioned officers sufficiently familiar with Army regulations, customs, and supply and accounting procedures to qualify them for work as military storekeepers were only partly successful. Candidates for supply positions received their instruction at medical supply depots. After the Sanitary Corps was created in June 1917, those who had completed training and who could meet physical standards were recommended for commissions.<sup>33</sup>

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<sup>31</sup> WD, SGO, *SGO*, p. 498; idem, *Military Hospitals*, pp. 398–400.

<sup>32</sup> WD, SGO, *Finance and Supply*, pp. 414–15, 450–51; idem, *Activities*, p. 10.

<sup>33</sup> WD, SGO, *Finance and Supply*, pp. 411, 414, 415–16, 663.



*New York medical supply depot*

When a medical supply officer first arrived at camp, he was likely to find turmoil. Some supplies had already arrived and, having been officially received by a temporary quartermaster, were stored in a warehouse with all of the other camp supplies, both medical and nonmedical. Thus among the medical supply officer's first duties was going through the warehouse and sorting out those for which he was responsible, unpacking them, and preparing them for issue. He also had to search out men with some aptitude for this type of work to join the Sanitary Corps to assist him, but only rarely could he find any with military experience.<sup>34</sup>

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<sup>34</sup> *Ibid.*, pp. 415, 435, 436.



Managing medical and hospital supplies for mobilization camps was complex. All the equipment intended for the division's use overseas was supplied in two types of units—one for combat use, the other for regimental infirmaries. These units were provided to the divisions in training as soon as possible so that the men who would be using them in Europe could become familiar with them. Should equipment needed by camp base hospitals not be on hand when the recruits arrived, the Medical Department permitted the supply officer to issue one set of field hospital equipment, to be turned over to a field hospital company when no longer needed. The temptation to use up the expendable portions of the supplies had to be resisted, however, no matter how short supplies were at the various camps.<sup>35</sup>

A shortage of ambulances was another supply problem experienced at the mobilization camps. A new design for the ambulance body had been adopted, and the two firms making it could not keep up with the demand. The time between the voting of funds and establishing camps was too short for so many vehicles to be provided by the time troops began arriving. Furthermore, with the Army constantly growing in size, increasing numbers of motor ambulances were needed. Other difficulties resulted from the fact that when ambulance companies organized by the Red Cross were mobilized and sent to join the various divisions, the surgeon general found it difficult to learn the quantity and type of ambulances that they had.<sup>36</sup>

Many of the men assigned to drive the Medical Department's various vehicles were unfamiliar with the maintenance and care they required. Both skilled mechanics and spare parts were much in demand. "Maintenance letters" were developed, mimeographed, and distributed at the camps, and in May 1918 a pamphlet on the subject was issued. After the creation of the Motor Transport Corps in 1918, all vehicles at a mobilization camp except ambulances were pooled under a Motor Transport Corps officer, who was in charge of their maintenance and use. The change, however, complicated the process of obtaining vehicles when the base hospital needed them.<sup>37</sup>

Ingenuity and determination were often necessary to deal with supply shortages. Many surgeons had to provide their own instruments, and in some instances camp commanding officers authorized medical officers to go into the open market to buy what they needed. Bedding was occasionally bought on the same basis. Although procuring surgical instruments was very difficult, shortages even haunted those procuring dental instruments, even though the United States had for some time been a leading producer. Thus, when some of the first draftees arrived having an immediate need for extensive dental work, the Medical Department, aware from experience that the government-issue dental equipment was often slow to arrive, again authorized local purchasing. Complaints registered by the chief surgeon of the Western Department, however, suggested that some National Guard units were a little too ingenious. The government assumed responsibility for their expenses once they reported to camp, and in the chief surgeon's opinion, from that moment on, they went out of their way to buy locally. Eventually Surgeon General Gorgas

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<sup>35</sup> *Ibid.*, pp. 252–53, 429, 430, 432, 456.

<sup>36</sup> *Ibid.*, pp. 343, 345, 357–58, 436–37, 440.

<sup>37</sup> *Ibid.*, pp. 392, 440 (quoted words), 443; WD, SGO, *Military Hospitals*, p. 215.

was forced to order that, except in emergencies, all requisitions come through his office.<sup>38</sup>

Veterinary supplies, on the other hand, were seemingly not difficult to obtain. The greatest complication occurred, as it had with other supplies, as a result of not knowing at the time the camps were being set up how many animals would be at which camp and thus what quantities of the needed items had to be shipped to meet predictable needs. Once the camps were operational and the initial needs of the animals were met, a regular schedule of shipments could be established.<sup>39</sup>

The need to meet the varied requirements of so many camps made keeping close track of each order impractical if not impossible. In the belief that the man on the spot in the person of the division surgeon was the best judge of the need, the Medical Department decentralized medical supply. As a result, it was handled in different ways at different camps, the principal goal being simply to distribute whatever was needed as expeditiously as possible.<sup>40</sup>

### *Medical Screening*

The initial responsibility of the physicians at the mobilization camps once the recruits began arriving involved separating the fit from the unfit. Many problems encountered in this process, however, resulted directly or indirectly from the work of the draft boards that conducted the initial screening of recruits, and specifically from confusions and inconsistencies in establishing physical criteria. The draft system was of necessity set up in great haste, and the number of men who had to be processed through it in a short time was considerable. The provost marshal general did not officially name a physician to advise him concerning medical examinations for draftees until the winter of 1917–1918. The first medical adviser, a newly commissioned Medical Reserve Corps officer, was reassigned shortly after his appointment, and a second Medical Reserve Corps officer was promptly appointed to take his place. A medical division within the Provost Marshal General's Office to set physical standards and supervise the examinations was not created until August 1918.<sup>41</sup>

Difficulties diminished markedly after the medical adviser set to work to resolve the differences between the standards used by draft boards to guide the civilian physicians who served on their medical advisory boards and those used by medical officers at the mobilization camps. Improvement also followed the distribution of new regulations to both draft board and Medical Department

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<sup>38</sup> WD, SGO, *Finance and Supply*, pp. 449, 453–55, 466, 533, 610, 611–12; idem, *Military Hospitals*, p. 254; Mosher, "Otolaryngology," p. 635; Eggers, "Communicable Disease," pp. 20–21; WD, *ARofSG*, 1918, p. 288.

<sup>39</sup> WD, SGO, *Finance and Supply*, pp. 450–51, 452, 646, 654.

<sup>40</sup> *Ibid.*, pp. 458, 811.

<sup>41</sup> C. M. Dowd, "Medical Advisory Boards," p. 703; WD, Provost Marshal General (PMG), *Second Report of the Provost Marshal General*, p. 22; WD, *ARofSW*, 1918, p. 11; Frank R. Keefer, "History of the Medical Activities of the Office of the Provost Marshal General Under the Selective Service Act," pp. 475, 476; Keefer Biography, p. 12, Ms C44, Autobiographical Sketches . . . , NLM; WD, SGO, *Sanitation*, pp. 446–47.

examiners. In the final analysis, military physicians rejected more than 8 percent of those considered acceptable by the draft boards, a figure that compared favorably with those resulting from camp examinations for newly federalized National Guard units.<sup>42</sup>

Army physicians conducted the initial physical examinations almost immediately after the new recruits reported for duty. On occasion draftees arrived in sufficient numbers to make careful and detailed examinations impossible, given that medical officers had to check each man every day for two weeks to detect signs of infectious disease as soon as possible. Most of the physicians responsible for the examinations were, of course, new to the Army, and none was familiar with conducting physicals for so many men in so little time. As a result, the system they used evolved as the months went by at regimental infirmaries. An examining board of 34 officers, including orthopedists, psychiatrists, cardiovascular specialists, tuberculosis specialists, and 60 enlisted men, conducted the first of two sets of examinations. If necessary, contract surgeons were hired to assist in checking over recruits. The maximum capacity of the average board was 400 men a day, although some boards could do 800 to 1,000 with reasonable accuracy.<sup>43</sup>

By the war's end camp physicians had given preliminary examinations to almost 3 million draftees, some of whom had filled up understrength National Guard units. They assigned some men who did not measure up to the Army's standards to remedial work designed to bring them up to an appropriate level of fitness. During training the physicians gave special examinations to identify inductees with previously undetected health conditions. Nevertheless, significant number of soldiers still arrived in France with chronic problems. Once diagnosed, they occupied beds that should have been available for casualties.<sup>44</sup>

The actual rejection of a recruit was achieved through a second set of examinations conducted by a team of expert examiners, specialists who visited the largest camps. It officially included experts in tuberculosis, cardiovascular problems, neuropsychiatry, and orthopedics, although specialists in eye and ear problems and dentistry were sometimes consulted. Because these experts were at times overwhelmed by the demands upon their time and energies, they were eventually divided into two groups: one to handle physical examinations and consultations; and a second, composed of less-experienced physicians, to deal with the camps' remedial work. The few fully qualified orthopedists found the system particularly demanding. When the first increment of draftees was coming in, less-qualified orthopedists were assigned permanently to the camps, while those with the great-

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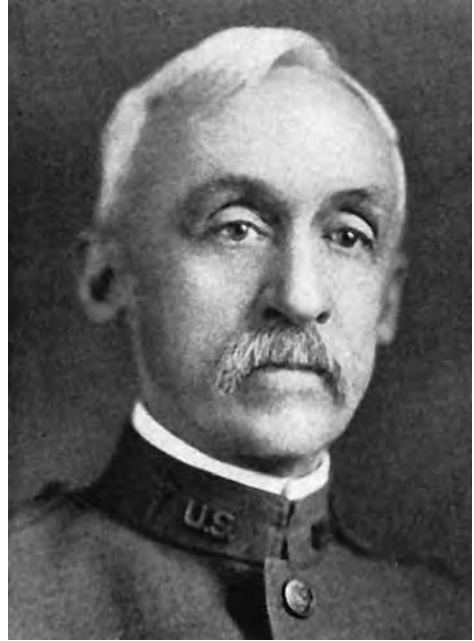
<sup>42</sup> Norbury, "Relation," p. 29; Keefer, "History," pp. 476, 477.

<sup>43</sup> Keefer Biography, p. 12, Ms C44, Autobiographical Sketches . . . , NLM; Keefer, "History," p. 476; Victor Cox Pedersen, "The American Physician in the Draft and in the Service of the World War," pp. 287, 291–92; WD, *ARofSG*, 1918, pp. 17, 279, 288; WD, SGO, *SGO*, 1134; idem, *Training*, pp. 49–50; idem, *Activities*, pp. 23, 112, 136; Wood, "Camp Sherman," p. 306.

<sup>44</sup> WD, SGO, *Activities*, pp. 11, 21; idem, *Sanitation*, pp. 431–32, 433–34, 451–52; Mahon, *Militia and National Guard*, pp. 155, 156, 164; WD, PMG, *Report of the Provost Marshal General to the Secretary of War on the First Draft Under the Selective Service Act, 1917*, p. 46; WD, *ARofSG*, 1918, p. 288; Thayer A. Smith and David Bovaird, "Irritable Heart or Effort Syndrome," p. 872; Harvey Cushing, *From a Surgeon's Journal, 1915–1918*, p. 375.

est expertise were divided into teams on the basis of geographical area and sent from camp to camp to deal with “the more difficult conditions.”<sup>45</sup>

For the most part, the examining boards viewed men with tuberculosis as a serious problem for the Army examination, but this proved to be a situation more feared than real. Spawned by high rates of the disease found in European armies, the alarm that resulted stemmed from frequent misdiagnoses. Surgeon General Gorgas, concerned by the heavy losses experienced by other armies in World War I from this disease, determined that the U.S. Army would not follow the same path. He decided that all troops should be examined for it, putting in charge of the effort Col. George E. Bushnell, MC, himself a victim of tuberculosis who had for many years headed the Army’s Fort Bayard tuberculosis hospital in New Mexico. Although Bushnell had retired from



*George E. Bushnell*

active duty in September 1917, he continued to work for the Medical Department as a consultant until October 1919. He died of the disease in 1924.<sup>46</sup>

Slightly more than 12,500 men out of more than 2 million draftees examined during the course of the war were diagnosed as having tuberculosis. Because of the common belief that this disease could be cured if caught early enough, as well as because of reluctance either to unnecessarily expose others to infection or to discharge healthy men, diagnosis was much emphasized, although the ability to diagnose accurately was in its early stages and, according to one Army expert, was “at present in an unsettled state.” The X-ray was not widely employed as a screening tool, its use being generally restricted to cases where the patient’s symptoms suggested chest disease of some type. Inevitably errors occurred, especially early in the war, when medical officers had to function in great haste. The Surgeon General’s Office established standards for making the diagnosis, but experienced difficulty in training men to apply them. Acceding to a request from the National Association for the Study and Prevention of Tuberculosis, Surgeon General Gorgas agreed to forward to it the names and addresses of draftees and soldiers with tuberculosis. At least one expert concluded that the “menace to the individual command

<sup>45</sup> WD, SGO, *SGO*, pp. 433 (quoted words), 434; idem, *Activities*, pp. 21, 23; idem, *Sanitation*, pp. 448–50, 452–53.

<sup>46</sup> Lawrason Brown and Joseph H. Pratt, “Tuberculosis as an Army Problem,” p. 139; WD, SGO, *Sanitation*, p. 450; Edward O. Otis, “The Examination of Soldiers for Tuberculosis in the U.S. Army,” p. 33; Bushnell Biography, Ms C44, Autobiographical Sketches . . . , NLM.

from the presence of tuberculosis is small.” He also noted that when the diagnosis of tuberculosis was made, as it usually was, within a month or two of entry into service, the disease could not be classified as service related. Thus the government was spared much future expense in the form of pensions.<sup>47</sup>

At some camps part of the examination for tuberculosis involved the circulatory system, with examiners being required to check the heart as well as the lungs in the belief that the preliminary examinations might have missed a problem in this area. They then referred those with cardiovascular problems to the camp’s cardiovascular board. The Medical Department experienced difficulty, however, in finding medical officers with the necessary expertise. Many men passed by the tuberculosis board proved unable to keep up with the training program, and reexamination revealed that a significant number had cardiovascular problems that the board had missed. The department then decided to bypass the tuberculosis board and to send directly to the cardiovascular board those who could not handle the double-time drill or who otherwise showed signs of heart trouble.<sup>48</sup>

Mental and nervous disorders, for which men were not specifically examined when they joined the Army for the nation’s previous wars, now became the center of much attention. The initial problem was identifying those in this category as early as possible. Once a diagnosis had been made, however, authorities had to determine what to do with those who were or might be mentally or emotionally defective. In 1917 the notion that experts might be able to identify before a crisis arose those unsuitable for military life because of mental or emotional weakness was a relatively new one, the mere existence of such experts in any number being a relatively recent phenomenon. Clearly, however, doing so was imperative to prevent the Army from incurring the expense of training recruits whom it would have to discharge later and the government from paying pensions for illnesses that would be deemed legally, albeit perhaps not medically, service connected.<sup>49</sup>

In an attempt to deal with the situation the War Work Committee of the National Committee for Mental Hygiene appointed a subcommittee to study the standardization of examinations and prepare a report on its findings, and Surgeon General Gorgas issued guidelines to examiners based on its recommendations. Although the Surgeon General’s Office transmitted its standards through the Provost Marshal General’s Office to draft board physicians, the draft boards had initially sent on to the camps a relatively large number of men who were eventually rejected as mentally unfit. Draft boards even occasionally sent men rejected at one camp on neuropsychiatric grounds to other camps, from which they were usually sent back

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<sup>47</sup> Floyd Kramer, “The Year’s Work in Military Hospitals and a Prospectus of the Future,” p. 683; WD, SGO, *SGO*, pp. 373, 375; idem, *Sanitation*, p. 514; George E. Bushnell, “The Diagnosis of Tuberculosis in the Military Service,” pp. 620 (first quoted words), 621; idem, “War Problem,” pp. 128, 129 (second quoted words), 131–32; Charles J. Hatfield, “War and Tuberculosis,” pp. 865–86; Wood, “Camp Sherman,” p. 458; W. Warner Watkins, “Chest Roentgenology in the Selective Service Examinations,” pp. 283, 285.

<sup>48</sup> WD, SGO, *SGO*, pp. 378, 951; idem, *Activities*, pp. 190, 191.

<sup>49</sup> WD, SGO, *Neuropsychiatry*, pp. 57, 60; Briggs, “Mental Conditions,” p. 142; Pearce Bailey, “War Neuroses, Shell Shock, and Nervousness in Soldiers,” p. 2149.

once again for the same reason. Some men caught up in this process were sent to five camps only to be rejected by five different examining boards.<sup>50</sup>

At the camps only those referred for neuropsychiatric examinations initially received them. With the draft boards sending on so many inductees who were mentally or emotionally unqualified to serve, however, the Army came to realize that it was investing much time and energy in training men who were eventually deemed unsuitable. As a result, a new policy was developed to require mobilization camp examining board psychiatrists to evaluate all recruits not long after their arrival.<sup>51</sup>

Experience suggested that the men posing the greatest danger to the Army were those with “intermediary conditions,” that is, soldiers suffering from mild neuroses, hysterias, and anxiety states; “military misfits”; and “otherwise near-normal individuals.” By the very nature of their problem, these cases “taxed the ingenuity and resourcefulness of the examiner to the utmost.” Although difficult to identify, these men held greater potential for undermining morale and reducing efficiency than those with a treatable illness. The conditions for which psychiatrists also looked included chronic alcoholism, drug addiction, stammering, bed wetting, and those in the category of organic nervous disease, including epilepsy, multiple sclerosis, advanced syphilis, and hyperthyroidism. Also of concern were those described as having a psychopathic character, a group believed to include both homosexuals and “grotesque liars.” Although venereal disease (VD) in any form had traditionally been a cause of rejection for potential recruits, the Medical Department in late 1917 informed medical officers that men with VD could be accepted as long as they were not incapacitated or actively infectious.<sup>52</sup>

The problems posed by drug addicts and chronic alcoholics were familiar to Army officers, be they of the line or of the Medical Department, and the victims of substance abuse were as a rule easily identified. A large majority of drug addicts were identified within three months, mostly because, unable to obtain drugs at the camp, they began to exhibit withdrawal symptoms. In a circular issued on 1 August 1917 the surgeon general stated that all addicted to cocaine, opium, or an opium derivative should be recommended for discharge. He noted that 90 percent of drug abusers were heroin addicts, although one study suggested that morphine addiction was more common. Drug addiction was regarded as “the urban variety of neuropsychiatric disorder par excellence.” Because drug addiction could be successfully feigned to obtain a discharge and because many addicts were otherwise healthy and often quite intelligent and less “neurotically predisposed” than others in the group with psychiatric problems, they were discharged subject to recall if needed. A few drug addicts were allowed to remain in the Army, possibly because they rarely became disciplinary problems.<sup>53</sup>

<sup>50</sup> WD, SGO, *Neuropsychiatry*, pp. 59, 84; Norbury, “Relation,” p. 28.

<sup>51</sup> WD, SGO, *Neuropsychiatry*, pp. 61, 62, 66.

<sup>52</sup> *Ibid.*, pp. 16–17, 67–68, 69 (fifth quoted words), 72 (first four quoted words); WD, SGO, *Sanitation*, pp. 462, 470; Briggs, “Mental Conditions,” p. 143; L. Vernon Briggs and Morgan B. Hodskins, “Report of Neuropsychiatric Work at Camp Devens, Mass.,” p. 749; Elmer K. Kenyon, “The Stammerer and Army Service,” p. 664; Pedersen, “American Physician,” pp. 289–90.

<sup>53</sup> WD, SGO, *SGO*, pp. 940, 943; *idem*, *Neuropsychiatry*, pp. 257, 258 (second quoted words), 261 (first quoted words); Briggs and Hodskins, “Neuropsychiatric Work,” p. 750.

Alcoholism was eventually regarded as a rather insignificant problem among the draftees, in part because of their relative youth. Alcoholism was diagnosed in less than one in 1,000 men examined. Because this problem was easy to spot, 71.6 percent of alcoholics received discharges before they had been in service a month. The dismissal of chronic alcoholics depended on the extent to which their brains or other organs seemed to be affected by their habit, but more than 85 percent were recommended for discharge. Some of the remainder were treated for the problem or allowed to serve, sometimes on a limited basis, without treatment.<sup>54</sup>

Beginning in March 1918, psychiatrists also began to scrutinize conscientious objectors, who tended to be classified as religious, intellectual, or opportunistic in their outlook, although the last group was difficult to distinguish from the first two. From early in the war the Army's policy required that conscientious objectors be treated with "tact and consideration" and that they "not be treated as violating military laws." Apparently behind this policy was the assumption that most in this group were, like the Mennonites, sincere in their religious objections to participation in the war. Most were seen as mentally normal, although some were psychotic, usually the victims of either manic-depression or paranoid schizophrenia. One physician familiar with conscientious objectors noted that many were vegetarians and that some were scholarly or "great readers of socialistic literature." Concern about the effect these men might have on morale if let out of the Army led at least one expert to recommend that they be retained in service. He was confident that, once free of the military service, they would become "the rankest sort of propagandists." Even the psychopath, he concluded, should be held in the Army and made subject to military laws so that, if he disobeyed them, he could be imprisoned at Leavenworth—"the only institution which could keep him from becoming a public menace."<sup>55</sup>

Tests for intelligence were more successful than those intended to detect mental and nervous diseases. At some camps all men, including officers, were eventually given psychological tests both to grade the intelligence and to uncover special abilities. The Army's requirement for a recruit was the mental ability of a ten year old, but those with the intelligence of eight year olds were at one point taken in. Because the mentally retarded were believed to cause more difficulties for the Army than any other group, identifying those who fell below the prescribed limit received much attention. Twenty-four psychologists were initially appointed under the Civil Service, and another sixteen became members of the Sanitary Corps to work as examiners at mobilization camps.<sup>56</sup>

Eventually the Medical Department set up a psychological service at thirty-five camps and tried out various approaches to psychological testing. One way or another, an estimated 90 percent of the mentally deficient at the camps were

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<sup>54</sup> WD, SGO, *SGO*, p. 940; idem, *Neuropsychiatry*, pp. 67, 70, 76, 264–65, 266; Briggs and Hodskins, "Neuropsychiatric Work," p. 749.

<sup>55</sup> WD, *Statement Concerning the Treatment of Conscientious Objectors in the Army*, pp. 16–17 (first two quoted words); WD, SGO, *Activities*, p. 177; *Neuropsychiatry*, p. 105; George E. McPherson, "Neuro-psychiatry in Army Camps," p. 38 (remaining quoted words).

<sup>56</sup> WD, SGO, *SGO*, pp. 397, 659; idem, *Activities*, p. 104; idem, *Neuropsychiatry*, p. 69; Norbury, "Relation," pp. 21, 30; From Camp Greenleaf to France folder, p. 6, Ms C308, Marquis Papers, NLM; McPherson, "Neuro-psychiatry," p. 40.

identified before the end of the training period; they formed more than 30 percent of the 72,323 cases of nervous and mental illness identified by neuropsychiatric examiners. Not all in this category were discharged, for line officers were not always enthusiastic about discharging those who seemed to be healthy physical specimens. Some were retained in the Army if they were strong and physically fit and thus potentially valuable for labor battalions. Others were assigned to development battalions, where their conduct could be observed while undergoing their initial training until a final decision could be made about their future. Because illiteracy was not a bar to enlistment and English was not the native language of many recruits, tests of mechanical skill were sometimes used to determine the true abilities of the many who were regarded as illiterate. Those whose difficulties proved to be the result of lack of education—as many as 31 percent fell in this category—were sometimes provided with special education while in the development battalion, and “many of them eventually made fairly good soldiers.”<sup>57</sup>

In spite of the value of testing, psychologists apparently did not play a dominant role in identifying the mentally retarded. Neuropsychiatric examinations given when the recruit first arrived at camp identified many problem cases before psychological tests could be administered. In addition, almost a quarter of the Army’s mental defectives were first identified by line officers, usually company captains; some believed that observation by medical and line officers was more effective than a rating by a psychologist in identifying those who were not capable of handling military duties. As far as possible, a psychologist was assigned to duty with each neuropsychiatric board, but because they were not physicians, their recommendations had to go through medical officers before being referred to commanding officers for action.<sup>58</sup>

Special psychiatric examinations were also arranged as needed. An effort was made to have all cases about to be tried by court-martial given a psychiatric evaluation. If the presence of any mental or nervous illness of a type that would ordinarily entitle the draftee to a disability discharge was detected, then he could be discharged rather than tried.<sup>59</sup>

Clearly the effort to screen out those emotionally and mentally unfit for service was not entirely successful. As late as February 1918 the surgeon general noted that no fewer than 10 in every 1,000 men then in the Army were unfit for service because of some emotional or mental problem, and in July 1918 Maj. Gen. John J. Pershing cabled back to Washington that “intensive efforts in eliminating mentally unfit” from among new draftees before they left the United States were absolutely necessary, if only because “psychiatric forces and accommodations here [were]

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<sup>57</sup> WD, SGO, *SGO*, pp. 395, 400–401; idem, *Activities*, pp. 24, 177 (quoted words); idem, *Sanitation*, p. 437; idem, *Neuropsychiatry*, pp. 58, 70, 105; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 213; Pearce Bailey and Roy Haber, “Mental Deficiency,” pp. 564, 570; Robert M. Yerkes, “The Relation of Psychology to Military Activities,” pp. 372, 373; Bertram F. Duckwall, “Psychological Light on Medical Department Administration,” p. 227.

<sup>58</sup> Bailey and Haber, “Mental Deficiency,” pp. 568, 569; Briggs, “Mental Conditions,” p. 143; WD, SGO, *Activities*, p. 191; idem, *Neuropsychiatry*, pp. 163, 258.

<sup>59</sup> WD, SGO, *SGO*, p. 660; idem, *Activities*, pp. 21, 24; idem, *Neuropsychiatry*, pp. 18, 65; Bushnell, “War Problem,” pp. 127, 128.



inadequate to handle a greater proportion of mental cases than heretofore arriving." He also was concerned by the fact that war and major mobilization greatly increased the incidence of such problems as hysteria and minor neuroses among men who might otherwise function normally.<sup>60</sup>

A special type of physical examination was given to prospective aviators. A unit was set up in each of the thirty-two divisional camps early in 1918 to handle physical exams for enlisted men who wanted to fly for the Army, while similar units were sent to thirty-five cities to examine civilians. They called upon the assistance of civilian specialists in such areas as ophthalmology, otolaryngology, neurology, and problems of the heart and lungs. These examiners were looking not only for such physical attributes as excellent eyesight but also for the presence of mental or nervous conditions that might either temporarily or permanently render a flier unfit for this specific type of service, for some idea of how well he could handle the pressures he would encounter at the front, and for any indication of whether he would become less efficient or even break down totally under those pressures. Awareness of exactly how unprepared physicians were to answer such questions led to the dispatch of three neuropsychiatric officers to the medical research laboratory at Mineola, Long Island. There they examined men who were already fliers and consulted with both U.S. and Allied officers who had served at the front in an effort to develop "refined personality studies in which the more difficult and less tangible emotional factors had to be considered." A majority of candidates examined, however, were still civilians, and most testing of this type was conducted by examining units sent to major cities.<sup>61</sup>

The system of multiple specialty boards in operation in the first months after the mobilization camps opened caused considerable confusion. No single authority was responsible for the conduct of physical examinations, each board being responsible to a different specialty division within the Surgeon General's Office. On 29 April 1918, therefore, Surgeon General Gorgas ordered that each recruit be examined only once, except in those instances where doubt existed as to his condition, and that the examination be conducted by a board of all the required specialists, named by the division surgeon. The use of specialty boards did not officially end until the following August, when their members became part of the single examination board that was by then functioning at each camp, becoming available for additional duties there as needed.<sup>62</sup>

Members of all boards, and, indeed, all medical officers, had to be on the watch for men who feigned health problems to avoid service. Malingerers, an exceedingly ingenious group, were often willing to endure much to avoid the Army. Some had teeth pulled or submitted to having cars run over their hands. Others ingested picric acid to induce a jaundiced pigmentation or injected their bladders with egg whites to produce albumin in their urine. Malingering was an unfamiliar area to most medical officers, few of whom encountered the problem in civilian practice.

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<sup>60</sup> WD, SGO, *Neuropsychiatry*, pp. 58 (quoted words), 59, 63; Briggs, "Mental Conditions," p. 141.

<sup>61</sup> WD, SGO, *SGO*, pp. 494, 495; idem, *Neuropsychiatry*, pp. 70 (quoted words), 71; Lee Kennett, *The First Air War, 1914-1918*, pp. 78, 82.

<sup>62</sup> WD, SGO, *Sanitation*, pp. 453-55.

Because the “detection of a malingerer reduces itself in most cases to a battle of wits between the examiner and the recruit,” physicians needed to become as familiar as possible with the many kinds of ruses and ways to detect them. Medical officers also needed to be aware, however, that hysteria or true mental illness rather than malingering could be behind a recruit’s difficulties.<sup>63</sup>

Not all men found to be unfit for service received discharges. Approximately 40 percent of the physical defects found were regarded as “mechanical.” The surgeon general recognized that a middle ground was needed between accepting and discharging, for remedial work could make it possible for many men who would otherwise be rejected to meet physical standards. Because more than 301,000 recruits were rejected because of foot problems alone, Surgeon General Gorgas in October 1917 ordered medical officers to be particularly alert for foot difficulties that became apparent during training and to call upon orthopedists for assistance before discharging a man for this reason. By the spring of 1918 Gorgas had concluded that special examination boards should be responsible for making the decision about who could be salvaged, suggesting that as many as five medical officers be assigned to identifying remediable defects at each camp.<sup>64</sup>

Another potentially remedial problem encountered by medical officers was the condition variously described as “neurocirculatory asthenia,” “neurocirculatory myasthenia,” and “soldier’s heart.” Army physicians could find no evidence of structural heart damage in these cases, and such abnormal sounds as could be heard were often those found in healthy soldiers as well. Yet these men responded poorly to exercise, exhibiting such symptoms as cold and sweating hands, marked alterations in blood pressure and pulse following change of body position, and dizziness after exertion. Two physicians who studied such cases noted that they spent “nervous energy so recklessly that they [were] constantly on the threshold of stimulation and any slight irritation, emotional or otherwise, [pushed] them over the border.” Another believed the condition must be related in some way to hyperthyroidism. Yet another noted that among the cases he had studied, one or more foci of infection were almost invariably found, often in the teeth or tonsils. Although these men were generally regarded as unfit for military duty, many, through a graduated exercise program with an enthusiastic skilled drill instructor, could be rehabilitated so that they could at least perform limited duties or even in some cases return to full duty.<sup>65</sup>

Part of the effort to reclaim those who might otherwise be discharged because of physical defects was the institution known as the development battalion. The men assigned to it were observed and, to the extent possible, retrained. Those with minor foot defects were given corrective exercises. Also found in development battalions

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<sup>63</sup> WD, SGO, *SGO*, pp. 724–25, 952; Mosher, “Otolaryngology,” p. 637 (quoted words); Joseph Catton, “Malingering,” pp. 714–16; Garrison, *New Medical Department*, p. 8.

<sup>64</sup> H. M. F. Behneman, “In Consideration of the Physical Disabilities Found in the Drafted Men and Volunteers of the World War,” p. 777 (quoted words); WD, SGO, *SGO*, pp. 646, 917–18, 943, 1134; idem, *Activities*, p. 177; idem, *Training*, p. 310; idem, *Physical Reconstruction*, p. 205; Arthur S. Jones, “Making the Feet for Military Service,” pp. 219, 221, 222.

<sup>65</sup> Alfred Friedlander and William L. Freyhof, “Intensive Study of Fifty Cases of Neurocirculatory Asthenia,” p. 693 (quoted words), 694, 699, 714–15, 718; Smith and Bovaird, “Irritable Heart,” p. 886.

were the victims of venereal disease as well as, among others, illiterates, addicts, conscientious objectors, and those “who were so undeveloped mentally that they were fit for duty only as laborers.” Those who were scheduled for discharge might also be sent to the development battalion to await final separation from the service. The various disabilities represented were usually segregated, those with venereal disease usually being the most numerous. Responding to the many complaints about recently hospitalized men reporting back to duty too soon, the surgeon general had a training department set up at each camp where convalescents could be prepared for eventual assignment to the development battalion as a step before returning to full duty. Although Medical Department personnel were not responsible for the development battalion’s administrative functions handled by a permanent training cadre, at least 2 medical officers and 19 enlisted men performed some support tasks as needed.<sup>66</sup>

All men destined for overseas received yet another physical examination before being sent on to embarkation ports. Those found unfit at this time were held back, and soldiers with physical defects that precluded overseas service were promptly transferred to development battalions or “otherwise disposed of.” To the extent possible, medical officers not attached to the organization whose men were being checked handled this final examination.<sup>67</sup>

### *Medical Personnel Training*

Personnel shortages complicated efforts to teach medical personnel at mobilization camps. Those who were supposed to be instructors had little time to instruct, while those who were supposed to learn had little time to learn other than by doing. The demand for medical officers and Medical Department enlisted men overseas cut courses short, forcing modification and compression in the effort to see that as many trainees as possible were familiarized with the demands that were most likely to be made upon them after they left the mobilization camps.

The training that medical officers received at mobilization camps was designed to be “intensive and arduous,” planned to resemble as closely as possible that offered at the medical officers training camps. The full course was intended to last three months, with due consideration given to the fact that students might be ordered to Europe before they had completed their training. Also to be considered in planning the course was the varied background of the students, only some of whom had had prior military experience. Because of the shortage of experienced medical officers, one of the responsibilities of the training officer appointed by each division surgeon was identifying those with enough familiarity with military medicine to serve as instructors. The hope was that, once the first course had been completed, the graduates would themselves become instructors.<sup>68</sup>

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<sup>66</sup> WD, SGO, *SGO*, pp. 120, 140, 616, 618; idem, *Activities*, pp. 24–25 (quoted words), 26, 69, 77, 127, 130, 143–44, 163, 172, 192, 193, 209, 227, 237; idem, *Military Hospitals*, p. 140; idem, *Physical Reconstruction*, pp. 206, 208–09, 213, 214; Sidney J. Meyers, “The Physical and Mental Training of Convalescents at Base Hospital, Camp Zachary Taylor, Kentucky,” pp. 497, 498; Charles M. Williams, “The Development of the Venereal Battalion,” p. 177.

<sup>67</sup> WD, SGO, *SGO*, p. 655.

<sup>68</sup> Ibid., pp. 173, 854 (quoted words), 855; WD, SGO, *Training*, pp. 13, 302, 304, 305, 307; WD, *ARofSG*, 1918, p. 408.

Like their counterparts at the medical officers training camps, physicians in training at the mobilization camps benefited from lectures given by prominent visiting doctors. Traveling instructors spoke about diagnosing tuberculosis and other topics of concern, illustrating their lectures with slides and moving pictures. When Surgeon General Gorgas visited Fort Sill in Oklahoma, accompanied by two distinguished reserve officers, Colonel Vaughan and Col. William H. Welch, MC, he inspected the camp and its large base hospital before addressing the camp's 200 medical officers. Students at this fort also benefited from instruction given by three experienced French medical officers, who were presumably able to make especially significant contributions to the fort's course in gas defense, which was designed to prepare medical officers to serve as chemical advisers at the division level.<sup>69</sup>

By the spring of 1918 the odds that a medical officer would be allowed to remain in camp long enough both to receive all the benefits of the training program and to serve as an instructor were low by comparison to the odds that he would be transferred before he had completed his course. In actual fact, some stayed at the mobilization camp only enough to receive their equipment. The surgeon general, therefore, ordered those in charge of training to arrange their courses so that the students became familiar with the type of work he would be required to do immediately after leaving camp, such as holding sick call, examining recruits, and handling related paperwork. The study of regulations and Medical Department manuals followed, covering such varied topics as sanitation for medical officers and military ophthalmic surgery. No individual student was considered as having completed his training until his performance had satisfied a board of three senior medical officers.<sup>70</sup>

Not all students were sufficiently aware of the fact that skill as a civilian practitioner did not guarantee success as a military physician. Some seemed to think that as far as military training was concerned, they needed only to know "enough to wear the prescribed uniform, return salutes, and sign the monthly pay voucher." The war became "an opportunity to take postgraduate courses or to break into a specialty." Medical officers who were only recently civilians had to learn the hard lesson that the good of the Army as a whole had to take precedence over the good of the individual patient. The dedicated clinician had difficulty learning to appreciate the necessity for copious amounts of administrative work.<sup>71</sup>

Unlike some of the courses at medical officers training camps, the hospital training program at mobilization camps was not designed to transform general practitioners into specialists but rather to expose them to the type of work they might be required to do in various areas and to familiarize them with how these challenges were met in a military setting. Although the Medical Department had initially sent some physicians to civilian institutions for specialized training,

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<sup>69</sup> WD, SGO, *SGO*, p. 376; idem, *Training*, p. 308; idem, *Medical Aspects of Gas Warfare*, p. 43; Wilson Thompson Davidson, *Years of an Army Doctor*, pp. 121–22, 123.

<sup>70</sup> WD, SGO, *SGO*, pp. 173, 418, 856, 870; idem, *Military Hospitals*, pp. 205, 219; idem, *Training*, 13–15, 304, 305, 306, 311; WD, *ARofSG*, 1918, p. 407.

<sup>71</sup> Gustavus M. Blech, "The Military Aspect of Base Hospitals," p. 508 (first quoted words); Mosher, "Otolaryngology," pp. 648, 649 (second quoted words).

Surgeon General Gorgas had concluded by the spring of 1918 that the professional training of officers and men slated for overseas duty should be limited to military facilities, where they would be inevitably be exposed to military routines. The wisest use of the very limited time available for training would also involve particular emphasis on providing orthopedic instruction, as war wounds frequently involved injuries to the bones.<sup>72</sup>

Medical officers from the divisions in the camps could be sent to base hospitals for training in nonprofessional aspects of their responsibilities. Those who were destined for administrative assignments in the divisions were detailed to work as assistants to the commanding officers of the base hospitals. The emphasis in these instances was, once again, on learning by doing, with as little disruption as possible to normal hospital routines. Some of the larger hospitals offered intensive training in one particular area. Because space for training in the purely military aspects of the duties of an officer serving in the field with the troops was not available at the base hospitals, the surgeon general quickly decided that only medical officers who were not fit enough to handle field work were to be assigned to base hospital staffs, as opposed to divisions, for training. These physicians could, however, be assigned to form new hospital staffs and to serve as instructors in hospitals both in the United States and overseas.<sup>73</sup>

The low ratio of staff to patients at base hospitals precipitated several problems because it left little time for medical officers to handle any type of teaching. Instruction at some facilities had to be limited initially to the fundamentals. Heavy patient loads also led to specialists being required to handle whatever work needed to be done, regardless of their particular expertise. Because of the limited capacity of medical officers training camps, the decision that medical officers not attached to a division must also be sent to base hospitals for instruction doubled or tripled the size of the hospital staffs on which they served while they learned. Many of these physicians had had no military training whatever, and releasing them from their professional duties in base hospitals for this purpose proved difficult.<sup>74</sup>

The need for medical officers became so great that every effort was made to avoid discharging any of them. Thus substandard medical officers came to be part of the staffs of base hospitals, and simpler class work had to be set up to remedy the effects of weak professional backgrounds. These physicians were permitted to remain in training without a time limit as long as they seemed to be profiting by it. Those who were not successful in working at the base hospital might be given temporary assignments with a field hospital or ambulance company and permanently transferred if they succeeded there. The surgeon general attempted to assign all Medical Reserve Corps officers to specialties for which their backgrounds seemed to qualify them; however, when one failed in work assigned in an effort to improve his skills, he might be given a psychological examination to determine whether he

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<sup>72</sup> WD, SGO, *SGO*, pp. 425, 857; idem, *Training*, pp. 539–40.

<sup>73</sup> WD, SGO, *SGO*, pp. 380–81, 449, 646, 790, 857, 858–59, 860, 861, 862–63, 1121; idem, *Military Hospitals*, pp. 122, 127, 128–29, 140, 218; idem, *Training*, pp. 303, 322, 370, 375, 376, 377, 378, 471–72; Mosher, “Otolaryngology,” p. 638.

<sup>74</sup> WD, SGO, *SGO*, pp. 329, 1051; idem, *Activities*, p. 11; idem, *Military Hospitals*, pp. 122, 140, 218.

was mentally qualified to fulfill the responsibilities of a medical officer. Only when no alternative remained was a medical officer ordered before a board of officers for discharge.<sup>75</sup>

Nonphysician Medical Department personnel were also assigned to mobilization camps. Dental and veterinary officers trained in the much same manner as medical officers, taking many of the same courses. Dental surgeons set up their own society and presented papers intended to further their professional development. By February 1918 the division veterinary officers at several camps had organized schools for Veterinary Corps personnel, and by May 1918 they had established training schools all camps and remount depots, although the instruction varied widely from camp to camp.<sup>76</sup>

For nurses at the mobilization camps, a course in anesthesiology was the only formal instruction offered. Even students from the Army School of Nursing extended the bounds of their knowledge chiefly by association with and guidance by those with superior training. Female contract surgeons, assigned to work at base and general hospitals to teach nurses—both male (who never ranked above private and were apparently not highly regarded) and female—and some officers, taught the course. The need for trained anesthetists was so great that the length of the course was limited to six weeks, and each student was expected to go through the course as rapidly as possibly to free a place for another.<sup>77</sup>

A nucleus of the enlisted medical personnel needed at each base hospital came from the medical officers training camps, but the remainder had to be supplied by the draft and instructed as they worked, hopefully under the supervision of those with greater skill. The Surgeon General's Office outlined what was to be accomplished in these courses, which were intended to familiarize the enlisted man with the duties to which he had been assigned and to give him some understanding of the other types of service that the Medical Department could call upon enlisted men to perform. In the early months of the mobilization camps, however, the high proportion of patients to available enlisted men made it impossible to provide more than the "rudiments in the care of the sick and in the preparation of food for both patients and personnel." Once trained, these men could become the nucleus around which the staffs of other hospitals could be formed. Unfortunately, division headquarters too often transferred enlisted men from medical units to other branches, which severely handicapped efforts to train medical personnel.<sup>78</sup>

Enlisted men from the medical organizations of divisions were sent both to base hospitals, where they were trained as nurses and ward attendants, and to medical supply depots. Each division surgeon, who was required only to be responsible for the results of his training program, was ordered to initiate "a course of intensive instruction and training" within the division soon after the camps opened. The shortage of noncommissioned officers led to the creation of schools at larger posts

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<sup>75</sup> WD, SGO, *SGO*, pp. 868, 1063; idem, *Military Hospitals*, pp. 121–22, 127–28, 138–39; idem, *Training*, pp. 375, 376.

<sup>76</sup> WD, SGO, *Activities*, p. 27; idem, *Training*, pp. 303, 343, 352.

<sup>77</sup> WD, SGO, *Military Hospitals*, p. 139; idem, *Training*, pp. 382, 383, 445; A. E. Brownrigg, "Neuropyschiatric Work in the Army," p. 460.

<sup>78</sup> WD, SGO, *SGO*, pp. 857–58; idem, *Activities*, pp. 75, 754; idem, *Military Hospital*, pp. 121, 139–40 (quoted words); idem, *Training*, pp. 383, 385; Ashburn, *History of MD*, p. 302.

for training enlisted men to qualify for promotion. Those who functioned best in handling supplies at the camps were sent to schools for medical supply officers, while others were selected for a special course in fitting shoes, taking care of feet, and treating minor orthopedic problems.<sup>79</sup>

Most of those trained at base hospitals were needed for overseas service. Because of an acute shortage of men, the Surgeon General's Office decided that eighteen evacuation hospitals and thirty-six base hospitals for the American Expeditionary Forces should be "kept constantly under training" in base and general hospitals at all times. Whenever one was sent overseas, another took its place. Evacuation hospitals were usually organized and their staffs given preliminary training at medical officers training camps and at the Camp Crane facility in Allentown, Pennsylvania, with the men involved thereafter sent to base hospitals for further instruction. Because the evacuation hospital was not a familiar concept in the United States, no outline of instruction existed for its personnel. Commanding officers of base hospitals thus had to improvise to maximize the use of such opportunities for training.<sup>80</sup>

The work of the Medical Department at the mobilization camps of necessity relied heavily on improvisation and flexibility. The huge and complex modern Army and the increasing demands and aspirations of modern medicine came face to face, suddenly, under unimaginably poor circumstances. The department had no choice in the haste and confusion but to send officers and enlisted men abroad before they were thoroughly familiar with their military duties. Without time for real preparation or even for careful consideration of how that preparation would be best accomplished, neither Surgeon General Gorgas nor the Medical Department as a whole could have possibly met the administrative challenges posed by the need to provide great numbers of well-trained men to screen the men being prepared for service overseas and to care for them during training.

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<sup>79</sup> WD GO no. 133, 11 Oct 1917; WD, SGO, *SGO*, pp. 667, 680-82; idem, *Training*, pp. 303 (quoted words), 309, 360, 383, 564.

<sup>80</sup> WD, SGO, *Training*, pp. 53, 389, 390 (quoted words).

## Chapter 5

# COMMUNICABLE DISEASES ON THE RISE



The battle to preserve the health of the thousands of young men who were arriving at mobilization camps from all parts of the country centered about efforts to prevent the spread of communicable diseases and, when prevention failed, hospitalization and treatment. As early as the winter of 1917–1918, outbreaks of disease and rumors of scandal in the hospitals where the victims of disease were sent began to proliferate. Because of the situation, Secretary of War Newton D. Baker urged Surgeon General William C. Gorgas to establish “a system of continuous and constant inspection” of camps that would provide him with daily reports on conditions there. Baker also appointed a medical officer whom he regarded as “a very great hospital expert” to serve as his personal inspector. When the notorious influenza pandemic struck in the fall of 1918, however, with more than 1.3 million men crowding the camps each month, efforts to prevent its spread proved futile. Both the camps and their hospitals were overwhelmed.<sup>1</sup>

### *Preventive Medicine*

As explained by Col. Victor C. Vaughan, MC, and Capt. George T. Palmer, SC, who were familiar with the spread of disease in the World War I mobilization camps: “The assembly of young men in camps acts like a drag-net bringing to a

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<sup>1</sup> James A. Tobey, *The Medical Department of the Army*, p. 42; War Department, [Annual] *Report of the Surgeon General*, 1918, pp. 18, 19 (hereinafter cited as WD, *ARofSG*, year); United States, Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917–January 1918*, pp. 1928, 1929–30, 1939 (quoted words), 1940, 1941, 2051 (hereinafter cited as *Investigation of the War Department* (65th Cong, 1st sess.)); Stanhope Bayne-Jones, *The Evolution of Preventive Medicine in the United States Army, 1607–1939*, pp. 151–52. Unless otherwise indicated, material on communicable diseases is based on Victor C. Vaughan and George T. Palmer, “The Communicable Diseases in the National Guard and National Army of the United States During the Six Months from September 29, 1917 to March 29, 1918,” pp. 251–98, 392–444; George A. Soper, “Health of the Troops in the United States During 1918,” pp. 377–98; and Wesley W. Spink, *Infectious Diseases*. Readers interested in the Army’s approach to individual diseases should also consult War Department (WD), Surgeon General’s Office (SGO), *Communicable and Other Diseases*.





*Typhoid inoculation at a mobilization camp*

central point all infections prevalent in the area from which these men come. The wider the area, the larger the numbers of those individuals constituting the assembly, the more closely these individuals are crowded together and the more intimate their contact, the larger the number of disease-causing organisms brought into the camps, the greater will be the morbidity and mortality from communicable diseases.”<sup>2</sup>

The state of the art of medicine was such as to provide some hope that any rampant spread of disease could be prevented. For this hope to be realized, however, scientists needed to acquire both a clear understanding of how each disease was transmitted and an ability to diagnose it promptly and accurately. Adding bacteriologists, epidemiologists, and other specialists to the Medical Department made it possible to extend the scope of preventive medicine beyond the mere appearance of cleanliness. By enhancing the ability to detect the threat of communicable diseases before they could become widespread, by checking on the progress of efforts to eliminate the danger they posed, and by developing immunizing vaccines and sera (which contain antibodies that provide the patient receiving it with passive and relatively short-lived immunity), these experts brought science to the art of preventive medicine.<sup>3</sup>

<sup>2</sup> “War Work of the Rockefeller Institute for Medical Research, New York,” pp. 506, 508; WD, SGO, *Sanitation*, p. 17; Vaughan and Palmer, “Communicable Diseases,” p. 251 (quotation). For background material on the Army’s efforts to prevent disease in the era before World War I, see Mary C. Gillett, *The Army Medical Department, 1775–1818*, *ibid.*, *1818–1865*, and *ibid.*, *1865–1917*.

<sup>3</sup> Herbert Fox, “History of Measles at Camp Zachary Taylor, Kentucky, Summer of 1917 to Winter of 1919,” p. 199; Harold E. Eggers, with a report by Ellis H. Kerr, “Communicable Disease at Camp Funston and the Medical Officers’ Training Camp, Fort Riley, Kansas, October 15th, 1917, to January 15th, 1918,” p. 42.

For some dangerous diseases, immunization seemed to offer promise as an effective approach to prevention. Vaccination had been used successful against smallpox since the earliest days of the Army, and inoculation against typhoid fever (the U.S. Army was the first military force to immunize its men) was beginning to show considerable success. As a result, real hope was held that immunization might prove effective against other diseases, among them meningitis, an infection affecting the membranes around the brain and spinal cord. Although not as frequently encountered as many other threats to the Army's health, meningitis merited attention both because it was so lethal and because it was reputedly forty-five times more prevalent among the Army's soldiers than among civilians. During World War I, however, the hope that immunization could limit its spread in the Army proved illusory. In



*Edward B. Vedder*

In 1919 one of the Army's most prominent research scientists, Lt. Col. Edward B. Vedder, MC, could only note ruefully that "transmission and epidemiology [of meningitis remain] something of a puzzle. Attempts to verify the effectiveness of experimental vaccines were hindered by the fact that recruits were moved about in such large numbers with such frequency that keeping track of the health records of those who had been immunized was virtually impossible."<sup>4</sup>

Attempts to prevent pneumonia, influenza, and related diseases by means of vaccines were also disappointing. Scientists initially failed to appreciate the number and complexity of the organisms that could produce these illnesses, which were more prevalent and therefore more dangerous than meningitis. As a result, the fact that an attack of pneumonia did not confer immunity to subsequent attacks discouraged attempts to develop a vaccine for some time. When vaccines for pneumococcal pneumonia—the most common form of pneumonia—were first developed, they were of limited value. Only when the importance of making a distinction between the various types of pneumococcus was fully understood could significant progress toward immunization be made.<sup>5</sup>

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<sup>4</sup> "War Work of Rockefeller Institute," p. 505; Frederick L. Gates, "A Report on Antimeningitis Vaccination and Observations on Agglutinins in the Blood of Chronic Meningococcus Carriers," p. 449; Edward B. Vedder, "The Epidemiology of the Sputum-Borne Diseases and Its Relation to the Health of the National Forces," pp. 142 (quotation), 143; A. Macphail, *Official History of the Canadian Forces in the Great War, 1914–1919*, p. 13.

<sup>5</sup> WD, SGO, *Pathology of the Acute Respiratory Diseases, and of Gas Gangrene Following War Wounds*, p. 399; Russell Cecil and J. Harold Austin, "Results of Prophylactic Inoculation Against

Efforts to prevent the spread of disease through limiting the soldier's exposure to the organisms that cause it proved, in most instances, to be more successful than immunization. The benefits of good sanitation, which could reduce the threat of a wide spectrum of diseases to the Army's health, led experts to classify diseases according to the means of their spread—digestive, insect-borne, venereal, and respiratory. The digestive diseases, among them typhoid fever and the dysenteries, were spread principally by flies and by infected food and water. Because the effectiveness of immunization against typhoid fever was related to the extent to which the soldier had been exposed to the organism causing the disease, sanitation remained important in the campaign against it. When high standards of sanitation were maintained, the digestive diseases were not a major threat to the mobilization camps.

Although insect-borne threats—principally malaria—and venereal infections—especially syphilis and gonorrhea—also appeared at the camps, the greatest danger to the Army's health was posed by those classified as respiratory because they were spread principally through the air usually by sputum (infected material brought up from the respiratory system) or droplets disseminated by sneezing and coughing. Four of the five most common illnesses at the mobilization camps fell in this category, and in 1917 they caused more than 77 percent of the deaths of enlisted men in the United States. Among them were the traditional childhood maladies, principally measles, as well as pneumonia, meningitis, and influenza. Because of their mode of transmission and the lack of effective vaccines, they remained difficult to prevent.<sup>6</sup>

The campaign to limit the inroads of disease among recruits at the mobilization camps, both by immunization and by limiting exposure to disease, began with their arrival and continued throughout the length of their training there. The first step usually involved segregating them until they could be checked for signs of disease and immunized against smallpox and typhoid fever. Although Surgeon General Gorgas favored extending the use of isolation or detention facilities to troops being transferred from one camp to another as well, Congress did not appropriate money for special buildings to house detainees until July 1918. Medical officers attending sick call stood ready to identify promptly and to isolate any who fell ill after their arrival in camp. Authorities also urged all men to report promptly when they felt sick so as to avoid infecting others and encouraged regular inspections of all troops for signs of disease.<sup>7</sup>

Realizing that the recruits arriving at camp brought with them the ailments afflicting their hometowns and that thereafter they tended to pick up whatever was currently afflicting the nearby towns and cities, medical authorities attempted to learn what diseases were prevailing in these civilian communities. They kept a

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Pneumococcus in 12,519 Men," p. 19. For the background of the Medical Department's pioneering efforts to defeat typhoid fever, see Gillett, *Army Medical Department, 1865–1917*.

<sup>6</sup> WD, *ARofSG*, 1918, pp. 18, 157; Vedder, "Epidemiology," pp. 123–24; WD, SGO, *Activities Concerning Mobilization Camps and Ports of Embarkation*, pp. 166, 190, 221, 231; idem, *Sanitation*, p. 237; Joseph A. Capps, "Measures for the Prevention and Control of Respiratory Infections in Military Camps," p. 448.

<sup>7</sup> WD, SGO, *Surgeon General's Office*, pp. 915, 916, 991, 992, 997 (hereinafter cited as *SGO*); idem, *Activities*, pp. 13–15, 20, 73, 76–77, 81, 124; idem, *Sanitation*, pp. 175–76, 179, 182, 183; Eggers, "Communicable Disease," p. 38; *Investigation of the War Department* (65th Cong. 1st sess.), pp. 1971, 2045.

sharp eye on restaurants, barbershops, and similar establishments frequented by recruits and worked to prevent the breeding of insects outside the camp as well as within its bounds. The Medical Department solicited the aid of the United States Public Health Service and local health officials in these efforts, while medical officers reciprocated by reporting to local authorities the presence of infectious disease and disease carriers at their camps. When a town refused to reciprocate, the Army could declare it off limits.<sup>8</sup>

One of the diseases that might be afflicting soldiers when they arrived at southern mobilization camps was hookworm disease. The parasite, which settles into the digestive system but is acquired when the skin contacts soil contaminated with the feces of hookworm hosts, was common among men raised in the South. The likelihood of spreading the parasite in camps where levels of sanitation were high and soldiers were not likely to spend much time barefoot was small, but diagnosing infestations was important because those harboring many hookworms became anemic, weak, lethargic, and vulnerable to other illnesses.<sup>9</sup>

Another ailment newly arriving recruits brought to camps was venereal disease (VD), which was “the greatest single cause of disability in the army” and which at some camps afflicted as many as 320.4 men per 1,000 each year. In October 1918 the surgeon general estimated that almost 85 percent of the cases diagnosed at the camps had been acquired in civilian life, and some suggested that that figure might be as high as 96 percent. Rates “went up enormously” in the National Army when new men first reported for duty, but relatively few of the recruits who were free of venereal disease when they arrived at the mobilization camps contracted it while in training. An officer familiar with the situation concluded that three basic problems led to the spread of venereal disease: alcohol, prostitution, and “the theory that sexual indulgence is necessary to health.”<sup>10</sup>

The effort to prevent the spread of venereal disease by dealing with these underlying problems went well beyond the Medical Department to include many civilian agencies. It involved not only prophylaxis but emphasizing education and discipline and reducing exposure to temptation. The educational campaign reached

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<sup>8</sup> C. P. Knight, “The Activities of the United States Public Health Service in Extra-Cantonment Zones, with Special Reference to the Venereal Disease Problem,” pp. 41, 42; WD, SGO, SGO, pp. 969, 998; idem, *Activities*, pp. 32, 56, 58, 63, 138, 162, 167, 183, 187, 194, 209, 228, 279; idem, *Sanitation*, p. 514; Casey A. Wood, “A History of the Base Hospital, Camp Sherman, Chillicothe, Ohio,” p. 300; W. H. Frost, “The Red Cross and the War,” pp. 8–9; United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, p. 27 (hereinafter cited as *Hearings . . . on S. 3748* (65th Cong., 2d sess.)).

<sup>9</sup> Edward J. Scannell, “A Sanitary Survey of Camp Jackson, S.C.,” p. 372; Baldwin Lucke, “Statistical Study of the Prevalence of Intestinal Worms in 35,000 White and Colored Troops at Camp Zachary Taylor, Kentucky,” pp. 621, 622; WD, SGO, SGO, pp. 978, 1105; idem, *Activities*, p. 221; WD, *ARofSG*, 1917, p. 19; *ibid.*, 1918, p. 278.

<sup>10</sup> William F. Snow and W. A. Sawyer, “The Program of the War Department Against Venereal Disease,” p. 641 (first quoted words); Elmore M. McKee, “The Venereal Problem,” pp. 468 (final quoted words), 469; Allan M. Brandt, *No Magic Bullet*, p. 77; WD, SGO, SGO, pp. 1012–13; Vaughan and Palmer, “Communicable Diseases,” p. 411 (second quoted words); P. M. Ashburn, “Statistics of Venereal Disease in the Army of the United States in 1918,” p. 335; Charles H. deT. Shivers, “Methods of Handling Venereal Diseases at Camp Dix,” p. 301; Jerome H. Greenberg, “Venereal Disease in the Armed Forces,” p. 179.



*Venereal disease film, the best known and most controversial production of the Army Medical Museum's Instruction Laboratory*

the individual soldier when the Army created the position of social hygiene sergeant and made him directly responsible to the camp surgeon. The only duty of this noncommissioned officer was to teach the men about venereal disease, thus guaranteeing that they could not ignore the message the Army wanted to bring to them. To reach the illiterate, he read aloud and showed and explained slides; to reach the non-English speaking, he worked through interpreters. Beginning in January 1918, social hygiene sergeants, individually selected on the basis of personal integrity, were dispatched from Fort Oglethorpe's Camp Greenleaf, which had become "a reservoir for special details sent out to all parts of the country." No particular background was deemed necessary to handle this responsibility. One social hygiene sergeant had been a lawyer in civilian life; another, a special sanitary inspector of the health department of an eastern city.<sup>11</sup>

The Army, secure in the knowledge that many soldiers would find chastity resistible, continued to rely heavily on prophylaxis. Because the combination of prophylaxis and discipline was credited with reducing the peacetime VD rate in regular Army units to 4 percent, the Army adopted the same approach for the wartime. Prompt use of chemical prophylaxis was necessary, as its effectiveness dwindled with the passage of time following sexual contact. Posting a guard to inquire of all returning to the post about their sexual contacts, providing prophylaxis stations, enforcing prophylaxis for drunken soldiers, conducting biweekly medical

<sup>11</sup> Brandt, *No Magic Bullet*, pp. 62, 63, 66, 69, 80, 85, 120; WD, SGO, *SGO*, p. 1012; idem, *Activities*, p. 111; John Duffy, *The Sanitarians*, p. 225; Franklin H. Martin, "Council of National Defense, Committee on Medicine," pp. 550–51; William A. Bradley, "Social Hygiene Sergeant," pp. 194, 197–98 (quoted words), 200–201.

inspections of all men, and interrogating soldiers who became infected so as to learn about their contacts were all integral parts of the Army's campaign against venereal disease. Authorities at several camps set up prophylaxis stations in nearby communities and in the camps themselves. Because contracting venereal disease after failing to use the required chemical prophylactic following intercourse constituted neglect of duty, medical officers were required to report to the camp commander the names of all VD patients so that those who had neglected prophylaxis could be promptly brought to trial. The soldier who was found to have venereal disease was not excused from duty while he underwent treatment unless a medical officer found it necessary.<sup>12</sup>

Surgeon General Gorgas considered the campaign against venereal disease in the camps to have been eminently successful. Within eighteen months, he maintained, the rate within the Army had been cut by 300 percent, largely, he believed, because of prophylaxis instruction at the camps and the efforts of the military police to keep soldiers away from temptation. Secretary Baker, on the other hand, maintained that the lion's share of the credit belonged to "the wholesome moral climate in the training camps [that] made the towns less attractive."<sup>13</sup>

Efforts to prevent the spread of digestive diseases were less dependent on the cooperation of individual soldiers than those used against venereal diseases. Efforts to prevent their spread included requiring that water and milk supplies be pure or adequately purified and that flies, capable of carrying many types of disease on their feet as they flitted about amongst latrines, piles of manure, and water and food supplies, be eliminated. Authorities also insisted on proper disposal of sewage. By late 1918 all camps with barracks and some of those with tents were either treating their sewage in some fashion or sharing the system of a nearby civilian community. In addition to managing camp discharges, they also attempted to eliminate any harmful bacteria that might enter the water supply. For troops in the camps and in the field, water was rendered safe by adding calcium hypochlorite in a linen bag—the method developed in 1913 by Maj. William J. L. Lyster, MC. The Lyster Bag became the standard means of purifying water in the field in World War I.<sup>14</sup>

Preventing insect-borne disease dictated a specific campaign against mosquitoes, as malaria was still a problem in many parts of the country. After feasting on the blood of a malaria victim, anopheline mosquitoes could carry the parasite to everyone else from whom they sought nourishment. Thus in areas where the disease was prevalent, sanitation had to include destroying mosquito larvae and draining or oiling sites where the insect could breed; screening

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<sup>12</sup> P. M. Ashburn, "Notes on Venereal Disease in the Army at the Present Time," p. 328; Raymond F. Metcalfe, "The Venereal Disease Problem at Camp Bowie, Fort Worth, Texas," pp. 174, 178; WD, SGO, *SGO*, pp. 680, 1013; idem, *Activities*, p. 179; idem, *Training*, p. 671; Brandt, *No Magic Bullet*, pp. 110, 111.

<sup>13</sup> Daniel R. Beaver, *Newton D. Baker and the American War Effort*, p. 222.

<sup>14</sup> WD, SGO, *Activities*, pp. 15, 80, 84, 118, 123, 129, 133, 137, 160, 180; idem, *Sanitation*, p. 263; WD, *ARofSG*, 1918, pp. 276–77; Frederick F. Russell, Henry J. Nichols, and Clarence O. Stimmel "Directions for Making Triple Typhoid Vaccine, with Introduction" p. 361; Lawrence T. Fairhall, "A Modification of the Lyster Bag Treatment of Water for Field Use," pp. 538, 539; John L. Kantor, "Experience with a Gastrointestinal Service," p. 511.



*William J. Lyster*

quarters and hospitals; and informing troops in the field of the need to wear netting. At some camps preventive measures dictated digging miles of ditches and constructing culverts to conduct roads and railroads over them. The effort was expensive—an estimated three million dollars—and involved as many as 180 Sanitary Corps officers, as well as civilian and Army construction workers; supplies provided by the Quartermaster Corps; and the assistance of the Public Health Service. Even though in some areas many recruits were already afflicted with malaria when they arrived at camp, attempts to prevent its spread were usually quite successful.<sup>15</sup>

The respiratory diseases were the greatest threat to the recruits at the mobilization camps because, unlike the venereal diseases, they were a significant threat to life and because, unlike the digestive diseases, they were dif-

icult to prevent. They were, furthermore, a particular danger to men who were gathered closely together indoors. Because construction never kept pace with need and canvas for tents was in short supply, overcrowding was common and efforts to prevent the spread of respiratory infections were severely handicapped. Closing tent openings to compensate for the lack of adequate winter blankets and clothing, soldiers further complicated the effort to limit the spread of disease. Having noted, however, that the rate of respiratory diseases was lower among troops in tents than among those in barracks, medical authorities urged, not always successfully, that improved ventilation and more space be provided for men housed indoors. Surgeon General Gorgas urged that the effects of overcrowding be minimized by having the men sleep head to foot. To prevent chilling and the resultant loss of sleep, he also recommended better mattresses and warmer blankets. Yet he admitted that insistence on adequate space for each soldier would significantly delay training and, in doing so, thus delay victory by indirectly increasing battlefield casualties.<sup>16</sup>

<sup>15</sup> Edgar Erskine Hume, *Victories of Army Medicine*, p. 162; WD, *ARofSG*, 1918, pp. 273–74; WD, SGO, *SGO*, pp. 683–84, 970; idem, *Activities*, pp. 87, 124, 208, 218, 224, 225–26, 227, 234–35, 236; idem, *Sanitation*, pp. 305, 306, 308, 309, 310, 312, 319–20, 331, 335; Scannel, “Survey,” p. 374; Ralph Chester Williams, *The United States Public Health Service, 1798–1950*, p. 584.

<sup>16</sup> WD, SGO, *SGO*, p. 998; idem, *Activities*, p. 19; idem, *Sanitation*, pp. 68, 148, 152; WD, *ARofSG*, 1918, pp. 18, 275, 276; *Investigation of the War Department* (65th Cong, 1st sess.), pp. 1967–68, 1969; and articles in the bibliography concerning respiratory and other communicable diseases.



*Lyster Bag, with canteen-filling spigots*

Also among the factors considered to be responsible for the spread of respiratory diseases were hard physical training and a shortage of warm clothing, which physicians blamed for lowering resistance to this type of disease. Because poor hygiene also received much blame, recruits were told to keep their fingers away from their noses and mouths, use handkerchiefs, and wash their hands after blowing their noses. Other suggestions to improve resistance included limiting the exposure of recruits to crowds and restricting the size of the groups into which



they were gathered so that they could be exposed gradually to the prevalent diseases.<sup>17</sup>

Some medical officers now suspected that a principal source of contagion was the dishes and silverware that soldiers used for their meals. Proponents of this theory speculated that sputum on hands and on implements that had been in the mouth infected dishes. Because mess kits were washed in common in water that was not hot enough to kill the bacteria, the procedure merely spread germs from dish to dish and by this means from man to man. Although not entirely convinced that respiratory diseases were being spread in this manner, Surgeon General Gorgas issued a circular memorandum that emphasized the importance of using water that was “decently clean and scalding hot” for washing dishes. He proclaimed the practice of using cold water in common buckets for this purpose to be “dirty and not in accord with the teachings of good housekeeping or good hygiene.”<sup>18</sup>

Some medical officers were concerned that preventing certain types of respiratory diseases might not be worth the effort. One of the most common illnesses where new recruits gathered was measles, which interfered with their training. At the mobilization camps it was no mere childhood disease, but was often complicated by dangerous and even lethal infections. Nevertheless, because anyone exposed to measles who had not already had it would inevitably get it and because having it conferred permanent immunity, some argued that the best course was to make no attempt to prevent its spread. To be considered in evaluating this approach, however, in addition to the large number of men who were susceptible to measles, was the significant rate of complications—7 percent among those in the Army who contracted it in 1917.<sup>19</sup>

The most common major complication to measles was pneumonia, one that could follow many respiratory diseases that were otherwise not particularly dangerous. Depending on the organism involved, pneumonia could be one of the most lethal of the respiratory diseases, particularly when it afflicted a patient who was already ill. Regardless of whether it followed measles or some other infection or occurred without a preceding illness, pneumonia caused as many as 65 percent of all deaths among troops in the United States. It also produced twelve times more deaths in the Army than among civilians and was one of the most prevalent communicable diseases at the camps. Although the general approach to preventing the transmission of respiratory disease applied to pneumonia, the threat that the infection posed led to the design of more specific instructions aimed at discourag-

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<sup>17</sup> Eggers, “Communicable Disease,” p. 38; Vedder, “Epidemiology,” pp. 146, 147–48, 150–51; Albert Love and Charles B. Davenport, “Immunity of City-bred Recruits,” pp. 129–30; Capps, “Measures,” p. 448; Lynn S. Beals, Benjamin F. Zimmerman, and Searle B. Marlow, “Acute Respiratory Diseases Among Troops, with Especial Reference to Empyema,” p. 492; *Investigation of the War Department* (65th Cong, 1st sess.), pp. 2002–05.

<sup>18</sup> James G. Cumming and Charles B. Spruit, “The Transmission of the Pneumonia Producing Group of Organisms,” p. 392; WD, SGO, *SGO*, p. 972 (quoted words); idem, *Sanitation*, pp. 166–67; James G. Cumming, “Sputum-borne Disease Transmission with Epidemiologic and Bacteriologic Research,” pp. 158, 161.

<sup>19</sup> Fox, “Measles,” pp. 187, 188; Ltr, Gorgas to Mrs. B. G. Prestride, 21 Dec 1917, Gorgas Family Papers, W. S. Hoole Special Collections Library, University of Alabama (UA), Tuscaloosa, Ala.; Deane C. Howard and Albert G. Love, “Influenza,” p. 530; WD, SGO, *Pathology*, p. 7; Scannell, “Survey,” p. 376.

ing too close contact with comrades, sick or well, talking directly into their faces, and spitting when near others. Pneumonia could itself be followed by yet another dangerous complication in the form of empyema—the accumulation of pus in the cavity between the lung and the surrounding membrane (or the pleura).<sup>20</sup>

For two of the less common respiratory diseases, meningitis and diphtheria, efforts at prevention involved dealing with the phenomenon of the individual carrier, who harbored the germs of communicable diseases while appearing totally healthy. When identified, carriers were quarantined, leaving medical officers to confront the problem of how to manage their condition. In November 1917 the surgeon general ordered that, time and facilities permitting, all the men in each camp be examined for signs of meningitis and that carriers who were identified be immediately moved into isolation in a hospital or detention camp until they no longer harbored meningococci. All who had come into contact with such a carrier were to be regarded as possible carriers until they, too, had been checked.<sup>21</sup>

Medical officers at the different camps developed their own variations upon the official instructions, but the fact that the carrier state for meningitis seemed in many instances to be only transient made accurate evaluation of attempts to end it difficult. Thus although at Camp Wheeler in Georgia 55 percent of carriers exposed for thirty seconds to chlorine gas in a 1 to 150,000 parts strength ceased to be carriers after one or two applications, the treatment could not be definitely credited if the desired goal were attained. Furthermore, some of the remaining 45 percent had to be treated as many as fifteen times before they ceased to be carriers. The stern measures sometimes taken with these cases included tonsillectomy, followed by daily exposure to disinfectant steam for forty minutes three times a day until throat cultures were negative.<sup>22</sup>

Although diphtheria could also be lethal, it may have caused less concern than meningitis. Diphtheria was basically a childhood disease; many of the recruits would have been exposed to it and unwittingly acquired immunity before being drafted into the Army. Furthermore, although a vaccine was not available, an antitoxin was. Because most diphtheria deaths are caused by a toxin manufactured by the bacillus *Corynebacterium diphtheriae*, the antitoxin, if given promptly, drastically reduces mortality, although its effects are short-lived. The Schick test, which involved injecting under the skin a small amount of the diphtheria toxin to produce a local inflammation, was used to identify those who could be carriers. Their throats were then cultured to identify the carriers who, together with their contacts,

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<sup>20</sup> Fox, "Measles," pp. 187, 188; Ltr, Gorgas to Mrs. B. G. Prestride, 21 Dec 1917, Gorgas Papers, UA; Howard and Love, "Influenza," p. 530; WD, SGO, *SGO*, p. 996; idem, *Pathology*, p. 7; idem, *Surgery*, Part 2, pp. 138–39, 261; Edward K. Dunham, "An Application to Empyema of the Principles Underlying the Use of Antiseptics," p. 148; Empyema Commission, "Cases of Empyema at Camp Lee, Va.," p. 445; Scannell, "Survey," p. 376; WD, *ARofSG*, 1918, p. 19.

<sup>21</sup> Scannell, "Survey," p. 372; John A. Bowers and Elizabeth F. Purcell, eds., *Advances in American Medicine*, 1:391; WD, SGO, *SGO*, p. 987; idem, *Sanitation*, pp. 175–76.

<sup>22</sup> Eggers, "Communicable Disease," pp. 26, 37, 31; Wood, "Camp Sherman," p. 446; William H. Robey, Howard L. Saylor et al., "Clinical and Epidemiological Studies on Epidemic Meningitis," p. 332; Harold B. Scovern, "Epidemic Cerebrospinal Meningitis at Camp Wheeler, Georgia," pp. 664–65; George Draper, "Some Observations on the Susceptibilities of the Recruits to Disease," p. 106; Isaac W. Brewer, "The Control of Communicable Diseases in Camps," p. 124; WD, SGO, *Activities*, 236; "War Work of Rockefeller Institute," pp. 508–09.



*Remount station at Camp Lee, Virginia*

were quarantined until it could be established that they no longer posed a danger to others.<sup>23</sup>

The effort to prevent disease at the camps was not limited to humans, for in the first conflict in which the Army used motor vehicles, the health of its animals was still of great importance. Orders also required the enforcement of strict standards of sanitation for corrals, stables, and vehicles used to move animals, but disease rates remained high. In October 1917 the Army had 77,000 animals; of these 12,000 were ill and 800 died. The basic approach to disease prevention in horses and mules was identical to that in humans: immunization where possible; sanitation; and, for those suspected of disease, isolation. Policy required quarantining newly arrived horses and mules by placing them in separate corrals for at least three weeks after arrival and promptly isolating any who fell ill in that period. Although no test was infallible, regulations required that all be checked at the time of purchase for glanders, a disease communicable to man and characterized by a pus-forming inflammation of the mucous membranes and deep ulcers that could lead to the death of cartilage and bone tissue. Any animal with the disease was destroyed. Animals had to be retested for glanders before the remount depot issued them to a unit, and they had also to be retested if they were exposed to the disease or if any suspicion existed that they were coming down with it. If glanders or any other communicable disease were found in a command's animals, the fact was

<sup>23</sup> WD, SGO, *Finance and Supply*, p. 466; Edwin Henry Schorer and Agnes Scholl Ruddock, "Detection of Carriers and Missed Cases of Diphtheria in Embarkation and Debarcation of Troops," p. 319; Bowers and Purcell, *Advances*, p. 395.

to be reported to the official veterinarian of the state in which the command was located. If found healthy when first examined, each horse or mule received two doses of a prophylactic vaccine against pneumonia and a vaccine developed by the Army Medical School to prevent the streptococcal respiratory infection known as strangles.<sup>24</sup>

### *Hospitalization and Treatment*

Hospitals could offer most patients little more than nursing care and further exposure to disease while nature took its course. For medical scientists, however, hospitals and their patients brought them an opportunity to study the diseases afflicting the Army and to keep informed about the nature and extent of threats to the health of recruits.

To hospitals and their staffs, the respiratory diseases presented the greatest challenge, both because of the toll they took and the ease with which they were transmitted. Although at some camps medical officers new to the Army ignored the possibility that recruits might develop pneumonia and refused to send men in serious condition to hospitals, in one instance even treating them as if they were malingerers, pneumonia in hospitalized patients, especially in measles victims, was a subject of much research. Army physicians attempted to develop statistics on measles cases and the percentage that developed pneumonia. Although they discovered that measles victims were often carriers of streptococci, the fact that the distinction between measles and German measles was often not made complicated their work.<sup>25</sup>

Because measles was not a disease for which there was a specific treatment, the hospital's principal concern beyond providing good nursing care had to be, as it was with other diseases, prevention of its spread and ancillary infections. Attendants were required to wear face masks; cubicles were created around the bed of each victim by stringing sheets around it; clothing and bedding were sterilized; and "all nasal and oral secretions" were collected "in paper napkins, which were then deposited in paper bags fastened to the head of each bed." The bags and their contents then were burned.<sup>26</sup>

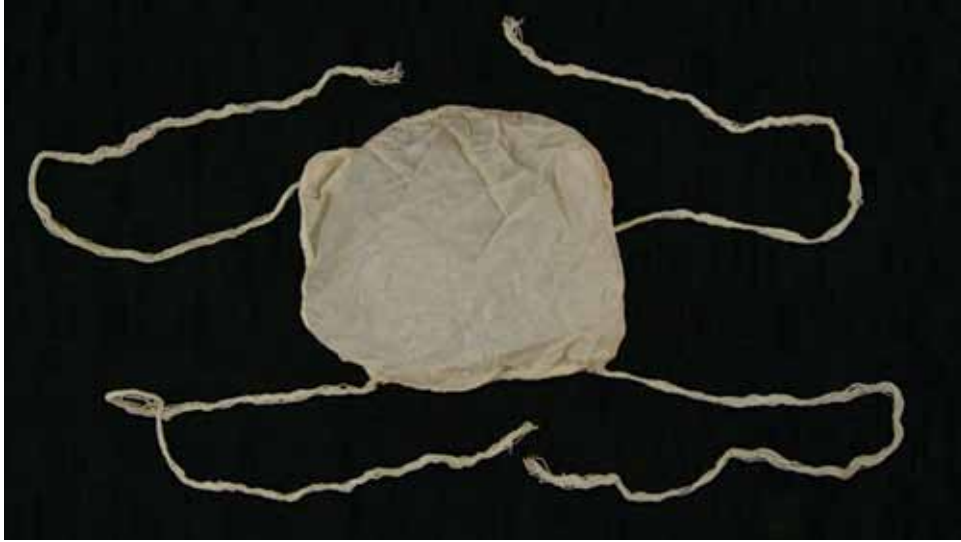
In the fall of 1917 problems with pneumonia were especially notorious at Camp Bowie in Texas, where the repeated warnings of the division surgeon and

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<sup>24</sup> WD, SGO, *SGO*, pp. 1156–57, 1163, 1166, 1173, 1186, 1188, 1194.

<sup>25</sup> WD, SGO, *Activities*, pp. 49, 130, 135, 212–13, 224, 230–31; idem, *Pathology*, pp. 7–8, 23, 399; Fox, "Measles," pp. 189, 190, 192, 197; "War Work of Rockefeller Institute," p. 500; C. N. B. Camac, "Clinical Report upon Cases of Lobar Pneumonia Treated with Antipneumococcus Serum as Observed at General Hospital No. 6, Fort McPherson, Georgia, October, 1917, to May, 1918," pp. 887–88; Willard J. Stone and George W. Swift, "Influenza and Influenzal Pneumonia at Fort Riley, Kansas, from Sept. 15 to Nov. 1, 1918," p. 493; Vedder, "Epidemiology," p. 137; Willard J. Stone, Bruce G. Phillips, and Walter P. Bliss, "A Clinical Study of Pneumonia Based on Eight Hundred and Seventy-one Cases," p. 439; Harlow Brooks and Russell L. Cecil, "A Study of Eighty Cases of Empyema at Camp Upton," p. 288; James C. Greenway, Carl Boettinger, and Howard S. Colwell, "Pneumonia and Some of Its Complications at Camp Bowie," pp. 1, 2; *Investigation of the War Department* (65th Cong, 1st sess.), pp. 1929, 1932–33, 1934, 1936–38; Beaver, *Newton D. Baker*, pp. 89, 99.

<sup>26</sup> Wood, "Camp Sherman," p. 446.



*Paper face mask, c. 1918*

the sanitary inspector about overcrowding had apparently been ignored. Thus, after 500 cases of pneumonia and 40 deaths there in the month of November alone, Surgeon General Gorgas, who had become interested in pneumonia while serving in the Panama Canal Zone, went personally to the camp as head of an investigating committee. A Rockefeller Institute laboratory car accompanied him, and its American Red Cross staff joined the committee in a study of 102 cases. On 21 February 1918, as a result of his investigation at Camp Bowie, Gorgas sent out a questionnaire to twenty-three mobilization camps in an attempt to learn more about the problems they were experiencing with pneumonia and empyema. The answers suggested that for many camps the incidence of empyema first peaked soon after their establishment, a time when measles and measles-related pneumonia, especially pneumonia caused by hemolytic streptococci, were common.<sup>27</sup>

Not content with relying on his own work at Camp Bowie and on reports from the various base hospitals, the surgeon general appointed commissions to continue the study of respiratory diseases at the mobilization camps. A commission named in April 1918 to investigate all aspects of pneumonia conducted its work for six weeks at Fort Sam Houston in Texas. Here the Medical Department used the Southern Department laboratory to establish *Streptococcus hemolyticus* as the principal cause of many cases of pneumonia. In the hope of building up some immunity before complications could set in, it recommended that all measles victims be vaccinated intravenously against both hemolytic streptococcus and types I and II pneumococcus. The different types of hemolytic streptococcus were found

<sup>27</sup> WD, SGO, *Surgery*, Part 2, pp. 34, 261; idem, *Activities*, pp. 165, 166, 167, 179; idem, *Sanitation*, pp. 65–66; Ltr. Mrs. Lawrence Elmendorf to Gorgas, 1 May 1918, Gorgas Papers, UA; Beals et al., “Respiratory Diseases,” p. 475.

to vary greatly one from the other, and attempts to immunize animals against them were not particularly successful, a fact that may explain why the suggestion was apparently not acted upon.<sup>28</sup>

Because empyema was an important complication for so many of these cases, the surgeon general in April 1918 appointed a second commission—often referred to as the Empyema Commission—“to take up research work where the Texas commission left off.” This organization concentrated its work at Camp Lee in Virginia, where laboratory studies revealed that the bacteria most closely associated with empyema were pneumococci, streptococci, and, to a much lesser degree, staphylococci, all of which were believed to gain access to the chest cavity principally via the respiratory tract.<sup>29</sup>

Although little in the way of treatment was available for most diseases, physicians often resorted to surgery for empyema. They drained the pus-filled pleural cavity in the attempt to ease breathing, to prevent further spread of infection, or to prevent infection from becoming chronic. The work of the Empyema Commission established, however, that the victims of a streptococcal infection were not able to withstand surgery to open up the chest to drain it early in their illness. This procedure allowed in air that collapsed the lung on that side and to a large extent collapsed the other lung as well, severely compromising breathing capacity that had probably already been drastically reduced by the infection. At some camps mortality following early operation ran as high as 90 percent.<sup>30</sup>

Although the commission concluded that chronic empyema cases should not develop if the pleural cavity was properly drained, reinfection proved to be possible as long as the lung had not fully expanded—in other words, as long as the cavity continued to exist. When chronic cases did develop, repeated surgery was often required to eliminate pockets of infection. Because many cases of empyema accompanied the influenza epidemic of 1918 as well as infected chest wounds, much of this type of surgery took place after the war, often in hospitals established specifically for the purpose to handle both cases from overseas and those originating in the United States.<sup>31</sup>

Infections of the lungs and chest cavity were the most feared complications of measles, but medical officers were also on the alert for ear problems. At Camp Sherman in Ohio, where an epidemic of measles struck in the winter of 1917–1918, an otolaryngologist routinely examined the ears of all of its victims. Any who developed earaches were reported to a specialist, day or night, in the hope that

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<sup>28</sup> WD, SGO, *Military Hospitals in the United States*, p. 161; idem, *Surgery*, Part 2, p. 270; Rufus Cole and W. G. MacCallum, “Pneumonia at a Base Hospital,” p. 1146; Dunham, “Application,” p. 148; James G. Cumming, Charles B. Spruit, and Charles Lynch, “The Pneumonias,” pp. 1066, 1069; Ralph A. Kinsella, “The Relation Between Hemolytic and Non-hemolytic Streptococci and Its Possible Significance,” pp. 181, 184.

<sup>29</sup> WD, SGO, *Surgery*, Part 2, pp. 5 (quoted words), 55, 138, 142, 145; idem, *Pathology*, p. 404; WD, *ARofSG*, 1918, pp. 355–57; *ibid.*, 1919, p. 1089.

<sup>30</sup> Empyema Commission, “Cases,” pp. 366, 367; WD, SGO, *SGO*, p. 416; idem, *Surgery*, Part 2, pp. 271, 274, 276, 285, 286, 297; Owen H. Wangensteen and Sarah D. Wangensteen, *The Rise of Surgery from Empiric Craft to Scientific Discipline*, pp. 191–92. Empyema that persisted beyond three months was classified as chronic (see C. A. Hedblom, “The Treatment of Chronic Empyema,” p. 304).

<sup>31</sup> Empyema Commission, “Cases,” p. 443; WD, SGO, *Surgery*, Part 2, p. 40.

infection of the mastoid bone and the surgery that could be entailed in draining the involved area might be avoided.<sup>32</sup>

Other than measles, with its potentially fatal complications, the traditional childhood diseases posed no unusual problems for hospitals at mobilization camps. Mumps was occasionally followed by complications that included orchitis, or inflammation of the testicles, and hearing problems. Scarlet fever also made its appearance from time to time, less often in National Guard troops than in either draftees or regulars. The reasons for the difference inspired speculation but solid answers were lacking. Because, unlike so many other diseases, diphtheria could be cured if adequately and promptly treated, it posed no unusual difficulties either for hospitals or for the Army.<sup>33</sup>

Given the success of preventive measures, hospitals saw few of the diseases that afflicted the soldiers of the Spanish-American War. In the camps typhoid fever and malaria, although not conquered, no longer posed a major danger. At Fort Oglethorpe hookworm, whose prevalence in the South had been recognized in part as a result of the occupation of Puerto Rico, sent many cases to the gastrointestinal service of the hospital; however, once diagnosed, it was easily cured. Nevertheless, in some camps hookworm was regarded as a factor in the high rate of deaths from bronchopneumonia. Tuberculosis, a particular danger to troops stationed in the Philippines during the Insurrection, was still greatly feared, but because every attempt was made to exclude those with this disease from the Army, victims did not add significantly to camp hospital populations. Cases resulting from a missed diagnosis or from the reactivation of dormant disease tended to become apparent after the soldier had been subjected to great physical stress or a respiratory infection. Initially, men definitely diagnosed with tuberculosis after they had been in service for any length of time were discharged, but later they were sent to special hospitals "until maximum cure had been effected." In neither instance were the victims of this disease retained in hospital at the camps after diagnosis.<sup>34</sup>

As many illnesses posed a danger of infection both to hospital staffs and to those hospitalized with some other ailment, the Surgeon General's Office developed guidelines for dealing with each individual disease. In January 1918 Surgeon General Gorgas emphasized that hospitals were to keep meningitis, diphtheria, and smallpox cases in strict isolation. Attendants for such patients were to wear caps, gowns, and masks, to sleep apart from other attendants, and to be cultured every four days. Neither these patients nor their attendants were to mingle with others in the hospital until their cultures were negative. Precautions for other dis-

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<sup>32</sup> Harris P. Mosher, "A Summary of the Activities of the Section of Otolaryngology," pp. 632, 640, 641; Wood, "Camp Sherman," p. 446.

<sup>33</sup> Conrad Wesselhoeft, "Mumps," pp. 63, 64; Vedder, "Epidemiology," p. 141.

<sup>34</sup> Kantor, "Experience," pp. 508-09; WD, SGO, *SGO*, pp. 978, 1105, 1106, 1111; idem, *Sanitation*, p. 514 (quoted words); Eggers, "Communicable Disease," p. 39; Capps, "Measures," p. 448; Charles J. Hatfield, "War and Tuberculosis," p. 865; Albert P. Francine, "A Statistical Review of the Pulmonary and Cardiovascular Defects Found in the 82nd Division, U.S. National Army, Camp Gordon, with a Report on After-results in 500 Measles Cases," pp. 161, 166, 167, 172-73. For a detailed discussion of how tuberculosis was dealt with in the Army in this period, see WD, SGO, *Communicable and Other Diseases*, pp. 171-202.

eases were slightly less demanding. The beds of the victims of scarlet fever, like those of measles patients, were to be well separated by both space and screens so that any droplets expelled by coughs and sneezes would not spread bacteria that could cause pneumonia. Attendants, too, were to be capped and gowned. Added difficulties resulted when patients had more than one communicable disease. At Camp Sherman in Ohio authorities set up special wards for cases with measles and mumps, measles and scarlet fever, or scarlet fever and diphtheria. Less dangerous diseases also treated in isolation wards included chickenpox and, in at least one instance, acute contagious conjunctivitis.<sup>35</sup>

No matter what complaint brought a recruit to a camp hospital, regulations required that he be given Wassermann tests for syphilis. Handling as inpatients all of the many otherwise healthy men who arrived at camps with venereal disease, however, would have overwhelmed those facilities. Because the surgeon general did not want these men to have to go far for treatment, base hospitals near the camps and the infirmaries and clinics in them shared the burden of caring for the victims of syphilis and gonorrhea. Gorgas cheerfully pointed out that as far as VD cases were concerned, regimental infirmaries could become “schools for practical clinical training.”<sup>36</sup>

No matter how well soldiers with active syphilis and open lesions might feel, the Medical Department regarded them as potentially dangerous to others, even to physicians; one report noted that two Army otolaryngologists had contracted syphilis in the process of operating on such cases. No soldier with an open syphilitic lesion could be transferred until the sore was healed and the results of his Wassermann tests were negative. Furthermore, before he could be sent overseas, the soldier had to be symptom-free for at least three months.<sup>37</sup>

Attempts to treat syphilis were often initiated in hospital. For some victims, treatment involved a series of injections into the buttocks of insoluble salicylate of mercury once a week for nine to ten weeks, an approach that was regarded as dangerous. Arspenamine or Salvarsan, an arsenic compound that produced “untoward results” when a “too highly concentrated solution” was used, was also popular, although hard to obtain; there was only one source for it in the United States. “Too rapid administration and . . . insufficient care in rendering the solution slightly alkaline” could also have unfortunate results. Because the first injection of Salvarsan produced an almost immediate disappearance of symptoms and a drastic drop in the number of detectable spirochetes (the organism causing syphilis), those so treated could be discharged from the base hospital and handled as outpatients. Unfortunately, because the drug did not reach all the spirochetes, repeated injections were necessary for any hope of complete cure. Although the arsenic compounds were relatively effective in treating the early stages of syphilis, physician and medical historian Wesley W. Spink has noted that “there is little evidence that the spirochetes [*sic*] were totally eliminated from the tissues following such treatment.”<sup>38</sup>

<sup>35</sup> Wood, “Camp Sherman,” pp. 307, 446, 447; WD, SGO, *SGO*, pp. 987–88.

<sup>36</sup> WD, SGO, *SGO*, p. 1011 (quoted words); Guy L. Qualls and S. L. Meylackson, “Management of Venereal Disease at Camp Meade, Maryland,” p. 332; Shivers, “Methods,” p. 301.

<sup>37</sup> Mosher, “Otolaryngology,” p. 636; Wood, “Camp Sherman,” p. 448; WD, SGO, *SGO*, p. 1012.

<sup>38</sup> Shivers, “Methods,” p. 304; Jay Cassel, *The Secret Plague*, pp. 54–56; “Important Precautions in Administering Arspenamine and Neoarsphenamine,” p. 578 (initial quoted words); WD, SGO, *SGO*, pp. 1011, 1012; idem, *Training*, p. 252; Wood, “Camp Sherman,” p. 448; Spink, *Infectious*



Gonorrhea, more commonly seen than syphilis, was so prevalent at Camp Dix in New Jersey during the late summer and early fall of 1918 that for a month medical officers were too preoccupied with treating it to start treating syphilis. Much of the preoccupation may have stemmed from the fact no true cure for gonorrhea had been developed, and even physicians did not agree on either how long they should treat a patient or on the criteria that had to be met to be considered cured. At Camp Dix the victim of gonorrhea was required to report to a medical officer daily for three months for irrigation with one or another of various concoctions, among them potassium permanganate, protein silver, and a new drug whose name resembled an incantation—sodium oxymercury ortho-nitro phenolate. Once healing had started, the patient might be required to give himself irrigations of copper and zinc sulphide. Unfortunately, although the causative organisms were easily killed, some of them could survive the treatment, and thus, while improvement was easily achieved, cure was not.<sup>39</sup>

Some of the problems that brought recruits to the hospital were not communicable. Medical authorities rarely hospitalized those afflicted with foot problems, which remained the responsibility of the development battalion rather than of the base hospital. In some instances, however, physicians even resorted to tonsillectomy, the removal of bad teeth, or the treatment of chronic gonorrhea as treatment for infections of the joints and soft tissues of the feet. At least one authority concluded that tonsillectomies were too frequent, citing an instance when a patient brought in with abdominal pain that clearly suggested appendicitis was subjected to the removal of his tonsils because of “possible focal infection.”<sup>40</sup>

Mental illness was also among the noninfectious ailments that could result in hospitalization in the mobilization camps, in spite of attempts to screen recruits both before and after their induction in the Army to eliminate those who were mentally or emotionally unfit. Authorities assigned a limited number of beds to psychiatric patients, based on peacetime figures for the incidence of such diseases, which ran roughly 3 per 1,000 per year. Planning called for each 1,000-bed hospital to have two special 20-bed wards for them, and one such ward for each 500-bed facility.<sup>41</sup>

Only a small proportion of the men in these wards were classified as insane, for authorities usually transferred these patients relatively promptly either to St. Elizabeth’s Hospital in Washington D.C.; to a private hospital at government expense; or, if they deemed the illness to have been acquired in line of duty, to the nearest hospital specializing in this type of patient. Base hospitals also sent a few of the enlisted whose insanity was blamed on advanced syphilis, a situation not deemed to be service related, to St. Elizabeth’s. Others whose illness was not service-connected usually received discharges, often to the control of the states from which they came or to general hospitals established to treat mental problems. Most

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*Diseases*, p. 316 (final quoted words). For a discussion of the Army’s earliest use of Salvarsan, see Gillett, *Army Medical Department, 1865–1917*, pp. 293, 350–51.

<sup>39</sup> Shivers, “Methods,” pp. 295, 297–98, 299, 301; Brandt, *No Magic Bullet*, p. 12; Cassel, *Secret Plague*, pp. 48–50; Qualls and Meylackson, “Management,” p. 332.

<sup>40</sup> Wood, “Camp Sherman,” p. 307; Tom S. Mebane, “Foot Abnormalities and Their Management in the Light of Army Experience,” pp. 428, 431; Mosher, “Otolaryngology,” p. 640 (quoted words).

<sup>41</sup> WD, SGO, *Military Hospitals*, p. 37.

of the patients in these institutions, however, were men returned from overseas. To be transferred to a mental hospital, patients had to be examined by two medical officers, one of whom was, ideally, a psychiatrist. They would observe each patient over a period of time before coming to a conclusion about his condition.<sup>42</sup>

For those treated for mental and emotional problems at base hospitals, medical authorities expended considerable effort to avoid having mental wards resemble prisons or chambers of horrors. At Camp Wadsworth in South Carolina the importance of a cheerful atmosphere was emphasized. Physicians encouraged patients to struggle against “faulty attitudes and emotional reactions” and to believe that the hospital staff took a personal interest in their condition. At the Camp Jackson Base Hospital in South Carolina the physicians rejected the use of iron bars over the windows as “antiquated” and avoided straitjackets and other restraints as much as possible. They attempted to keep patients busy with occupational therapy and also used hydrotherapy and electrotherapy.<sup>43</sup>

### *The Influenza Epidemic*

With preventive measures, hospitalization, and treatment, the Medical Department was able to keep disease generally under control in the mobilization camps. The situation, however, changed dramatically in the fall of 1918, when a pandemic of a virulent form of influenza arrived in the United States and overwhelmed the camps, hospitals, and medical officers. This influenza strain could neither be prevented nor successfully treated, and when complicated by pneumonia, it was particularly lethal. While the pandemic was at its peak, furthermore, the enormity of the numbers affected made scientific study of the character of the disease and the development of new approaches to prevention and treatment impossible.<sup>44</sup>

At least one expert noted that influenza had been endemic in much of Europe and the United States for several years before 1918, and some believed that the roots of the pandemic lay in a mild form of influenza that appeared in the spring of 1918 in the Midwest. Establishing definitely that the disease found in so many camps after this point was influenza continues to be difficult, if not impossible, primarily because the Medical Department did not keep separate statistics on influenza until September 1918. The disease was difficult to diagnose definitively, for the symptoms of colds and influenza were similar. Even after reports on the incidence of influenza were required, significant errors in diagnosis sometimes occurred. In the wake of the mild respiratory disease prevalent in the spring, known to the American Expeditionary Forces soldiers as “three-day fever,” the incidence of pneumonia and bronchitis increased, but at that time the ailment was not allowed to interfere with the shipment of troops overseas.<sup>45</sup>

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<sup>42</sup> WD, SGO, *SGO*, pp. 623, 669; idem, *Neuropsychiatry*, pp. 101, 104, 106, 116, 118, 134, 135, 143–44, 145–46; Tobey, *Medical Department*, p. 126.

<sup>43</sup> WD, SGO, *Neuropsychiatry*, pp. 92, 93, 101, 102, 103 (quoted words), 104.

<sup>44</sup> Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 317 (hereinafter cited as *History of MD*); Howard and Love, “Influenza,” p. 536; Bayne-Jones, *Evolution*, pp. 151–52.

<sup>45</sup> Unless otherwise indicated, all material on the influenza epidemic is based on Warren T. Vaughan, *Influenza* (quoted words, p. 15); Spink, *Infectious Diseases*; Howard and Love, “Influenza”;

Like other respiratory diseases, the form seen in the United States spread easily, and its short incubation period of one to three days enabled it to overwhelm a community almost without warning. For many, the influenza of the fall of 1918 involved no more than severe headaches, chills, pains in back and legs, sleepiness, a temperature as high as 104 degrees Fahrenheit, a feeling of exhaustion, and sometimes gastrointestinal problems. For others terrifying symptoms soon made their appearance. At one camp a medical officer noted how often a victim's face turned "purplish, reddish, grayish [*sic*], ashen" in color, "brilliant pink or red" fluids were brought up from the respiratory tract, and bed linens turned a "purplish red." He termed the pandemic "a purple plague," in which many patients "literally drowned in the bloody waters inside their own bodies." At another camp a great variety of symptoms was seen, among them "bleeding from some portion of the body" as "a striking feature in the early stages of these cases." As many as 80 percent of the nurses began menstruating within two to three days of falling ill. Roughly 12–15 percent of cases developed cold sores (referred to as Herpes simplex) in the areas of their mouths and noses. Here, too, in severe cases toxemia caused difficult breathing and gave a bluish-purple cast to the face, while the victim's cough produced much bloody sputum. The hemorrhaging in the lungs seen at these camps could be severe, with some autopsy reports noting lungs resembling red currant jelly.<sup>46</sup>

The epidemic was responsible for an unusually high mortality. The fact that death sometimes occurred within two days of the appearance of the first recognizable symptom only added to the terror it inspired. By the time the pandemic of 1918–1919 had ended, its reputation was heralded as the "greatest medical holocaust in history": It killed twenty million or more throughout the world. During the period from 1 September through 31 October 1918 at least 1 out of every 5 soldiers stationed in the United States contracted the disease. Observers noted, however, that no more than 40 percent of a camp was likely to contract influenza and that, by contrast to most influenza epidemics, the highest death rates were among twenty- to forty-year-old recruits, thus severely affecting the mobilization camps. Because of the difficulty of diagnosing milder forms of the disease, the influenza rate in the Army was probably much higher than statistics indicated.<sup>47</sup>

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and Ashburn, *History of MD*. See also Alfred W. Crosby, *America's Forgotten Pandemic*, p. 19; Hans Zinsser, "The Etiology and Epidemiology of Influenza," p. 217, 289; Eugene L. Opie, Allen W. Freeman et al., "Pneumonia at Camp Funston," p. 116; Draper, "Some Observations," p. 99; Jack Fincher, "America's Deadly Rendezvous with the 'Spanish Lady,'" pp. 132, 134; WD, SGO, *Activities*, pp. 76, 80, 161, 189, 217–18, 235; idem, *Communicable and Other Diseases*, pp. 62–63; K. David Patterson and Gerald F. Pyle, "The Geography and Mortality of the 1918 Influenza Pandemic," p. 13; Paul B. Magnuson, *Ring the Night Bell*, p. 170.

<sup>46</sup> C. P. McCord, "The Purple Death," p. 594 (initial quoted words); WD, SGO, *SGO*, 998; idem, *Activities*, 80, 161, 223–34; idem, *Pathology*, p. 13 (final two quoted words); Fincher, "America's Deadly Rendezvous," p. 134.

<sup>47</sup> Stuart Galishoff, "Newark and the Great Influenza Pandemic of 1918," pp. 246, 247, 248–49; Henry A. Davison, "New Jersey and the Great Pandemic," p. 391 (quoted words); Robert S. Katz, "Influenza, 1918–19," p. 418; WD, SGO, *Activities*, 80; idem, *Sanitation*, p. 360; McCord, "Purple Death," p. 598; Fincher, "America's Deadly Rendezvous," p. 132; Patterson and Pyle, "Geography," pp. 20–21; W. H. Frost, "Statistics of Influenza Morbidity, with Special Reference to Certain Factors in Case Incidence and Case Fatality," p. 593; R. Edgar Hope-Simpson, *The Transmission of Epidemic*

The first indications that the epidemic had reached the United States appeared in August and early September 1918, when a large number of cases vaguely classified as respiratory disease appeared at some camps. On 6 September the Surgeon General's Office issued a circular memorandum emphasizing the importance of isolating the sick, and physicians identified the first Army victims of the severe form of influenza at Massachusetts' Camp Devens in early September. So abrupt was the onset of the epidemic here that the first case was actually initially labeled as meningitis. Within ten days both hospital and camp infirmaries were overwhelmed. Many patients recovered within a few days, but the sheer number of those affected was unprecedented, with 8,000 patients needing hospitalization at a facility designed for 2,000. By the end of September the camp had seen a total of 10,000 cases of influenza; pneumonia appeared as a complication in 2,000 of them and 500 ended fatally, a death rate that was to prove low when compared with that characteristic of other sites. At one point almost a third of the regular nurses at the base hospital were among the ill. When cases began to appear at other camps, the Surgeon General's Office sent to Camp Devens a team of eminent medical scientists from such institutions as Johns Hopkins, the Rockefeller Institute, and Harvard University to study the situation. After praising the way in which the outbreak was being handled at the camp, especially the work of the camp surgeon and epidemiologist, the team submitted recommendations that included quarantining the camp and having all men eat on the same side of mess hall tables.<sup>48</sup>

The disease spread too rapidly for the team's findings to be of material help. Within a week of the identification of the first case at Camp Devens, eight more widely separated mobilization camps were affected. Less than three weeks later all camps had been stricken. Medical personnel, in their exhausted state, fell easy prey to the disease. At Camp Grant in Illinois, for example, on 30 September alone, 5 medical officers, 51 nurses, and about 100 enlisted men were ill. Eventually, 6 nurses and 12 enlisted men from the hospital detachment died in the epidemic, although the 11 medical officers who fell ill all survived. The Red Cross began moving additional nurses in from Chicago to help with patient care. Civilian nurses, apparently unenthusiastic about wearing caps and gowns to protect themselves, fell ill at a higher rate than Army nurses. Hospital wards and regimental infirmaries were soon filled, and barracks that had been used as quarters and storehouses were vacated for the use of the sick. Authorities gathered 100 carpenters from units at the camp and set them to work enclosing verandas to hold 800 beds. All evacuation hospital personnel at the camp were sent to the base hospital, and the depot brigade dispatched 250 laborers to set up beds and fill bedding sacks with straw and another 75 men to assist at the hospital.<sup>49</sup>

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*Influenza*, p. 27. All figures are, of necessity, estimates and the dates involved vary with the source (Howard and Love, "Influenza," p. 546; Vaughan and Palmer, "Communicable Diseases," p. 397).

<sup>48</sup> McCord, "Purple Death," p. 594; William G. Dwinell, "Laboratory Report on Epidemic Pneumonia, Camp Dodge, Iowa," p. 216; Samuel Bradbury, "An Influenza Epidemic in Soldiers," p. 737; WD, SGO, *SGO*, p. 997; idem, *Activities*, pp. 49–50; idem, *Sanitation*, pp. 349, 353, 365; Howard and Love, "Influenza," p. 526; George A. Soper, "The Pandemic in the Army Camps," p. 1902.

<sup>49</sup> Soper, "Pandemic," p. 1901; Edwin O. Jordan, *Epidemic Influenza*, p. 439; WD, SGO, *Sanitation*, p. 361. Except where otherwise indicated, material in this and the following three paragraphs is based on idem, *Military Hospitals*, pp. 242–52.

By the time the admission rate at the Camp Grant hospital began to level off the first week in October, pneumonia was beginning to exact a heavy toll. The death rate eventually reached 45.7 percent of those who suffered from this complication. Some of them developed empyema, and eventually 100 cases were transferred to the surgical service. One fatality that could probably be blamed indirectly on the epidemic involved the camp's commanding officer who, apparently devastated by the tragedy that surrounded him, took his own life.

The strain experienced at the hospital extended beyond its confines to the local mortuaries, which could handle up to fourteen bodies a day. On 2 October they had twenty-five bodies that had not yet been embalmed with another forty-seven awaiting them at the hospital. Two enlisted men with experience in embalming accompanied a noncommissioned officer who was similarly qualified to help the undertakers. The president of the Western Casket Company of Chicago responded to a call for help, arriving at the camp with still more embalmers two days later. Additional buildings were obtained to hold bodies and Army trucks assigned to move them. On the sixth, however, the city mortuary was again overwhelmed, and bodies had to remain at the hospital.

At the height of the epidemic, inquiries by the thousands came in every day from concerned families and friends, in person and by telephone and telegraph, making it necessary for the Red Cross to erect a hospital ward tent equipped with three telephones, desks, seats, emergency beds, and other equipment for those dealing with this burden. The records were confused, however; many patients were transferred without the knowledge of the information bureau. Volunteers also helped out by filling capsules, handling clerical work, and running the Red Cross canteen.

Men transferred from Camp Grant brought influenza with them; 700 of them had to be admitted directly from the troop train to the base hospital at Camp Hancock in Georgia on 30 September. At Camp MacArthur in Texas the epidemic started shortly after the arrival of 500 men from Camp Grant. More than 2,800 cases were admitted to the base hospital there in the course of the month that the epidemic lasted, and almost 4,000 more were treated in tents.<sup>50</sup> And from camp to camp, the story was much the same.

By 8 October 1918 influenza had infected 176,000 men. In the Army as a whole within the United States the epidemic peaked in that month, with 88,478 cases reported for the week ending the fourth of the month and 89,152 the following week but only 43,799 for the week ending the eighteenth. By 20 December influenza patients numbered less than 2,000 for the first time since the Medical Department began reporting cases on 20 September. By this point the cases were increasingly of the milder form with which physicians were more familiar.<sup>51</sup>

The Army and the Medical Department fought the spread of the terrifying disease by every means possible. The Medical Department warned camp authorities that when influenza was prevalent in nearby communities, occupants of the

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<sup>50</sup> Robert G. Torrey and Lawrence C. Grosh, "Acute Pulmonary Emphysema Observed During the Epidemic of Influenzal Pneumonia at Camp Hancock, Georgia," p. 171; WD, SGO, *Activities*, pp. 185, 212; Jordan, *Influenza*, p. 439.

<sup>51</sup> Susan C. Peterson and Beverly Jensen, "The Red Cross Call To Serve," p. 334.

camp should not mingle with civilians. All post exchanges and places of amusement should be closed. Crowded vehicles should not be used for transportation. When the disease appeared, the various parts of the afflicted camp should be sealed off from one another. Individuals should cover their faces with a handkerchief or other piece of cloth when they coughed or sneezed, and mouth breathing was to be discouraged. Hands should be washed before eating. The use of cups, napkins, and eating utensils of others must be avoided, and food should be both chosen with care and chewed thoroughly. The mouth, skin, and clothes should be kept clean. Men should be encouraged to avoid overheating when exercising and chilling when sleeping.<sup>52</sup>

In desperation, medical officers began developing their own theories about prevention. Some suggested avoiding tight clothes, or drinking two glasses of water every morning to eliminate the possibility of waste products accumulating in the body, or breathing deeply when the air was pure. Otolaryngologists studied secretions collected from tonsils and adenoids, recommended removing all tonsils with either acute or chronic infections, and deplored the Army's failure to appreciate the sinuses as foci of infection. Medical officers at Camp Greene in North Carolina resorted to spraying all throats twice a day with a disinfectant.<sup>53</sup>

Eventually, despite all efforts, the disease took such a toll that for a brief period it almost brought the Army to a standstill. With most camps quarantined because of influenza and after much urging from the Surgeon General's Office, a limitation on troop movement initially applied to Camps Devens and Dix was extended to all camps for five days beginning on 7 October. And on 5 November General John J. Pershing learned that training had also, to a large extent, come to a standstill.<sup>54</sup>

Advice to the commanding officers of base hospitals concerning preventing the spread of influenza and its complications within their facilities was plentiful, but, because of the speed with which the disease spread, could not always be timely and practical. On 24 September 1918 the Surgeon General's Office circulated a memorandum emphasizing that very few diseases were as infectious as influenza and that hospitals must not rely on cubicles and masks to prevent transmission of the disease. Four days later it sent out another memorandum, this one warning that each patient should be allotted at least 100 square feet because of the danger of overcrowding and of the pneumonia that would result from not providing enough space. On 30 September, by which point every camp had at least one case, the Medical Department informed medical officers that before the epidemic struck, they should make plans with the camp commander to create "an extensive scheme" to evacuate barracks for use as hospitals and should prevent overcrowding by obtaining space outside the base hospital for the use of the sick.<sup>55</sup>

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<sup>52</sup> Charles Richard, "How To Strengthen Our Personal Defence Against Spanish Influenza," Ms C38, Glenworth Reeve Butler Papers, 1917–1919, National Library of Medicine, Bethesda, Md.

<sup>53</sup> WD, SGO, *SGO*, p. 999; idem, *Activities*, p. 181; Mosher, "Otolaryngology," pp. 639, 642; H. J. Nichols and J. H. Bryan, "The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers," pp. 1813–14; Benjamin H. Minchew, "Prophylactic Treatment of Diseases of Respiratory Tract," pp. 366–67.

<sup>54</sup> WD, Provost Marshal General, *Second Report of the Provost Marshal General*, p. 237; WD, SGO, *Sanitation*, pp. 349–50, 353, 354.

<sup>55</sup> WD, SGO, *Sanitation*, pp. 357, 365; idem, *SGO*, pp. 998–99, 1000 (quoted words).

In spite of close cooperation between the Army as a whole and the Medical Department, influenza proved to be too easily transmitted to be controlled. The need to train men and deliver them overseas was considered to be too urgent to allow the epidemic to delay troop movement. The Surgeon General's Office warned medical officers on the one hand not to trivialize the disease to such an extent that measures deemed necessary for limiting its spread were neglected and on the other not to propose any steps that might retard the tempo with which the men were trained.<sup>56</sup>

During all the desperate confusion that marked the passage of the influenza epidemic through the mobilization camps, the Army Medical Museum in Washington D.C. sought to obtain specimens for future study. Most physicians were too busy caring for the living to be concerned about preserving tissues from the dead, and in the near panic and disorder of the stricken camps the hospital staffs were in no position to obtain them in a manner best calculated to preserve them for shipment. Nevertheless, the museum sent out a pamphlet with "explicit directions" for preparing and shipping "gross anatomical material." Responses to the requests for specimens were few, in part because few camps received the instructions until late in the autumn of 1918. Furthermore, hospital personnel lacked the material they needed to properly prepare specimens. Finally, while autopsy rooms were adequate, hospital laboratories were set up to deal with clinical microscopy rather than pathology. Most of the really good specimens of "influenza lungs" received by the museum had to be obtained by a trained nonmedical member of the museum staff who was sent to Camp Wheeler, and almost all were acquired by museum staff members sent out specifically for the purpose. As a result of this situation, recommendations surfaced that a "comprehensive pathological museum for teaching students, clinicians and pathologists" be established.<sup>57</sup>

Although unable to produce the specimens the museum sought, camp medical officers were interested in learning more about the epidemic, how it might have been prevented, and what organism or organisms caused it. The medical journals in the months following the epidemic contained many articles by Army physicians and former Army physicians recording their experiences in the fall of 1918 and giving their conclusions about what might have caused the problems they encountered. In describing its character, many used the term *explosive*. Their concerns included not only the identity of the responsible organisms but ways in which various factors might have influenced the susceptibility of the recruits.<sup>58</sup>

Some medical officers suspected that many of the factors that determined who was affected and who was spared were beyond their control. Noting that soldiers tended to be more seriously affected by the disease than civilians, they concluded that the basic problem in the Army was the higher density of housing and the fact that large numbers of men ate their meals together. They noted that recruits belonged to the twenty- to forty-age group most heavily affected. The question was

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<sup>56</sup> WD, SGO, *Sanitation*, pp. 349, 350–51, 352; idem, *SGO*, p. 998.

<sup>57</sup> James Ewing, "Experiences in the Collection of Museum Material from Army Camp Hospitals," pp. 27, 28 (initial quoted words), 32 (final quoted words).

<sup>58</sup> See bibliography for a limited selection of articles by medical officers concerning the influenza epidemic. For the use of terms like *explosive*, see, for example, Soper, "Pandemic," p. 1901; Zinsser, "Etiology," p. 217; WD, SGO, *Activities*, p. 161; Crosby, *Forgotten Pandemic*, pp. 280–81.



*Gross Pathological Laboratory, Army Medical Museum*

also raised whether men who had had the milder form of influenza in the spring tended not to be seriously affected in the fall. Because troops were often moved from camp to camp, this fact could not be established until the records of the only camp where a division remained from April through the fall of 1918—Mississippi's Camp Shelby—were studied. Even after the epidemic had run its course, medical scientists were unable to agree on when and where it started or on what organism or organisms were responsible either for the influenza itself or for the pneumonia and empyema that were its most lethal complications. Before the pandemic hit the mobilization camps, two U.S. Navy scientists became the first of a series of scientists who believed that they had disproved the theory that a filterable virus caused influenza. In 1922 R. Edgar Hope-Simpson questioned whether the virus of the spring of 1918 actually was identical with the one of the fall or, indeed, whether either was identical with the one that struck early in 1919.<sup>59</sup>

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<sup>59</sup> Edward T. Edgerly, Frank M. Manson et al., "The Influenza-Pneumonia Epidemic at Camp Dodge, Iowa," p. 213; Zinsser, "Etiology," p. 299; Victor C. Vaughan and George T. Palmer, "Non-specific Immunity," p. 1; Patterson and Pyle, "Geography," pp. 8, 19; Ernest E. Irons, "Pneumonia Following Influenza in the Camps in the United States," pp. 278, 280; Hope-Simpson, *Epidemic Influenza*, pp. 26–27; Soper, "Health," p. 389.



A prominent physician and bacteriologist, Hans Zinsser, mourned that when it came to determining the causative organism of influenza, “we are overwhelmed by the wealth of reported material, but confused at the same time, by its indefiniteness in description of technique and by the frequently defective clinical characterization of the cases studied.” The multiplicity of secondary invaders was an important cause of the confusion. Different camps reported different bacteria predominating, and the “lack of uniformity in lung lesions in individual cases” was later noted as “remarkable.” Rates of pneumonia also varied considerably from place to place, inspiring many studies of the situation at individual camps. Interestingly enough, in 1919 an inspector in the Bureau of Animal Industry published an article in the *American Journal of Veterinary Medicine*, maintaining that pigs were suffering from the same influenza as humans in 1918.<sup>60</sup>

Some physicians speculated about the possibility that a virus, either alone or in combination with bacteria, was responsible (the existence of the virus that causes influenza was the subject of speculation for many years before the first strain was identified in 1933). Another suspect in the search for culprits was *Bacillus influenzae* (or *Hemophilus influenzae*), very frequently found in the throats of victims of the epidemic in the fall of 1918 (but apparently not in those of the wave of influenza of the preceding spring) and, like many of the other suspect organisms, also often seen in the healthy. Some believed that this organism led to pneumonia because of the “profound injury to the air passages” it caused. Attempts to cause influenza by inoculation with the bacillus generally failed, however, and the role, if any, it played in the epidemic was also a subject of controversy. Some medical officers concluded that severe influenza required the combined efforts of *B. influenzae* and a virus. Although the actual cause of death was often a severe pneumonia, the streptococci, pneumococci, and staphylococci that were often blamed could, as a rule, be cultured from less than 7 percent of living influenza and pneumonia patients even when many and varied bacteria were found in the course of autopsies.<sup>61</sup>

Understandably, in view of the confusion about the organisms believed to be involved in influenza, attempts to develop an effective vaccine against it were frustrating. Some reports of the use of experimental vaccines were favorable, among them one from the Navy reporting “noteworthy” success. Other attempts

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<sup>60</sup> McCord, “Purple Death,” p. 594; Vedder, “Epidemiology,” p. 134; Walter V. Brem, George E. Bolling, and Ervin J. Casper, “Pandemic ‘Influenza’ and Secondary Pneumonia at Camp Fremont, Calif.,” p. 2144; Eggers, “Communicable Disease,” p. 23; WD, SGO, *Activities*, pp. 76, 113, 125, 223–24; idem, *Pathology*, pp. 33, 40, 45, 59, 103, 399, 401, 403; Zinsser, “Etiology,” p. 232 (quotation); Jordan, *Influenza*, pp. 337 (quoted words), 338; George F. Dick, “A Bacteriologic Study of the Pneumonia Occurring at Camp Pike, Ark.,” p. 1529; Wilson Thompson Davidson, *Years of an Army Doctor*, p. 123; Draper, “Some Observations,” p. 99; Wangensteen and Wangensteen, *Rise of Surgery*, pp. 191–92; Greenway et al., “Pneumonia,” p. 33; James S. Simmons and Roy E. Taylor, “Bacterial Carriers in the Upper Respiratory Tract,” p. 1885; Spink, *Infectious Diseases*, p. 217.

<sup>61</sup> Opie, Freeman et al., “Pneumonia,” p. 564 (quoted words); Zinsser, “Etiology,” pp. 247, 258, 267; Camp Lewis Pneumonia Unit, “The Relation of Bronchopneumonia to Influenza,” pp. 268–69; Kingsley M. Stevens, “The Pathophysiology of Influenzal Pneumonia in 1918,” pp. 115, 116; Hope-Simpson, *Epidemic Influenza*, p. 33. See also the many other articles on the influenza epidemic found in the bibliography. *Bacillus influenzae*, once also known as Pfeiffers’ bacillus, is now more often referred to as *Haemophilus influenzae*.

at immunization, however, were “very disappointing.” Zinsser concluded that “the evidence furnished by experiments that have been controlled in every particular has so far failed to demonstrate any effects whatever upon either incidence or mortality. A comparison of the victims of the 1918 epidemic with those of one that occurred in 1920 demonstrated that whatever immunity that might result from having a case of influenza was short-lived.”<sup>62</sup>

The influenza epidemic of 1918–1919 remains something of a mystery to this day. Clearly it was not an ordinary flu epidemic, for although the percentage of those exposed and then infected was not unusually high, the death rate was far greater than physicians had seen on other occasions. Many hypotheses have arisen about the organisms behind the high mortality. Kingsley M. Stevens pulls many of these theories together in his article entitled “The Pathophysiology of Influenzal Pneumonia in 1918.” Stevens maintains that a majority of the deaths could not have been caused by bacterial pneumonias, suggesting that most fatalities must have resulted from primary viral influenzal pneumonia. Because primary influenzal pneumonia is a rare complication to influenza, he theorizes that the high death rate in this particular epidemic resulted from infection by the influenza virus and *B. influenzae*, which can cause pneumonia. According to this analysis, *B. influenzae* caused the tissues of the larynx to retain unusual amounts of fluid, and the victim’s coughing then “aerosolized” large numbers of the influenza virus from the larynx into the alveoli of the lungs. Both the higher death rate among young and vigorous men and the frightening symptoms that they exhibited might have been caused by a greater cardiac stroke volume, which pushed more plasma and red cells through alveolar walls already damaged by the virus. A 1997 article in *Science News* maintains that a recent study of RNA from lung tissue (preserved in paraffin) taken from a soldier who died of influenza in 1918 confirms earlier speculation that the influenza of 1918 might be closely related to the form now known as swine flu.<sup>63</sup>

Except for Type I pneumonia victims who could be given antipneumococcus serum, supportive care was the only form of treatment for the victims of influenza and its complications. Physicians used morphine “to allay restlessness, pain and coughing and in an effort to reduce the respiratory rate and to increase the abdominal respiratory excursions, thereby to prevent fatigue of the respiratory center and to increase the efficiency of each respiratory effort.” Although oxygen was sometimes administered to those with respiratory problems, medical scientists never developed any evidence to demonstrate that this had any effect on the outcome of the cases in which it was tried.<sup>64</sup>

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<sup>62</sup> A. J. Minaker and Robert S. Irvine, “Prophylactic Use of Mixed Vaccine Against Pandemic Influenza and Its Complications,” p. 850 (quoted word); Francis M. Rackemann and Samuel Brock, “The Epidemic of Influenza at Camp Merritt, N.J.,” p. 593 (quoted words); Zinsser, “Etiology,” pp. 253 (quotation), 258; Jordan, *Influenza*, pp. 298–99, 301.

<sup>63</sup> Stevens, “Pathophysiology,” pp. 116, 117, 122 (quoted word); S. Sternberg, “A Doughboy’s Lungs Yield 1918 Flu Virus,” p. 74.

<sup>64</sup> Brem, Bolling, and Casper, “Pandemic ‘Influenza,’” pp. 2138, 2139, 2142 (quotation); WD, SGO, *SGO*, p. 998; Irons, “Pneumonia,” pp. 278, 291, 304; Wood, “Camp Sherman,” p. 446.

Although the mobilization camps offered medical scientists an opportunity to study the illnesses affecting the Army and to improve techniques for preventing their spread, the many and intensive studies of the victims of communicable disease conducted throughout the period that the camps were in operation emphasized how helpless the medical profession still was when confronted with respiratory disease. The relative scarcity of intestinal disease demonstrated what skilled laboratory scientists and well-equipped laboratories could do in the battle against disease. During World War I, however, although immunization and scientifically directed sanitation could reduce the rates of many communicable diseases, influenza, the various forms of pneumonia, and the complications of these infections remained dangerous threats to the Army, especially when large numbers of young and vulnerable recruits were crowded together under conditions of emotional and physical stress.

## Chapter 6

# EMBARKATION CHALLENGES



At times confusion bordering on chaos characterized efforts to ship the 2-million troops of the American Expeditionary Forces (AEF) overseas. Plans for establishing and managing port complexes for so many men while they awaited embarkation were in the formative stages during the earliest weeks of the war. Initially, shelter for troops arriving at embarkation points was nonexistent. After embarkation camps had been created, the Medical Department found itself struggling with the same problems that characterized the mobilization camps—inadequate numbers of trained and experienced personnel; inadequate facilities for isolating those with communicable illnesses; confusion in obtaining and storing medical supplies; and, when the influenza epidemic struck, disease running rampant.<sup>1</sup>

But in the embarkation camps the Army and the Medical Department experienced difficulties unknown at the mobilization camps, those involved in obtaining vessels adequate in numbers and in design to move troops overseas, in providing each troopship with competent medical personnel in adequate numbers, and in shipping medical supplies and equipment. Given the nation's severe shortage of ocean-going vessels, the United States had to accept its dependence on Great Britain to transport troops and nearly 50,000 tons of freight each day. The British, however, worried about their food supplies, were not eager to allow another nation the use of their ships. By May 1918 approximately 500,000 men had arrived in France, and by the early fall of 1918 transports were crammed with soldiers destined to fight a war that, ironically, was far nearer its conclusion than anyone had realized. The onboard experience proved to be harrowing, for influenza turned the voyage across the Atlantic into a nightmare.<sup>2</sup>

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<sup>1</sup> James A. Huston, *The Sinews of War*, p. 351; Edward M. Coffman, *The War To End All Wars*, p. 181; idem, *The Hilt of the Sword*, pp. 70–71; John J. Pershing, *My Experiences in the World War*, 2:106; War Department (WD), Surgeon General's Office (SGO), *Military Hospitals in the United States*, p. 426.

<sup>2</sup> Donald Smythe, *Pershing*, pp. 17–18; Otto L. Nelson, *National Security and the General Staff*, p. 219; Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States, 1775–1945*, pp. 336; Pershing, *My Experiences*, 2:46, 106, 110, 111; Coffman, *War To End All Wars*, pp. 127, 155; Percy M. Ashburn, *A History of the Medical Department of the United States Army* (hereinafter cited as *History of MD*), p. 321; Phyllis A. Zimmerman, *The Neck of the Bottle*, p. 26.

### *Organizing the System*

The first steps in organizing the system that would move the American Expeditionary Forces overseas included the July 1917 authorization of two primary ports of embarkation, with camps, installations, depots, warehouses, railway terminals, and piers. The largest, centered in the New York City area, was the Port of Embarkation, Hoboken, New Jersey; the second, centered in the Hampton Roads area, was the Port of Embarkation, Newport News, Virginia. A month later the Embarkation Service was created to manage shipping men and materiel overseas. In February 1918, as more and more men went overseas and the number and size of the facilities involved in embarkation grew, the Shipping Control Committee, which regulated all shipping for the United States, assumed many Embarkation Service responsibilities.<sup>3</sup>

Eventually eleven ports became involved to some degree in the shipping of men, medical supplies, and medical equipment. More than 80 percent of the AEF troops embarked from the New York City area piers and secondary ports in other localities, and the remainder from Newport News, Virginia, and its environs. Facilities for shipping medical supplies from Charleston, South Carolina, were not complete until after the war's end. Equipment also left from Boston, Philadelphia, and New Orleans, while some medical supplies were shipped from Galveston, Texas; Mobile, Alabama; and Brunswick, Georgia. At minor embarkation ports Medical Department authorities usually made no attempt to set up hospitals for those who fell ill or were injured but instead sent them to local hospitals, military or civilian. At Charleston, South Carolina, the U.S. Navy hospital was utilized. Only at the two largest embarkation ports, however, were patients numerous enough to justify creating entire systems of hospitals specifically to handle the sick and injured among the increasing numbers of men headed overseas.<sup>4</sup>

Although Medical Department personnel handled storing and shipping medical supplies and equipment for the American Expeditionary Forces at the ports and inspected the transport sanitation, their main concerns remained the health of the troops. At the embarkation camps, developing safe sources of water and high standards of sanitation posed problems that were, for the most part, not significantly different from those encountered at the giant mobilization camps. To a large degree, identical diseases threatened their occupants, for inevitably some among those waiting to board transports fell ill. If embarkation camp physicians did not rapidly restore them to health, they were not kept from accompanying their units when they embarked. Medical officers had to hold still more men back when they were found to be more or less permanently unable to meet the physical standards set for overseas service. Despite these precautions, complaints came in from overseas alleging that insufficient care was being exercised in screening troops for both chronic and acute diseases, inspiring increasingly strict physical examinations in

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<sup>3</sup>Huston, *Sinews of War*, pp. 341, 343, 344, 345, 348; WD, SGO, *Finance and Supply*, pp. 729-30, 754.

<sup>4</sup>WD, SGO, *Finance and Supply*, p. 724; idem, *Activities Concerning Mobilization Camps and Ports of Embarkation*, p. 286; idem, *Military Hospitals*, p. 426; Peyton C. March, *The Nation at War*, p. 189; Coffman, *War To End All Wars*, p. 228; Huston, *Sinews of War*, pp. 342, 348; Albert Gleaves, *A History of the Transport Service*, p. 87.

both mobilization and embarkation camps. At the same time, however, more and more men had to be sent to Europe. Thus, in the final analysis, the greatest challenge port medical personnel faced resulted from the conflict between the need to keep disease carriers or those actually ill from boarding transports, where they would spread disease among the troops crowded together, and the still more urgent need to have as many soldiers as possible sent overseas as rapidly as possible.<sup>5</sup>

### *New York City Area*

Organizing and directing the medical personnel assigned to the New York City area in the midst of myriad confusions proved difficult. Initially the Medical Department assumed that all its embarkation facilities in the New York City area would be under the direct control of the surgeon general and that the post surgeon would be required only to supervise embarkation and Medical Department work at the piers. To manage what appeared to be the limited responsibilities of the Hoboken port surgeon, the department temporarily detailed an officer from the New York medical supply depot. It did not name an official port surgeon until the Hoboken embarkation port was formally opened in July 1917 (*see Map 1*). In the late fall the War Department greatly broadened this medical officer's responsibilities to include all medical activities within 25 miles of Manhattan Island as well as those at secondary embarkation ports, among them Baltimore, Philadelphia, Boston, and Portland, Maine. In addition, he oversaw the work of medical detachments at harbors as far away as Quebec, Montreal, and Halifax in Canada.<sup>6</sup>

The port surgeon quickly gathered around him a large staff. His office had the overall responsibility for giving physical examinations aimed at preventing the spread of disease both within the embarkation camp and on board the transports; for obtaining and managing hospitals; for assigning to medical facilities personnel and patients, including an increasing number returning from Europe; for coordinating the work of the various professional services; for inspecting the sanitation of transports; and for supplying these vessels with medical personnel and equipment. Its organization came to resemble that of a small-scale Surgeon General's Office, with separate divisions for correspondence, finance, personnel, hospitals, hospital procurement, sanitary inspection, laboratories, and transport.<sup>7</sup>

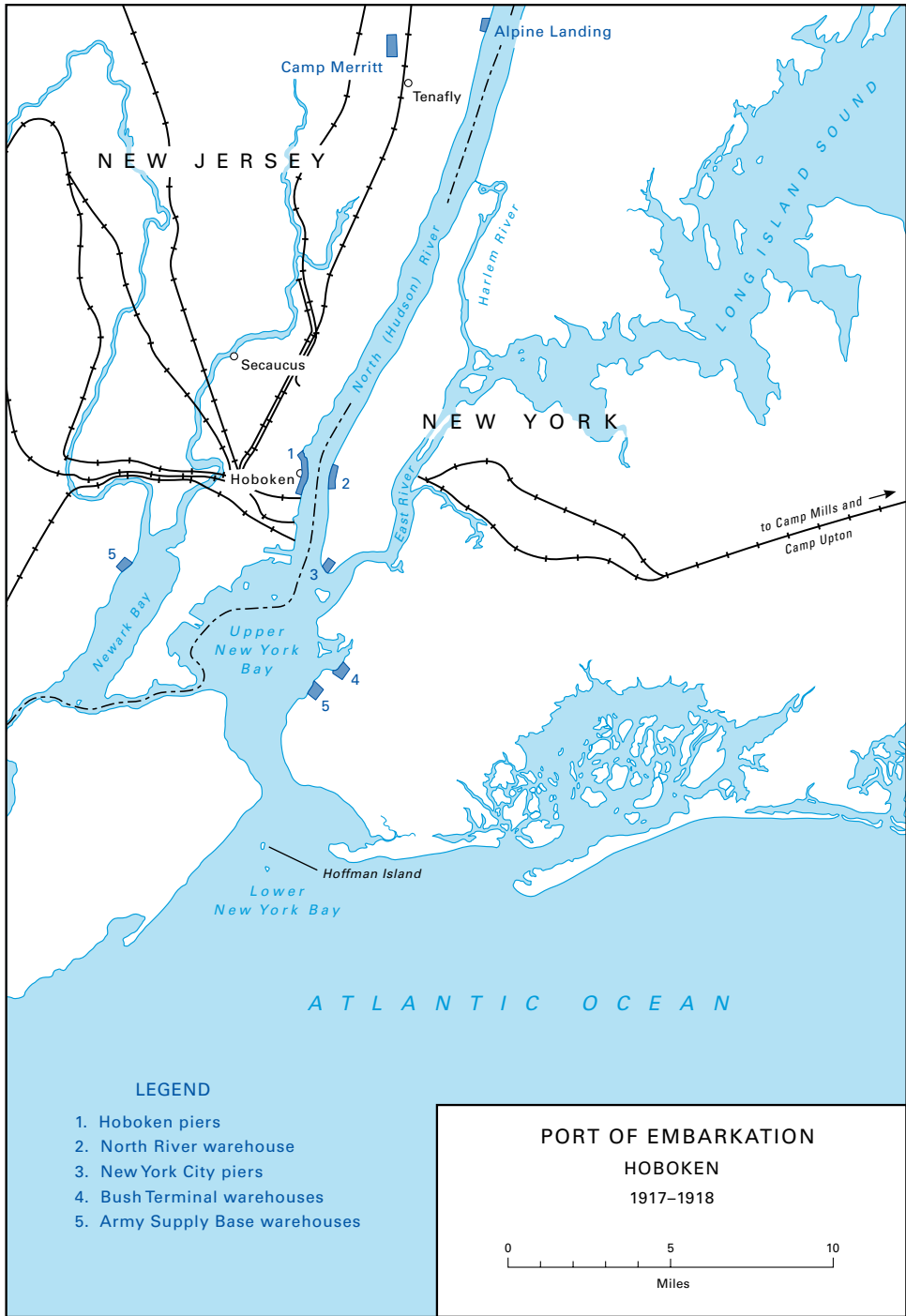
The personnel division of the port surgeon's office faced a particularly great challenge, given the shortage of medical personnel that afflicted every aspect of the work of the Medical Department throughout the war. Under this division, separate sections handled permanent personnel, casual personnel, nurses and civilian personnel, and mail. An adequate number of medical officers had to be retained more or less permanently in the Hoboken area to run embarkation hospitals and meet the other medical needs of the port, while during training additional personnel remained to meet the needs of the growing numbers of sick and wounded

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<sup>5</sup> WD, SGO, *Finance and Supply*, pp. 519, 520; idem, *Activities*, pp. 253, 286, 354, 364–65; idem, *Sanitation*, p. 87.

<sup>6</sup> WD, SGO, *Activities*, pp. 253, 254, 273–74, 314; idem, *Military Hospitals*, p. 428; Huston, *Sinews of War*, p. 346.

<sup>7</sup> WD, SGO, *Activities*, pp. 253, 254, 263, 273, 275, 278, 284, 287, 292, 312.



MAP 1



*Transports under way from Hoboken*

returning from Europe. By September 1918 the hospitals that the personnel division staffed were overflowing with patients debarking at Hoboken, men being held for embarkation, and the several hundred VD victims held back each day when their units went overseas.<sup>8</sup>

Most of the medical personnel arriving in the embarkation area either already belonged to units going overseas or were part of permanent organizations serving the mobilization camps and medical depots. For the most part, those not attached to the units going overseas served at the embarkation camps in much the same way as they did at the mobilization camps. The units waiting at embarkation camps were to a large extent served by their own medical personnel, but casualties, often those left behind because of illness when their units embarked, also needed medical care. The port surgeon thus found it necessary to create a medical service for the casual company, which was organized in November 1917. In addition to the seven medical officers eventually needed for this duty, the port surgeon named an additional five medical officers to a board created to examine members of the casual company to determine when they were ready to go overseas.<sup>9</sup>

The port surgeon was also responsible for the dental personnel at embarkation camps. In August 1917, even before the first embarkation camp was officially opened, the Medical Department sent a dentist to the New York City area to work at the piers with troops about to embark. Until June 1918 he had only a portable field outfit and an office in one room that served both as waiting room and operating room. A second dental officer was assigned to the venereal disease hospital

<sup>8</sup> *Ibid.*, pp. 254–55; Jerome H. Greenberg, “Venereal Disease in the Armed Forces,” p. 178.

<sup>9</sup> WD, SGO, *The Surgeon General's Office*, p. 354 (hereinafter cited as *SGO*); *idem*, *Activities*, p. 329.



on Hoffman Island in the fall of 1917. In the early spring of 1918 the port surgeon, having recognized the need for more dentists to serve the embarking troops, requested an additional three. Others also arrived in June. In July 1918 the port surgeon set up a division of dental service for the port, and dental equipment was provided for hospitals at both embarkation camps then existing in the area.<sup>10</sup>

The number of dentists in the Hoboken area continued to grow until the summer of 1918, when they were sufficiently numerous to set up a dental society. Their goal was to encourage “closer relations between the officers in their professional work, free discussions of the dental work as a whole, [and] individual suggestions for the betterment of the service. . . .” By the fall of 1918 the ratio of dentists attached to the hospitals had been increased from 1 to 3 for every 1,000 beds, and forty-seven dental officers had been sent to the area. Because finding space for them to set up their equipment was difficult, dental infirmaries were constructed at both camps.<sup>11</sup>

Nurses were not mobilized with the men. Beginning in June 1917 and in the interests of maximum efficiency, medical authorities assigned most nurses being mobilized for overseas duty to various sites under the jurisdiction of the Hoboken port surgeon. Most of those awaiting embarkation were assigned to the staffs of base hospitals, but they were sometimes sent out to nearby camps so that their skills would not be wasted while they awaited the completion of the required red tape. Under the watchful eye of a chief nurse, they were given their uniforms, put on the payroll, and provided with passports. The difficulties involved in finding housing for the nurses while they went through the various required steps of mobilization led the Medical Department for a time to take rooms for them in a multitude of hotels. In August 1917, because of the time consumed in producing the birth certificates required to obtain passports, Surgeon General William C. Gorgas obtained permission to substitute a “certificate of identification,” a step both the French and the British accepted. While at their mobilization stations, nurses were instructed in military regulations and given physical examinations and the necessary immunizations. The medical officers needed to conduct physical examinations for the nurses were initially sent to the mobilization station from the port surgeon’s office, but four were eventually permanently assigned to the station for this purpose.<sup>12</sup>

The Hoboken port surgeon, like everyone else involved in the work of any of the embarkation ports, found the availability of shipping to be the controlling factor in all decisions and plans, whether they concerned men or supplies. At first units embarking from the New York area had to board ships almost directly from the trains that brought them from the mobilization camps, because no shelter existed for them in the area. The erratic schedules of transports occasionally made it necessary to keep troops in camp longer than initially anticipated; predicting the day of the actual departure of each transport even ten days in advance proved difficult because of the myriad factors, among them winter storms on the North Atlantic,

<sup>10</sup> WD, SGO, *Activities*, pp. 315, 316, 337.

<sup>11</sup> *Ibid.*, pp. 316 (quoted words), 342.

<sup>12</sup> *Ibid.*, p. 320; WD, SGO, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, pp. 307, 308, 319; *idem*, SGO, pp. 178, 179 (quoted words); *idem*, *Military Hospitals*, p. 429.



*Red Cross nurses receiving their uniform apparel onboard ship just before sailing*

that complicated scheduling. The difficulties involved in attempting to coordinate the time of a train's arrival with the availability of a transport led authorities to conclude that port facilities must include a camp to serve as a brief stopping-off point. As the numbers of troops going overseas began to increase dramatically in the spring of 1918, the number of camps grew.<sup>13</sup>

The first embarkation camp in the New York City area was Camp Merritt, with a capacity of 38,000 men. Beginning in September 1917, a medical officer served as sanitary officer, working with the construction quartermaster while the camp was being built. He assumed command of the base hospital, also under construction, after a camp medical officer was named. The first troops arrived at Camp Merritt in October 1917, and construction of the final series of buildings began in December. By the spring of 1918 the permanent camp medical organization had grown in size and complexity and was divided into five divisions: administration, sanitation, attending surgeon, dental, and "casual" service for those not attached to any organized unit. The camp itself relied upon nearby Alpine Landing to gain access to the North (Hudson) River, thus making it possible to shorten the march troops had to make to the piers.<sup>14</sup>

When the number of troops going overseas began to grow rapidly in the spring of 1918, the need for more embarkation camps became obvious. Authorities selected Camp Mills on Long Island, a mobilization camp for National Guard units. The

<sup>13</sup> WD, SGO, *Activities*, pp. 253; Benedict Crowell and Robert Wilson, *The Road to France*, 1:175, 264; Daniel R. Beaver, *Newton D. Baker and the American War Effort, 1917-1919*, p. 87.

<sup>14</sup> WD, SGO, *Activities*, p. 328.



*Troops arriving at the nearby station and marching into Camp Merritt, New York*





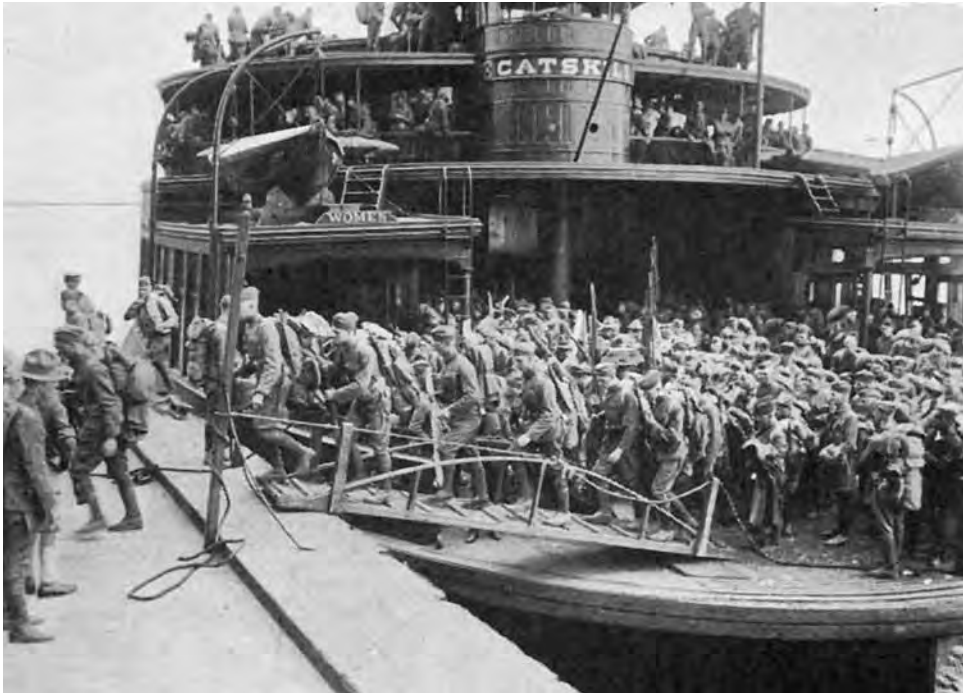
*Moving into camp barracks and reading in Merritt Hall*





*Awaiting transportation at Alpine Landing and boarding a ferryboat for Hoboken Piers*





*Disembarking at Hoboken Piers and entering the terminal*



first base hospital there was an evacuation facility, which arrived in April. Initial plans called for erecting structures to house 50,000 men, although with the end of the war in November, this figure was halved. In addition to Camps Merritt and Mills, part of Camp Upton, New York, was eventually also used for about 18,000 men waiting to leave for France. For a short period, these embarkation camps were so overwhelmed that, despite the difficulties involved, mobilization camps as far away as Maryland and Virginia had to send troops directly to the piers.<sup>15</sup>

Efforts to prevent disease at the embarkation camps were the same as those at mobilization camps, with special attention given to water supplies, sewage disposal, and disease-carrying insects. Effluent discharged into the Hackensack River posed a threat to Camp Merritt, but the chief difficulty proved to be the "primitive systems of disposal" used by civilian communities along the river. Weekly tests of the drinking water and quick action when the bacteria count began to rise guaranteed the safety of the supply. Camp Mills, on the other hand, had no sewage system until September 1918, pit latrines being used until the end of that month.<sup>16</sup>

The flies and mosquitoes breeding in wet areas around Camp Merritt also received attention because of the occasional presence of anopheline mosquitoes, which could carry malaria. Although this disease was rarely found in the nearby civilian communities, much effort went into digging drainage ditches and filling low areas, with the United States Public Health Service assuming part of the responsibility for this type of work outside the bounds of the camp. A Sanitary Corps detachment was assigned the responsibility for oiling the ditches to kill mosquito larvae. Similar antimosquito work was undertaken at Camp Mills, where sump pumps were used in poorly drained areas until a system of ditches could be completed.<sup>17</sup>

Efforts to prevent disease included dealing with lice, which can carry typhus, as well as mosquitoes. Lice had received little attention until the nation entered World War I. Two experts assigned to investigate this problem determined that only 0.5 percent of the men arriving at Hoboken were infested with lice. In the spring of 1918, when complaints began coming back from the American Expeditionary Forces suggesting that about half of the men arriving in France were louse-infested, medical authorities had to acknowledge that inspections for lice at the Hoboken camps needed to be more thorough. They suggested that draftees might be picking up lice from prostitutes and implied that men returning from Europe were infesting transports with lice that then infested the draftees going to Europe. Conditions on the badly overcrowded transports favored the spread of lice. Increased effort at both Camp Merritt and Camp Mills was devoted toward eliminating the problem before soldiers boarded transports, but neither camp possessed the equipment necessary to rid the men of lice in a speedy and efficient manner. Until June 1918 each organization at Camp Mills was responsible for ridding its own men of this parasite, but thereafter both camps resorted to using improvised delousing plants,

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<sup>15</sup> *Ibid.*, pp. 253, 321, 338; WD, SGO, *Military Hospitals*, p. 815; Crowell and Wilson, *Road to France*, 1:169, 171, 172, 177, 190; March, *Nation at War*, p. 189; Huston, *Sinews of War*, p. 346.

<sup>16</sup> WD, SGO, *Activities*, pp. 283-84, 323-24, 325 (quoted words), 339.

<sup>17</sup> *Ibid.*, pp. 321, 333, 334, 338, 339.

relying on steam-generating equipment belonging to hospital units accompanying the troops to rid clothing of lice.<sup>18</sup>

Medical authorities at the embarkation camps found that preventing diseases related to poor sanitation was much easier than preventing diseases whose spread resulted from the sexual appetites of healthy young men who thought that they might not have long to live. Experiences at both Hoboken embarkation camps were essentially identical with those at the mobilization camps. Examinations were not thorough, even after September 1917 when the War Department ordered that those with active VD infections be held back when their units embarked. Few of the men at Camp Merritt bothered to utilize the services of the five stations set up as part of the anti-VD campaign. In November, however, when General John J. Pershing began complaining that men with gonorrhea and syphilis were arriving in Europe, the effort to detect these cases was intensified.<sup>19</sup>

Although gonorrhea and syphilis were all too familiar to Army surgeons, anthrax, which appeared at both major camps in the Hoboken area in the summer of 1918 and also at camps in the Newport News area, was a relatively rare disease not often encountered in the Army. At both Hoboken area camps it was apparently spread by shaving brushes acquired at Camp Lewis, Washington State, in June 1918, but the source of the infection in Virginia was never identified. *Bacillus anthracis* can be killed by boiling for ten minutes, but it can otherwise live for years in the soil and in animal products, including the hair used in shaving brushes. The spores can be inhaled or ingested. They can also spread through abrasions in the skin, such as those inflicted by a razor, and produce pustules from which the disease can spread to lymph nodes and eventually produce a systemic infection. More than fifty men in the Hoboken area contracted the disease and two died. The Army then restricted its purchases of shaving brushes to a few specific brands and sterilized more than 80,000 brushes in a formalin solution held at 110 degrees for four hours.<sup>20</sup>

In their attempts to avoid the spread of disease directly from one man to another at embarkation camps, medical officers followed the model used at mobilization camps, quarantining those who had been in close contact with victims of contagious diseases either in their own sections of the camp or in a detention facility. At Camp Mills, however, the only detention facility was an area informally set aside within the camp itself. There physicians inspected each man in a detention facility twice a day and sent any found to be ill to the hospital.<sup>21</sup>

Because large numbers of men could be classified as contacts, the policies established at embarkation camps to protect those about to board transports from exposure to disease eventually became a heavy burden. Initially all men on the same barrack floor as a patient ill with a contagious disease were considered to be contacts; a high number of them eventually became sick themselves. With thirty to

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<sup>18</sup> *Ibid.*, pp. 268, 334, 341; WD, SGO, *Sanitation*, pp. 380, 381, 382, 393, 396.

<sup>19</sup> WD, SGO, *Activities*, pp. 330, 332–33, 341.

<sup>20</sup> *Ibid.*, pp. 279–80; Otis T. Amory and Benjamin Rappaport, “Anthrax at Embarkation Hospital, Newport News, Va.,” p. 270.

<sup>21</sup> WD, SGO, *Activities*, pp. 278–79, 283, 331, 332, 339–40; Edwin Henry Schorer and Agnes Scholl Ruddock, “Detection of Carriers and Missed Cases of Diphtheria in Embarkation and Debarcation of Troops,” p. 320.



thirty-five men quartered on one barrack floor, the number of contacts this policy could hold back from transports when their organizations sailed was relatively large. By working up a careful history of each potential contact and ascertaining whether he was, perhaps, already immune to the disease in question and by detaining only the handful of men sleeping nearest the patient, his close friends, and nonimmunes, medical officers at Camp Merritt were able to significantly reduce the number in detention.<sup>22</sup>

The conflict between the desirability of doing everything possible to prevent the spread of disease on transports and the growing need to ship a maximum number of men overseas as promptly as possible became acute when epidemics of scarlet fever or measles, with its threat of pneumonia, struck in the winter of 1917-1918 and again when influenza began to rage the following fall. Medical officers at embarkation camps wanted to quarantine the whole organization involved until no new cases appeared, even though this might mean disruption of the embarkation schedule. But by the fall of 1918 men were needed overseas too urgently to permit this luxury. Soldiers at the embarkation camps were denied leave to limit their exposure to the disease, but contacts were merely put in detention camp until their organizations boarded ship, at which time they too embarked if they were still in good health. Careful examinations were conducted of each man as he prepared to board and any who seemed sick or merely unusually tired were sent to the hospital. Harbor boats stood ready to remove anyone who fell ill on a transport before it left the harbor.<sup>23</sup>

Other precautions taken at embarkation camps to prevent the spread of influenza resembled those attempted at the various mobilization camps. They were no more successful, for 4,000 of the approximately 17,000 cases treated in the Hoboken area during the flu epidemic developed pneumonia. The Army Medical School in Washington D.C. sent out a vaccine against influenza with which the permanent garrison at Camp Mills was immunized. The rate of infection among those who had been vaccinated proved to be lower than that among the troops of the permanent garrison at Camp Merritt.<sup>24</sup>

Although diseases spread by insects, water, food, or direct contact were the principal concern of medical officers at the embarkation camps, the fear that mobilization camp examinations had not screened out all who had mental problems led to the dispatch of neuropsychiatric examiners to embarkation camps. Soldiers identified as being of questionable stability by the tests that these experts gave to those about to embark were brought before disability boards for discharge from the Army.<sup>25</sup>

Physical examinations to detect the earliest signs of illness were obviously of prime importance when isolating the sick before their disease could spread. The port surgeon's office assigned a medical officer to handle physical examinations for troops soon to embark from Camp Merritt and sent another to Camp Mills when it

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<sup>22</sup> WD, SGO, *Activities*, p. 331.

<sup>23</sup> *Ibid.*, pp. 271, 282, 428; WD, SGO, *Sanitation*, p. 428.

<sup>24</sup> WD, SGO, *Activities*, pp. 271, 282, 332.

<sup>25</sup> WD, SGO, *Neuropsychiatry*, p. 25; Frank G. Norbury, "The Relation of Defective Mental and Nervous States to Military Efficiency," pp. 31-32.

opened. A third was soon dispatched to Camp Upton, and before the war's end medical officers sent by the Hoboken port surgeon's office were conducting examinations at camps as far away as Fort Myer in Virginia and Camp Devens in Massachusetts. Although these examinations were managed from Hoboken, they were often actually conducted by medical officers on duty at the camp where troops were being inspected. The total number of preembarkation physical examinations conducted through the Hoboken port surgeon's office through November 1918 approached 1.8 million, and almost 10,000 men were held back from embarkation as a result.<sup>26</sup>

Because a man who was healthy one day might be sick with a transmissible disease the next, a single set of examinations did not eliminate the possibility that men with contagious illnesses might board the troopships. Delays in embarking troops necessitated repeated checks of some units before they actually boarded ship. During the 1918 influenza epidemic, one group of men at Camp Mills was inspected three times in three days for this reason. In the early weeks, especially, preboarding examinations tended to be cursory checks designed only to detect obvious signs of disease. Thus, given that bacteriological studies could not be part of the final preboarding physical examinations and that carriers often exhibited no signs of their condition, men capable of spreading disease among their comrades on the ship inevitably made their ways onto the transports.<sup>27</sup>

As it eventually evolved at Camp Merritt, this system of medical inspections required each command or detachment to have its medical officer or a representative of the camp surgeon conduct a daily inspection for signs of communicable diseases. The final inspection, conducted the day before embarkation under the supervision of an inspector detailed by the port surgeon's office, was not the last. One more followed when the troops were standing on the docks, ready to board their transports. Scheduling this last-moment inspection proved to be difficult, for the time of departure of the transports was held secret. The problem was ameliorated by appointing a liaison officer whose duties included obtaining advance information from the port headquarters, thus giving medical personnel forty-eight hours advance warning of the sailing of a transport.<sup>28</sup>

When illness was detected, medical care began at Camp Merritt dispensaries, where sick call was held, emergencies were handled, and patients were cared for until they could be taken to a hospital. The first of these facilities were makeshift, but in early 1918 three new dispensaries were erected, using standard plans. Organized units with their own medical staffs and some of their own equipment did not rely on these dispensaries but rather used barracks to hold sick call in their own areas. A dispensary opened at Hoboken served the sick and injured among the military on permanent duty at the embarkation port under the supervision of the port's attending surgeon.<sup>29</sup>

The Medical Department sent those in need of hospitalization to base hospitals, to civilian hospitals, or to specialized facilities. Although the department

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<sup>26</sup> WD, SGO, *Activities*, pp. 289, 290.

<sup>27</sup> *Ibid.*, pp. 254, 288, 329; WD, SGO, *Military Hospitals*, p. 247; Charles W. Berry, "Transport Sanitation," p. 690; Greenberg, "Venereal Disease," p. 178.

<sup>28</sup> WD, SGO, *SGO*, p. 653; *idem*, *Activities*, pp. 253–54, 317, 330.

<sup>29</sup> WD, SGO, *Activities*, pp. 314, 328.



*Camp Upton, New York, general view from nearby overlook and interior street scene with barracks for new recruits*





*New recruits arriving at the Camp Upton station; (below) enjoying a meal at the camp mess hall*



intended that base hospitals care for all Army patients from the embarkation camps in need of hospitalization, no one knew how many patients would require care or when these facilities would be needed. As a result, the department did not know how large to make them. The number of patients from the camps grew slowly but inexorably in the earliest months, when Army facilities for embarking soldiers were still incomplete, forcing the department to turn first to several civilian hospitals in New Jersey and eventually to Army hospitals in other areas. In one of the civilian hospitals in Hoboken an increasing number of beds was gradually taken over until finally all were devoted to Army patients. In July 1918 it officially became an Army hospital and was dubbed Embarkation Hospital No. 1.<sup>30</sup>

Even before the end of 1917 the Army also needed specialized hospitals for certain types of cases found among troops destined to go overseas from the New York area. The first such hospital, one for VD victims, was opened in November 1917 on Hoffman Island in New York Harbor. New York State provided food and medical supplies at a cost of two dollars a day per patient; the Medical Department, the staff. The buildings were "old and the plumbing and heating arrangements left much to be desired," but because the island could be reached only by boat, isolation was easy. In July 1918 the facility was officially dubbed Embarkation Hospital No. 3. In December 1917 Embarkation Hospital No. 2 opened at Secaucus, New Jersey, for those suffering from contagious diseases. Hudson County provided food, medical supplies, and nursing, while the Medical Department supplied the officers needed to supervise medical care and manage administration as well as the enlisted men to work as orderlies. Eventually a fourth embarkation hospital opened in New York City, although it was not ready to receive patients until after the war had ended.<sup>31</sup>

One of the earliest organized of the specialized facilities that served neuropsychiatric cases in the Hoboken area consisted of a special ward in a general hospital. Obviously created with soldiers returning from Europe in mind, it was initially used principally for the victims of nervous and mental ailments culled from among troops about to go overseas. In July 1917 the port surgeon appointed as director of the neuropsychiatric service a physician who had in civilian life been in charge of the "largest psychopathic reception service in the country." This specialist worked to establish the special facility and to organize wards in other hospitals where the victims of this type of illness could be held for transfer. He was also responsible for examining those charged with crimes when the question of mental capacity had been raised and for advising about the assignment of other officers to neuropsychiatric responsibilities.<sup>32</sup>

In the struggle against disease, laboratories were as necessary at the embarkation camps as they were at the mobilization camps. The first laboratory to serve the Hoboken area was established in September 1917 after two cases of epidemic meningitis were diagnosed. Two medical officers from the Army Medical School

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<sup>30</sup> Ibid., p. 342; WD, SGO, *Military Hospitals*, pp. 33-34, 426, 427, 429, 785, 787; Ashburn, *History of MD*, p. 309.

<sup>31</sup> WD, SGO, *Activities*, pp. 264, 270, 272; idem, *Military Hospitals*, pp. 427 (quoted words), 428, 429, 787, 789, 790.

<sup>32</sup> WD, SGO, *Activities*, 274; idem, *Neuropsychiatry*, pp. 49 (quoted words), 50.

in Washington D.C. set up the laboratory in the hospital at Camp Mills; however, because of the inadequacy of the facilities and medical personnel there, much laboratory work had to be done at the Rockefeller Institute for Medical Research. When Camp Mills was closed as a mobilization camp in December 1917 in preparation for its conversion into an embarkation camp, a laboratory opened in the base hospital at Camp Merritt, but it also proved inadequate to the need. The Medical Department had to appeal for help once again, not only to the Rockefeller Institute but also to Cornell University and the New York City Board of Health. The Camp Merritt facility was quickly enlarged, and by February 1918 it was functioning effectively. In April, when Camp Mills reopened as an embarkation camp, it relied on the Camp Merritt laboratory. As increasing numbers of men went through Hoboken, the need for laboratories continued to grow, leading the port surgeon's office to establish a laboratory division in June 1918 to coordinate laboratory work in the port. In August a central facility—officially dubbed the United States Army Laboratory, Port of Embarkation—opened in New York City.<sup>33</sup>

The new laboratory had to be well equipped and staffed, and equipment and personnel had to be available wherever and whenever needed if the laboratory was to accomplish what was expected of it. The Medical Department, therefore, assigned medical officers, Sanitary Corps officers, contract surgeons experienced in laboratory work, and technicians to it, and, when no more experienced personnel were available, turned to training the inexperienced. Technical skill was not all that was expected of laboratory workers, however. To be prepared to identify as promptly as possible all the ailments that troops might bring with them to the embarkation ports in the Hoboken area, they had to maintain a constant awareness of the contagious diseases afflicting the areas of the United States from which units came.<sup>34</sup>

The Medical Department also had to provide personnel to manage storage depots at embarkation ports. The immediate responsibility for collecting medical supplies was that of the permanent New York medical supply depot, but the general inadequacy of storage space limited the number of base hospitals with their bulky and heavy equipment that could be warehoused at the ports. Because only items scheduled for immediate shipment were to be sent to the piers, items further back in the pipeline were to be stored elsewhere, making it necessary for the depot to grow in size. Late in the spring of 1917 it moved into a new building with a railroad spur that ran directly to it. Medical supplies continued to come in even when shipping was not available to move it overseas, and all space was soon filled to overflowing. Timing incoming shipments of supplies so that they could be shipped immediately was no more successful than it had been with soldiers arriving for embarkation, and the effort to do so resulted in a backup of supplies just as it had of men.<sup>35</sup>

As the responsibilities of the New York medical depot grew, the complexity of the organization necessary to manage it increased. During the 1916 mobilization along the Mexican border two regular medical officers, assisted by a medical

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<sup>33</sup> WD, SGO, *Activities*, p. 275.

<sup>34</sup> *Ibid.*, plus pp. 276, 277.

<sup>35</sup> WD, SGO, *Finance and Supply*, pp. 662, 729–30.

reserve officer and twenty-eight civilians, had been sufficient to run the New York City medical supply depot, and their number increased only slightly during the early months of the war. In the spring of 1918 the situation began to change rapidly. As a result of the Army's reorganization of its management of supply and transport, the Medical Department was required to name its own port supply officer to serve on the staff of the port commander and as the assistant of the port storage officer.<sup>36</sup>

The professional staff of the depot was divided into separate departments for administration, purchasing, production, inspection, finance, requisitioning, and warehousing. Additional "special departments" handled dental and surgical instruments and X-ray equipment, with each of these departments subdivided for maximum efficiency. The depot's purchasing department eventually consisted of nine branches, one for each commodity. The personnel of each were chosen for their familiarity with that specific commodity. In those instances when the inspection department lacked personnel with the requisite expertise, the purchasing officer had to assume ultimate responsibility for inspections.<sup>37</sup>

The inspection department, which eventually consisted of a main division, an appraisers division, and a medical laboratory division, was responsible for checking on items before they could be shipped overseas. By the fall of 1918, because many items were inspected before the actual signing of a contract, the inspection department chief was named to the purchasing board. Initially an officer and two to three enlisted men examined supplies delivered at the New York medical depot, but in time, as direct shipments from the various suppliers to the units being supplied increased in volume and as space on the piers became scarcer, much inspection came to be handled in the field. The inspectors in New York, nevertheless, coordinated the efforts of Medical Department appraisers at the St. Louis and Washington D.C. depots. The lack of storage space and the cost of conducting inspections at the St. Louis and Washington depots led to inspecting some items at the manufacturing plants. Inspecting medical instruments became so important that personnel trained to inspect instruments had to be used in buying and distributing these items as well. Two civilians hired to help with the purchase of instruments instructed any manufacturers, among them jewelers, who were inexperienced in making such items.<sup>38</sup>

In dealing with its wartime responsibilities, the medical supply depot made use of the services of men who had acquired considerable expertise in their individual fields before joining the Sanitary Corps. A banking expert became head of the finance department of the medical supply depot, which was called upon to disburse millions of dollars a month. A Sanitary Corps officer with "extensive experience in factory organization and production work" ran the depot's production department, which helped manufacturers acquire the raw materials they needed and advised them on production problems in order to expedite deliveries. By November 1918 fourteen of the nineteen commissioned officers at the medical supply depot were from the Sanitary Corps.<sup>39</sup>

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<sup>36</sup> *Ibid.*, pp. 77, 663-64.

<sup>37</sup> *Ibid.*, pp. 197, 665 (quoted words), 669, 692.

<sup>38</sup> *Ibid.*, pp. 197, 673-75, 680, 694.

<sup>39</sup> *Ibid.*, pp. 663, 671 (quoted words), 680, 683.

The port surgeon at Hoboken was responsible for not only personnel but also medical supplies being held at the port for immediate overseas shipment, although after the fall of 1917 he did not have to deal with motor ambulances and field supplies that left from Newport News. Many of the problems with which his organization had to contend as far as supplies were concerned originated in a shortage of storage space at the port. These difficulties were exacerbated by the fact that the Army responded to the severe shortage of shipping by giving a higher priority to personnel than to supply and in early 1918 a significantly low priority to medical supplies, an approach that contributed to backups at ports.<sup>40</sup>

To store items ready for shipment, the Medical Department in June 1917 was assigned a single warehouse on the waterfront on North River in Manhattan. Located across the river from the Hoboken piers used by other organizations and near an entrance to the subway to Hoboken, the North River warehouse thus became the medical supply depot specifically for the Hoboken Port of Embarkation. The space was not adequate, however, and more had to be borrowed from other organizations. Thus many articles initially shipped to North River for storage in the summer and fall of 1917 were sent on to other depots, where they were used to meet needs at nearby training camps. Although Boston never became extensively involved in embarkation, warehouses there were also used to store Medical Department items that were termed "finished products," including dressings, hospital furniture, and hospital equipment. Finally, in March 1918 an entire pier was set aside at North River for the exclusive use of the Medical Department for its supplies, the only restriction being that everything sent there must be "promptly unloaded and held on the pier awaiting shipment overseas."<sup>41</sup>

Storage was not the only supply problem. Small items tended to be packed for shipment in containers with other similar but not identical items, resulting in confusion for those responsible for unpacking overseas. In addition, many containers were not labeled as to their contents, but labeling was not the complete answer to the problem; those handling supplies in French ports were often Portuguese or Chinese, and they could not read the English-language labels. The use of symbols produced still further confusion until the fall of 1917, when General Pershing ordered that a uniform system of labeling be developed. Further difficulties arose because medical supplies were not always shipped promptly, not only because items needed by the Medical Department had a lower priority than weapons and ammunition but also because the department's supplies, some of which were obtained by other agencies, were not always delivered in a timely manner. The speed with which some personnel went through the port also caused difficulties; each dentist going through the port of Hoboken on his way to France was supposed to be provided with the equipment he would need for his overseas assignment, but occasionally one was not in the area long enough for this to be possible. The Medical Department then began sending portable outfits to the medical supply depot in France so that the dentist would not have to be idle awaiting his equipment once

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<sup>40</sup> Ibid., pp. 397, 714, 718, 720; WD, SGO, *Activities*, p. 312; Zimmerman, *Neck of the Bottle*, pp. 26, 33, 147.

<sup>41</sup> WD, SGO, *Finance and Supply*, pp. 521–22, 659, 660–61, 713, 714, 715, 724 (first quoted words), 730 (second quoted words); Huston, *Sinews of War*, p. 346.



he arrived. Assembling the bulky and heavy base hospital equipment as the items came in from the various suppliers proved impractical before shipment because of late deliveries. Eventually medical authorities decided to ship in bulk to the department's medical supply depot in France and to assemble the equipment there. Finally, in October 1918, the Medical Department was given additional space at Hoboken so that base hospital equipment could be assembled.<sup>42</sup>

### *Newport News Area*

Fewer soldiers went through the Newport News, Virginia, area on their way overseas than through Hoboken, but, even so, activities related to embarkation spread out around Newport News just as they did around Hoboken. The Newport News area was officially declared a port of embarkation in July 1917 (*see Map 2*), but by the end of the year only 1,604 men had shipped out for Europe from it. Slightly more than 26,000 soldiers remained at the port at that time, but more than 260,000 men went through in 1918. The Medical Department's basic goals and the difficulties it experienced there were similar to those at Hoboken. Department activities at the Newport News Port of Embarkation also included, however, maintaining the health of large numbers of animals being sent overseas.<sup>43</sup>

Ground was broken for the first building in connection with the Newport News Port of Embarkation on 30 July 1917, when the Hoboken Port of Embarkation also officially opened, and construction proceeded rapidly thereafter. Most of those going overseas were quartered at either Camp Stuart; Camp Hill; or Camp Alexander, a labor camp. Although a camp medical organization was in place at Camp Morrison, an Air Service camp, as early as December 1917, camp surgeons were not named at Hill, with a capacity for roughly 7,000 officers and men, and Stuart, with a capacity of more than 16,000, until the spring of 1918. The camp surgeons, who supervised sanitary inspectors and managed infirmaries, reported to the port surgeon concerning all medical activities at their posts. At the various depots regimental medical officers were apparently the only medical staff.<sup>44</sup>

Although most health problems in the Newport News area resembled those found among troops assembling elsewhere, insect-borne diseases—especially malaria—were a particular concern. Malaria was all too familiar to the civilians living there, where anopheline mosquitoes were far more common than they were in the Hoboken area. Attempts were made to deal with the threat both by killing larvae and by protecting the men from adult mosquitoes. Because good drainage was of vital importance under the circumstances, the Sanitary Corps officer assigned to duty in the area as an assistant to the sanitary inspector in October 1917 was ordered to survey drainage conditions at the camps. Another Sanitary Corps officer was temporarily assigned to command an engineering party, tasked with making surveys of the area and formulating plans for drainage. The severe

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<sup>42</sup> WD, SGO, *SGO*, p. 354; idem, *Finance and Supply*, pp. 246–47, 465, 519, 520, 521–22, 624, 715, 718, 732.

<sup>43</sup> WD, SGO, *Activities*, pp. 343–45, 434, 435; Huston, *Sinews of War*, pp. 345–46.

<sup>44</sup> WD, SGO, *Activities*, pp. 343–44, 468, 470, 471, 476, 480; idem, *Sanitation*, p. 346; Crowell and Wilson, *Road to France*, 1:171, 301, 302.

winter made it impossible to start the survey until early February 1918. As a result, actual work on improving drainage did not start until early April. Meanwhile, starting in November 1917, pools, water barrels, and eventually even the borders of a reservoir were oiled. As protection against both adult mosquitoes and malaria, men working in mosquito-infested areas were required to wear head nets, to use repellents for their hands and wrists, and to take 30 grains of quinine twice a week. Each day mosquitoes were collected from tents and barracks to keep track of the effectiveness of antimosquito efforts.<sup>45</sup>

To prevent malaria from severely affecting the soldiers stationed in the area, control measures had to extend beyond military camps and depots. City sewers were not adequate to handle all runoff, and some city drainage ditches became mere stagnant pools where mosquitoes could breed freely. Because area officials tended to ignore the problem, the Public Health Service undertook a campaign to kill mosquitoes and prevent their breeding. Given the shortage of laborers, Army participation was also needed outside cantonment areas. Authorities took some satisfaction in the fact that the process of draining low places and swamps where water accumulated and mosquitoes bred not only reduced exposure to malaria but also reclaimed much land to be used for farming.<sup>46</sup>

Although enforcement of antimosquito efforts was difficult, the rate found among soldiers tended to be less than the 6 percent among civilians. In the attempt to discover where each patient acquired his disease, the Medical Department learned that all cases of local origin were acquired outside the cantonments, in areas where mosquito control was difficult. All but three cases were tertian malaria, and the single fatality fell victim to both tertian and falciparum malaria. Although anopheline mosquitoes were very common at Camps Stuart, Hill, and Alexander, where most of the men going overseas were quartered, none of them was infected while there.<sup>47</sup>

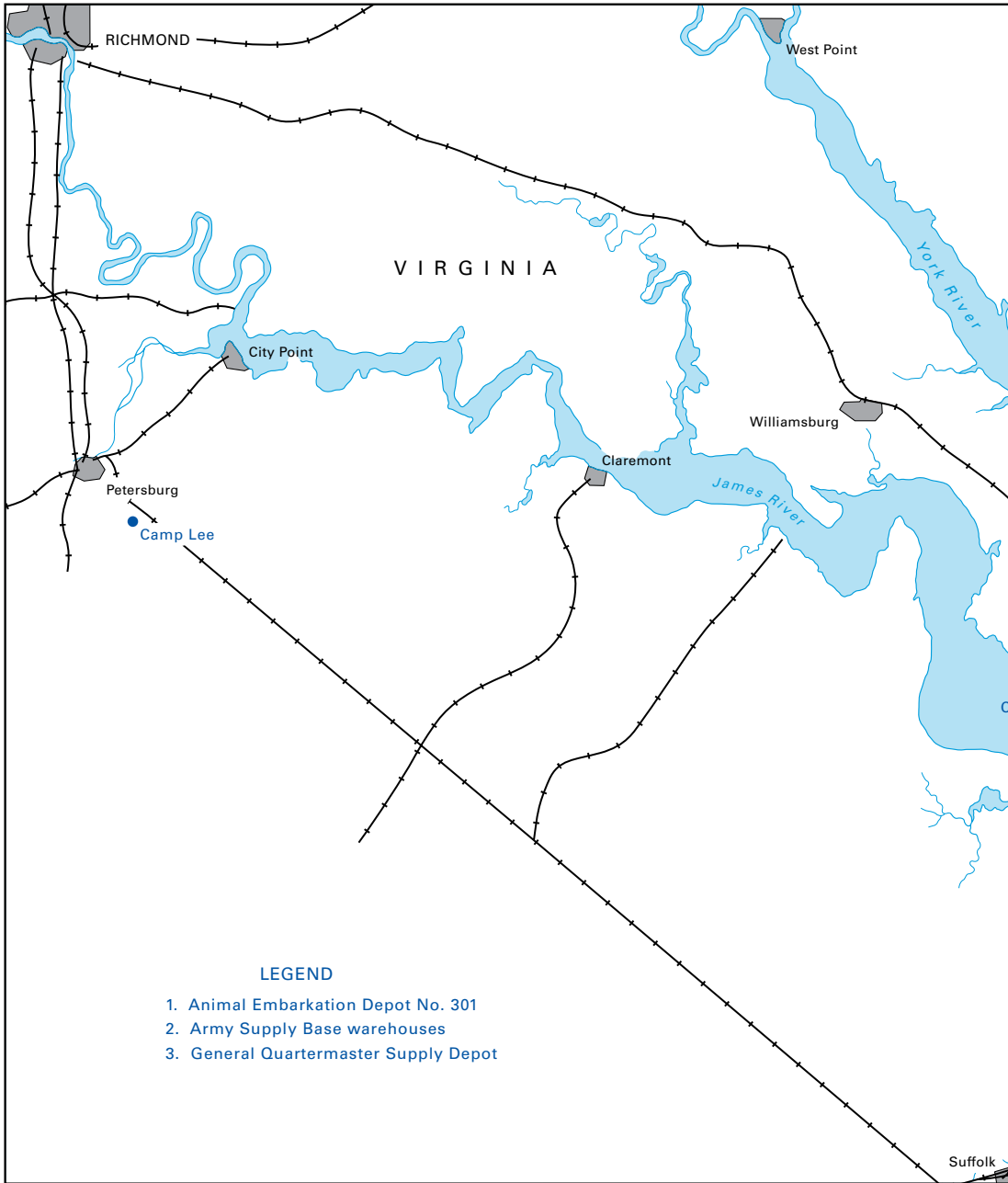
In the Newport News area, where garbage collection services were poor, streets filthy and inadequately drained, and restaurants “grossly insanitary,” flies also thrived. They buzzed about the numerous nearby pigpens, where pigs were used to dispose of the city’s garbage, and over the mounds of refuse near Camp Stuart, where the surface of one section was used for the disposal of night soil. Flies also bred in a shallow swamp used for dumping the manure of thousands of horses being readied for shipment overseas, primarily because of the lack of transportation to some more distant location. By the spring of 1918 flies joined mosquitoes as a serious problem, and the Army was forced to undertake a multipronged effort against them. The garbage dump was spread with oil and set afire. The use of flyswatters was encouraged, and flypaper was hung where flies were plentiful. Traps were baited to attract these insects, often with a mixture of vinegar, sugar, and water, or, better yet, bran, mashed boiled potatoes, sugar, yeast, and water, all

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<sup>45</sup> William B. Hermes, “Malaria Drainage Operations at the Port of Embarkation, Newport News, Virginia,” p. 88; WD, SGO, *Activities*, pp. 366–67, 369, 371; idem, *Sanitation*, p. 340.

<sup>46</sup> Hermes, “Malaria Drainage,” p. 81; WD, SGO, *Activities*, pp. 368, 370–71; idem, *Sanitation*, pp. 340, 343, 345.

<sup>47</sup> Hermes, “Malaria Drainage,” pp. 81, 86, 91; WD, SGO, *Activities*, pp. 370, 373; idem, *Sanitation*, pp. 345–46.

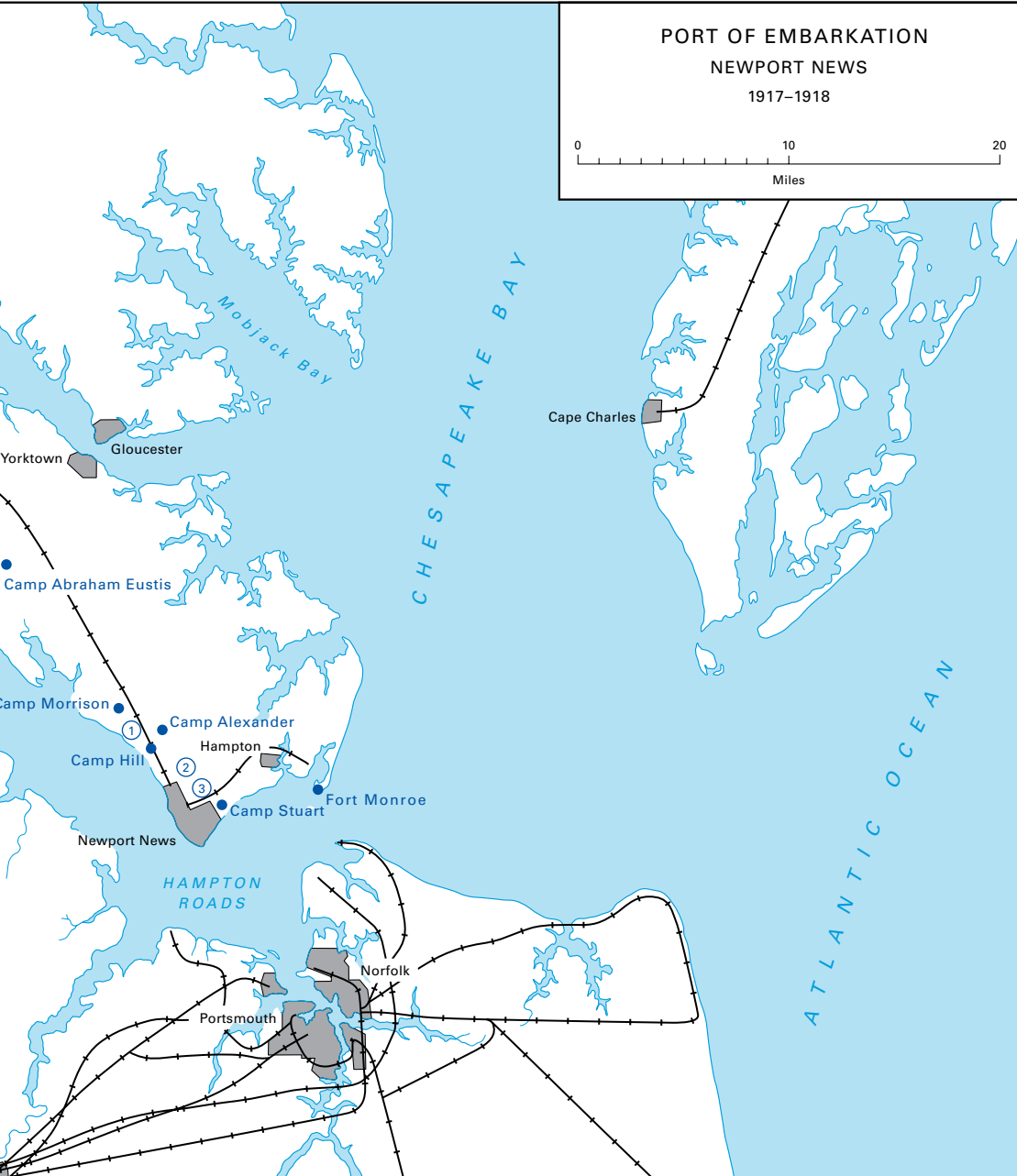
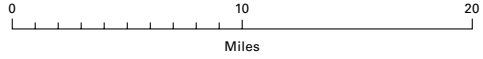


MAP 2

# PORT OF EMBARKATION

## NEWPORT NEWS

1917-1918



fermented for a day. A poison made of canned milk, sugar, water, and formalin was poured on slices of bread exposed for their delectation. The aid of the Public Health Service was once more solicited to assist in improving the city's sanitation. The threat to place off limits any restaurants found by the Public Health Service to be unsanitary led to "a very satisfactory clean-up of these places." These and similar efforts were rewarded by a marked decrease in the area's fly population.<sup>48</sup>

Possible infestation with lice also formed a greater problem in Virginia than in New Jersey. In August, September, and October 1918 medical officers at Newport News, while examining the troops as they boarded ships, found only 0.6 percent of the men to be infested. A representative of the Surgeon General's Office, however, had some time earlier found that 42 percent of the blacks harbored lice. The rapid pace of the boarding process, however, made a careful examination for all forms of lice impossible. Because of the high proportion of blacks believed to be afflicted with lice, every black soldier being sent overseas was routinely deloused regardless of whether lice had been found on him or his clothing. The tedious delousing procedure, which had to be repeated to be effective, could interfere with the timing of embarkation, and so, in the interests of the most effective use of time, no white soldier was submitted to the procedure unless he had actually been found to be infested. As plans for delousing stations at camps for white soldiers such as Camps Stuart and Hill were not approved until October 1918, those among them identified during the preembarkation physicals as having lice were sent to either the embarkation hospital or the camp infirmary for treatment.<sup>49</sup>

Most of the laborers and stevedores to go overseas left from Newport News rather than Hoboken, and caring for them presented different challenges from those experienced with troops destined for combat. At any one time approximately 5,000 black laborers, members of reserve labor and stevedore organizations, some of them assigned to duty in the Newport News area, could be found at Camp Alexander. Few had had much education, and as a group they were regarded as "ignorant negroes of the poorest class, both physically and mentally." They were in questionable health from the outset, no physical examinations having been administered at mobilization camps to weed out those who were ill or in any other way unfit for service. After those who were capable of handling overseas service had been identified at Newport News, the men who remained were assigned to the reserve labor battalions. Medical officers found "frequent cases of tuberculosis, rheumatism, ununited fractures, etc." among them. Although only 20 percent of those arriving at the camp had a venereal disease, those who stayed behind were described as "riddled with venereal disease," with an estimated 70 percent having at least one of these infections, most often gonorrhea. A high number were also infested with lice, usually pubic lice, which, unlike head lice and body lice, are not regarded as vectors of human disease, when they first arrived at camp.<sup>50</sup>

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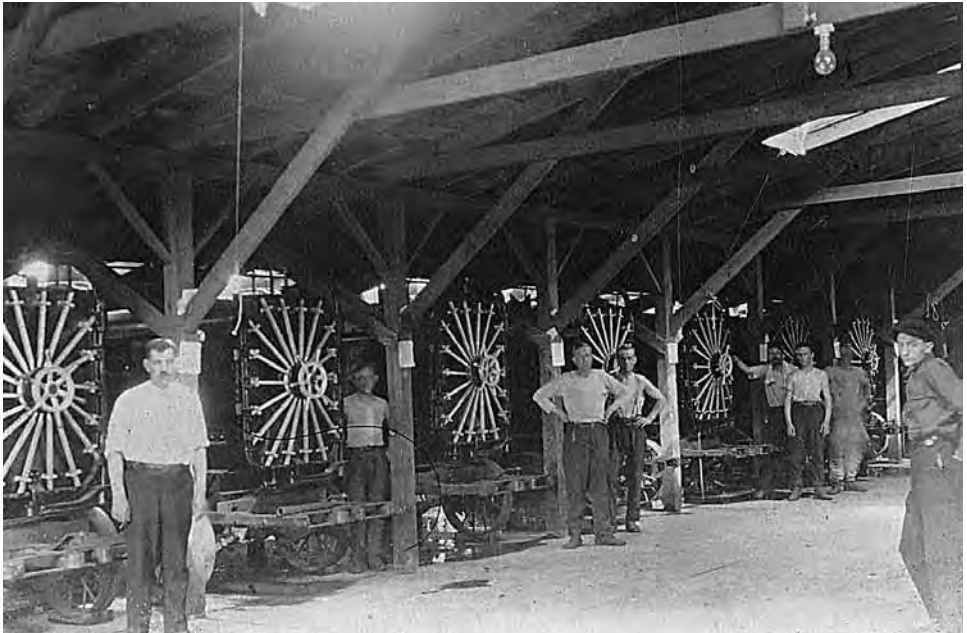
<sup>48</sup> WD, SGO, *Activities*, pp. 353-54 (first quoted words), 355 (second quoted words), 373, 374, 375, 376-77.

<sup>49</sup> *Ibid.*, pp. 380-81; WD, SGO, *Sanitation*, pp. 393, 396.

<sup>50</sup> WD, SGO, *Activities*, pp. 355 (initial quoted words), 380, 381, 383, 402-03, 471; *idem*, *Sanitation*, pp. 381, 382; Crowell and Wilson, *Road to France*, 1:219, 297, 303; James G. Cumming, "Sputum-Borne Disease Transmission with Epidemiologic and Bacteriologic Research," p. 153 (remaining quotations).



*Exterior and interior views of typical delousing plant*



The Medical Department's historians later confessed that the level of personal hygiene practiced by the occupants of Camp Alexander was actually irrelevant, for "living conditions were so poor that it would have been impractical to expect" high standards. Because construction did not start until 1918, all personnel had to live in tents for more than a year. Even the hospital remained under canvas for many months. The stevedores, who tended to arrive sometimes a few at a time, sometimes in large numbers on short notice, turned up in clothes little better than rags. They had all apparently been told, incorrectly, that the Army would provide the clothes they needed as soon as they arrived. They were required to sleep in overcrowded tents without floors, cots, or mattresses. As the weather turned increasingly cold, measles began to spread among them, and cerebrospinal meningitis and pneumonia soon appeared as well. The number of medical personnel assigned to them was inadequate even before the disease rate began to climb. Furthermore, in spite of the heavy infestation with lice, Camp Alexander was not provided with bathhouses. After two portable sterilizers were obtained in May 1918 and all were deloused, the incidence of this parasite was considerably reduced. With the return of warmer weather and the completion of a new camp for the stevedores, the situation improved still further.<sup>51</sup>

Venereal disease, however, remained a constant and particular threat at Camp Alexander. Indeed, in the belief that holding blacks back at their mobilization camps would prevent fully half of them from being sent to work at the embarkation port, no attempt was made to identify those with syphilis or gonorrhea before they were shipped to Newport News because they could be given light duty there while they were being treated. Initially, however, only a single small tent was set aside where VD cases could receive treatment. By August 1918, when the victims numbered 3,800, a small building had been equipped to handle them on a rotating basis. They were moved about in the course of their duties, however. Although many could not come in for treatment during the daylight hours, no effort was made to confront this situation until after the war's end.<sup>52</sup>

Camp Alexander also had to deal with influenza, which struck the Newport News area in the fall of 1918. Enlisted men who had been working at the port's supply base brought the disease to the camp. Apparently the rate was higher among stevedores than among other blacks or among white soldiers, a situation that at least one medical officer blamed on the fact that these men washed their mess kits in warm rather than very hot water. Although most black soldiers seemed less susceptible to influenza than whites, when they did contract the disease, they were more susceptible to pneumonia. Many influenza victims, however, were among the 10,000 civilian workers at the supply base. The contractors handling the construction hired a civilian medical group to care for civilians, but when the infirmary set up for them proved inadequate, a barracks had to be used for the overflow. Throughout the area the same problems were experienced as had been encountered at the mobilization camps. Hospitals were soon filled to overflowing, and barracks had to be taken over as temporary shelters for the sick.<sup>53</sup>

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<sup>51</sup> WD, SGO, *Activities*, pp. 355, 356, 377-78, 381, 382, 400, 469, 471 (quoted words), 472.

<sup>52</sup> *Ibid.*, pp. 400, 408.

<sup>53</sup> *Ibid.*, pp. 387, 470, 477, 478; James G. Cumming and Charles B. Spruit, "The Transmission of the Pneumonia Producing Group of Organisms," p. 392; Cumming, "Sputum-Borne Disease," p. 156.

Finding buildings that could be used as hospitals formed a considerable challenge in the Newport News area long before the influenza epidemic severely exacerbated the problem. Civilian hospitals were considered not large enough to be worth taking over; the nearest appropriate building that could be converted was in Richmond, 85 miles away. Patients were initially transferred by ambulance and even by trolley car to the nearest existing Army facility, the post hospital at Fort Monroe. The garrison there was growing, however, and after 1 November, by which point Camp Hill was in use and Camp Stuart was almost ready for occupancy, no more patients from Newport News were accepted. Space for about forty beds was rented at a Newport News hospital for black stevedores already occupying Camp Alexander, and barracks at Camps Hill and Stuart were turned over to the Medical Department, an arrangement classified as “most unsatisfactory from every standpoint.”<sup>54</sup>

At this point plans for an embarkation hospital to serve the Newport News area were changed, increasing bed capacity from 200 to 500. The hospital, erected at Camp Stuart, was the source of some controversy, however. The post commander gave a higher priority to building barracks; his reasoning was that hospital space would not be at a premium until after the number of soldiers at the post had increased, at which point the hospital could be expanded as needed. As a result of this philosophy, however, Medical Department facilities were quickly overwhelmed, but medical officers were blamed. Fortunately, by mid-March 1918 the embarkation hospital was almost complete. In the late spring a barracks was taken over for the use of convalescents and medical personnel, who were then moved from the hospital proper to make room for more patients. Just before the Armistice was signed, the Army succeeded in obtaining congressional authorization for taking over “the beautiful Soldiers’ home, at Hampton.”<sup>55</sup>

With malaria a significant threat in the Newport News area and venereal disease at least as great a problem there as at other Army camps, the laboratory services so vital to the diagnosis of these types of ailments were of particular importance. The first laboratory was established in inadequate quarters with inadequate equipment. Even after it moved to a new site in January 1918, it was still without a gas supply or bacteriological equipment. But here medical authorities, unlike those in the Hoboken area, had no Rockefeller Institute or Cornell University to which to turn for help. They were forced to borrow what they needed from the Public Health Service. Fortunately, as troops began to arrive in increasing numbers and the quantity of diagnoses needing laboratory confirmation grew correspondingly, the laboratory received greater attention.<sup>56</sup>

At Newport News as in the Hoboken area, the growing demand for laboratory technicians proved very difficult to meet. Women were hired to handle these duties, and when a routine course of instruction was developed for enlisted men who had had college or technical training, the female technicians and the officer in charge of the laboratory guided their work. Giving permanent positions to the

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<sup>54</sup> WD, SGO, *Military Hospitals*, pp. 430, 432 (quoted words).

<sup>55</sup> *Ibid.*, p. 432 (quoted words); WD, SGO, *Activities*, 433, 447; United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, p. 14 (hereinafter cited as *Hearings . . . on S. 3748* (65th Cong., 2d sess.)).

<sup>56</sup> WD, SGO, *Activities*, pp. 447–48.





*Camp Stuart and embarkation facilities, Newport News, Virginia; (below) some of the troops at Camp Stuart with their mascot*



women made training and transferring the men possible without interfering unduly with the laboratory's work. Specimens could be double-checked by trainees as part of their course. Unfortunately, friction resulted from placing women in a position of superiority over the men being trained, and authorities believed that the long hours required "constituted too heavy a tax" on the women.<sup>57</sup>

The Newport News medical supply depot was solely responsible for issuing field medical equipment to the American Expeditionary Forces. Although in theory all units going through Newport News already had all their medical supplies with them, experience demonstrated that this was not always true. As a result, in addition to storing field medical equipment, the depot had to have anything that troops going overseas might need. Complications arose from the fact that the first shipments received at the Newport News depot were not correctly marked, and thus much time had to be devoted to going through all containers to determine where they should be stored. Part of the difficulty here was apparently the fact that shipping depots did not realize that the Newport News medical supply depot was responsible both for units going overseas and for those permanently stationed at the embarkation port. When the War Department authorized the formation of field medical depot supply companies, the surgeon general ordered the commanding officers to report to the Newport News Port of Embarkation. Here the medical supply officers began organizing and equipping the new units in April 1918, setting up replacements to take the place of companies that sailed for France.<sup>58</sup>

For a time, the supply situation at Newport News resembled that at Hoboken. Supplies kept arriving at the port when the ships to transport them were not available. Adding to the confusion, however, was the fact that many of the ambulances that were shipped out of Newport News had already been assembled before their arrival and thus required more storage space. Finally, in December 1917, a brief embargo was placed on shipments of many items into Newport News, and the arrival of more cargo ships alleviated the situation. By the end of January all items had been shipped out or had been allotted cargo space in ships that had either not yet arrived or were awaiting the arrival of coal before loading. In March the embargo was finally lifted. Fortunately, the Newport News depot was able to train inductees in medical supply work at a special school formed in the spring of 1918. Some were given a brief course before being sent out to other camps. All who graduated from this school received commissions as second lieutenants in the Sanitary Corps.<sup>59</sup>

Newport News played a vital role for the Veterinary Corps. The first supplies to arrive at Newport News for overseas shipment were for veterinary use, and the port was also the principal port from which horses and mules were shipped overseas. Nevertheless, here as elsewhere, the needs of the Veterinary Service were neglected. Drainage at the animal debarkation depot was poor until March 1918, and sanitation was inadequate for many months. Shipment of animals was, like the shipment of men and medical supplies, severely handicapped by the shortage of transports, and as a result, the corrals of the depot remained full for much of the war.<sup>60</sup>

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<sup>57</sup> *Ibid.*, p. 448.

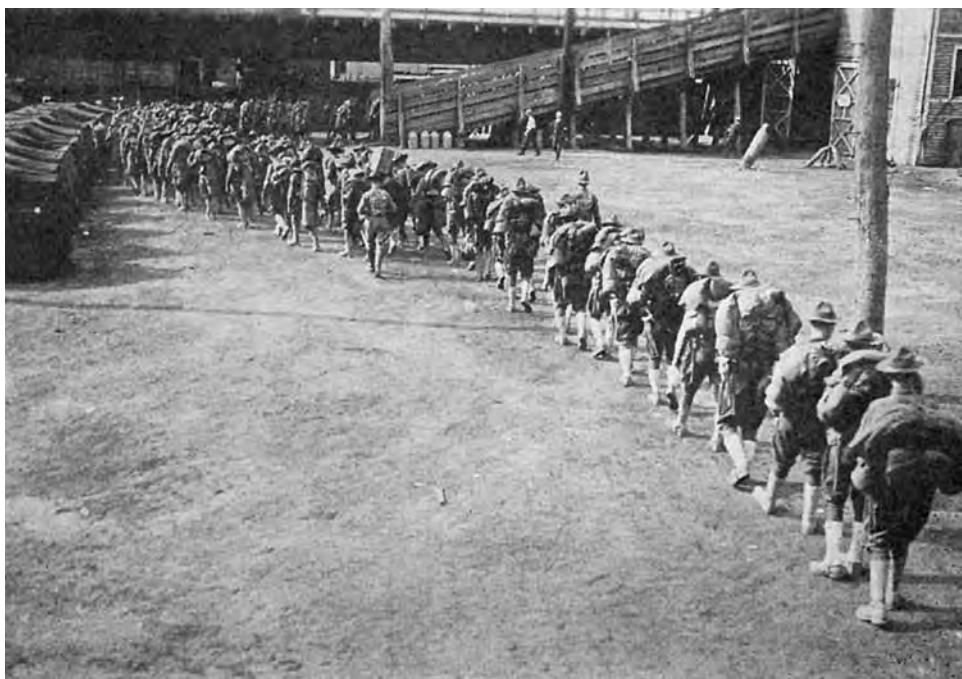
<sup>58</sup> *Ibid.*, p. 351; WD, SGO, *Finance and Supply*, pp. 264, 720, 721.

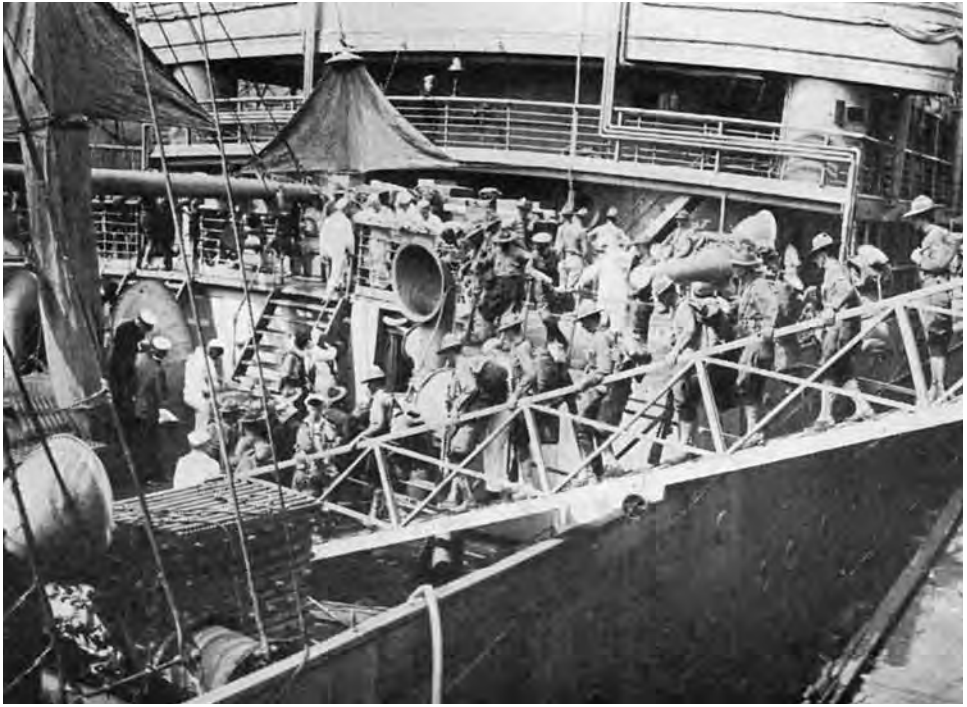
<sup>59</sup> WD, SGO, *Activities*, p. 350; *idem*, *Finance and Supply*, pp. 721, 722.

<sup>60</sup> WD, SGO, *Activities*, pp. 349, 461–62, 463; Crowell and Wilson, *Road to France*, 1:237.



*Marching through Newport News and approaching the embarkation pier*





*Boarding a transport at Newport News; (below) crowded transport leaving the pier*



*On the Transports*

Much of the motivation behind attempts to screen out those who might be ill or carrying disease was the sure knowledge that on the crowded transports contagious illnesses would be transmitted with particular ease from one man to another on board the crowded transports. If for some reason preparations to prevent further spread of disease or to care for the sick proved inadequate, medical personnel on board had to rely on whatever makeshift arrangements they could make to deal with the resultant problems during the twelve-day period it took for the ship to reach port. Only then would more physicians, more medical attendants, more equipment, more medical supplies, and more space be available. When a respiratory disease like influenza struck under such circumstances, the situation almost inevitably raged out of control.<sup>61</sup>

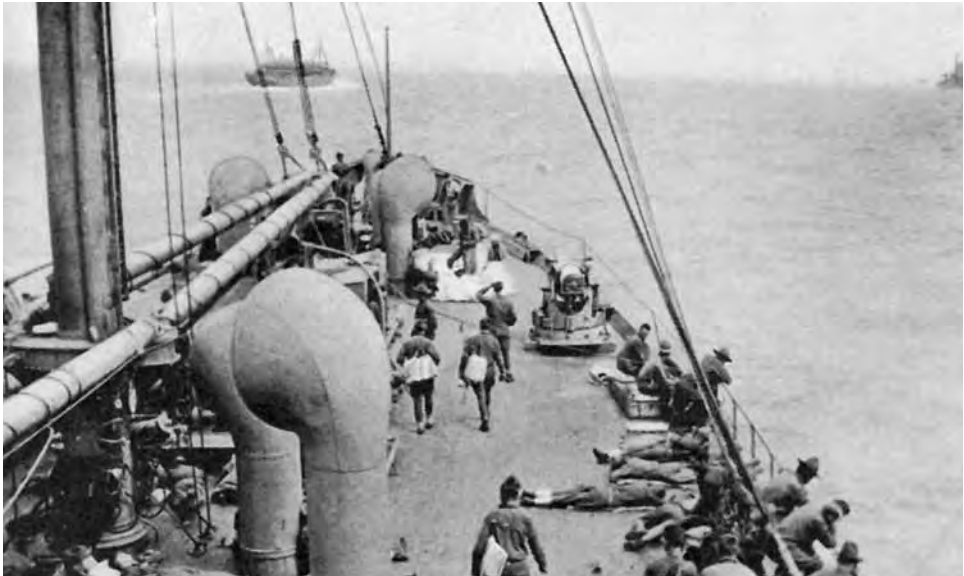
During the first year of the war the approach developed after the Spanish-American War for maintaining the health of troops on transports was still in force. Ships controlled by the Quartermaster Transport Service moved all troops, animals, and cargo. A general superintendent at each port from which transports were being dispatched and a medical superintendent serving under him inspected all ships on arrival and before departure, submitting any recommendations for improvements to the general superintendent. Early in World War I either the medical superintendent (at Hoboken the port surgeon) or the transport surgeon assigned to each ship examined all those embarking or disembarking for signs of disease and recommended appropriate action. Although on the ship a unit's own medical officers determined who required medical care, providing it for those who did not need to be hospitalized, the transport surgeon had the final medical authority. He was responsible for the ship's sanitation, for the work of hospital attendants, for the care of hospital patients, and for the care of the ship's officers and crew. As many as five Medical Department enlisted men assisted him. A smaller number was needed on cargo vessels working under the Transport Service. Medical officers and enlisted men assigned to transports were taken from the Eastern Department personnel. The demand for medical personnel was considerable and increased with time. While five medical officers were assigned to transport work in June 1917, fifty were working out of Hoboken alone by April 1918. In addition, an Army medical officer became director of the Department of Health and Sanitation for the shipyard workers; he was expected not only to recommend and execute measures designed to protect the health of the workers on the job but also to establish dispensaries and hospitals for them. He continued in this capacity throughout the war.<sup>62</sup>

The great shortage of shipping led to a massive ship-building effort within the United States, as well as to the use of ships whose control the Army had to share to a greater or lesser degree with other organizations or nations. By the spring of 1918 the shortage of Army medical officers was so great that the Army had to turn to the U.S. Navy for assistance. To an ever-increasing extent thereafter, the Navy

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<sup>61</sup> Coffman, *War To End All Wars*, p. 231.

<sup>62</sup> Philip Schuyler Doane, "Report of the Department of Health and Sanitation of the United States Shipping Board for the Period November 16, 1917, to November 15, 1918," pp. 390, 405; WD, SGO, *Activities*, pp. 258, 259; idem, *Sanitation*, pp. 414-15, 416; Huston, *Sinews of War*, p. 352.



*A troopship in convoy*

assumed responsibility for providing both medical officers and crews for U.S. transports and cargo ships. Army medical officers with units going overseas continued to be responsible for health and hygiene among their men unless they were hospitalized. On ships manned by the Navy, however, the Navy was responsible for sanitation and hospital care, thus freeing for other service all Army personnel and equipment previously involved in moving men and cargo overseas.<sup>63</sup>

By the war's end, however, fewer than half of the ships that carried U.S. troops to Europe were under U.S. control. Transports controlled by the British, most often commercial vessels, moved most of the remainder. Some ships in this category had their own permanent medical personnel, hospital, and medical equipment. For those who did not, hospitals had to be set up and medical personnel and supplies obtained. Other commercial ships offered only a civilian ship's surgeon, through whom whatever medical facilities the ship had became available if the Medical Department hired him under contract, an arrangement that was handled on a voyage by voyage basis.<sup>64</sup>

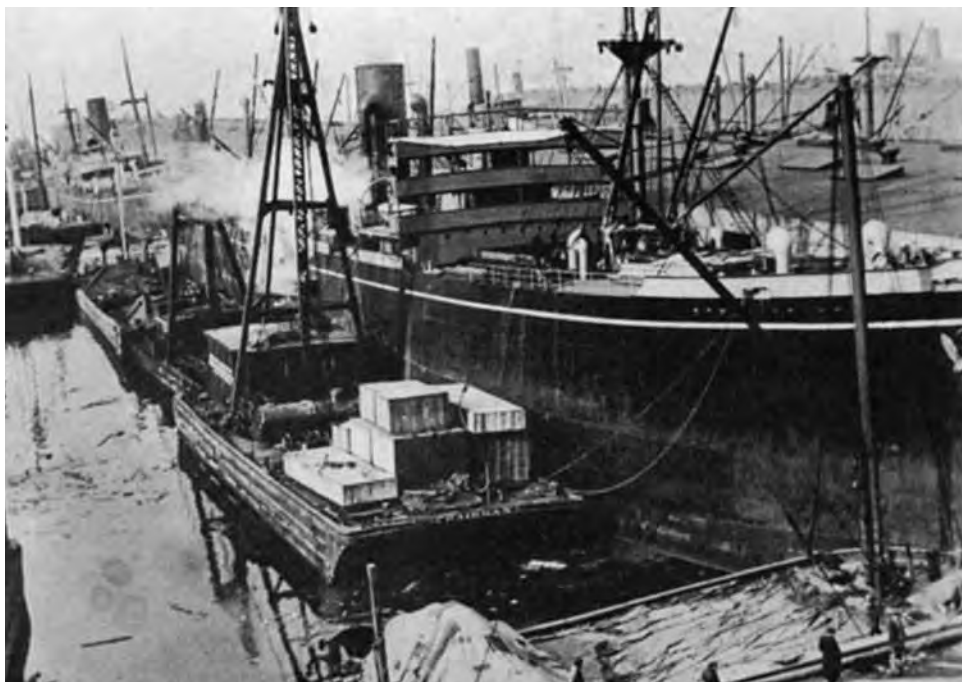
Additional difficulties arose from the fact that the rules and customs of the nation of origin governed the management of foreign ships. This situation was exacerbated when, because of the severe shortage of experienced U.S. medical officers, a physician unfamiliar with ship sanitation or the problems inherent in moving troops overseas played the role of transport surgeon. Although a medical

<sup>63</sup> Crowell and Wilson, *Road to France*, 2:346, 446; Coffman, *War To End All Wars*, p. 182; Pershing, *My Experiences*, 1:337; WD, SGO, *Activities*, p. 259; Huston, *Sinews of War*, pp. 352–53.

<sup>64</sup> Crowell and Wilson, *Road to France*, 2:330; Russell F. Weigley, *History of the United States Army*, pp. 383–84; Coffman, *War To End All Wars*, p. 182; WD, SGO, *Activities*, p. 258; idem, *Sanitation*, pp. 419–20, 426.



*Army cargo base at Port Newark, New Jersey; (below) cargo transports loading at Army dock in Brooklyn, New York*



officer could be assigned to serve in this capacity, authorities for the port and those responsible for transportation apparently never agreed on what medical personnel the Army should provide. Furthermore, Army medical officers being in very short supply, Surgeon General Gorgas urged that civilian physicians be hired for transports. In August 1918 a change of policy concerning transport surgeons on British commercial vessels called for the U.S. transport surgeon to become officially merely a passenger, his way paid by the U.S. government. As far as U.S. troops on board were concerned, however, he still functioned officially in the role of transport surgeon. Because he was permanently assigned to a specific ship, he could familiarize himself with her characteristics and with regulations on both sides of the Atlantic.<sup>65</sup>

Under these circumstances, the sources of confusion seemed unending. Setting regular schedules often proved impossible. While some commercial vessels served uninterruptedly as transports, others did so only occasionally, when taken from regular runs on other service. Transports were, for the most part, faster ships than those used to move cargo and sailed in faster convoys less favored as targets by the Germans. Overseas destinations were frequently changed because of the threat of submarines. This precaution, coupled with the fact that foreign ships had no home port in the United States, complicated attempts to predict what ships would be available and where they would be available at any given time. These uncertainties increased the difficulties experienced in assigning medical personnel. On the few foreign warships that served as transports, another potentially difficult situation arose; the transport surgeon assigned by the U.S. Army to such ships was subordinate to the ship's surgeon, who, like the rest of the crew, was a member of another nation's military services.<sup>66</sup>

Providing the various ships carrying U.S. troops overseas with medical supplies was also a complex matter. All ships leaving for overseas were equipped with the items that might be needed for medical units accompanying the troops on board. The needs of the hospital on each transport had to be met as well. The Navy's Bureau of Medicine and Surgery provided all medical and hospital supplies for Navy ships, but the Army Medical Department was still responsible for supplying vaccines, sera, report forms, and the like. Checking on each commercial vessel to identify items needed on board was also a responsibility of the port surgeon.<sup>67</sup>

Even when medical supplies for the units on board a transport were adequate, further difficulties arose because they were often stored where they could not be reached. Division surgeons who had been warned about this problem merely assumed that their needs would be met from the ship's medical supplies, and thus before they boarded they often neglected to requisition the supplies they would need during the voyage. For the first convoy to cross the Atlantic in the summer of 1917, the Medical Department dealt with this problem by releasing regimental hospital equipment that had been modified for use on transport. As a result, the port surgeon at Newport News made up a list of the basic items he believed a transport

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<sup>65</sup> WD, SGO, *Activities*, pp. 260–61; idem, *Sanitation*, pp. 419–20; Doane, "Report," p. 391.

<sup>66</sup> Gleaves, *History of Transport Service*, p. 88; Coffman, *War To End All Wars*, p. 229; Crowell and Wilson, *Road to France*, 2:441; WD, SGO, *Activities*, p. 260.

<sup>67</sup> WD, SGO, *Activities*, pp. 292, 304–05.





*The dreaded silhouette of a submarine running awash*

carrying 1,000 troops would need and sent it to Surgeon General Gorgas, who had a board of medical officers revise it. Gorgas then sent it to the medical depots at New York and in Washington, ordering them to issue supplies according to the revised list. The new system went into effect in February 1918.<sup>68</sup>

In September 1918 the large numbers of wounded from overseas who were returning on the transports rendered the old list inadequate. A second board of officers met at Hoboken to form a new standardized list for transports. This board developed a surgical unit, a medical unit, a dental emergency unit, and a sera and vaccine unit, each based on an allowance of 1,000 men. If a transport already had adequate supplies, the head of the transport division of the port surgeon's office was given the authority to reduce the contents of the surgical unit to prevent wasteful duplication.<sup>69</sup>

With the exception of U.S. Navy ships, which were inspected only once, all transports, regardless of origin, were inspected both on arrival and again on departure from an embarkation port to determine that they had all the required medical supplies and facilities. A sanitary inspector from the port surgeon's office usually conducted the inspection. For a brief period, until the approach proved unwieldy, representatives from the Inspector General's Office and another from the shipping control committee joined him. Among the criteria considered desirable was hospital space for 2–3 percent of the command. Because on the trip to Europe most of

<sup>68</sup> Ibid., pp. 292, 303, 312; WD, SGO, *Finance and Supply*, pp. 720, 737; Coffman, *War To End All Wars*, pp. 108–09.

<sup>69</sup> WD, SGO, *Activities*, pp. 305, 312.

the patients falling ill had contagious diseases, the existence of several isolation wards was especially important. Port medical authorities were also responsible for providing the transport surgeon with the most recent regulations and general orders while the ship was in port.<sup>70</sup>

Once a transport set sail, maintaining high standards of sanitation on board the crowded vessel proved to be a difficult challenge to meet. At one point, difficulties arose in dealing with ships controlled by the British; they maintained that when ships met their standards, any suggestions about modifications to meet American standards were out of line. In response to these complaints, specifications were put on paper, and after they were accepted by both British and French authorities, the matter was laid to rest. Although the port surgeon at Hoboken tried in vain to limit the number to board each ship, the demand for troops overseas overrode all other considerations. Eventually ships were carrying 50 percent more than intended by their designers and troops had to sleep in shifts because available space was inadequate to permit them all to do so at the same time. The situation that resulted was more dangerous on some ships than on others. Some rode so low in the water that it was impossible to use portholes to ventilate the areas occupied by troops. Even in ships that rode relatively high in the water, portholes could not remain open at night because the light would shine through and attract submarines. If the weather was rough, hatches had to be kept closed as well, further reducing ventilation.<sup>71</sup>

In an effort to maintain standards of sanitation as high as possible under such circumstances, the commander of the troops on each transport made a point of naming a police officer to see that baths, washrooms, and latrines were kept clean and that bedding was aired each day when the weather permitted. He also made up a schedule to guide troop bathing. In addition, the troop commander joined his senior medical officer, an officer of the ship, and the ship's surgeon in daily formal inspections of the areas occupied by the troops. The soldiers were required to sleep head to foot to minimize the degree to which they breathed directly into one another's faces. Sick call was held daily to weed out and isolate those who were actually ill, but space was at too great a premium to make it possible to isolate contacts as well.<sup>72</sup>

Sanitation was further complicated by the fact that maintaining sanitary latrines was often impossible when they were "of the trough pattern with intermittent siphon flushing." Furthermore, soil pipes frequently became obstructed, causing the troughs to fill up, "whereupon their contents spilled over the floor with each roll of the ship." With so many men on each ship, bathing became critically important, a need that, fortunately, was sometimes easily met. In the summer months the water did not need to be heated, and men could be gathered on deck and hosed down en masse.<sup>73</sup>

Despite all precautions, once a transport was under way, disease invariably took its toll. When the influenza epidemic struck, the situation on board many of

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<sup>70</sup> *Ibid.*, pp. 265, 266, 287; WD, SGO, *Sanitation*, pp. 425, 426.

<sup>71</sup> WD, SGO, *Activities*, pp. 265, 266; *idem*, *Sanitation*, pp. 362, 415, 416, 417, 419.

<sup>72</sup> WD, SGO, *Sanitation*, pp. 415, 428.

<sup>73</sup> Berry, "Transport Sanitation," p. 693 (quoted words); WD, SGO, *Sanitation*, p. 424.

the transports going to France and England went from bad to desperate. Men by the dozens had to be removed from some ships even before they left the harbor. Orders were issued that transports be disinfected before being boarded, that all mess equipment be boiled after use, and that each ship's capacity be reduced by 20 percent, yet nothing seemed to help. Questions arose as to how well the various transports were actually equipped for washing all mess kits in boiling hot water, but two authorities on the subject agreed that "on any ship . . . a medical officer with the average amount of ingenuity can devise methods of sanitary messing and provide boiling water for mess-kit washing." The amount of crowding on board a given vessel appeared to have nothing to do with the number who contracted the disease. Screening all men before boarding was in vain; units that had apparently not been exposed to the disease before embarking were among those affected once on board. In any event, the need for soldiers in Europe was the overriding concern, and on 5 October 1918 the adjutant general denied a request from the Surgeon General's Office for a 50-percent reduction in troopship capacity and another for a week's quarantine for all men before boarding.<sup>74</sup>

An average of almost 9 percent of the men on transports, both soldiers and sailors, contracted influenza. On some ships the rate was much higher. Although regulations forbade burials at sea, some transports ran short of embalming fluids, and on one ship 20 of the 130 who died from influenza had to be surrendered to the ocean because no more coffins were to be had. All told, influenza killed more than 700 U.S. soldiers while under way. Many who did not fall ill on the transports contracted the disease shortly after disembarking. One ship, for example, reported that only 9 cases had developed during the trip from the United States but that an additional 384 cases occurred within the first twenty-four hours after reaching port. Over the next seven days 1,900 cases appeared, and 119 of the victims died. Although hospital capacity on the transports was increased by as much as 10 percent in response to the epidemic, a lack of hospital space and a shortage of medical personnel and supplies were nevertheless given some of the blame for the high death rate.<sup>75</sup>

The inroads of influenza on crowded transports resulted in horror for all on board. A sailor on the *Wilhelmina* noted in his diary: "What a nightmare of a trip it was! The deaths and the sickness among the troops; the helpless feeling one has when one is cooped up in a crowded space filled with disease rampant." On 4 October, after watching bodies sliding into the sea from one of the ships in his convoy while all flags flew at half mast, he noted that "it was death, death in one of its worst forms, to be consigned nameless to the sea." On the *Leviathan* the recent

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<sup>74</sup> Harris P. Mosher, "A Summary of the Activities of the Section of Otolaryngology," p. 642; Journal entry for 11 April 1918, Ms C401, Frank Spooner Churchill Papers, 1916–1944, National Library of Medicine, Bethesda, Md.; Charles Lynch and James G. Cumming, "The Role of the Hand in the Distribution of Influenza Virus and the Secondary Invaders," p. 627 (quoted words); Robert H. Ivy, "The Influenza Epidemic of 1918," p. 621; Alfred W. Crosby, *America's Forgotten Pandemic*, p. 139; WD, SGO, *Sanitation*, pp. 350, 359, 360, 417; Crowell and Wilson, *Road to France*, 2:441, 445.

<sup>75</sup> Coffman, *War To End All Wars*, pp. 83–84; WD, SGO, *Activities*, p. 271; idem, *Sanitation*, pp. 350, 425–26; Ivy, "Influenza," pp. 620–21; Crosby, *Forgotten Pandemic*, pp. 122–23; Crowell and Wilson, *Road to France*, 2:441–43; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, p. 28; Lyn Macdonald, *The Roses of No Man's Land*, p. 290.



*The Leviathan, formerly the German liner Vaterland, leaving for France with nearly 11,000 American troops*



draftees being sent over as replacements were terrified to the point of panic and refused to go below decks to clean their sleeping quarters or to bring out the dead and dying. As a result, members of the ship's crew had to perform these unpleasant duties.<sup>76</sup>

In mid-October the Army finally adopted Medical Department advice that only units already exposed to influenza were to be sent overseas. From 15 October 1918 on, influenza ceased to be a major problem on board transports, but by this time the epidemic had already peaked. By the end of October troops arriving in Europe from the United States were in much better shape than they had been earlier in the month.<sup>77</sup>

The major difficulties the Medical Department encountered in caring for troops going overseas resulted, like most of its problems, from inescapable haste and the lack of both mental and physical preparation that inevitably resulted, a situation it shared with the Army and the nation. Medical Department attempts to obtain and promptly ship to Europe the requisite amounts of supplies, equipment, and manpower were inevitably only partially successful under the circumstances, and because of the desperate need for more men overseas, its pleas for quarantine in the face of the influenza epidemic could not be heeded. Nevertheless, in spite of the lack of advance planning and preparation; in spite of the resultant haste and confusion; in spite of the shortage of transports and of medical personnel, and especially of experienced, trained medical personnel; in spite of the low priority given to shipping medical personnel and supplies; and, finally, in spite of the world's first and most terrifying pandemic of influenza, U.S. soldiers were moved across the Atlantic in sufficient number and in sufficient health to bring Germany to its knees on 11 November 1918.

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<sup>76</sup> Crowell and Wilson, *Road to France*, 2:243 (quotations), 444–45.

<sup>77</sup> Crosby, *Forgotten Pandemic*, p. 123; WD, SGO, *Sanitation*, pp. 350, 364.

## Chapter 7

# THEATER CHIEF SURGEON'S OFFICE



The small handful of medical officers that Maj. Gen. John J. Pershing gathered when he first arrived in France in 1917 became the nucleus of a unique organization—the Chief Surgeon's Office, American Expeditionary Forces (AEF). Never before had the chief surgeon of a command been required to create an office that was so large, so complex, and so independent of the Surgeon General's Office. The Chief Surgeon's Office could function as if it and the Surgeon General's Office were “two separate operations, though, with close liaison and cooperation,” in large measure because General Pershing successfully resisted Washington's attempts to control his command, creating and gradually refining a well-organized and effective “miniature war department” at his headquarters in France. As the AEF commander, Pershing did not intend to plunge his men immediately into action after they arrived in France. He believed that they needed training far beyond any that they might have received before landing in France. For this purpose, he allowed American units to serve temporarily with British and French commands. Even though the German offensive in 1918 forced him to commit troops to combat without the thorough and time-consuming training he had initially envisioned, he allowed nothing to undermine his determination that the American Expeditionary Forces would remain separate from and equal to the British and French commands.<sup>1</sup>

Unfortunately, as Pershing experimented to maximize overall effectiveness and efficiency to prosecute the war, the needs of the AEF medical service inevitably became secondary to those of organizations more directly involved in the fighting. Although the Surgeon General's Office could still enjoy some elements of independence once exercised by the Army's powerful bureaus, the AEF chief surgeon was vulnerable to any command modifications ordered by Pershing. In the course of refining his operational staff at the AEF headquarters in Paris, Pershing severed his Chief Surgeon's Office from the center of control by relocating it

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<sup>1</sup> Russell F. Weigley, *History of the United States Army*, pp. 377, 388 (second quoted words); James A. Tobey, *The Medical Department of the Army*, p. 39 (first quoted words); James L. Bevans, “The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War,” p. 500; James E. Hewes, *From Root to McNamara*, p. 26; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 323 (hereinafter cited as *History of MD*); War Department (WD), Surgeon General's Office (SGO), *Sanitation*, p. 87; WD Bulletin no. 43, 22 Jul 1918, p. 40.

offsite. This geographical separation from Pershing's General Headquarters both limited the chief surgeon's access to key AEF plans and complicated his management of his personnel and their work.<sup>2</sup>

### *Command and Control*

In the spring of 1917, when Col. (later Brig. Gen.) Alfred E. Bradley, MC, learned of his selection to be the first AEF chief surgeon, he presumably expected to carry out the traditional theater chief surgeon's role, remaining, both literally and figuratively, at his commanding general's side and aware of his intentions from the outset; advising him in matters affecting the health of his men; coordinating the efforts of medical personnel in the interest of the command as a whole; and supervising the professional aspects of their work. As General Pershing began to develop and activate his plans, however, his concept of the role to be played by his chief medical officer became increasingly untraditional. Although he maintained that he often conferred with Colonel Bradley and his assistant, Col. (later Brig. Gen.) Merritte W. Ireland, MC, the general excluded his chief surgeon from his General Staff from the outset, relegating Colonel Bradley to a position with a supplementary administrative and technical staff and thereby limiting Bradley's access to timely information about plans for the American Expeditionary Forces.<sup>3</sup>

The difficulties caused by General Pershing's approach first surfaced late in July 1917, when the men of the American Expeditionary Forces were arriving for training in France. Neither General Pershing nor his staff elected to inform the Colonel Bradley's office where several of the newly disembarked units would be sent for training. On 23 July, obviously distressed at having to learn about such important information through the grapevine, Colonel Ireland wrote in his diary somewhat incoherently and too hurriedly to bother with punctuation: "This is one of the difficult things which I hope will disappear . . . , for we must know what is to take place if we are to administer anything and when it comes eventually to preparing for battle the Medical Department must know a month ahead of any attempt to make any big pushes otherwise we are sure to fall down."<sup>4</sup>

Whether the deterioration of Colonel Bradley's influence resulted to any significant degree from his poor health and Pershing's well-known distaste for officers in less than vigorous condition can only be conjectured. Reputed to be a fine administrator, Bradley was clearly handicapped by his physical condition, the result

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<sup>2</sup> Ashburn, *History of MD*, pp. 306, 323; Hewes, *Root to McNamara*, p. 26; WD, SGO, *Sanitation*, p. 87; idem, *Administration, American Expeditionary Forces*, p. 337 (hereinafter cited as *Administration, AEF*); Shipley Thomas, *The History of the A.E.F.*, pp. 34–36, 432–33; Tobey, *Medical Department*, p. 39; Bevans, "Function of Consulting Staffs," p. 500; WD, *Official Army Register*, 1 Dec 1918, p. 5. To avoid confusion with the usage of *Medical Department* as a short form for the Army Medical Department, this work refers to the so-called Medical Department of the American Expeditionary Forces as the Chief Surgeon's Office, AEF, or the AEF medical service.

<sup>3</sup> John J. Pershing, *My Experiences in the World War*, 1:175–76; WD, SGO, *Administration, AEF*, pp. 22, 23; Erna Risch, *Quartermaster Support of the Army*, p. 645; *United States Army in the World War, 1917–1919*, 14:61; Jonathan H. Jaffin, "Medical Support for the American Expeditionary Forces in France During the First World War," M.A. thesis, p. 38.

<sup>4</sup> War Diary, p. 15, Ms C117, Merritte W. Ireland Papers, 1911–1931, National Library of Medicine (NLM), Bethesda, Md.



*Alfred E. Bradley*

of a painful lung abscess of unspecified origin that finally killed him in 1922. His increasing reliance on his young and vigorous executive officer did not, however, stand in the way of Bradley's promotion to brigadier general in the National Army in October 1917, along with the other heads of Pershing's permanent staff.<sup>5</sup>

General Pershing's creation of the Line of Communications (known as the LOC and later the Services of Supply, or the SOS) in August 1917 led to the first of a series of moves that both complicated and weakened the position of the AEF chief surgeon. At this point, LOC chief surgeon Col. (later Brig. Gen.) Francis A. Winter, MC, became responsible for all activities that supported front-line troops outside of the zone of the armies (or the combat zone) and, except for professional matters, reported to the LOC commanding general. The work of Colonel Winter's office as part

of the Line of Communications was linked by the newly established coordination section with the other elements of the American Expeditionary Forces.<sup>6</sup>

Colonel Winter's new responsibilities were great. Most of the Medical Department's work was conducted throughout the Line of Communications, and to a large degree Winter functioned as the medical supply officer for the American Expeditionary Forces. He was responsible for establishing, administering, and supplying the growing numbers of hospitals and medical units as well as for managing the principal medical supply depot at Cosne. He soon found that the volume of his work necessitated dividing his office into separate divisions for supply, sanitation, and personnel, the latter controlling all those assigned to the AEF's medical service and all dental sections not attached to combat units or base hospitals. The line dividing the responsibilities of the two chief surgeons, Bradley and Winter, was unclear, producing a situation in which rivalry might have flourished, but the two officers apparently worked together harmoniously, almost as equals.<sup>7</sup>

<sup>5</sup> Ibid., p. 21, Ms C117, Ireland Papers, NLM; Jaffin, "Medical Support," M.A. thesis, p. 39; Alexander Taylor Cooper Autobiography, p. 172, Ms B120, NLM; Pershing, *My Experiences*, 1:124–25, 193, 230–31; Ashburn, *History of MD*, p. 323.

<sup>6</sup> Edward M. Coffman, *The War To End All Wars*, p. 129; *United States Army in the World War*, 14:61–62; James A. Huston, *The Sinews of War*, pp. 357–58.

<sup>7</sup> Ashburn, *History of MD*, pp. 325–26; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1919, pp. 388–90 (hereinafter cited as *ARofSG*, year), p. 1295; WD, SGO, *Administration, AEF*, pp. 43, 62, 91, 107–08, 109, 230; WD, SGO, *Finance and Supply*, p. 747; Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical





*Geneva Convention brassard, Army medical service, c. 1918*

When General Pershing moved his headquarters from Paris to Chaumont, nearer the AEF training area in Lorraine, Chief Surgeon Bradley accompanied him, leaving Colonel Winter behind in the French capital. The difficulty of communicating between Chaumont and Paris complicated Bradley's attempts to exercise active control over Winter's office and thus significantly weakened Bradley's position. As a remedy, Bradley not only asked the French to assign a liaison officer to Winter but also detailed four of the ten medical officers then on his staff to work with him as well. One of these officers served with the LOC water service, and another two handled liaison with the American Red Cross and the Young Men's Christian Association. The fourth functioned both as liaison with the French medical service and as the medical member of the General Purchasing Board, which was created at this time to handle all purchasing done in Europe for the American Expeditionary Forces, including the Medical Department.<sup>8</sup>

Dealing with liaison was an important responsibility. For the medical service as for the American Expeditionary Forces in general, the close cooperation that was fostered by the use of officers specifically assigned to liaison was vital, especially as the American Expeditionary Forces grew larger and locating new hospital sites became ever more crucial. The French were sufficiently convinced of the need for a close working relationship to establish a special organization, the Franco-American Bureau, to be responsible within the Ministry of War for liaison between the two medical services at all levels throughout the military regions into which France had been divided. They also set up a subsection of the Franco-American Bureau within their Secretariat of State, thus fully preparing themselves to work with the Americans in matters involving hospitalization, disease prevention, water inspection, venereal diseases, medical supply, and similar matters of mutual concern.<sup>9</sup>

Liaison was of such importance that, although he could not spare an officer to act exclusively in this capacity for his own office, General Bradley required that his Hospitalization Division chief, Col. Sanford H. Wadhams, MC, maintain close

Department, A.E.F." p. 641; War Diary, p. 14, Ms C117, Ireland Papers, NLM; Jaffin, "Medical Support," M.A. thesis, p. 45; *United States Army in the World War*, 14:61–62, 64; Huston, *Sinews of War*, pp. 357–58.

<sup>8</sup> Pershing, *My Experiences*, 1:128; Jaffin, "Medical Support," M.A. thesis, p. 44; Wadhams and Tuttle, "Some of the Early Problems," p. 641; WD, SGO, *Administration, AEF*, pp. 44, 45, 76–77, 89.

<sup>9</sup> WD, SGO, *Administration, AEF*, pp. 75–76, 77–78, 79, 80, 230; idem, *Sanitation*, pp. 537–38, 539; Wadhams and Tuttle, "Some of the Early Problems," pp. 638, 645–46.

contacts with the French. In February 1918 Bradley named Colonel Wadhams to handle liaison with both the French medical service at the Ministry of War in Paris and with the French military mission at Chaumont, but because of the shortage of physicians, he could not relieve Wadhams of his responsibilities as chief of hospitalization. Bradley also appointed a medical officer to handle liaison with the Italians.<sup>10</sup>

At General Bradley's behest, the chief surgeon of American forces in England carried out the vital role of liaison officer to the British. Establishing and maintaining a cooperative relationship, this officer collaborated closely with the British to obtain the release of U.S. medical personnel serving with the British for AEF duty in France, as well as any additional personnel for the remaining six American hospitals with the British Expeditionary Force; to advise the British about the reputations of American physicians who offered their services; and to supervise the assignments of Medical Department officers in England. He also worked with Red Cross personnel to select both the British ports and the hospitals for first receiving and then treating the wounded from France, all the while studying the British approach to various challenges that medical officers faced during the conflict.<sup>11</sup>

In January 1918 the work of the AEF medical commands underwent further disruption with the move of the Chief Surgeon's Office, LOC, and those of other chiefs of the various supply services from Paris to Tours to consolidate "matters of procurement, transportation, and supply" under the commanding general of the new Services of Supply. Except for the Offices of the Adjutant General, the Inspector General, and the Judge Advocate General, the move brought all supply and administrative services to Tours under the authority of the new command. Until March 1918, however, the Chief Surgeon's Office remained physically located near General Pershing's Chaumont headquarters, enjoying whatever advantage in prestige or easy communications that could be derived from this proximity.<sup>12</sup>



<sup>10</sup> WD, SGO, *Administration, AEF*, pp. 28, 44, 75, 76, 77, 80, 82; Wadhams and Tuttle, "Some of the Early Problems," p. 641, 646-47, 649.

<sup>11</sup> WD, SGO, *The Surgeon General's Office*, p. 131 (hereinafter cited as *SGO*); idem, *Administration, AEF*, pp. 39, 74; W. G. Macpherson et al., eds., *Medical Services . . .*, 1:149.

<sup>12</sup> John J. Pershing, *Final Report of Gen. John H. Pershing*, p. 20 (quoted words); idem, *Report of General John H. Pershing, U.S.A., Commander-in-Chief, American Expeditionary Forces*, Cabled to the Secretary of War, November 20, 1918, Corrected January 16, 1919, p. 5; Ashburn, *History of MD*, p. 349; WD, SGO, *Finance and Supply*, p. 750.



*The Chief Surgeon's Office, first floor of building on the right, Services of Supply headquarters, Tours, France*

At this point, the growing administrative confusion within the AEF headquarters led General Pershing to seek the opinions of his officers about how the situation might be remedied. Taking advantage of the fact that the AEF's General Staff had been to a significant degree modeled after the French General Staff, Bradley stressed the fact that the French had recently created a new staff section specifically for their medical service and urged Pershing to follow suit. After considering all suggestions, however, Pershing decided to centralize not only supply but also medical support under the SOS commanding general. This action both removed the chief surgeon farther from the center of power and virtually eliminated all direct contact with the AEF commander.<sup>13</sup>

The March 1918 reorganization brought about still further changes, among them a move of the responsibility for the medical aspects of gas warfare defense from the AEF chief surgeon to the SOS chief surgeon. When the Chief Surgeon's Office moved to Tours in March, Colonel Wadhams remained behind but was expected to devote himself exclusively to liaison. In his new capacity, he worked with the French personally and oversaw other medical officers assigned liaison duty. Most important of all, however, the move to Tours led to the Chief Surgeon's Office, AEF, absorbing the Chief Surgeon's Office, SOS. Despite his poor health, General Bradley was now expected to handle both roles. Col. (later Brig. Gen.)

<sup>13</sup> WD, SGO, *Administration, AEF*, pp. 26–27, 28–29, 52, 60–61; Huston, *Sinews of War*, p. 360; Maurice Matloff, ed., *American Military History*, p. 382.

Jefferson R. Kean, MC, who in February had arrived to replace Colonel Winter as the LOC chief surgeon, became a deputy chief surgeon. In his new position, Colonel Kean was expected to coordinate the various divisions of the office as well as to act for the chief surgeon in his absence.<sup>14</sup>

The erosion of the direct authority of the Chief Surgeon's Office continued in 1918, both within the Line of Communications and in the zone of the armies (*see Map 3*). In its reincarnation as the Services of Supply, the Line of Communications was divided geographically into sections, each with its own commanding officer. Base sections were located in the area of the main ports in France, England, Belgium, and Italy, for an eventual total of nine, while the Intermediate Section was centered at Tours, where storage depots were located. The Advance Section was created to include the area where AEF units camped for training. Although SOS base hospitals remained the chief surgeon's responsibility much as general hospitals had traditionally remained under the surgeon general's direct control, the surgeons under the commanding officers of their respective geographical sections now became responsible for all other medical personnel.<sup>15</sup>

The reorganization of General Pershing's headquarters at Chaumont and the move of General Bradley's office to Tours of the spring of 1918 further dispersed the responsibilities that had belonged to the chief surgeon. To give "general direction to the great combat units and to the Services of Supply," Pershing named an assistant chief of staff to head each of his staff's branches, to be labeled by letter and number from G-1 through G-5. Bradley's office now reported to G-4, which was, in essence, an expanded version of the old coordination section. Because of his geographical distance from Pershing's headquarters and thus from G-4, Bradley found it advisable to name medical officers to remain behind in Chaumont to represent him there. He assigned two of these officers to G-4. Because of poor communications between Chaumont and Tours, one of them, in his capacity as deputy chief surgeon of the Chief Surgeon's Office, was granted the power to act in the chief surgeon's name in an emergency. Given the speed with which the situation at the front could change, circumstances in which important decisions concerning medical personnel were made without Bradley's input presumably occurred fairly frequently. When the Military District, Paris (which included Paris and the French Departments of Seine and of Seine and Oise), was created in May 1918 and, not long thereafter, the Paris Group was set up to direct the work of divisions serving in the area of the Marne, one of the medical officers from G-4 became the Paris Group chief surgeon, responsible for the control of hospitalization and evacuation. A third officer remained at Chaumont to work with G-1, which was responsible for ocean tonnage, requisitions, replacements, and control of various volunteer organizations, including the American Red

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<sup>14</sup> AEF GO no. 31, 16 Feb 1918; WD, SGO, *Administration, AEF*, pp. 32, 50, 77, 842-45.

<sup>15</sup> "Some Accomplishments of the Services of Supply," 2d ed. (Prepared by Statistics Branch, General Staff, Headquarters, Services of Supply, American Expeditionary Forces, [1919]), p. 7, copy in Library, U.S. Army Center of Military History, Washington D.C.; WD, *ARofSG*, 1918, p. 314; *ibid.*, 1919, p. 1295; Ashburn, *History of MD*, p. 327; Wadhams and Tuttle, "Some of the Early Problems," p. 640; Weigley, *History*, pp. 369-70; WD, SGO, *Administration, AEF*, pp. 52, 91, 471-72; Pershing, *Final Report*, p. 63.



Cross. Yet another medical officer was assigned to G-5, which was responsible for training.<sup>16</sup>

These changes, while very belatedly giving the Chief Surgeon's Office, AEF, an increased role in formulating supply policies and producing greater efficiency in supply management, brought about what Colonel Ireland termed a "disconnection of the Chief Surgeon's Office from the medical administration of the front to an extent which makes it practically impossible for the Chief Surgeon to meet his responsibility for the conduct of medical affairs in the zone of the armies." Maj. George W. Crile obviously shared Colonel Ireland's pessimism, having noted in March 1918 that "as yet there is no organization." Inevitably, to fill the vacuum, the medical section of G-4 "soon became the center to which were referred all matters affecting the Medical Department, whether they arose at headquarters, A.E.F., or were referred to it from other sources."<sup>17</sup>

In this situation, the attitude of the G-4 assistant chief of staff, Brig. Gen. George Van Horn Moseley, was of great importance to the work of the AEF medical service in France. Although some high-ranking officers opposed keeping the Chief Surgeon's Office informed of impending action on the grounds that secrets were best kept if not shared, General Moseley, sensitive to the AEF's medical support requirements, insisted that all policy questions of any importance be studied by the medical officers assigned to his group before decisions were made. He also wished to have the chief surgeon's representatives kept fully informed of plans and of the needs of the division surgeons at the front. He created a special group with in his organization, known as G-4-B, to handle all matters relating to the medical service, including both medical activities at the front and questions of hospitalization and evacuation within the Services of Supply as well. The medical service was thus able to prepare for the number of casualties that might result from any given operation, if necessary evacuating farther to the rear patients occupying beds near the front that might be needed, creating more beds, or taking over hospitals from the French. Because the head of G-4-B was also entitled to act for the chief surgeon in emergencies, G-4-B became to a significant degree the tail that wagged the dog.<sup>18</sup>

The G-4-B staff inevitably grew larger with time—eventually averaging four medical officers, supported by two Sanitary Corps officers brought in to manage a large clerical staff. Two of the medical officers spent most of their time in the field, staying abreast of the problems encountered in hospitalization and evacuation. In time, a French medical officer joined G-4-B to serve as liaison between the two medical services.<sup>19</sup>

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<sup>16</sup> WD, *ARofSG*, 1919, pp. 1443-44, 1512, 1752; WD, SGO, *Field Operations*, pp. 311, 353, 375-76; idem, *Administration, AEF*, pp. 29, 50, 52, 230, 835, 842-45; Pershing, *Final Report*, p. 13 (quoted words); Wadhams and Tuttle, "Some of the Early Problems," p. 642; *United States Army in the World War*, 14:64; AEF GO no. 31, 16 Feb 1918; James G. Harbord, *The American Expeditionary Forces*, p. 26; Huston, *Sinews of War*, 360; Autobiography, p. 203, Ms C14, Kean Papers, NLM.

<sup>17</sup> WD, SGO, *Administration, AEF*, pp. 61 (first quotation), 62 (second quotation); George Crile, *An Autobiography*, 2:239 (quoted words); WD, *ARofSG*, 1919, p. 1500.

<sup>18</sup> WD, SGO, *Administration, AEF*, pp. 31, 62; Wadhams and Tuttle, "Some of the Early Problems," p. 642; WD, *ARofSG*, 1919, pp. 1443-44, 1445; *United States Army in the World War*, 14:77.

<sup>19</sup> WD, *ARofSG*, 1919, pp. 1444, 1488.

In April 1918 Chief Surgeon Bradley, whose lung abscess was by this point causing him to have such difficulty focusing on his responsibilities that his condition was obvious even to the casual observer, was finally sent home. In the process he was stripped of his temporary rank as brigadier general, “a shameful treatment” in the view of Colonel Kean. At Pershing’s insistence, and despite Surgeon General William C. Gorgas’ apparent preference for someone else, Ireland became the AEF chief surgeon and a brigadier general on 20 May. General Pershing’s faith in Ireland was great, evidenced by his terse diary entry for 27 June 1918: “If Medical Department fails, it will not be his fault.” But Ireland’s appointment as AEF chief surgeon did not lead Pershing to modify the position significantly. Yet when Ireland became surgeon general less than six months later, his influence was sufficient to enable him to urge successfully that Col. Walter D. McCaw, MC, be named as his successor, even though Gorgas, once again, preferred another man. Given that McCaw became chief surgeon only a month before the end of the war, he had little opportunity to influence the role played by the Chief Surgeon’s Office during the conflict.<sup>20</sup>

### *The Promotion Dilemma*

For the Chief Surgeon’s Office, the early summer of 1917 was the lull before the storm. Relatively few American soldiers were in France, and no move had yet been made to downgrade the chief surgeon’s position in the hierarchy of the American Expeditionary Forces. The office in its earliest incarnation was easily organized. Apparently working under the guidance of the Surgeon General’s Office, Colonel Bradley gave his organization an executive officer and divided its functions among six divisions. Terminology at this time was imprecise, however, and organizations theoretically subordinate to these six were often referred to as divisions, often as sections of divisions, and sometimes as subdivisions. The precise names of the divisions varied with time, but one handled personnel, another hospitalization and evacuation, a third sanitation and statistics, a fourth supplies, finance, and accounting, a fifth records and correspondence, and a sixth gas warfare. Initially created only on paper, the divisions evolved as circumstances and need dictated. So small was Colonel Bradley’s office and so simple its organization at this point that only the officer in charge of hospitalization, who was also expected to handle liaison with the French, had an assistant.<sup>21</sup>

Certainly among the most frustrating and confusing questions to face the Chief Surgeon’s Office, in particular, Colonel Ireland as Bradley’s assistant, was the matter of promotion for medical reserve officers serving with the American Expeditionary Forces. The problem became even more frustrating after Ireland became chief surgeon in May 1918, for its solution appeared to be a mirage, shin-

<sup>20</sup> Harvey Cushing, *From a Surgeon’s Journal, 1915–1918*, p. 320; Ashburn, *History of MD*, p. 323; Autobiography, pp. 193, 200, 205 (quoted words), 212, 228, Ms C14, Kean Papers, NLM; Pershing, *My Experiences*, 1:20n, 193, 193n; *ibid.*, 2:125 (quotation), 335, 410; Jaffin, “Medical Support,” M.A. thesis, p. 39.

<sup>21</sup> WD, *ARofSG*, 1918, p. 266; WD, SGO, *Administration, AEF*, pp. 44–45, 229; Wadhams and Tuttle, “Some of the Early Problems,” p. 641; Ashburn, *History of MD*, p. 326.

ing in the distance but moving away from him as he moved toward it. So many roadblocks were thrown in the way of their promotion that many reserve officers who had been ranked as lieutenants under the assumption that they would be promoted as soon as they had proved their fitness for military service never rose above that rank.<sup>22</sup>

Promotions for medical reserve officers with the American Expeditionary Forces were not approved during the early months of the war. Regulations prevented promotion beyond major for those who had joined the Army Reserve before the creation of the National Army. As a result, those who joined the service late in the war might receive promotions over the heads of those with longer service, greater experience, and possibly greater stature within the profession. The lack of a table of organization for AEF medical personnel was used as an excuse to withhold promotions on the grounds that vacancies had to exist for men to be promoted and, without the table, that the number of vacancies could not be determined.<sup>23</sup>

Finally, in May 1918 the SOS commander, Maj. Gen. Francis J. Kernan, who was succeeded in the summer by Maj. Gen. James G. Harbord, backed a scheme developed by General Ireland. In June some of the most prominent physicians serving with the American Expeditionary Forces were approved for promotion, among them the heads of the surgical and medical services, but no more promotions were forthcoming during the summer. Furthermore, for unexplained reasons, until August, Pershing's headquarters did not even forward to the War Department lists of other officers for whom promotion was deemed appropriate. For medical officers serving with the British, the continuing lack of advancement was particularly humiliating, for they had to suffer not only from rank markedly lower than that of their counterparts but also from the indignities inflicted by pay that came in so irregularly that they occasionally had to borrow from their British colleagues to pay their mess bills. Delays in obtaining promotions for AEF medical officers and, indeed, for AEF line officers as well, apparently resulted in part from conflicts between General Pershing and Army Chief of Staff General Peyton C. March, but a list of fifty-four captains of the Medical Reserve Corps recommended for promotion on 21 August was actually lost somewhere in transit. Ironically, while the struggle to obtain promotions in the National Army for medical reserve officers was at its height, several regular officers—among them Kean, Winter, and Ireland—had received promotions to the rank of brigadier general through the National Army. Shortly thereafter, on 25 August, Ireland was promoted to assistant surgeon general, AEF, receiving the rank of major general by an act of Congress. Years later, reflecting on the promotion dilemma, General Kean wrote: "The real difficulty was that the Personnel Division at G.H.Q. was unteachable."<sup>24</sup>

<sup>22</sup> WD, SGO, *Administration, AEF*, pp. 97–98, 954, 966; Autobiography, pp. 218–19, 234, Ms C14, Kean Papers, NLM; WD, *ARofSG*, 1919, p. 1293.

<sup>23</sup> WD, SGO, *Administration, AEF*, p. 97; Autobiography, pp. 212–13, 216, Ms C14, Kean Papers, NLM; WD, *ARofSG*, 1919, pp. 1293.

<sup>24</sup> Autobiography, pp. 205, 208, 209, 214, 215, 233 (quoted words), Ms C14, Kean Papers, NLM; WD, SGO, *SGO*, p. 636; idem, *Administration, AEF*, p. 98; WD, *ARofSG*, 1919, pp. 1293, 1294; A. Macphail, *Official History of the Canadian Forces in the Great War, 1914–1919*, p. 352; AEF GO no. 88, 6 Jun 1918; Donald Smythe, *Pershing*, pp. 167–68, 208; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, pp. 105–06.





*President Woodrow Wilson's letter to Franklin Martin, acknowledging his support for passage of the Owen-Dyer bill that would authorize higher ranks for Medical Reserve officers and thus make them equals to their Allied counterparts*

In September 1918 a War Department ruling designed to clear up the confusion led for a time to new roadblocks in the way of granting further promotions for medical officers, which were held up until the message could be received. When it arrived, it authorized General Pershing to make promotions up to and including the rank of colonel, following the same proportions as obtained among regular medical officers. This order also became enmeshed in red tape, apparently at least in part because of hesitation on the part of the Personnel Division chief at Pershing's headquarters. The situation became almost comic when a request for clarification produced a reply from the chief of staff in Washington that seemed to indicate that the War Department order authorizing promotions did not apply to the AEF medical officers. The negative answer proved to be the result of an error in encoding the message, but the confusion this fiasco produced still further delayed promotions.<sup>25</sup>

<sup>25</sup> WD, SGO, *SGO*, pp. 156, 640; idem, *Administration, AEF*, pp. 98-99; Autobiography, pp. 215, 216, Ms C14, Kean Papers, NLM; WD, *ARofSG*, 1919, p. 1294; Macphail, *Canadian Forces in the Great War*, p. 352; WD Bulletin no. 43, 22 Jul 1918, p. 338.

When General Ireland became surgeon general in October 1918, he immediately began urging General Pershing to use his influence to solve the promotion dilemma, sending Pershing a cable that, as aptly phrased by General Kean, “brushed all the cobwebs from the brains of the Personnel Division” of his General Staff. On 7 November 1918 the request that Pershing be allowed to give increased rank to medical officers was officially granted, but on 11 November the Armistice brought all promotions in the National Army to a halt. Only 680 promotions were pushed through in the brief period that the window was open, leaving 6,500 vacancies yet to be acted upon.<sup>26</sup>

### *Gas Warfare Division*

The difficulties faced by the Gas Warfare Division, on the other hand, were, like the division itself, short-lived. Nevertheless, when Maj. James R. Church, MC, who had previously attended the French gas school, was appointed to head the division in the summer of 1917, he assumed a challenge of considerable proportions. Few medical officers had any knowledge of gas warfare. And within a short time 12,000 AEF soldiers were stationed within 30 miles of the front, none of whom had had either training in gas defense or gas masks. General Pershing apparently did not request masks for them until mid-August. In September, when the AEF's Gas Service (later to become part of the Army's Chemical Warfare Service) was formed and Major Church became its first medical director, Bradley was thus relieved of direct responsibility for this aspect of the war. Church's new responsibilities were less daunting. He no longer was responsible for training and gas masks but only for the purely medical aspects of gas warfare. He also served as liaison between the various agencies that handled poison gas, including those of the Allies, collecting information on gas attacks and the symptoms of gassing for dissemination both to the head of the gas service and to the AEF chief surgeon. In December 1917 Bradley named Lt. Col. Harry L. Gilchrist, MC, to succeed Church.<sup>27</sup>

### *Hospitalization Division*

The other divisions of the Chief Surgeon's Office were not so quickly relieved of their burdens. The trials of the Hospitalization Division, among others, were unending. From the outset until the end of the conflict, planning and finding sites for hospitals was one of the chief surgeon's overriding concerns. Time was required both to construct new buildings and to prepare existing ones for use before they could be occupied, rendering any delay in obtaining information about General Pershing's plans a considerable handicap. Although Colonel

<sup>26</sup> Autobiography, p. 217 (quoted words), Ms C14, Kean Papers, NLM; WD, *ARofSG*, 1919, p. 1294.

<sup>27</sup> WD, SGO, *Medical Aspects of Gas Warfare*, pp. 39–40, 42, 44, 50, 59–60; idem, *Administration, AEF*, p. 45; War Diary, p. 16, Ms C117, Ireland Papers, NLM; Pershing, *My Experiences*, 1:165; WD, *ARofSG*, 1919, p. 1394; Charles E. Heller, *Chemical Warfare in World War I*, pp. 47, 53; Macpherson et al., eds., *Medical Services . . .*, 2:503.

Bradley remained for some time personally absorbed in the situation, he lacked critical details on how large the American Expeditionary Forces would be, on what sector U.S. troops would be asked to occupy, or even at what ports they would disembark. In the earliest weeks the French had detailed officers to check the port areas for facilities that might be used, which was useful to Bradley in his study of possible hospital sites. Bradley projected that the AEF troops would land at St. Nazaire and later concentrate for training at Lorraine, which proved to be correct. He was thus able to predict where the Line of Communications would be and where he should direct his searches. In this effort, liaison with the French became particularly important. When St. Nazaire was named as the principal port for the Americans, the French vacated some of their own facilities to shelter the AEF's sick and injured.<sup>28</sup>

Although Chief Surgeon Bradley handled many of the earliest efforts to locate hospital sites personally, from the time the Line of Communications was organized until the Chief Surgeon's Office left Paris for Chaumont, the line dividing the responsibility of the one office from that of the other as far as hospitals were concerned was blurred. It became distinct only when the two offices went their separate ways. After the Chief Surgeon's Office, AEF, left Paris in early September 1917, it concentrated on overall policy and obtaining facilities, while the Chief Surgeon's Office, LOC, centered its efforts on setting up specific permanent hospitals within the Line of Communications and dealing with supply and administration.<sup>29</sup>

As it evolved, the procedure for selecting a hospital site called for the chief surgeon's Hospitalization Division to suggest a location to the French or to supply the French with information concerning the size and the area to be served by a hospital center. The final choice then emerged from conferences between the French and AEF representatives. Once these authorities had ironed out the details and G-4 had given its final approval, the project was turned over to the AEF engineers. Armed with stock plans, the engineers directed the construction usually handled by civilian contractors.<sup>30</sup>

As early as July 1917, in anticipation of the need to rely on trains to move patients to the various hospitals, the Hospitalization Division also became involved in examining possible means of evacuation. The results of the study were discouraging. Little help could be expected from the French army; it had but two hospital trains. The regular cars with makeshift modifications upon which the French usually relied did not permit passage from car to car to enable surgeons to check on their patients or the disabled to receive their meals while the train was moving. Furthermore, if base hospitals were established along minor rail lines to avoid having the evacuation of the wounded interfere with the passage of trains moving men and equipment to the front, hospital trains might have to use bridges not designed to carry their weight. The alternative of locating hospitals along main lines but far from the front required the wounded to travel significant distances. Colonel

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<sup>28</sup> WD, *ARofSG*, 1919, pp. 1486–87; WD, SGO, *Administration, AEF*, pp. 229, 291, 293; Wadhams and Tuttle, "Some of the Early Problems," pp.656–57; Tobey, *Medical Department*, p. 40.

<sup>29</sup> WD, SGO, *Administration, AEF*, p. 230.

<sup>30</sup> WD, *ARofSG*, 1919, pp. 1448, 1450–51.

Bradley arranged to have the British provide twenty hospital trains, but only nineteen had been delivered by the time the war ended.<sup>31</sup>

The Hospitalization Division was also responsible for educating the staffs of the various Services of Supply hospitals. To this end, it used circulars, circular letters, memos, telegrams, letters, and even telephone conversations. The Chief Surgeon's Office also issued a publication known as the *Weekly Bulletin*, and special inspectors were appointed to visit hospitals to teach medical military administration to physicians so newly called up from civilian life that they had had no time to master this aspect of their duties. Among others who inspected such facilities were division staff members from the Chief Surgeon's Office and various professional consultants.<sup>32</sup>

### *Personnel Division*

The Personnel Division of the Chief Surgeon's Office also faced a formidable challenge. The continuing shortage of medical personnel, both enlisted and commissioned, affected medical organizations throughout the American Expeditionary Forces as well as General Bradley's office itself. Initially, however, General Pershing showed little concern about the problem, having determined that the numbers of U.S. troops brought in until committed to action in the spring of 1918 thus could be restricted. Ironically, in January 1918, only two months before the Chief Surgeon's Office, AEF, and the Chief Surgeon's Office, LOC, were integrated, the AEF adjutant general urged that Bradley deal with the personnel shortage in his office by farming some of the work out to the office of the LOC chief surgeon. While not objecting in principle to this move toward decentralization, General Bradley noted at the time that many aspects of the responsibilities of his office, including maintaining complete records of all AEF medical personnel, could not be delegated to others without severely handicapping his ability to function effectively. Although the move to Tours and the subsequent consolidation of the two medical offices made this question moot, it also reduced the personnel in the Chief Surgeon's Office; three officers and eight of the clerical staff were left behind at Chaumont to work with Pershing's headquarters. By June 1918 the clerical force in the Chief Surgeon's Office had grown considerably in size, but it was still inadequate to meet the greatly increased requirements.<sup>33</sup>

A dental section first became part of the Personnel Division in the summer of 1917, when a dentist arrived and established a dental service for the AEF troops. The fact that no precedent existed in Allied armies to serve as a guide handicapped the effort. The Medical Department history of World War I maintained that "in no army is the allowance of dental personnel as complete as in our own." By March 1918 the dental section actually faced a personnel shortage. Although in this instance the problem was not regarded as serious, the full quota of a commissioned dentist for every 1,000 men was never reached. The

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<sup>31</sup> *Ibid.*, pp. 1357, 1452-53; Wadhams and Tuttle, "Some of the Early Problems," pp. 653-54.

<sup>32</sup> WD, SGO, *Administration, AEF*, p. 235.

<sup>33</sup> *Ibid.*, pp. 48, 49, 53; Pershing, *My Experiences*, 1:176; S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 183.

deficiency resulted in part from the fact that some commands grew significantly in size after arriving overseas. By the end of the war the number of vacancies had risen to 300.<sup>34</sup>

The responsibilities of the dental section were not limited to apportioning officers among AEF units, however. The chief dental surgeon was also expected to make systematic inspections of the work of AEF dental officers. He was able to make regular personal inspections of the work of those at training areas until the Chief Surgeon's Office moved to Tours. In addition, he was responsible for the "general and technical control" over anything that affected the dental service, whether it be supply, dental laboratories, or liaison with those handling maxillofacial surgery.<sup>35</sup>

Although nurses had been arriving overseas since the summer of 1917, their assignments were managed first by the Personnel Division of the Chief Surgeon's Office, AEF, and then by the Personnel Division of the Chief Surgeon's Office, LOC. A separate organization for nursing personnel was not established until November 1917, when the former chief nurse of the Walter Reed General Hospital in Washington, D.C., arrived in France with an assistant to become chief nurse for the Line of Communications. Only after the move to Tours and the eventual consolidation of the two medical offices did her organization become a section of the Personnel Division of the Chief Surgeon's Office. Because the shortage of nurses was critical, the new superintendent of nurses used other personnel to run her office. Except for her and her assistant, all personnel were either enlisted or civilian. Assigning nurses was managed directly by the Personnel Division chief, while the chief nurse kept abreast of the locations of the Army's nurses by means of the daily reports sent in by the different hospitals. Most nurses were sent to either base facilities or to camp, evacuation, and mobile hospitals. Rarely were they assigned to field hospitals near the front.<sup>36</sup>

Difficulties experienced in maintaining accurate records of the location of personnel handicapped the effort to minimize the effects of shortages by using all who were available as effectively as possible. Medical Department officers and men classified as "casual"—in other words, those who were not attached to any organized unit—were especially hard to keep track of. For some time, no replacement camp was established to receive them, so they were sent to base hospitals to work until a permanent assignment could be made. U.S. medical officers serving with the British, who other than those with base hospitals numbered more than 1,200, were especially easy to lose. Unfamiliar as they were with Army regulations, they often failed to file the required reports, and the Medical Department had no representative attached to British commands who could keep the chief surgeon informed of their whereabouts. Furthermore, of the casualties who arrived early in

<sup>34</sup> WD, *ARofSG*, 1919, p. 1301; WD, SGO, *Administration, AEF*, pp. 45, 89, 106-07, 111; idem, *Finance and Supply*, 623; idem, *Training*, 1927, p. 645 (quoted words), Diary, p. 212, Ms C14, Kean Papers, NLM.

<sup>35</sup> WD, SGO, *Administration, AEF*, pp. 105 (quoted words), 120.

<sup>36</sup> WD, SGO, *SGO*, p. 180; idem, *Administration, AEF*, pp. 47, 52, 56, 125; idem, Part 1, *Physical Reconstruction and Vocational Education*, Part 2, *The Army Nurse Corps*, p. 331; Ashburn, *History of MD*, pp. 329, 330.



*General Pershing with Army nurses*

1918, as many as 1,000 transferred to the medical detachments of line units very quickly after setting foot in France.<sup>37</sup>

The problems involved in keeping track of personnel were exacerbated by the sometimes complicated path taken by the paperwork involved. Until the Chief Surgeon's Office moved to Tours, orders for personnel serving in the Line of Communications were slow and uncertain at best. Messages were routed through LOC headquarters. After the move and at the request of the Chief Surgeon's Office in Tours, Pershing's headquarters in Chaumont made assignments to duty in the zone of the armies or with the U.S. Army Ambulance Service. Moreover, as Pershing later noted, with the telephone system "almost useless" in Paris and "inefficient and unreliable" in the rest of the country, the American Expeditionary Forces had,

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<sup>37</sup> WD, *ARofSG*, 1919, p. 1295; WD, SGO, *Administration, AEF*, p. 92; Macpherson et al., eds., *Medical Services . . .*, 1:150; W. A. R. Chapin, *The Lost Legion*, pp. 12.

in essence, to create its own system. Still further complications resulted from the fact that Navy surgeons caring for Marine contingents were also the responsibility of the Chief Surgeon's Office. Not surprisingly under the circumstances, the personnel records at the Chief Surgeon's Office remained in confusion until after the Armistice.<sup>38</sup>

Both the Personnel and the Hospitalization Divisions were involved in managing the work of the consultants who advised the AEF medical officers about the professional aspects of their work. The decision to use their services in the American Expeditionary Forces was made in November 1917, apparently at the suggestion of the Surgeon General's Office after consultation with the General Medical Board of the Council of National Defense and under considerable pressure from Major Crile. American medical officers observing the British system had been favorably impressed by their use of consultants. General Bradley planned to duplicate the organization used by the surgeon general to utilize the specialists of the Medical Reserve Corps. He set up professional divisions to correspond with those in Washington, following what proved to be an unfortunate lead by allowing specialty organizations to proliferate without subordinating one to the other or all to one single head. Although technically sections of the Hospitalization Division, they were often referred to as divisions. At the time they were created, each of these new divisions reported directly to the chief surgeon, but when senior consultants made recommendations concerning assignments, any orders issued as a result initially came through the Personnel Division. Newly formed professional divisions were headquartered at Neufchateau, however, and because the Chief Surgeon's Office was at Chaumont and communications were poor, neither the Chief Surgeon's Office nor any of its divisions in practice exercised much control. The specialists in these divisions, though often distinguished professionals in private life, were rarely good administrators, a fact that added to the confusion in the field as well as at headquarters.<sup>39</sup>

As of 9 November 1917, the new professional divisions numbered eight, one each for general medicine; general surgery; orthopedic surgery; head surgery; urology (which included venereal, skin, and genitourinary diseases); laboratories; neuropsychiatry; and roentgenology, all corresponding to the divisions within the Surgeon General's Office in Washington. Base and general hospitals and, if possible, other hospitals as well, were to divide their professional staffs along the same lines. When these professional divisions were first formed, the exact role that their directors were to play was not defined. At the time of their appointment, most of them had only recently left civilian life and had little understanding of the military, but each was full of enthusiasm, both for his own specialty and for the challenge that lay ahead. The result was "much dashing to and fro to find out things which a quiet study of Regulations, the Tables of Organization and the Manual for the Medical Department, or a short course at a school for medical officers, would

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<sup>38</sup> WD, SGO, *Administration, AEF*, pp. 89, 90, 91; WD, *ARofSG*, 1919, p. 1297; Pershing, *Experiences*, 1:174 (quoted words).

<sup>39</sup> Bevans, "Function of Consulting Staffs," pp. 468, 500; WD, SGO, *SGO*, 452; idem, *Administration, AEF*, pp. 90-91, 351, 352; Crile, *Autobiography*, 2:231, 321; George W. Crile, "Standardization of the Practice of Military Surgery," p. 291.

have taught.” For the professional divisions as for the other elements of the Chief Surgeon’s Office, the March 1918 move to Tours brought few, if any, improvements, for the distance between the two medical offices grew as a result.<sup>40</sup>

Within the Services of Supply, each base and general hospital had a network of professional services divided in the same manner as those serving as part of the Chief Surgeon’s Office. Despite its seemingly logical nature, this approach was apparently not what Surgeon General Gorgas had intended. He maintained in March 1918 that the previous November he had ordered that the professional staffs of base hospitals be organized along the lines followed within the United States, with only three principal services—medical, surgical, and laboratory. Each director of a specialty section was expected to concentrate on ensuring continuity and competency of treatment from the front to the rear. Not initially clear was Gorgas’ intent that the control of the various directors over the hospital services be limited to the professional aspects of their work.<sup>41</sup>

Specialists assisted and advised not only in SOS hospitals but in the field and evacuation hospitals of the zone of the armies. Each army in the field was assigned a chief consultant, senior consultants, and lower-level consultants in the various specialties. These medical officers could receive their assignments either from the Personnel Division of the Chief Surgeon’s Office at Tours or through the director of professional services at Chaumont. Although the chain of command was not clear, G-4 apparently played the major role in determining where these physicians were assigned, whether in the Services of Supply or with units at the front.<sup>42</sup>

By April 1918 the disorder created by the lack of coordination among the various specialty sections was great. Memories, however, differed about the role personalities played in the situation. When planning for the last major change in the organization of the Chief Surgeon’s Office was under way, the Medical Department history later recorded that by this point “all of the little animosities . . . were in full play.” To deal with the situation and as a result of the efforts by the G-4, a director of professional services was appointed. The new position, filled by Col. William L. Keller, MC, lay in something of a no man’s land. Though placed under the Hospitalization Division and therefore not part of G-4, the new director was headquartered at Chaumont “for purposes of coordination, being in juxtaposition to that of the representative of the Chief Surgeon, A.E.F., with the General Staff,” rather than at Tours.<sup>43</sup>

A general order issued in June outlined the new organization to serve under the director of professional services. Two subsections headed by chief consultants were to manage the various individual specialties under his supervision, one for

<sup>40</sup> Bevens, “Function of Consulting Staffs,” pp. 467–68, 344, 469 (quotation), 471, 500–501; WD, SGO, *Administration, AEF*, 214, 352 (see also 361n and 369n); Ashburn, *History of MD*, pp. 330.

<sup>41</sup> Bevens, “Function of Consulting Staffs,” pp. 467–68, 475, 501; WD, *ARofSG*, 1919, pp. 1367–68; WD, SGO, *Administration, AEF*, pp. 351–53.

<sup>42</sup> WD, *ARofSG*, 1919, pp. 1368, 1487; AEF GO no. 88, 6 Jun 1918; Bevens, “Function of Consulting Staffs,” p. 473; WD, SGO, *Administration, AEF*, pp. 90–91, 232, 234.

<sup>43</sup> Bevens, “Function of Consulting Staffs,” p. 502; Robert B. Osgood, “Medical Work with the American Expeditionary Forces,” p. 369; AEF GO no. 88, 6 Jun 1918; WD, SGO, *Administration, AEF*, pp. 237, 354 (quoted words).



medicine and the other for surgery, both headquartered at Neufchateau. The heads of the former professional divisions became senior consultants in their respective specialties. Chief consultants were also appointed for each army, each with senior consultants, division specialists, and consultants for base hospital centers in medicine and surgery under him. The relatively low rank of even the chief consultants, who could not be promoted beyond major even though their counterparts in other Allied armies held higher rank, gave them little authority despite their professional skills. This fact, together with the geographical separation of the various layers of consultants, resulted in an arrangement that represented an overall improvement but still produced “much confusion of activity, too many orders, too many reports, too many inspection trips.”<sup>44</sup>

As a result of the reorganization, which also divided the staffs of base hospitals into the same three services (medical, surgical, and laboratory), former director of general surgery Col. John M. T. Finney, was relegated to the position of chief consultant of surgical services. Among the problems Colonel Finney faced in France was a unique handicap that other consultants escaped. During phone calls, those who heard him say his name misinterpreted *Finney* for the French word *fini*—the standard way of ending a call in France—and thus promptly hung up. As a result, Finney learned to identify himself as *Jones*.<sup>45</sup>

Colonel Finney oversaw senior consultants for such specialties as surgical research; general surgery, including the management of fractures; neurological surgery; orthopedic surgery; ear, nose, and throat surgery; venereal, skin, and genitourinary surgery; maxillofacial surgery; and ophthalmology. As civilian professionals, many of the senior consultants had become well known in their fields of expertise—among them Major Crile, consultant in surgical research; Maj. Harvey W. Cushing, senior consultant in neurological surgery; and Maj. Hugh H. Young, senior consultant in venereal and skin diseases and genitourinary surgery.<sup>46</sup>

The medical specialties were handled in much the same way. In June 1918 general medicine (which included a poison gas section), neurology, and neuropsychiatry, were consolidated under chief consultant of medical services Col. William S. Thayer, MC, with a staff similar in size to that of Colonel Finney. Colonel Thayer’s selection was apparently based to a great extent on the fact that he was familiar with large numbers of physicians in his specialty and therefore was particularly qualified to make assignments.<sup>47</sup>

Urgent appeals were issued for the services of physicians qualified in the medical specialties, but these officers were slow to arrive in France, and thus Colonel

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<sup>44</sup> Bevens, “Function of Consulting Staffs,” pp. 467, 471 (quoted words), 473; WD, *ARofSG*, 1919, pp. 1367–68, 1487; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, p. 6; AEF GO no. 88, 6 Jun 1918; Cushing, *From a Surgeon’s Journal*, p. 348; WD, SGO, *Administration*, AEF, pp. 356–57, 365.

<sup>45</sup> John Miller Turpin Finney, *A Surgeon’s Life*, p. 184.

<sup>46</sup> Bevens, “Function of Consulting Staffs,” p. 475; Gorgas, *Inspection of Medical Services*, p. 6; WD, SGO, *Administration*, AEF, pp. 356, 362; AEF GO no. 88, 6 Jun 1918; Crile, *Autobiography*, 2:329, 334, 337, 344–47; Goldthwait, *Division of Orthopaedic Surgery*, pp. 72, 73–74; Osgood, “Medical Work,” p. 374.

<sup>47</sup> WD, SGO, *Administration*, AEF, pp. 375–76, 382; Bevens, “Function of Consulting Staffs,” pp. 475, 477, 504; Gorgas, *Inspection of Medical Services*, p. 6.

Thayer was only gradually able to make assignments throughout the summer and early fall of 1918. Like the surgical specialists, these men were, on the whole, unaccustomed to military life, and most of the few who were familiar with military routines were given administrative assignments. Because transportation difficulties made it impossible for Thayer and his assistant to inspect all facilities, he named consultants to each geographical area to handle this responsibility.<sup>48</sup>

In spite of personnel shortages, Colonel Thayer was able to set up special medical teams, later known as emergency medical teams, to deal with the victims of shock and poison gas. AEF surgeons were too few in number, however, to permit them to join these teams, and medical specialists newly called in from civilian life did not have the necessary experience to enable them to deal successfully with shock. As a result, team members were required to take the course in treating surgical shock given weekly at the Central Medical Laboratory at Dijon. Because the team members were taken from base hospitals, the active participation of large numbers of American troops in battle led to the further depletion of the medical specialists in the various SOS hospitals.<sup>49</sup>

The Personnel Division managed the assignment of Sanitary Corps personnel without having a specific section created to handle this responsibility. Commissioned officers who were not physicians were a new phenomenon in the Medical Department, but apparently these men were rapidly proving themselves invaluable throughout the AEF medical service. Organizations handling administrative work were almost entirely staffed by them, and they contributed heavily to laboratory work as well. The number commissioned in the Sanitary Corps eventually approached 7 percent of all AEF medical officers. Many were commissioned in the United States before being sent overseas, a fact that did not please General Pershing. In May 1918 he pointed out to Surgeon General Gorgas that because he wanted to promote men already overseas, he did not wish men to be sent in to fill AEF openings.<sup>50</sup>

### *Sanitation Division*

The Sanitation Division, like the Hospitalization and Personnel Divisions, was created, at least on paper, in the summer of 1917. At this time sanitation was not a major problem, for the new arrivals were few in number, generally well-disciplined veterans familiar with the importance of good hygiene. When the Line of Communications was organized, the Chief Surgeon, LOC, became responsible for sanitation within each geographical section. Eventually, each section was assigned its own surgeon and sanitary inspector, and the largest of the camps soon had their own sanitary inspectors as well. The Chief Surgeon's Office, AEF, was directly responsible, however, for the work of the sanitary inspector that served each combat division. With the consolidation of the two medical offices in March 1918, the Chief Surgeon's Office became responsible for sanitation throughout the American

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<sup>48</sup> WD, SGO, *Administration, AEF*, p. 376; Bevans, "Function of Consulting Staffs," p. 477.

<sup>49</sup> WD, SGO, *Administration, AEF*, pp. 362, 376-77; Bevans, "Function of Consulting Staffs," p. 477.

<sup>50</sup> WD, SGO, *Administration, AEF*, pp. 87, 101, 102, 136, 155, 416.

Expeditionary Forces. The Sanitation Division emerged in its final form in the spring of 1918.<sup>51</sup>

Even the final organization, variously known as the Division of Sanitation and Inspection or the Division of Sanitation, Sanitary Inspection, and Sanitary Statistics, left confusion in its wake. Efforts to set up a centralized system of medical inspection similar to that used in the United States were doomed to failure. Experience soon demonstrated that, for the American Expeditionary Forces, reliance on traveling sanitary inspectors sent out from the Chief Surgeon's Office was often not feasible. The attempt to use this approach was further undermined when, because of the shortage of surgeons, one of the two officers named to serve as inspectors was soon thereafter ordered to serve as surgeon for one of the base sections.<sup>52</sup>

The Medical Department's official historians themselves were apparently unclear about exactly how the division reorganization affected the subdivisions under it. Such terms as *division*, *subdivision*, *section*, and even *suboffice* were used almost interchangeably, and what was sometimes the division of epidemiology, was on other occasions the section of epidemiology, or even the division of epidemiology and current statistics. By whatever name, the role of the parent division became, "in a very large degree, . . . preventive medicine."<sup>53</sup>

Through some of its branches, the Sanitation Division handled broad-based efforts to prevent disease. Typhoid fever was widespread in the French army, and water supplies in training areas were usually contaminated, while venereal disease was an ever-present threat. Through other branches the division tracked the diseases contracted by the wounded and those afflicting the sick, as well as the conditions that were conducive to their spread. To deal with statistics concerning U.S. soldiers receiving care in Allied facilities, suboffices had to be set up in Paris and London. Reports from each individual hospital were checked and corrected before being forwarded on to the War Department. Obtaining precise figures was almost impossible because of the movement of troops, the transfer of patients from one hospital to another, and the inexperience of those responsible for many reports. Various agencies, including General Pershing and his staff, apparently hounded those preparing such statistics, all demanding "reports that often could not be made." Disputes concerning who should file what report through whom precipitated further complications. Ironically, attempts to simplify the tangle of red tape involved in collecting and processing statistics were temporarily side-tracked by delay in getting the appropriate forms to activate the process. Reports were eventually sent back to the Surgeon General's Office in the United States.<sup>54</sup>

Just as was the case with the other divisions in the Chief Surgeon's Office, the Sanitation Division was required to cooperate closely with various other agencies

<sup>51</sup> WD, SGO, *Sanitation*, pp. 519, 520; Ashburn, *History of MD*, p. 334; WD, *ARofSG*, 1919, p. 1425.

<sup>52</sup> WD, SGO, *Administration, AEF*, pp. 49, 133; idem, *Sanitation*, p. 540; WD, *ARofSG*, 1918, p. 267; *ibid.*, 1919, p. 1425.

<sup>53</sup> WD, SGO, *Administration, AEF*, pp. 131, 132, 133 (quoted words), 134; idem, *Sanitation*, pp. 520, 521, 525.

<sup>54</sup> WD, SGO, *Administration, AEF*, pp. 27, 48, 133; idem, *Sanitation*, pp. 521–22 (quoted words), 523, 524, 525, 531; Ashburn, *History of MD*, pp. 334, 335; WD, *ARofSG*, 1919, pp. 1343, 1344.



*Vaccinating the troops in the field*

of the American Expeditionary Forces and with the French to carry out its responsibilities. Medical officers worked with French communities in matters concerning public health; with the Quartermaster Corps and the Corps of Engineers concerning bathing and disinfestation; with the Hospitalization Division, especially in matters related to venereal disease; and, through the Division of Laboratories and Infectious Diseases, with the laboratories of the Chemical Warfare Service.<sup>55</sup>

### *Division of Laboratories and Infectious Diseases*

Loosely connected with the Sanitation Division was the Division of Laboratories and Infectious Diseases, an organization whose place in the structure of the Chief Surgeon's Office, like that of the professional services divisions, was ambiguous. The official history of the Medical Department in World War I is contradictory on the point, but the then Division of Laboratories was apparently not created until October 1917. Before this time the head of Army Laboratory No. 1, set up at Neufchateau, served as the chief surgeon's adviser concerning laboratories. In November Chief Surgeon Bradley ordered the division's director, Lt. Col. Joseph F. Siler, MC, to prepare plans for an expanded organization, which Bradley approved the following January. In its new incarnation the division was composed of two sections, one for laboratories and the second for infectious diseases. As the work

<sup>55</sup> WD, SGO, *Administration, AEF*, pp. 133, 135.



*Joseph F. Siler*

load grew, others were added, including an office and records section, a section for the Central Medical Laboratory at Dijon, and sections for food and nutrition and for water supplies. As time passed, the work of the various sections was, in turn, subdivided, until an organization of considerable complexity and some confusion emerged.<sup>56</sup>

The division was permitted to operate with considerable independence. As the Division of Laboratories, it was initially included among the professional services when the Chief Surgeon's Office first established them. Like them, it functioned both in the Services of Supply and in the zone of the armies; unlike them, it fell under the Sanitation Division rather than the Hospitalization Division. In the spring of 1918, when the professional services were reorganized, the Division of Laboratories, now downgraded to a section of the Sanitation Division, was no longer included among them.<sup>57</sup>

The location of the division, which moved from Neufchateau to Dijon in January 1918, generated more difficulties than did its position in the organizational structure of the Chief Surgeon's Office. The following March, when the Chief Surgeon's Office moved to Tours, congested telegraph and telephone lines, censorship, and erratic mail deliveries interfered with communications. These difficulties led in turn to holdups in personnel transfers, which either the General Headquarters in Chaumont or the SOS headquarters at Tours had to resolve. As a result, in August 1918 the division's director was given the authority both to draw on reserve staff at the Central Medical Laboratory at Dijon to fill vacancies and to issue travel orders and emergency directives.<sup>58</sup>

The Central Medical Laboratory played a major role in the work of the Division of Laboratories. Some time was consumed in setting it up. Part was housed in a building loaned by the University of Dijon for the duration of the war; plumbing and electricity had to be installed before it could be used, and barracks had to be erected to provide added space. When completed, however, this facility was large enough to equip mobile laboratories; to handle autopsies; to instruct laboratory

<sup>56</sup> WD, SGO, *Administration, AEF*, pp. 140, 141, 145, 151, 164, 215; Bevans, "Function of Consulting Staffs," p. 501; WD, *ARofSG*, 1919, p. 1316.

<sup>57</sup> WD, SGO, *Administration, AEF*, pp. 134, 137, 140, 146–47, 149, 150, 154; Ashburn, *History of MD*, p. 337; WD, *ARofSG*, 1919, p. 1314.

<sup>58</sup> WD, SGO, *Administration, AEF*, pp. 89–90, 146, 149, 150, 357; WD, *ARofSG*, 1919, p. 1316.



*Central Medical Laboratory at Dijon; (below) field laboratory car*



personnel; to prepare cultures and specimens for the Army Medical Museum; to supply laboratory animals; and to deal with the extra demands posed by epidemics, including sending out field teams and special laboratory units.<sup>59</sup>

A widespread network of laboratories, from Dijon down to every post and every mobilized division, corps, and army, was managed through the laboratories section. Some facilities assisted boards of health in the various civilian communities near Army camps, while others served the various Army hospitals, where consultants in pathology, serology, and bacteriology were also assigned. Decentralizing the control of the SOS administrative sections early in 1918 led to the creation of respective base laboratories that functioned with very little supervision from the Chief Surgeon's Office. Whether stationary and elaborately outfitted or mobile with relatively simple outfits that could be packed in portable chests, all laboratories suffered from a shortage of equipment.<sup>60</sup>

The laboratories section of the Division of Laboratories and Infectious Diseases was eventually divided into subsections for serology, wound bacteriology, and pathology. Because unlike their Allied counterparts few AEF surgeons had had any experience dealing with war wounds, the wound bacteriology subsection, established in March 1918, set up valuable guidelines for the use of both primary closure—stitching the wound closed shortly after injury—and secondary closure. The subsection also gathered statistics on this subject, data for the most part not provided by the Allied medical services, and conducted an intensive two-week course in bacteriology at the Central Medical Laboratory. A few medical officers were also trained at smaller laboratories. The shortage of experienced bacteriologists led to a chronic personnel shortage at the Dijon laboratory. Even a few civilian physicians, usually women, were hired on contract. Nevertheless, sending a two-man or larger team of trained bacteriologists with every mobile, evacuation, and base hospital in the attempt to achieve the goal of one bacteriologist for every 500 beds proved impossible.<sup>61</sup>

The pathology subsection faced a particularly great challenge, given that few AEF surgeons had had an opportunity to become familiar with the required techniques because bacteriology received more emphasis than autopsies in military hospitals and because postmortems were not often done in civilian facilities in the United States. The subsection was always undermanned. As late as November 1918 no more than 60 of the 685 medical officers of the laboratory service were pathologists. Policies forbade autopsies except when a “sound military reason therefor” was found, and few were attempted in the first months in France. Nevertheless, emphasis upon the value of autopsies led to an increase in their use, with 95 percent of all hospital deceased undergoing the procedure by the summer of 1918. As postmortems were particularly important for the study of the effects of poison gas, the Division of Laboratories and Infectious Diseases worked closely with the

<sup>59</sup> Gorgas, *Inspection of Medical Services*, pp. 40, 42; WD, *ARofSG*, 1919, pp. 1317, 1318, 1319, 1328; WD, SGO, *Administration, AEF*, p. 207.

<sup>60</sup> Fielding H. Garrison, *Our New Army Medical Department*, p. 12; WD, SGO, *Administration, AEF*, pp. 139, 167, 200–201, 208; WD, *ARofSG*, 1919, pp. 1315, 1319–20; Bevans, “Function of Consulting Staffs,” p. 475.

<sup>61</sup> Bevans, “Function of Consulting Staffs,” p. 475; WD, SGO, *Administration, AEF*, pp. 102, 151, 209, 210; Gorgas, *Inspection of Medical Services*, pp. 40–41.

Chemical Warfare Service. In the fall of 1918, with the influenza epidemic raging just when battle casualties were at a peak, the autopsy rate in the fall of 1918 declined to 85 percent of the total hospital deaths.<sup>62</sup>

The infectious diseases section of the Division of Laboratories and Infectious Diseases focused its efforts on preventing the spread of communicable illnesses, disseminating information about them, and standardizing treatment methods to the extent possible. The section formed a direct link between the Sanitation Division and the laboratories, but was more closely associated with the laboratories because, to diagnose diseases promptly, a member of the section had to have laboratory facilities available and had to be able to do the necessary laboratory work.<sup>63</sup>

Initially, the infectious diseases section actually had no assigned personnel. Its work was handled by field parties from Army Laboratory No. 1 at Neufchateau. As a result of poor screening at the disembarkation ports and the subsequent outbreaks of disease aboard the crowded transports, troops arriving in France brought with them the seeds of many communicable illnesses, but once the men were settled in uncrowded camps in France, the threat of the spread of disease lessened. Those working to control infectious disease at first encountered only small outbreaks of such diseases as meningitis, diphtheria, scarlet fever, influenza, and pneumonia. With disease rates dropping, the delay in the formal organization of the section resulting from the transfer of the chief appointed in December 1917 and the failure to appoint his successor until the following February caused no major harm.<sup>64</sup>

The work of the infectious diseases section was initially handled largely through close cooperation with the Central Medical Laboratory, where reserve personnel were stationed, ready to be sent out when word was received of an epidemic. By the spring of 1918, when increasing numbers of men were arriving in France, this type of work was decentralized. Units set up at this time in each base section to handle disease prevention acquired their own laboratories and performed their own diagnostics, calling on the Division of Laboratories and Infectious Diseases for personnel and supplies as necessary.<sup>65</sup>

In both the Advance Section and the zone of the armies, disease control was of necessity decentralized to a limited extent. Until the late summer of 1918 the Division of Laboratories and Infectious Diseases director remained responsible for supervising work with infectious diseases, but the division surgeons provided the requisite information concerning disease in combat units through the Chief Surgeon's Office. As the various divisions were drawn into active combat, their preventive medicine organizations began to operate with increasing independence, except for personnel and laboratory supplies. Each field army eventually set up its own sanitary organization, and the role of the director of laboratories and infectious diseases was increasingly limited to advice and supervision and

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<sup>62</sup> Memo (quoted words), William T. Wood, 9 Mar 1918, Miscellaneous file, Entry 588, GHQ-IG, Record Group 120, National Archives and Records Administration—College Park, College Park, Md.; WD, SGO, *Administration, AEF*, pp. 164, 198, 199, 200, 201.

<sup>63</sup> WD, SGO, *Administration, AEF*, pp. 203, 205; idem, *Sanitation*, p. 545.

<sup>64</sup> WD, SGO, *Administration, AEF*, pp. 203, 205; idem, *Sanitation*, p. 533.

<sup>65</sup> WD, SGO, *Administration, AEF*, p. 205; idem, *Sanitation*, p. 545; WD, *ARofSG*, 1919, pp. 1329–30.



responding to appeals for aid from specialists or for supplies needed to prevent an epidemic.<sup>66</sup>

In addition to conducting work for units in the field, the infectious diseases section was responsible for planning how to handle the sick and for educating medical officers about communicable ailments. As part of the effort, the director of laboratories and infectious diseases visited base hospitals and hospital centers to learn about conditions there and to ascertain how ready these facilities were to meet the challenge of epidemics. Circulars on the subject were issued, and in time courses were established dealing with carriers, field techniques, and water supplies. The approach used to detect and prevent epidemics included using sera to improve the victims' chances of recovery.<sup>67</sup>

Beyond supporting efforts to prevent the spread of disease, the Central Medical Laboratory also analyzed food for the AEF medical service and for the Quartermaster Corps. During 1917 the AEF chief surgeon relied on food inspections conducted by officers whom the surgeon general sent to Europe for that purpose, but early in 1918 General Bradley indicated his wish to establish a food and nutrition unit for the American Expeditionary Forces. After General Pershing backed Bradley's request, Surgeon General Gorgas notified the chief surgeon that he was sending six officers to England to study for several weeks and to check on conditions in U.S. Army camps there. One was to remain in England to deal with any defects uncovered at the camps, while the other five were to report thereafter to Bradley. The five officers arrived in France in April, with one going to Dijon in the Advance Section to serve as a subordinate of the director of laboratories, under whom the food and nutrition unit was later placed, and the other four visiting the remaining geographical sections of the Services of Supply to inspect conditions. After they determined that the diet offered the AEF troops did not contain an adequate number of calories, the food and nutrition unit became a separate section in the Sanitation Division as of June. Its duties included liaison with the AEF chief quartermaster and with the G-5 of the General Staff.<sup>68</sup>

The food and nutrition section grew in size and complexity during the summer and fall of 1918. Its officers, most supplied by the surgeon general and qualified in various fields related to food inspection, eventually numbered forty. Field parties were sent out to the combat divisions and to the SOS sections, each headed by a commissioned officer and accompanied by two cooks and a butcher to serve as instructors. Ideally these men remained long enough with each organization to become familiar with its problems. Among their responsibilities was inspecting French factories that supplied various items of the diet, including bread.<sup>69</sup>

In the summer of 1917 French authorities informed AEF leaders about the problems encountered with water supplies as the number of U.S. troops grew in France. Because of the increased work involved in guaranteeing adequate amounts

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<sup>66</sup> WD, SGO, *Administration, AEF*, pp. 205, 206, 207, 208; idem, *Sanitation*, pp. 545, 548, 550; WD, *ARofSG*, 1919, pp. 1329-30.

<sup>67</sup> WD, SGO, *Administration, AEF*, pp. 205, 208, 380; idem, *Sanitation*, p. 549.

<sup>68</sup> WD, *ARofSG*, 1919, pp. 1331, 1332, 1333; WD, SGO, *Administration, AEF*, pp. 214, 215-16; idem, *Sanitation*, pp. 728, 755, 756, 767; Gorgas, *Inspection of Medical Services*, pp. 42-43.

<sup>69</sup> WD, *ARofSG*, 1919, pp. 1332-33; WD, SGO, *Administration, AEF*, pp. 214, 216, 219; idem, *Sanitation*, p. 727; Gorgas, *Inspection of Medical Services*, pp. 42-43.

of safe water, a water supply subsection formally joined the food and nutrition unit early in 1918. The work required close cooperation between the water experts of the Chief Surgeon's Office; the Chief Engineer's Office, AEF; and the Chief Engineer's Office, SOS. The overall responsibility for water supplies remained with the engineers. Under their control, Sanitary Corps personnel manning sections of laboratories performed testing, which division sanitary inspectors who had some expertise in bacteriology had to approve. After the creation of the First Army in the summer of 1918, division inspectors turned for advice to an army-level sanitary inspector trained in field sanitation, laboratory work, and epidemiology. Looked for under this system were both signs of pollution and of disease-causing bacteria in the water. Water subject to pollution was not used even if it passed a bacteriological examination. Sanitary Corps officers under engineer control also supervised the work of purification and sterilization plants and conducted surveys to identify new sources of water. In late September 1918 a Sanitary Corps water supply expert organized a new section at the Central Medical Laboratory at Dijon to supervise training in surveying water supplies. The Dijon laboratory also became the location of training classes for divisional sanitary water inspectors as part of an effort to guarantee a uniform approach to chlorination.<sup>70</sup>



*Louis B. Wilson*

In the summer of 1918 the Division of Laboratories and Infectious Diseases also became involved with the attempts of the Army Medical Museum of the Surgeon General's Office to obtain specimens, photographs, charts, wax models, damaged helmets, and similar material. As soon as it had the authority to begin this work, the museum organized a unit under the command of Col. Louis B. Wilson; in civilian life, Wilson had been the Mayo Clinic's laboratory director. Surgeon General Gorgas asked to have the unit sent to France in January 1918. This team brought with it an autopsy service, a photographic section, and artists. Until late May 1918, however, the use of cameras was forbidden to anyone but members of the Signal Corps, the AEF General Headquarters being reluctant to use up valuable space on transports to bring over Medical Department photographers. Signal Corps photographers lacked the requisite skills for this type of work, so for several months thereafter the museum unit had to rely on photographers with some of the

<sup>70</sup> WD, *ARofSG*, 1919, pp. 1334–35, 1336, 1430; WD, SGO, *Administration, AEF*, pp. 206, 213; idem, *Sanitation*, pp. 772, 775–76, 786, 815; Ashburn, *History of MD*, p. 337.

medical units already in France. The museum's photographic team did not arrive in France until September.<sup>71</sup>

The situation the museum unit encountered in Europe could hardly be described as favorable. In addition to the difficulties in finding qualified photographers, it faced a shortage of cameras; of the materials needed for preserving specimens; and of other personnel, including pathologists. In medical units already in France, Colonel Wilson was able to obtain the assistance of some fifteen to twenty men who seemed qualified to handle one or another aspect of the work of the museum team or who could be trained to do so. However, both the demands of the war and, in the final weeks of the conflict, of the influenza epidemic as well, placed great strain on all personnel of the Division of Laboratories and Infectious Diseases.<sup>72</sup>

While helping the museum unit deal with the myriad challenges, the Division of Laboratories and Infectious Disease also kept its counterpart in the Surgeon General's Office fully informed of the situation in France. It forwarded special memoranda and other communications to U.S. medical officers working with the various Allied armies, including the French, British, and Italians, as well as to the British Expeditionary Force adviser in pathology, the American Red Cross research committee, the Pasteur Institute, the various professional divisions of the Chief Surgeon's Office, and many other diverse organizations. Copies of all weekly reports from the division to the Chief Surgeon's Office were also provided to the Surgeon General's Office.<sup>73</sup>

### *Supply Division*

Within the Chief Surgeon's Office, no greater trials were faced than those encountered in dealing with supply. The causes of the difficulties were many and varied. The office was handicapped by the universal shortage of trained and experienced personnel and by a general lack of coordination concerning supply with the agencies and organizations responsible for such matters, including the Surgeon General's Office in Washington. The greatest problems, however, were spawned by rapidly accelerating demand and a chronic shortage of the transportation necessary to move such supplies as were available to the locations where they were most needed. Efforts to bring order to buying and distribution sometimes added to the confusion engendered by shortages, although various items of equipment were successfully standardized with those that were less expensive and more easily obtained. The board of medical officers appointed by General Pershing in August 1917 to study this question recommended, among other matters, limiting dressings to those sizes that could be adapted to various uses, with those to be employed at the front packaged so as to resist moisture and poison gas.<sup>74</sup>

<sup>71</sup> B. Wilson, "Museum and Art Service of the American Expeditionary Forces," pp. 165, 166; WD, SGO, *Administration, AEF*, 163, 221–23, 224–25; idem, *Training*, p. 465; C. F. Craig, "The Army Medical Museum," pp. 680, 684–85; Robert S. Henry, *The Armed Forces Institute of Pathology*, pp. 179, 184 (hereinafter cited as *AFIP*).

<sup>72</sup> WD, SGO, *Administration, AEF*, pp. 222–23, 226; Wilson, "Museum and Art Service," pp. 166, 168; Henry, *AFIP*, pp. 183–84.

<sup>73</sup> WD, SGO, *Administration, AEF*, pp. 150, 151.

<sup>74</sup> *Ibid.*, pp. 398–99; WD, SGO, *Finance and Supply*, pp. 326–27; WD, *ARofSG*, 1919, p. 1500.

Until the creation of the Line of Communications, supply was the responsibility of one of the officers in the Chief Surgeon's Office. Managing the first supply depot in France, which opened on 8 July 1917, became one of the burdens of a second medical officer from Colonel Bradley's office. When the Chief Surgeon's Office, LOC, was created ten days later, Bradley placed it in charge of supply distribution; on the basis of his interpretation of field service regulations, he had concluded that the AEF chief surgeon should directly handle only the most general administrative matters. Bradley's office retained the responsibility for all procurement, both in Europe, where as much buying as possible was to take place, and in the United States, whereas Colonel Winter's office was required to determine what the requirements were and to inform the AEF chief surgeon.<sup>75</sup>

To fend off the chaos that threatened efforts to ship massive numbers of men and amounts of supplies overseas, the War Department created a system of automatic resupply in September 1917. This approach called for the amount of supplies shipped thereafter to be keyed to the number of AEF troops actually overseas and to the number en route at the beginning of each month. The AEF chief surgeon, like the chiefs of the other supply services, was required to prepare two lists: one to cover each deploying unit's requirements for four months and the other to cover the items needed for each 25,000 men. Supplies that could be obtained abroad were not to be placed on the automatic resupply list. Nothing was ever simple, however. Although theoretically requisitions were no longer needed, communications had to be maintained between the Surgeon General's Office and the Chief Surgeon's Office so that the surgeon general was prepared to meet future needs. The AEF chief surgeon, however, failed to appreciate the concept of lead time—as many as six months were apparently required to receive an order from the United States—and believed he could modify quantities on the supply list on short notice. Too few men, and especially too few men with experience in medical supply, were available to draw up the required list promptly and accurately. Confusion at the ports could also interfere with the operation of even the best-laid plans. General Pershing complained that a lack of supervision permitted medical units to arrive without their equipment, which was apparently loaded on board with them but then removed and placed on another ship. The general, with some reason, likened the situation to that experienced in the Spanish-American War.<sup>76</sup>

When Bradley's office moved to Chaumont with General Pershing's headquarters in September 1917, the close cooperation that had existed between Bradley's and Winter's offices was no longer possible. Pershing's staff and the new General Purchasing Board held the final responsibility for buying supplies, and thus obtaining medical supplies remained one of the duties of the Chief Surgeon's Office. An understanding was apparently reached that Bradley's office, being in close contact with AEF headquarters and thus in a position to know front-line needs, would also handle requisitions from tactical units. In practice, however, some of these requisitions bypassed his office and went directly to a medical supply depot or even to

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<sup>75</sup> WD, SGO, *Administration, AEF*, p. 387; idem, *Finance and Supply*, pp. 747–49, 765.

<sup>76</sup> Huston, *Sinews of War*, pp. 348–49; WD, SGO, SGO, p. 347; idem, *Administration, AEF*, p. 401; idem, *Finance and Supply*, pp. 754, 755, 761, 763–64, 801; Pershing, *My Experiences*, 1:185.

the Red Cross. In November, to deal with these matters, Bradley established the Supply Division in the Chief Surgeon's Office.<sup>77</sup>

Although the medical officer named to the General Purchasing Board reported to the chief surgeon, in time orders began bypassing the Chief Surgeon's Office, going instead directly from office of the Chief Surgeon, LOC, to the board. The surgeon general, meanwhile, complained that the chief surgeon's Supply Division did not provide the appropriate liaison with his office, keeping him in the dark about the fact that the automatic supply table called for greater quantities of many items than were actually needed. The confusion over the responsibility for the various aspects of medical supply lasted until March 1918, when the Chief Surgeon's Office, AEF, absorbed the Chief Surgeon's Office, SOS. The move of the Chief Surgeon's Office, AEF, to Tours added another source of difficulty, however, because a medical officer had to be left at Chaumont to represent the chief surgeon with the G-1, which handled all matters concerning shipping. With the medical contingent at Chaumont small, the chief surgeon found it difficult to obtain the detailed information he needed to provide the advice that was expected of him.<sup>78</sup>

The confusion concerning medical supply extended all the way back to the United States and the Surgeon General's Office. Communications between the two offices was poor at best, "contact through military channels [being] devious and inevitably associated with long delays." The mail was slowed by censorship, and the information exchanged via cable was limited by the need for brevity. In the spring of 1918 Chief Surgeon Ireland and the Surgeon General's Office agreed that no revisions would be made in the automatic supply table until an adequate reserve had been accumulated in France. This point was not reached until August, when it was possible to reduce shipments of some items.<sup>79</sup>

Adding to the problems faced by those who had to estimate supply requirements was the severe shortage of trained supply personnel. Only one regular medical officer was available for work in the Chief Surgeon's Office in the period 22 August 1917 to 21 March 1918, and from the spring of 1918 to the end of the war the number was only two. The chief surgeon was forced to rely heavily on medical officers who were not familiar with supply or, indeed, with Medical Department procedures, although he discovered that some consultants were still able to provide what proved to be valuable advice. Supply teams of three officers and forty-five men organized in the United States for service with the AEF medical depots had to be broken up because of the acute need for the services of trained men. The Supply Division was also obliged to permit hiring large numbers of civilians to assist in supply work.<sup>80</sup>

The Supply Division grew in size in the spring of 1918 with the addition of an organization to handle finances and accounting. Surgeon General Gorgas orga-

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<sup>77</sup> WD, SGO, *Administration, AEF*, pp. 388–89, 398; idem, *Finance and Supply*, pp. 748, 749, 750.

<sup>78</sup> WD, SGO, *Administration, AEF*, pp. 387, 389–90, 406–07; idem, *Finance and Supply*, pp. 747–48, 750, 751, 764; *United States Army in the World War*, 14:62; WD, *ARofSG*, 1919, pp. 1347, 1492, 1500; Pershing, *Final Report*, p. 63.

<sup>79</sup> WD, SGO, *Finance and Supply*, pp. 105, 763–64, 800 (quoted words), 801.

<sup>80</sup> WD, SGO, *Administration, AEF*, pp. 399–400; idem, *Finance and Supply*, pp. 751–52, 807, 808.

nized the unit, using its counterpart in the Surgeon General's Office as a model. Headed by a Regular Army officer and staffed by draftees recommended by the firms for which they worked in civilian life, the unit left for France in January 1918. Some of the men handled clerical work in the Chief Surgeon's Office, while others were dispersed to perform similar duties at the various supply depots or with division surgeons. One of the unit's officers was detailed to work with the General Purchasing Board, and another was sent to Paris to work with the AEF's principal accounting organization. In the spring of 1918, when only thirty-seven of the enlisted men in this unit remained in the Chief Surgeon's Office, the unit officially became the Finance and Accounting Division and was not long thereafter consolidated with the Supply Division.<sup>81</sup>

The organization of the Supply Division became still more complex after April 1918, when the AEF chief surgeon was required to turn in quarterly estimates of what would have to be bought in European nations together with a separate forecast about what would have to be obtained in the United States, including the requisite tonnage for shipping. To handle this requirement and to ensure accurate projections, a statistical section was created for the Supply Division. Because the new section did not officially start its work until June, it was not able to accomplish as much as might have been hoped, but its efforts formed the basis for estimates about the nature of Medical Department needs.<sup>82</sup>

### *Records and Correspondence Division*

The fifth of the divisions set up by Colonel Bradley in the summer of 1917 was the Records and Correspondence Division, known after the move to Tours as the Administration Division. Its work load grew to enormous proportions, and its allotted space was never adequate for any length of time. Short cuts had to be taken and compromises made to keep up with the flow of paperwork. The shortage of paper was chronic despite all efforts to conserve it. To handle the work involved, the office eventually grew to include five hundred men and women, both military and civilian.<sup>83</sup>

### *Veterinary Division*

One final organization, the Veterinary Division, was not added to the Chief Surgeon's Office until August 1918. Surprisingly, the American Expeditionary Forces functioned for some time without the services of a single veterinarian, and then, when veterinary officers were sent to Europe, they were not immediately placed under the Chief Surgeon's Office. Medical Department leaders had intended to put the veterinary service "on a much higher plane than [had] been the case in the United States Army heretofore," but the image of the veterinarian as seen in the old Army was apparently strong in the minds of General Pershing

<sup>81</sup> WD, SGO, *Administration, AEF*, pp. 408–09, 410; idem, *Finance and Supply*, pp. 817, 818; WD, *ARofSG*, 1918, pp. 270, 271; idem, 1919, pp. 1348, 1349.

<sup>82</sup> WD, SGO, *Finance and Supply*, pp. 795–96, 797, 798; idem, *Administration, AEF*, p. 402.

<sup>83</sup> WD, SGO, *Administration, AEF*, pp. 50, 85–86.



and the officers of his headquarters. Flying in the face of War Department regulations to the contrary and despite the efforts of two veterinary officers sent over by Surgeon General Gorgas to set up a veterinary service, the AEF General Headquarters issued orders in the fall of 1917 making the veterinary service part of the Quartermaster Remount Service. In December 1917 General Pershing decided to allow the Medical Department to exercise “general supervision” over Veterinary Corps personnel serving with the American Expeditionary Forces, but insisted that the Remount Service would make all assignments.<sup>84</sup>

At the time it was commonly believed that the Army’s veterinarians were not sufficiently experienced as military officers to handle the administrative side of

<sup>84</sup> WD, SGO, *Administration, AEF*, pp. 89, 419, 420, 412, 424–27 (quoted words); idem, *Finance and Supply*, p. 258; Ashburn, *History of MD*, p. 329; WD, *ARofSG*, 1919, pp. 1362, 1363.

their work. Even Surgeon General Gorgas had to admit that this problem would make it necessary for them to work closely with medical officers for some time to come. Essentially confirming the accuracy of this evaluation, Colonel Kean blamed Gorgas, who had, in his opinion, done little since the Veterinary Corps was authorized in 1916 to organize this service. Gorgas, according to Kean, had even assigned the AEF a veterinary officer who was so "ignorant of military administration" that he reportedly "sent in a requisition for Vet. supplies written on toilet paper."<sup>85</sup>

Surgeon General Gorgas noted that with the Medical Department's role in providing veterinary care limited to providing supplies, "the service was without organization and authority was not centralized. As a result, the veterinary service overseas was in a chaotic condition." Sick and healthy animals were not separated from one another at the remount depots, and the construction of the necessary facilities was slow. By July 1918 the situation with the AEF's animals was, according to British veterinary officers serving as liaison at the headquarters of the Remount Service, "an appalling example of inefficiency." As many as 70 percent of the horses at remount depots were sick, 58 percent with infectious diseases. At one large depot an average of almost a quarter of the horses died in a month. The AEF's approach to the veterinary service was "a mistake and a failure."<sup>86</sup>

In July 1918 General Pershing asked the War Department to assign the best senior veterinarian available for administrative duty with the American Expeditionary Forces. He rescinded the AEF orders that had contradicted War Department regulations, although the veterinary service still remained under the control of the Quartermaster Remount Service, and then ordered that both a remount officer and a veterinary officer be assigned to serve as assistants to the chief quartermaster of each army. Finally, in general orders issued on 24 August apparently at the urging of a British veterinary officer serving as an adviser, the AEF General Headquarters directed that the veterinary service be moved from under G-1 to G-4; that the Veterinary Division under a chief veterinarian be established in the Chief Surgeon's Office, and that all regulations contravening those of the War Department be revoked.<sup>87</sup>

From this point on, the AEF chief veterinarian was required to work through a veterinary officer assigned to G-4 to deal with the veterinary service of troops at the front, but he exercised direct control over the veterinary service in the Services of Supply. His office had an executive officer, an inspector, and branches to handle administration, construction, personnel, and statistics, as well as British and French veterinary officers handling liaison. By October 1918 a third of the 1,933 veterinary officers in the Medical Department were in France, and the number continued to grow. By the end of the war veterinary hospitals were capable of handling 27,000 patients. Veterinary officers were now placed in command of veterinary hospitals

<sup>85</sup> WD, SGO, *Administration, AEF*, p. 427; Autobiography, back of p. 223 (quoted words), Ms C14, Kean Papers, NLM.

<sup>86</sup> Gorgas, *Inspection of Medical Services*, p. 44 (quotation); Autobiography, p. 224 (first quoted words), Ms C14, Kean Papers, NLM; Ashburn, *History of MD*, p. 329 (second quoted words); WD, SGO, *Administration, AEF*, p. 430.

<sup>87</sup> AEF GO no. 122, 26 Jul 1918; *ibid.*, no. 139, 24 Aug 1918; WD, SGO, *Administration, AEF*, pp. 429, 430; WD, *ARofSG*, 1919, p. 1363.



and a policy calling for all convalescent animals to be put through remount depots before reassignment was instituted. Sick call was held for horses, the sick were separated from the healthy, and appropriate treatment was given for cases of infectious diseases. As a result of the change, conditions improved; General Kean later concluded that the veterinary care provided the AEF's animals was as good as that given by the British veterinary service. Kean may have been overly enthusiastic, but in October 1918 Surgeon General Gorgas noted that "better results are being obtained." Inexplicably, however, on 3 November, the Veterinary Corps officer serving as the AEF chief veterinarian was replaced by a cavalry officer.<sup>88</sup>

Under General Pershing, limitations posed by geographical distance, poor communications, and an intervening layer of command undercut the theater chief surgeon's ability to function effectively in the traditional role as adviser and coordinator of the work of the medical team in the field. His absence from Pershing's side obviously resulted from a conscious and deliberate decision by the AEF commander, a step that from many points of view was logical. The vast scale on which the war was waged and the disruptions to communications that resulted made centralized control of medical activities at the front nearly impossible. Faster evacuation from the battlefield made it possible to conduct almost all surgery except that necessary to stabilize the patient beyond the area of the front lines. As a result, all the major hospitals were in the Services of Supply. Furthermore, administration of the medical service of the huge army sent to France required an organization too large and complex to operate effectively in the zone of the armies.

Nevertheless, General Pershing, who was constantly experimenting in his attempts to improve the organization of his command, may not have foreseen some of the consequences of the changes in the organization of his medical support at the time he ordered them. The brief simultaneous existence of the Chief Surgeon's Office, AEF, and the Chief Surgeon's Office, LOC, suggests that Pershing initially lacked a clear idea of the role he wanted the AEF chief surgeon to play. Combining the two offices resolved this conflict, but locating the Chief Surgeon's Office at such a distance from the General Headquarters when communications were unsure at best made it necessary for the chief surgeon's representatives with the General Staff to work with considerable independence. This move also complicated efforts to meet promptly the needs of the wounded at a time when personnel and supply shortages made advance warning of need particularly important. That the Medical Department was able to function as well as it did in Europe under such circumstances stemmed largely from the willingness of individual medical officers to put petty rivalries and frustrations aside and work together to deal with the challenges that confronted them.

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<sup>88</sup> AEF GO no. 194, 3 Nov 1918; WD, SGO, *Administration, AEF*, p. 431; Gorgas, *Inspection of Medical Services*, pp. 6, 44 (quoted words); WD, *ARofSG*, 1919, pp. 1363, 1364–65; Autobiography, p. 225, Ms C14, Kean Papers, NLM.

## Chapter 8

# SERVICES OF SUPPLY MEDICAL ACTIVITIES



Uncertainties within the American Expeditionary Forces (AEF) headquarters over both the positions to be filled by the Medical Department's senior medical officers and the roles to be played inevitably affected lower-level preparations to care for the sick and wounded as U.S. forces became more involved in efforts to defeat the Germans. Medical and combat personnel alike had much to learn. The vast support network necessary for maintaining units at the front was still in the planning stage when the first troops disembarked in the summer of 1917. While medical units trained at camps in eastern France with the combat divisions they served, the Line of Communications (LOC) and then Services of Supply (SOS) medical support organizations worked frantically to be ready when U.S. troops entered active combat to "relieve the combatant field force . . . from every consideration except that of defeating the enemy."<sup>1</sup>

Until modified as a result of the desperate situation of the Allies, AEF plans called for combat units newly arrived at the ports on the west coast of France to proceed directly to twenty-two training areas in eastern France. There, they would train for one to two months in the techniques of open and trench warfare and join a French division for a month in a quiet sector for their first experience in actual combat. Men assigned to the Services of Supply also moved directly from the debarkation ports to their posts. Casuals and replacement troops went to classification centers for assignment, casuals to the Services of Supply and replacements to combat units.<sup>2</sup>

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<sup>1</sup> In the interests of clarity, the term *Services of Supply* will be used throughout this chapter in preference to its predecessor term *Line of Communications*. See War Department (WD), Surgeon General's Office (SGO), *Sanitation*, p. 565 (quoted words); idem, *Administration, American Expeditionary Forces*, p. 224 (hereinafter cited as *Administration, AEF*), p. 284; idem, *Neuropsychiatry*, p. 274; Percy M. Ashburn, *A History of the of Medical Department of the United States Army*, p. 324 (hereinafter cited as *History of MD*); S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 185.

<sup>2</sup> WD, SGO, *Administration, AEF*, p. 447; idem, *Sanitation*, p. 595; idem, *Training*, p. 572; "Some Accomplishments of the Services of Supply," 2d ed. (Prepared by Statistics Branch, General Staff, Headquarters, Services of Supply, American Expeditionary Forces, [1919]), pp. 23, 27, 28, copy in Library, U.S. Army Center of Military History (CMH), Washington D.C.

Following the French suggestion, the AEF's initial operational areas developed in June 1917 consisted of only two base sections. The section in the north included the ports of St. Nazaire, Nantes, and Brest; that in the south included the ports on the Gironde River, basically those in the Bordeaux area. The Advance Section lay in Lorraine, where training was to be conducted. Depots were to be constructed along the main rail lines between the ports and the training area in the Intermediate Section. The work of the Services of Supply grew to the point where General John J. Pershing later described the SOS command as an "establishment behind the Zone of Operations" that involved "the organization in France on an unprecedented scale of another War Department." The chief surgeon of a section, like his counterparts in the combat divisions, dealt with his responsibilities to a large extent independently of the control of the AEF chief surgeon. In all sections but the Advance Section, even dealing with infectious disease was more the responsibility of the section's chief surgeon than of the central administration and its director of laboratories.<sup>3</sup>

### *Managing Port Congestion*

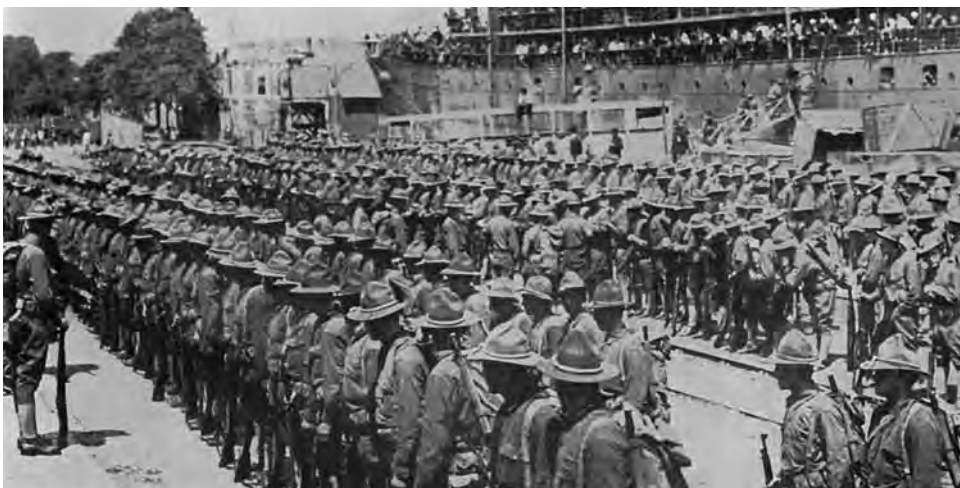
The considerable confusion that initially enveloped the ports in France did not spare the medical organizations responsible for both the health of the incoming troops and the management of medical supplies destined for inland depots. The difficulties began when the threat of German submarines required ships to leave the United States in convoys. The channel at some French ports was so narrow that only a few ships could enter at one time, and the simultaneous arrival of many vessels inevitably produced periods of extreme congestion both outside and inside the harbors. Neither cities nor AEF authorities were prepared to deal with the sudden increase in population that resulted once U.S. troops had disembarked. As a result, men had to remain on their ships while awaiting space at the wharves. After they had disembarked, a shortage of transportation made it impossible for them to promptly leave the port area. A study conducted in the spring of 1917 by a group of officers, among them Col. Merritte W. Ireland, MC, revealed that French railroads were in serious need of repair and equipment. Even though, until remedied, this state of affairs produced a backup of both men and supplies in the port cities, France was in no position to correct the problem.<sup>4</sup>

The magnitude of the challenge the Medical Department encountered at the ports initially became apparent at St. Nazaire, into which men and supplies first came in quantity. A buildup on the docks followed the arrival of the first shipment in July, when only makeshift shelters were available for protection from the elements. In addition, the source of the city's water proved inadequate in both quantity and quality, initially making it necessary to bring water in by boat. The

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<sup>3</sup> John J. Pershing, *My Experiences in the World War*, 1:109, 110, 321 (quoted words); WD, General Staff, *Organization of the Services of Supply, American Expeditionary Forces*, pp. 113-15, 117, 119, 124; WD, SGO, *Sanitation*, p. 547; idem, *Administration, AEF*, pp. 73, 452; Ashburn, *History of MD*, p. 27.

<sup>4</sup> Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical Department, A.E.F.," p. 639; Pershing, *My Experiences*, 1:80-81, 102, 328.



*First American troops arriving at St. Nazaire; (below) Newly Arrived Troops  
Debarking at Brest by George Matthews Harding*



problem of quantity was eventually solved, but that of safety was not. In spite of chlorination, for the entire duration of the war, experts remained uneasy about the purity of the water supply.<sup>5</sup>

Struggles with the difficulties resulting directly or indirectly from the small size of the harbor also consumed much time. One of the most ominous of these problems was venereal disease (VD). Because the men remained in port longer than had been anticipated, they were allowed to visit the city. Freed from the confinement of the transports, in a town where restrictions had yet to be placed on either drinking or prostitution, where no prophylactic stations had been created to treat them when they returned to their ships, and where the facilities set up in town initially proved inadequate, swarms of healthy young men made the acquaintance of French prostitutes.<sup>6</sup>

The drive to reduce the threat posed by venereal disease initiated at St. Nazaire in the summer of 1917 set a pattern followed throughout the rest of the war. The problem grew rapidly once troops began landing in France, greatly magnifying the burdens of Base Section No. 1 chief surgeon, Col. Clyde S. Ford, MC, who responded by creating a department within his office specifically to deal with sexually transmitted infections. Greatly concerned about the dangers that these diseases posed to his force and judging continence to be a “patriotic duty” as well as a “military obligation,” the AEF commander established an anti-VD campaign. On 2 July 1917, when relatively few troops had arrived in France, Pershing announced that anyone who acquired a disease through his own neglect, thereby becoming unfit for duty regardless of whether he had undergone prophylaxis promptly after exposure, was to be severely punished, enduring forfeiture of pay rather than imprisonment so that the Army would not lose his services. In addition, he required semimonthly VD inspections of the troops and ordered medical officers to give lectures on the dangers of these sexually transmitted diseases.<sup>7</sup>

Although occasionally willing to try recommending chastity to the young, French authorities did not place much faith in this approach. They preferred rather to persuade U.S. authorities of the benefits of reliance on inspecting and licensing prostitutes, who were hospitalized if found to be diseased. French examinations for signs of venereal disease were not thorough, however, and because a good percentage of the members of this profession did not have licenses, many escaped any kind of inspection. Moreover, no system of inspection could keep track of the disease status of women who serviced an average of forty or more men a day.<sup>8</sup>

When an alarmed Pershing paid a personal visit to the port, urologist Maj. Hugh H. Young accompanied him. As head of the urology service, Young requested that

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<sup>5</sup> Wadhams and Tuttle, “Some of the Early Problems,” pp. 638, 649; WD, SGO, *Administration, AEF*, p. 454; idem, *Finance and Supply*, 770; Rpt, Acting IG to CG, LOC, 21 Dec 1917, p. 8, Entry 588, GHQ–IG, Record Group (RG) 120, National Archives and Records Administration–College Park (NARA–CP), College Park, Md.

<sup>6</sup> WD, SGO, *Administration, AEF*, p. 451; Hugh H. Young, “Preventive Medicine as Applied to Venereal and Skin Diseases,” p. 1670.

<sup>7</sup> Pershing, *My Experiences*, 1:177 (quoted words); WD, SGO, *Administration, AEF*, pp. 451, 453; idem, *Sanitation*, 992; Ashburn, *History of MD*, p. 336; Allan M. Brandt, *No Magic Bullet*, p. 102. Jerome H. Greenberg, “Venereal Disease in the Armed Forces,” p. 165.

<sup>8</sup> WD, SGO, *Sanitation*, pp. 899–90, 906–08; Brandt, *No Magic Bullet*, pp. 102–03.

trained urologists be identified as they arrived in France and assigned to his service. To make "the underworld safe for democracy," as he later put it, he developed still stricter measures for both prevention and treatment to deal with the VD epidemic, relying on his study of the British and French approach to the problem. Among the steps he successfully recommended was setting up fences around camps in the area where men were detained after debarkation so that all who entered or left could do so only through a guarded gate, a regulation that, as of 18 December 1917, was extended to all debarkation ports. Abandoning controlled prostitution as an approach to venereal disease, Pershing now sought French cooperation in identifying houses of prostitution so that they could be put out of bounds. He had military guards stationed at each such establishment to prevent U.S. soldiers from entering, forbade the sale of strong liquor to AEF soldiers, almost entirely eliminated leave for troops destined for training in the east, and held all officers accountable for the VD rates of their men.<sup>9</sup>

After these measures had been fully implemented, the VD rate among troops permanently assigned to St. Nazaire began to fall slowly, but within the entire American Expeditionary Forces in November 1917 the rate rose sharply to 201 per 1,000 after new divisions arrived at St. Nazaire. Because no one with venereal disease was allowed to embark in the United States and because no way of contracting the disease was available on board the transports, these soldiers unquestionably acquired it after landing in France, except for a few who might have escaped diagnosis before embarkation. In December all base sections were required to report VD rates directly to the AEF chief surgeon so that the General Headquarters would be kept informed of the situation.<sup>10</sup>

Although the French were apparently not as concerned about the threat of venereal disease as the Americans, they wanted to avoid importing any infectious diseases into France. To deal with this situation, the Medical Department set up a quarantine office at St. Nazaire in December 1917, making the officer in charge, to be known as the medical boarding officer, responsible for seeing that transport surgeons received all orders pertaining to the health of the men on board their vessels. He was to report on the health of the men on board, both crews and soldiers, noting the number of infectious cases and, in particular, any VD cases. Eventually he became responsible also for ascertaining the immunization status of debarking troops and for reporting on the results of his investigations to the French authorities.<sup>11</sup>

A manual of military urology issued early in 1918 for the American Expeditionary Forces included dermatology among the topics covered, and urologist Young discovered to his dismay that he was also responsible for skin diseases, a subject about which he maintained he knew nothing. Nevertheless, after concluding that most such problems were related to lice, scabies, and infection, he set to

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<sup>9</sup> Hugh Young, *Hugh Young*, pp. 281 (quoted words), 288, 318; WD, SGO, *Sanitation*, pp. 902, 903–05, 914; Brandt, *No Magic Bullet*, pp. 102–04; Young, "Preventive Medicine," pp. 1669–71; AEF GO no. 77, 18 Dec 1917; Greenberg, "Venereal Disease," p. 179; James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 479. See also Mary C. Gillett, *The Army Medical Department, 1865–1917*.

<sup>10</sup> WD, SGO, *Sanitation*, p. 905; Brandt, *No Magic Bullet*, pp. 102, 104.

<sup>11</sup> WD, SGO, *Administration, AEF*, p. 456.

work to learn what he needed to know; informed other AEF urologists that they, too, were expected to deal with skin diseases; and developed a medical treatment plan for dealing with this type of ailment. Although he was initially unable to bring the problem under control, in part because of a lack of centralized authority to deal with it, he was eventually able both to obtain the support he needed to require cooperation with his efforts by all medical officers and to have three trained dermatologists assigned to the American Expeditionary Forces as consultants.<sup>12</sup>

As the St. Nazaire port surgeon, Colonel Ford's increasingly complex responsibilities went well beyond venereal and skin diseases, to include preventing disease in general, preparing to care for those who fell ill in spite of all precautions, and handling the unloading and shipment of medical supplies. He set up a warehouse for medical supplies and assigned medical personnel to such duties as inspecting incoming transports at St. Nazaire and identifying medical supplies in arriving cargoes. One of his more arduous responsibilities, however, was that of creating and maintaining a base hospital. The best housing for this facility that could be obtained was an old building in bad shape that also sheltered a city school. As late as December 1917, the hospital's supplies were inadequate when compared to the tables that served as guidelines. Even when beds were vacant in the building, patients with tuberculosis and contagious diseases were sheltered in tents, possibly because of their better ventilation. A small cesspool handled hospital sewage, for significant improvement in the management of effluent would be both costly and time consuming. As late as December 1917, an inspector criticized the management of the hospital, maintaining that a shortage of personnel was not an adequate excuse for the poor police of the facility.<sup>13</sup>

Some of Colonel Ford's difficulties resulted from the fact that the cargo unloaded at the port included disassembled General Motors Corporation ambulances. Because they were not designed to be shipped in this way, personnel assigned to putting them together faced a considerable challenge, one that occasionally became even greater when chassis and bodies did not arrive at the same port. The manufacturer trained a motor assembly detachment of three Sanitary Corps officers and sixty "body builders and motor experts" to handle the task at St. Nazaire. When ambulances began to arrive at other ports, some of this group were dispatched to handle their assembly. In the early months further complications resulted from the arrival of many chassis that were in poor condition because they were not adequately packed for transport.<sup>14</sup>

St. Nazaire remained the major port where U.S. troops disembarked until late in the fall of 1917. By November 1918, however, more than a third of U.S. troops who came to France, almost 800,000 men, had come through Brest, a city that was not up to the burden placed on it. Although it was an important French naval base and railroad terminal, large ships could not reach the piers, and no storage of any

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<sup>12</sup> Young, *Hugh Young*, pp. 313, 334, 336, 337–38, 339.

<sup>13</sup> WD, SGO, *Administration, AEF*, p. 452; Rpt, Acting IG to CG, LOC, 21 Dec 1917, pp. 7–8; Entry 588, GHQ–IG, RG 120, NARA–CP.

<sup>14</sup> WD, SGO, *Administration, AEF*, p. 347 (quoted words), 451; idem, *Finance and Supply*, pp. 395–96, 401–02, 779; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1919, pp. 1360–61 [hereinafter cited as *ARofSG*, year].



*Bathhouse at Brest; (below) Red Cross nurses getting water at Base Hospital No. 21, Rouen*





kind existed; as a result, many items had to be held outside without any protection whatever from the weather until transportation could be found. The soil of the area was usually sodden from rain. Sufficient numbers of barracks and latrines were for some time lacking. Fuel was scarce; rail lines and other forms of transportation were poor; and water supplies were inadequate, both in quantity and quality. Continuous supply shortages impaired laboratory efforts to identify potential sources of disease before epidemics could occur. And the paucity both of acceptable campsites and of building material made it necessary at Brest as at St. Nazaire to feed and shelter many men on shipboard until trains could remove them. This situation complicated efforts to isolate those with infectious diseases, among them meningitis and pneumonia, and those who had been exposed to them.<sup>15</sup>

In January 1918 the American Expeditionary Forces set up a debarkation and rest camp, intended to serve 80,000 men, just 2.5 miles north of Brest. Camp Pontanezen served men leaving transports and heading toward the training camps to the east. On 15 January a 200-bed hospital was opened for the camp to serve both those going through and the small permanent force. Those who went through Pontanezen in the first months of its operation, however, were not favorably impressed by the camp. Although temperatures rarely went below freezing even in the winter, the rain was constant, the mud was ubiquitous, the tents initially had no floors, and during the first cold spell neither tents nor barracks had stoves. Little sense of urgency in making the needed changes was apparently experienced, for most units going on their way to the front stayed only a few days. Furthermore, the camp was scheduled to undergo modifications to prepare it for use as a camp for men whose condition as evaluated by a disability board dictated that they be returned to the United States. As a consequence, by July 1918 “the fly plague was beyond words, sacred or profane; the accessible mess uninviting, occasionally positively repulsive and the average not good.” Even in the fall, criticism continued.<sup>16</sup>

Other ports received smaller numbers of American troops, most often those coming to France by way of England. The first American soldiers to debark at Cherbourg arrived in June 1918; by the end of the war almost 180,000 had come through this port. Here, however, the British agreed to provide hospitalization, rest camps, and inspection so as to avoid unnecessary duplication of facilities, although five American medical officers and twenty-one enlisted men worked with British hospital personnel.<sup>17</sup>

<sup>15</sup> William J. Wilgus, *Transporting the A.E.F. in Western Europe, 1917–1919*, pp. 324, 326–27, and table facing 444; WD, SGO, *Administration, AEF*, pp. 404, 457, 458, 459, 462; “Some Accomplishments of the Services of Supply,” p. 24, copy in Library, CMH.

<sup>16</sup> W. M. L. Coplin, *American Red Cross Base Hospital No. 38 in the World War*, p. 180 (quoted words); WD, SGO, *Administration, AEF*, pp. 458, 465; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 63; Royale Fowler, ed., *The War History of United States Army Base Hospital No. 61, AEF*, p. 31; “Camp Pontanezen, Brest, France,” pp. 301–02, 303, 308; “Some Accomplishments of the Services of Supply,” pp. 24, 26, copy in Library, CMH; John M. Swan and Mark Heath, *A History of United States Army Base Hospital No. 19, American Expeditionary Forces, Vichy, France APO 781*, p. 53.

<sup>17</sup> WD, SGO, *Administration, AEF*, pp. 459, 638, 641–42, 676–77; Lyn Macdonald, *The Roses of No Man's Land*, p. 212; W. G. Macpherson et al., eds., *Medical Services . . .*, 2:106; Wilgus, *Transporting the A.E.F.*, table facing p. 444.



*Camp Pontanezen and a company street*



*Establishing Hospitals and Laboratories*

From the base sections and their ports, a vast system of hospitals and laboratories soon spread eastward, to include the Intermediate and Advance Sections, so that by the spring of 1918 the skeleton of the system intended to support the troops in action was apparent. In December 1917 the AEF chief surgeon determined that 25 percent of these facilities should be in the base sections, another 60 percent in the Intermediate Section, and 15 percent in the Advance Section. Until U.S. troops entered combat, hospitalization in all sections was the responsibility of base and camp hospitals. In the early months of the war the Medical Department was forced to rely on organizations outside the U.S. Army for assistance in creating hospitals, one of which was established by the French even before U.S. troops arrived.<sup>18</sup>

The nature of the buildings available for the use of the American Expeditionary Forces varied with the situation. Many were too small and lacked plumbing, and even hotels often had no central heating. Pushed to provide suitable buildings at a time when they needed this type of structure for their own casualties, the French attempted to cooperate, but many of their military facilities were too small to make efficient use of medical personnel. Attempts to use privately owned buildings tended to result in “endless bickerings with proprietors” and “almost endless correspondence which could result only in the greatest amount of delay in making the buildings over into hospitals.”<sup>19</sup>

For some hospitals, the Medical Department was able to find suitable buildings, often adding new structures to the old ones to increase their capacity. For others, new construction was necessary from the outset. In these instances, French approval for the use of the site had to be obtained before the U.S. Corps of Engineers could hire contractors to erect the facility. The materials used varied from place to place, according to availability. The competence of construction firms varied widely, and when they started work before adequate roads were built, quagmires resulted.<sup>20</sup>

By December 1917 the system of base hospitals stretched all the way from Bordeaux, St. Nazaire, and Brest through to the training areas near Neufchateau. Although the Intermediate Section was spared the turmoil produced by the problems of the ports, the first hospitals to go up there were, like the earliest established in the base sections, housed in existing buildings. One of the better known base hospitals in the Advance Section was the 740-bed Base Hospital No. 18, staffed by personnel from Johns Hopkins, among them thirty-two medical students serving as enlisted men. Some of the medical officers were left behind at St. Nazaire, and with the passage of time many more were assigned to other units. The barracks that formed the hospital’s first home there had been previously used by the French for the same purpose, even though—like so many buildings occupied by

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<sup>18</sup> WD, SGO, *Administration, AEF*, pp. 298–99, 303; Robert B. Osgood, “Medical Work with the American Expeditionary Forces,” p. 369.

<sup>19</sup> WD, SGO, *Military Hospitals in the United States*, p. 118 (first quoted words); idem, *Administration, AEF*, pp. 78, 241, 253–54, 266, 268–69, 271 (second quoted words), 286; WD, *ARofSG*, 1919, pp. 1338–39, 1453; Ashburn, *History of MD*, p. 333.

<sup>20</sup> WD, SGO, *Administration, AEF*, pp. 243, 252–54, 258–59, 266; WD, *ARofSG*, 1919, pp. 1338–39; Pershing, *My Experiences*, 1:176.



*Hospital tents at Mobile Hospital No. 2, Auteuil, Paris*

AEF hospitals—they lacked electric lights and heating, sewer, and water supply systems. Maj. John M. T. Finney found the village itself unattractive, noting that children played on piles of manure in front of the houses. Almost immediately the facility became a collecting station for neuropsychiatric patients. During the fall of 1917 it also served as camp hospital for several divisions training nearby. Finney noted that its work resembled that of a civilian hospital. The staff often had time to go dancing, to attend baseball games, and to walk in the countryside.<sup>21</sup>

As Major Finney vividly recalled, the winter of 1917–1918 was “a winter of discontent and discomfort.” The weather was “cold, damp, wet, rainy, cloudy, the sun appearing only occasionally and then for brief intervals. The heating facilities, such as they were, proved utterly inadequate. Never have I seen such soggy wood as we had for the stoves and fireplaces.” Everyone in the hospital was cold; “it was only a question of how cold.” The mud “was everywhere and covered everything, soft, black, sticky, slimy and of unknown depth. There was no way of getting out of it; one simply had to plough through it.” Not surprisingly under such circumstances, the hospital had many patients with respiratory infections, including influenza.<sup>22</sup>

Some base hospitals became specialty facilities. The first AEF base facility destined from the outset to be a specialty hospital, Base Hospital No. 66 at Neufchateau, was intended for genitourinary cases only, but plans to establish

<sup>21</sup> Macdonald, *Roses*, pp. 161–62; WD, SGO, *Administration, AEF*, pp. 303, 636, 644–45; idem, *Neuropsychiatry*, p. 277; WD, *ARofSG*, p. 1338; Pershing, *My Experiences*, 1:211; John M. T. Finney, *A Surgeon's Life*, pp. 157–58, 164–65, 169–70, 175, 176–77; Harvey Cushing, *From a Surgeon's Journal, 1915–1918*, p. 302; War Diary, p. 15, Ms C117, Merritte W. Ireland Papers, 1911–1931, National Library of Medicine (NLM), Bethesda, Md.

<sup>22</sup> Finney, *Surgeon's Life*, p. 170.

hospitals dedicated exclusively to the care of VD victims were later abandoned when the system of treating them without hospitalization proved effective. One ward of this hospital was set aside for the emergency care of shell shock patients, British and French experience having suggested that prompt treatment of these cases close to the front made it possible to return many to duty within a short time.<sup>23</sup>

The need for a facility devoted exclusively to collecting those with mental problems and to caring for those with war neuroses located near the front was also recognized, given the great demand by all armies involved in World War I for beds for neuropsychiatric patients. As a result, in late February or early March, almost casually and without waiting for more than a few experienced medical officers and enlisted men to be assigned, Base Hospital No. 117 opened at La Fauche, not far from Neufchateau, as a facility devoted exclusively to the care of this type of case. In mid-June neuropsychiatric consultants at hospital centers and base hospitals throughout France joined those serving with tactical divisions and in training areas and began sending patients they had identified as having mental problems to La Fauche. In the hard fighting of August 1918 the number of neuropsychiatric patients ballooned, and this facility was eventually so crowded that it could take no more transfer patients.<sup>24</sup>

La Fauche soon came to be among the most important of the individual specialty hospitals, offering such approaches to mental problems as occupational therapy, otherwise available only at hospital centers or facilities in ports in the base sections. Patients who could not be restored to duty with "active curative treatment" were sent to hospitals farther from the front. Except for facilities that were part of hospital centers or located at base ports, La Fauche was the only base hospital where disability boards conducted examinations of those suffering from mental and nervous disorders.<sup>25</sup>

In an effort to maximize the efficiency with which hospitalization was managed, every effort was made to standardize hospital construction. Three different units were used when new buildings had to be erected. Type A, employed principally for base hospitals, had a 1,000-bed capacity that could be doubled by utilizing tents. Type B, smaller and less elaborate and with 300 beds expandable to 500 beds with tents, was intended for camp hospitals. Both kinds were provided with operating rooms and X-ray equipment. Type C was intended for convalescent camps. Each base hospital had its own laboratory. Plans for all types were designed with interchangeable components for flexibility to meet various needs. In some instances, wooden boards obtained from the American Red Cross were used; but in others, tile, brick, concrete, or sheet steel had to be substituted because of lumber shortages. Although placing the buildings that made up a hospital only 20 feet apart increased the fire hazard, the step was necessary to economize on heating and

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<sup>23</sup> WD, SGO, *Administration, AEF*, p. 689; idem, *Neuropsychiatry*, pp. 276, 356, 520; Young, "Preventive Medicine," p. 1674.

<sup>24</sup> WD, SGO, *Administration, AEF*, p. 968; idem, *Neuropsychiatry*, pp. 42, 275, 276-77, 279, 280-81, 283, 291, 307, 355, 356, 357, 359, 361, 362, 409; Pearce Bailey, "War Neuroses, Shell Shock, and Nervousness in Soldiers," p. 2148.

<sup>25</sup> WD, SGO, *Neuropsychiatry*, pp. 278, 283, 357, 358 (quoted words), 361.



*Base Hospital No. 2, Etretat; (below) aerial view of Savenay hospital center*



lighting costs. Space was generally left adjacent to each base hospital to permit the erection of tents for emergency expansion.<sup>26</sup>

Six of the first base hospitals to be created in the United States never served with the American Expeditionary Forces, becoming instead part of British hospital groups. The first American combat casualties of the war were suffered by the personnel of two of these facilities in Base Section No. 4 on the coast not far from Boulogne when, on 4 September 1917 they were attacked from the air. When the personnel of a U.S. base hospital arrived to assume responsibility for a British unit, the British left some of their own people in place until they were satisfied that the Americans were thoroughly grounded in the British way of managing these facilities. The British then reassigned all their officers except for a registrar and a quartermaster. Although the hospitals working with the British never became a part of the American Expeditionary Forces, some of their professional personnel were detached to work with U.S. units.<sup>27</sup>

Even as base hospitals were being established in the various sections, the Medical Department began considering a new concept of hospital centers, groupings of two to nine 1,000-bed hospitals at a single site or multiple sites often located where one or more base hospitals had already been established. Each center was expandable by 50 to 100 percent, and each was a “complete autonomous military organization.” The chief benefit to be derived from the use of such centers was the more efficient use of medical personnel, always in short supply. Because centers could have as many as 30,000 to 36,000 beds, finding suitable sites with adequate buildings and transportation was difficult and careful planning was required to develop an adequate sewage system. In spite of the early authorization, completion of most of the hospital centers was delayed. Existing buildings often had deficiencies; rooms in hotels tended to be too small, while barracks generally lacked sewer connections, water systems, and adequate electric lighting.<sup>28</sup>

The need for a facility where the victims of minor ailments or injuries could receive care at training camps was recognized from the outset. Even though these facilities could hold several hundred beds, no medical personnel were permanently assigned to serve in them. Thus the same problem that had afflicted mobilization camps in the United States resurfaced in the camps in France. Many camp hospitals served fixed units, but if patients remained and their unit with its medical personnel was ordered away, a dilemma resulted: No provision had been made for the care of those who did not accompany their comrades to their new location. To deal with the problem, the Services of Supply had to provide the personnel for camp hospitals serving combat divisions.<sup>29</sup>

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<sup>26</sup> WD, *ARofSG*, 1919, pp. 1339, 1441, 1442–43; WD, SGO, *Administration, AEF*, pp. 241–42, 243, 244, 249–51, 254–55, 258, 260, 267; Ashburn, *History of MD*, p. 327; “Some Accomplishments of the Services of Supply,” p. 106, copy in Library, CMH; Harris P. Mosher, “A Summary of the Activities of the Section of Otolaryngology,” p. 645.

<sup>27</sup> Macpherson, *Medical Services . . .*, 1:148; WD, *ARofSG*, 1918, p. 266; idem, 1919, p. 1441; WD, SGO, *Administration, AEF*, pp. 112, 632–33, 639–40.

<sup>28</sup> WD, *ARofSG*, 1919, pp. 1340, 1441 (quoted words); “Some Accomplishments of the Services of Supply,” pp. 106, 109, copy in Library, CMH; WD, SGO, *Administration, AEF*, pp. 253, 254, 260, 286, 474, 547, 614, 623–27; Young, *Hugh Young*, p. 358; Pershing, *My Experiences*, 1:343.

<sup>29</sup> Rpt, J. C. Johnson, 23 Apr 1918, sub: Investigation of Unsanitary Conditions at Camp Hospital No. 1, Gondrecourt, pp. 1–2, file 176, Entry 588, GHQ–IG, RG 120, NARA–CP; WD, *ARofSG*, 1919, pp. 1295–96, 1439–40; WD, SGO, *Administration, AEF*, pp. 287, 397, 447, 749, 753–54.

In addition to hospitals in various categories, section laboratories were serving Base Sections 1, 2, and 5, as well as the Intermediate and Advance Sections, by February 1918. Army Laboratory No. 1 opened at Neufchateau in the Advance Section in September 1917, but its building was “altogether unsuitable for its purposes. Where necessary, alterations were made under almost insurmountable difficulties.” Supplies of both gas and electricity, however, proved erratic. The earliest investigations by its personnel suggested that 85 percent of the water in France was not safe to drink until it had been treated. Nevertheless, as a result of the reorganization of January 1918, Laboratory No. 1 assumed responsibility for all laboratory work in the Advance Section.<sup>30</sup>

The continuing need for prompt diagnosis to prevent the spread of disease and the necessity for guaranteeing the safety of water supplies encouraged completing the entire network of laboratories. Eventually each section had its own laboratory to supervise the work of the hospital laboratories and to function as a minor supply depot for laboratory materials, including the sera used both in treatment and diagnosis.<sup>31</sup>

Initially few challenges, except those posed by venereal disease, faced these laboratories. Because the cases that were examined could receive close attention, medical officers were often able to establish the cause of death without autopsies. Although in April 1918 Brig. Gen. Alfred E. Bradley, MC, ordered that postmortems be conducted “whenever possible,” they were actually conducted following less than 25 percent of deaths in the American Expeditionary Forces. The VD rate declined slowly toward the end of the year, but the coming of cold weather brought new burdens to laboratories in the form of increases in other diseases, including measles, diphtheria, scarlet fever, and meningitis. Reports were not required from laboratories in this period, however, and thus little information on their work is available.<sup>32</sup>

Providing facilities for the animals of the American Expeditionary Forces was largely neglected, although the AEF chief surgeon was ordered to name two American veterinary officers to work with French counterparts to deal with the problems involved in preventing and handling epidemics. As many as 70 percent of American mules and horses were already ill when they arrived in France, and what were intended to be remount depots became, in practice, veterinary hospitals. Because of difficulties in evacuating animals from the front, many were kept with the units they served even while they were sick. Although mange, a skin disease caused and spread by mites, was among the greatest of the problems encountered, the American Expeditionary Forces could not offer the appropriate facilities to provide the needed hot sulphur baths for its treatment, and the afflicted beasts had to be treated by hand or sent to French veterinary hospitals. The situation did not improve until late in the war, when more veterinary hospitals arrived in France.

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<sup>30</sup> WD, SGO, *Administration, AEF*, pp. 137 (quoted words), 139, 169, 205, 307; idem, *Sanitation*, p. 787; WD, *ARofSG*, 1919, p. 1317. See Chapter 7 for a discussion of the organization of base sections.

<sup>31</sup> L. B. Wilson, “The Pathologic Service of the American Expeditionary Force,” p. 692; WD, SGO, *Administration, AEF*, pp. 140–41, 169, 171, 454.

<sup>32</sup> WD, SGO, *Administration, AEF*, pp. 197, 919 (quoted words); Wilson, “Pathologic Service,” pp. 695–96, 700.



In fact, the standards attained by the other Allied armies were never reached until after the end of hostilities.<sup>33</sup>

### *Organizing Medical Supply*

Like hospitals, supply depots were found in all sections. Throughout the war the principal depots were located in the Intermediate Section, where shipments from the various ports could be received, stored, and distributed. On 8 July 1917 a depot, later to be known as Intermediate Medical Supply Depot No. 3, was set up at Cosne in the Intermediate Section. Cosne was not an ideal site because the railroad line on which the city lay was a secondary one, but for a time all medical supplies were stored there. Throughout the war it remained the only depot concerned exclusively with medical supply. Scarcely a month had passed before complaints began mounting about its inadequate size. Because of its poor location, plans to expand it were canceled.<sup>34</sup>

In October 1917 the inadequacies of the Cosne depot led to the opening of a subsidiary facility called Intermediate Medical Supply Depot No. 2 at Gievres, located on the main rail line between Tours and Nevers. Yet shipments to Gievres were not limited to medical supplies, and it became a major depot where the contents of railroad cars were examined and classified by the local railroad transportation office before being sent to the appropriate warehouses. Unfortunately, the equipment necessary to load and unload rapidly was initially lacking at Gievres; construction inevitably presented difficulties; and personnel were inexperienced, leading to delays until workers became familiar with their responsibilities.<sup>35</sup>

From the facilities in the Intermediate Section, supplies were distributed as needed to a host of other depots of varying size and location. For a time Intermediate Section depots supplied base hospitals in the Advance Section as well as in the other sections, but when supplies became more plentiful, base section depots became responsible for fixed hospitals. Soon the need for construction outran capacity and made the creation of new supply depots a tedious process. By February 1918 three more medical depots located in base sections were handling supplies, becoming known as “receiving and forwarding bases,” while the remaining depots continued to be referred to as supply depots.<sup>36</sup>

The realization that multiple distribution points increased the promptness with which requests for medical supplies could be filled eventually led to creating a sup-

<sup>33</sup> WD, SGO, *Administration, AEF*, pp. 80–81, 429; idem, *Field Operations*, p. 289.

<sup>34</sup> WD, SGO, *Administration, AEF*, pp. 392–93, 395, 403–04; idem, *Finance and Supply*, pp. 747, 770; Erna Risch, *Quartermaster Support of the Army*, pp. 656–57; Wadhams and Tuttle, “Some of the Early Problems,” p. 649; WD, *ARofSG*, 1919, pp. 1493–94; War Diary, p. 20, Ireland Papers, NLM.

<sup>35</sup> WD, SGO, *Administration, AEF*, p. 394; idem, *Finance and Supply*, pp. 771–72, 774, 825, 833, 842; Risch, *Quartermaster Support*, pp. 658–59; WD, *ARofSG*, 1919, pp. 1347, 1441, 1494; “Some Accomplishments of the Services of Supply,” pp. 62, 65, copy in Library, CMH.

<sup>36</sup> Wadhams and Tuttle, “Some of the Early Problems,” pp. 649–50; WD, SGO, *Administration, AEF*, pp. 307 (quoted words), 394; idem, *Finance and Supply*, pp. 772–74, 778–79, 781; Ashburn, *History of MD*, p. 332; WD, *ARofSG*, 1919, pp. 1441, 1494; Francis A. Winter, “The American Red Cross with the A.E.F.,” p. 554.

ply depot in each hospital center when it opened. Any reserves maintained by the component hospitals then became part of the center's reserves. Orders submitted by supply and hospital center depots were sent through the Chief Surgeon's Office, AEF, which coordinated them according to the availability of the items sought and the railroad situation. A priority list was also created. Other section supply depots ranked third, with hospital center depots last. The goal of having all depots completely stocked down to the lowest level was never realized.<sup>37</sup>

General Pershing's attempts in the fall of 1917 to set up an automatic resupply system based on the monthly needs of 25,000 men also never entirely succeeded. On the assumption that each deploying division would bring four months of supplies and use a month's worth while moving from the debarkation port to its training area, he called for one additional unit of automatic resupply for all items consumed at a predictable rate to be shipped for each division each month. The success of Pershing's approach was dependent, however, on being able to predict needs in advance and to ship requirements in an orderly fashion. Yet compliance with his 20 August 1917 requirement that forty-five days of supplies be kept in the base section depots, thirty days in the Intermediate Section depots, and fifteen days in the Advance Section depots proved impossible from the outset.<sup>38</sup>

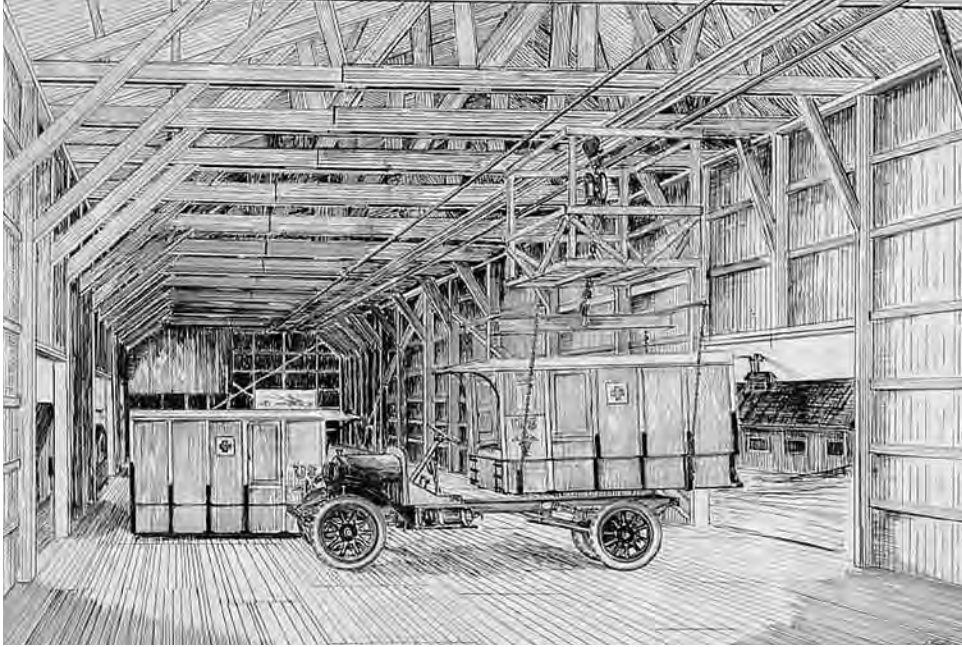
Meeting General Pershing's criteria became only more difficult with time in the face of inadequate transportation, both across the Atlantic and within France; of very poor supplies of raw materials within Europe; of a lack of trained and experienced supply personnel; of inadequate coordination of the various elements involved, including the Red Cross; and of the increase in the size of the division. Changes in the resupply list were frequent because of inaccurate need assessments or unpredictable use rates. Eventually, interallied competition caused prices to increase, and all buying within France had to be done through the French government, further slowing the process. So heavy was the draft on English supplies that the British government soon followed the French lead.<sup>39</sup>

The Medical Department experienced difficulties concerning both the quantity and the quality of several major items of equipment, among them motor ambulances. In the fall of 1917 those that had been ordered were sent over so promptly that many more were available to the American Expeditionary Forces than were at that point needed. More than a fifth of these were then turned over to Quartermaster, Engineer, and Signal Corps use as trucks. Within a few months, however, the feast

<sup>37</sup> WD, *ARofSG*, 1919, p. 1346; WD, SGO, *Administration, AEF*, pp. 404, 405; idem, *Finance and Supply*, p. 781.

<sup>38</sup> Wadhams and Tuttle, "Some of the Early Problems," p. 650; WD, SGO, *Finance and Supply*, pp. 754, 756, 771; Pershing, *My Experiences*, 1:169, 348; "Some Accomplishments of the Services of Supply," p. 38, copy in Library, CMH.

<sup>39</sup> WD, *ARofSG*, 1918, pp. 269, 270; 1919, pp. 1302, 1347, 1491, 1500; WD, SGO, *Administration, AEF*, pp. 390, 401, 405; idem, *Finance and Supply*, pp. 253, 754, 755, 759, 760, 764, 765, 811, 888; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, p. 27; Rpt, Acting IG to CG, LOC, 21 Dec 1917, p. 8, Entry 588, GHQ-IG, RG 120, NARA-CP; Pershing, *My Experiences*, 1:340; United States Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917-January 1918*, p. 2041 (hereinafter cited as *Investigation of the War Department* (65th Cong., 1st sess.)); Wadhams and Tuttle, "Some of the Early Problems," pp. 650-51; Interrogation of Clarence J. McWilliam by Dawson Olmstead, 21 May 1918, pp. 1-2, Exhibit C, Entry 588, GHQ-IG, RG 120, NARA-CP.



U.S. Army Ambulance Station by *George Fowler*

turned to famine. Largely as a result of the lack of a supply table for ambulances other than those needed by combat divisions, both vehicles and parts for them were in short supply. Obtaining 100 from the U.S. Army Ambulance Service did not cure the problem, and by April 1918 the number available was 40 percent short of the need. Although the Motor Transport Corps pooled all ambulances when they arrived in France and then allotted them to the various organizations, the shortage led to creating pools at hospital centers and base hospitals as well as in each base section to ensure that available ambulances were most effectively used.<sup>40</sup>

Because of the shortage of ambulances, the Medical Department was unable to end its reliance on multiple types of ambulances, complicating parts and maintenance problems. The variety available included a large number made by General Motors and many others provided by Ford for the Army Ambulance Service. Some ambulances had been chosen by donors without consideration of the designs approved by the Army. Eleven in this category were equipped to serve as dental ambulances or mobile dental clinics that would make the tour of stations, remaining long enough to deal with emergency dentistry before moving on to another. The lack of transportation kept these models in the United States for so long that only two that had been donated in France were available for much of the war. Although Surgeon General William C. Gorgas had ordered that only vehicles made

<sup>40</sup> WD, SGO, *Administration, AEF*, pp. 318, 340, 347, 348; *idem*, *Finance and Supply*, pp. 385, 396–97; *Autobiography*, p. 199, Ms C14, Jefferson R. Kean Papers, NLM; WD, *ARofSG*, 1919, pp. 1361, 1497, 1498, 1500; Rpt, Acting IG to CG, LOC, 21 Dec 1917, p. 7, Entry 588, GHQ–IG, RG 120, NARA–CP.



*Dental ambulance*

to the Medical Department's specifications be accepted, the ambulance shortage was apparently too great to allow vehicles of unapproved design to be dropped.<sup>41</sup>

Dental equipment also proved to be a particular challenge, again because of both transportation difficulties and design problems. Port congestion, lack of storage, and low priorities delayed the delivery of not only dental equipment but also all supplies destined for the American Expeditionary Forces, and the danger of submarines was real, both for ships coming from the United States and for those crossing the English Channel. A ship carrying all the dental equipment

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<sup>41</sup> WD, SGO, *Administration, AEF*, p. 119; idem, *Finance and Supply*, pp. 379, 407–08.

and supplies of a First Army unit sank in June 1917 (the gear was salvaged a few weeks later but found to be too heavily damaged for use); in August a second effort to bring the needed items across the ocean was successful. Despite orders given to port commanders that dental officers were not to take equipment with them as part of their personal baggage, these items eventually came to be loaded with all the other cargo and often disappeared in crowded warehouses or supply dumps. A few base dental outfits destined for use in base hospitals were also sent over in the fall of 1917, but thereafter no further shipments were made.<sup>42</sup>

Although some design problems could be conquered, others appeared hopeless. Much standard dental equipment was heavy and bulky, including what were called “portable dental outfits” intended for use by dental surgeons accompanying field organizations; too heavy for the purpose, they were turned over to camp hospitals. Subsequent modifications, however, made it possible for a dental officer and his enlisted assistant to carry emergency gear with them, even during combat. Regardless of size, however, electrical equipment could not even be sent to Europe because of uncertainty as to the type of current, both alternating and direct current being common, as were differing cycles and voltages.<sup>43</sup>

Veterinary supplies were also difficult to obtain. When the first troops landed in France, veterinary supply was not a Medical Department responsibility. Nothing intended for AEF animals was loaded on the transports; the first shipment of veterinary supplies did not arrive in France until the fall of 1917. Confusion still reigned in January 1918, although eventually the automatic resupply system took over as far as expendable items were concerned.<sup>44</sup>

With supply shortages chronic and at times critical, the need for experienced supply personnel was crucial, but in the summer of 1917 only two medical officers in that category were available for overseas service with the American Expeditionary Forces. Only 1 percent of the AEF’s medical officers were involved in supply, and most of these came from the Sanitary Corps. Because of the shortage of men familiar with supply, these units tended to be broken up so that as many depots as possible would have at least one man to some degree familiar with medical supply. Even under great pressure, untrained supply personnel functioned surprisingly well, but errors were frequent.<sup>45</sup>

### *Educating Medical Personnel*

Educating AEF medical personnel to meet the unprecedented demands of World War I proved difficult because of the shortage of regulars to manage the teaching. Whether enlisted or commissioned, regular medical personnel, unlike their civil-

<sup>42</sup> WD, SGO, *Administration, AEF*, pp. 105, 114–15; idem, *Finance and Supply*, p. 625; WD, *ARofSG*, 1919, p. 1302.

<sup>43</sup> WD, SGO, *Administration, AEF*, pp. 114 (quoted words), 116; idem, *Finance and Supply*, p. 624; idem, *Training*, p. 646.

<sup>44</sup> WD, SGO, *Finance and Supply*, pp. 649, 650, 651.

<sup>45</sup> WD, SGO, *The Surgeon General’s Office*, p. 356 (hereinafter cited as *SGO*); idem, *Administration, AEF*, pp. 44, 115, 387, 399; idem, *Finance and Supply*, p. 751; Ashburn, *History of MD*, p. 332; WD, *ARofSG*, 1919, p. 1348.

ian counterparts, were familiar with military routines. Furthermore and most importantly, career medical officers were also fully aware of the principle that concern for the needs of the Army as a whole had to take precedence over concern for the individual and over the “infinite precision and exquisite technic [*sic*]” about which civilian practices had always centered. In the first year of the war, however, most of the surgeons serving in the American Expeditionary Forces were reservists who were yet to absorb the fact that “it may be truthfully said that a war surgeon is not a humanitarian, in that his first object is to return to duty in the shortest space of time all men who will be fit to withstand the hardships of a campaign without finding it necessary to again report on the sick list on account of discomfort in an old, improperly healed wound.”<sup>46</sup>

Because of the unprecedented nature of World War I and of the wounds caused by high velocity, high explosive shells that went “hurtling through into your flesh, [tearing] things to pieces,” even regular medical officers had much to learn. As Col. Bailey K. Ashford, MC, himself a regular who had seen service in the Spanish-American War, pointed out, “War has changed, surgery has changed, everything has changed.” To a large extent, as reservist Major Finney put it, “the war game from the professional standpoint was entirely unknown” to the medical personnel of the American Expeditionary Forces.<sup>47</sup>

American medical officers had much to learn from the medical personnel of the Allied nations, who had been absorbing the lessons of World War I for more than two and a half years by the time the United States became involved. Some medical officers were sent abroad specifically as observers. Many of the most highly regarded of America’s civilian physicians, however, among them Major Finney, Maj. Harvey W. Cushing, and Maj. George W. Crile, whom Colonel Ireland considered to be a “genius who would do more for us than any other man in the United States,” were among those who at some time served with Allied rather than with American units. Regardless of how they learned, the American Expeditionary Forces were deprived of their services, a fact that apparently did not disturb the



*Bailey K. Ashford*

<sup>46</sup> George Crile, *An Autobiography*, 1:285 (quoted words); D. Pierce Penhallow, “Secondary Sutures of Gunshot Wounds as an Economic Factor in War Surgery,” p. 274 (quotation).

<sup>47</sup> WD, SGO, *SGO*, p. 390; idem, *Training*, pp. 15, 1004 (second quoted words), 1090 (first quoted words); Finney, *Surgeon’s Life*, p. 164 (third quoted words); Mosher, “Otolaryngology,” p. 644.

AEF chief surgeon as much as it did some of the other leaders of the Medical Department serving in Europe.<sup>48</sup>

Particularly valuable information was gathered by orthopedists, whose observations of the work of their Allied counterparts made them realize the importance of the splints used to stabilize fractures while patients were being moved from the front to hospitals. Proper support for legs with broken femurs helped reduce shock and bleeding and thus proved to be, in many instances, life-saving. Because the Medical Department's orthopedic service also recognized early in the course of American participation in the war the truth of Major Crile's observation that a lack of standardization could be a serious handicap when American troops entered combat, steps could be taken not only to evaluate the appliances in use by the Allies but also to standardize the designs of those to be used by the American Expeditionary Forces. More than twenty orthopedic surgeons were sent to England to investigate British methods in the summer of 1917, after which a board met in Paris in August and September to design a manual to standardize methods and appliances. As one medical officer commented, "Individualization, the pride of scientific surgery in peace" had to "be sacrificed in campaign to pattern-like work." From October 1917 onward, groups of orthopedists were routinely sent to Britain for training by American orthopedists already familiar with British methods.<sup>49</sup>

The effort to deal with venereal disease also benefited from greater familiarity with British and French methods. Major Young's efforts at St. Nazaire and throughout the American Expeditionary Forces were based not only on the approach that had been used in the peacetime U.S. Army but also on those of the Allies. Young, who before joining General Pershing had served with the British army and had studied the problem, concluded that it was unwise to call back from the front men with syphilis and gonorrhea to undergo treatment, thereby giving the appearance of rewarding immoral conduct with relief from the dangers and hardships of front-line service. The American urologist favored the approach used for New Zealand troops, which involved emphasis on prevention along with frequent inspections and early treatment. He was, however, apparently unable to convince American authorities to adopt the New Zealand policy of officially issuing condoms in addition to chemical prophylactics. One lecturer at the Army's sanitary school maintained that issuing condoms was not the answer to preventing venereal disease. His conversations with New Zealanders and Australians revealed that half of their men did not use condoms when issued, in part "because they didn't think that that

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<sup>48</sup> War Diary, p. 12 (quoted words), Ms C117, Ireland Papers, NLM; Crile, *Autobiography*, 2:325; Young, *Hugh Young*, pp. 278–79; Hugh McCulloch and Walter Fischel, "Care of Penetrating Wounds of the Chest at a Base Hospital," p. 59; Alexander T. Bunts and George Crile Jr., *To Act as a Unit*, p. 7; Macpherson, *Medical Services . . .*, 1:149–50, 159, 206 and 2:83–84, 108; WD, SGO, *Administration, AEF*, p. 20. For more information on the work of Allied observers, see Gillett, *Army Medical Department, 1865–1917*, pp. 404–06.

<sup>49</sup> Gustavus M. Blech, "The Strategy of the Medical Service," p. 368 (quoted words); Goldthwait, *Division of Orthopaedic Surgery*, pp. 34, 36, 60–61, 78; Robert S. Osgood, "Orthopedic Service in the British General Hospitals," p. 267; idem, "Instruments and Appliances," pp. 588–91, 607; War Diary, p. 12, Ms C117, Ireland Papers, NLM; George W. Crile, "Standardization of the Practice of Military Surgery," p. 291; Bevans, "Function of Consulting Staffs," pp. 472, 478; WD, SGO, *Administration, AEF*, pp. 365, 366.

was the way to play the game.” Young was also favorably impressed by the French approach to treatment, which involved the use of a new and less irritating drug—novarsenobenzol—that was easily injected by hypodermic into the vein rather than by drip, and ordered that it be adopted at once.<sup>50</sup>

Although in many ways the American approach to the control of syphilis and gonorrhea closely resembled that of the British and French, both the British and the French were more relaxed in their attitudes toward prostitution. The British finally abandoned their relaxed approach because of pressure from the United States and from Canada and other British dominions. The French continued to scorn the American emphasis on continence as impractical; their insouciance about matters of morality in general obviously appealed to Major Young’s sense of humor. In the course of his examination of the way in which the Allies handled their wounded, he visited a French hospital specializing in wounds of the genitalia where the surgeon in charge proudly boasted that his facility was the only one of its type where “the functional value of the member after operation is obtained.” The necessary investigation of functional value was handled for him by members of a group of patriotic Frenchwomen who had expressed a willingness to assist him in his work. After spending a night participating in practical tests, each volunteer rendered “a faithful report as to the success of the operation.”<sup>51</sup>

Some observations of British and French experiences led to recommendations concerning possible policy changes. Increasing awareness that using antiseptics was not the answer to preventing infection and that operating as soon as possible after a wound had been sustained was very important led to greater consideration of the role of the evacuation hospital, an institution new to the American Army. Surgeon General Gorgas emphasized that surgery should be performed at these facilities, with patients then being moved promptly further back to base hospitals. In a circular memorandum issued in October 1917, he pointed out that specialists should be stationed at evacuation hospitals or even farther forward. Not everyone shared this opinion, for the nation’s most experienced and highly regarded surgeons were not accustomed to working in situations where they could not be assisted by a large and skilled staff. Major Crile noted, however, that only “the ablest and freshest” medical personnel should “be assigned to the advanced posts.” Major Young recommended adopting the French institution of the “poste de triage,” or triage station, where cases were classified but only “desperate abdominal and lung cases were operated on.”<sup>52</sup>

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<sup>50</sup> Young, *Hugh Young*, pp. 272, 276–77, 279, 282, 283–84; Bevans, “Function of Consulting Staffs,” p. 479; Brandt, *No Magic Bullet*, pp. 99, 102.” WD, SGO, *Training*, p. 1098 (quoted words).

<sup>51</sup> Young, *Hugh Young*, p. 287 (quoted words); Jay Cassel, *The Secret Plague*, pp. 139, 140–41; Ashburn, *History of MD*, p. 336; Edward M. Coffman, *The War To End All Wars*, p. 133.

<sup>52</sup> WD, SGO, *SGO*, p. 1051; idem, *Training*, p. 683; Crile, “Standardization,” p. 291 (quoted words); Young, *Hugh Young*, p. 346 (quoted words); Harold Barclay, *A Doctor in France, 1917–1919*, pp. 47, 60; Daniel Fiske Jones, “The Role of the Evacuation Hospital in the Care of the Wounded,” pp. 127, 131–32; Charles H. Peck, “The Hospitals of the American Expeditionary Force,” p. 464; Gorgas Address, 20 Oct 1917, p. 8, Gorgas Family Papers, W. S. Hoole Special Collections, University of Alabama, Tuscaloosa, Ala.; Karl Connell, “Observations on Sanitary Organization and Surgery in France and the Central Empires,” p. 67.



Another benefit of consultation with the Allies was a greater understanding of the threat of tetanus and of the best approaches to preventing this disease, which almost invariably produced a horrible convulsion-ridden death if the antitoxin was not used. It was a very real danger to those wounded in the fields of France, where the animals that had for generations provided manure for the farmers carried the spores of the bacillus in their digestive systems. “In fact,” Colonel Ashford commented dryly in one of his lectures, “we have had scientists that [*sic*] wish to prove just exactly how many centimeters of the outer crust of Europe is feces.” Having discovered that antitoxin was good for only ten to twelve days, the British concluded that the first dose should be given within forty-eight hours of wounding and then repeated at weekly intervals for several weeks to be sure of preventing the disease. The patient who was already showing signs of tetanus was given massive doses of antitoxin intravenously and directly into the spinal canal.<sup>53</sup>

Much also needed to be taught American medical officers about dealing with other organisms that could also be found in the wounds of World War I. Unlike the weapons of the Spanish-American War, those used in Europe in 1914–1918 produced fragments that tore and shredded flesh and bones; the dead and dying tissue “acted as a culture medium” for bacteria, forcing bits of clothing into wounds. In spite of the use of antiseptics, primary closure—in other words, stitching a wound closed promptly after initial treatment—was followed by infections of many types, including the dreaded gas gangrene. To reduce the chances for infection, surgeons finally returned to an “old fundamental surgical principle,” debridement, or “mechanical sterilization.” They cut away devitalized tissue and removed foreign material to the extent possible and then determined whether to suture the wound or to wait for a period to see if infection developed before closing the incision. In the last month of the war, a serum against gas gangrene began to be used but without great faith in its effectiveness.<sup>54</sup>

Although World War I eventually put the last nail in the coffin of the notion that infection could be eliminated by the use of antiseptics alone, the feat was not achieved without a struggle. An approach to wound surgery especially prevalent in Great Britain during this period was what was referred to as the Carrel or Carrel/Dakin method after its developers, Alexis Carrel and Henry D. Dakin. It worked well if completely and carefully followed, but the reasons for success were not always understood, sometimes with tragic results. The complex disinfection routines it required drew much attention, while the mechanical debridement—or surgical removal of foreign matter and dead tissue, for which it also called—was sometimes ignored or casually handled. Because careful debridement, not chemical sterilization, was responsible for the success of the method, this omission was

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<sup>53</sup> WD, SGO, *Training*, p. 1091 (quotation); Cushing, *From a Surgeon's Journal*, p. 109; “Memorandum on Tetanus,” pp. 113–19; Alexius McGlannan, “The Prophylaxis and Treatment of Tetanus,” pp. 52, 55.

<sup>54</sup> Dean Lewis, “The Treatment of War Wounds,” p. 10 (first quoted words), 11 (remaining quoted words); Joseph S. Lawrence, “A Study of the Aerobic Bacteria Found in Wounds Received on the Battlefield of the Somme,” p. 149; Connell, “Observations,” pp. 62–63; W. D. Lee and W. H. Furness, “The Treatment of Infections and Infected Wounds with Dichloramine-T,” pp. 312, 314–16; WD, SGO, *Sanitation*, p. 537; idem, *Training*, 684, 970; John H. Jopson, “A Case of Gangrene of the Toxic and Edematous Type due to the Welch Bacillus,” p. 411.

likely to result in infection, thereby threatening to discredit the entire approach. Nevertheless, the Carrel/Dakin method was so highly regarded that in the summer of 1917 AEF surgeons began attending a two-week course in the method set up by the Rockefeller Institute for medical officers and bacteriologists from Allied armies as well as for civilian surgeons and nurses from the Red Cross and from civilian hospitals.<sup>55</sup>

Both to disseminate these and similar insights and understandings gained by contact with the services of the Allies and to spread more widely the professional knowledge and skills of the most experienced American medical officers, the Medical Department set up a series of schools and courses in France. They were a part of a drive undertaken by General Pershing to set up training programs for all AEF members, and, like all schools established for the American Expeditionary Forces at this time, they were under the supervision of a general of the line. The basic goal was to build upon training already given in the United States; however, because untrained personnel were occasionally sent overseas, some very basic instruction had to be available as well.<sup>56</sup>

As envisioned in August 1917 after close examination of the British and French approaches, instruction would take place at both division and corps levels, with the top of the pyramid being a series of Army schools. Set up on this basis, the school system was elaborate. Each corps was to have six divisions, two of which were to be regarded as replacement divisions for the fresh troops arriving from the United States. One replacement division would become the depot division, stationed near the ports. A minimum of training would take place there, while most would take place within the second replacement division, to which newcomers would be sent to complete their training through the level of the corps schools. At the corps level, part of each school was a sanitary school for ambulance and field hospital officers. One of the Army-level schools was also a sanitary school, located at Langres, where in time the corps sanitary schools were consolidated in the interests of efficiency. From the outset, Colonel Ashford was prominent in planning instruction and conducting courses. Instruction under Ashford consisted principally of practice and demonstrations in the field, some of which was guided by experienced French personnel.<sup>57</sup>

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<sup>55</sup> WD, SGO, *Training*, 684, 713–14, 733; Owen H. Wangensteen and Sarah D. Wangensteen, *The Rise of Surgery from Empiric Craft to Scientific Discipline*, p. 514; Young, *Hugh Young*, p. 282; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, pp. 10–11; William H. Arthur, “Carrel’s Method of Wound Sterilization,” pp. 489–93; Lee and Furness, “Treatment of Infections,” pp. 317–20; “War Work of the Rockefeller Institute for Medical Research, New York,” pp. 492–93.

<sup>56</sup> John H. Pershing, *Report of General John J. Pershing, U.S.A., Commander-in-Chief, American Expeditionary Forces, Cabled to the Secretary of War, November 20, 1918, Corrected January 16, 1919*, p. 3; Finney, *Surgeon’s Life*, p. 175; WD, SGO, *Training*, pp. 569–70, 584–85, 605; Bailey K. Ashford, “The Preparation of Medical Officers of the Combat Division in France at the Theatre of Operations,” p. 113.

<sup>57</sup> *United States Army in the World War, 1917–1919*, 14:290–93, 294, 295, 298; WD, SGO, *Administration, AEF*, pp. 110–11; idem, *Training*, pp. 569, 571, 579, 584, 601, 605, 606; Bailey Kelly Ashford, *A Soldier in Science*, pp. 208, 209, 210; Ashford Biography, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, NLM; Goldthwait, *Division of Orthopaedic Surgery*, p. 67; AEF GO no. 45, 8 Oct 1917; Ashford, “Preparation of Medical Officers,” p. 113.

On occasion while visiting the two Allied medical services in the course of their training, American medical officers took courses in their military hospitals or participated in their schools. Some confusion inevitably resulted because the approach of the two Allied armies in some matters differed. The French, for example, were adamant that the battalion surgeon should stay at his post, where he could be easily reached by any who needed him; the British taught with equal conviction that the battalion surgeon should be with the men in the field. Although the French, like the British, emphasized that tetanus antitoxin must be promptly administered to the wounded, unlike the British, they regarded the use of antitoxin as basically a preventive measure, successful only when the bacilli had not spread beyond the immediate area of the wound.<sup>58</sup>

The initial scheme for the school proved somewhat overly optimistic, and plans for instruction in the various specialties had to be abandoned in favor of providing an identical course for all. Nevertheless, Colonel Ashford, AEF consultants, and Allied medical services experts provided lectures. Students were also able to gain more hands-on experience at the nearby 2,000-bed base hospital, division sanitary train, medical supply depot, and the various other medical organizations of a division.<sup>59</sup>

In his own lectures, Ashford emphasized that the medical officer was “willy-nilly an active participant in the winning of battles.” The Army’s surgeons formed “the salvage corps for men, the only corps by which damaged men can be salvaged.” The four most important factors in their work, he informed his students, were preventing disease; collecting and evacuating the wounded promptly and providing gas victims with “intelligent first aid”; preventing infection by debridement; and using convalescent camps to return the wounded rapidly to duty. In his effort to give his students a broad and coherent picture of all aspects of the medical service and its role in the conflict, he also covered other topics, including the proper use of the field hospital, whose patients should be limited to the extent possible to those who could not be moved without endangering their lives; triage, which he believed should be handled informally as close to the front as circumstances permitted so that each wounded soldier would be sent quickly “to some place where he can have something done for him”; the advantages of motor and horse-drawn transport; and the use of tents for hospitals, which was, in his opinion, “absolutely improper, inadequate for this war.”<sup>60</sup>

Many of the other centers of instruction for medical personnel were short-lived, although plans initially called for both corps schools (to train ambulance and field hospital companies) and specialized schools (among them the gas school at Gondrecourt and the sanitary school in the area of St. Aignan and Noyers). An effort to reestablish a school for the I Corps, however, was abandoned in January 1918, and the II Corps school, established in January 1918 at Chatillon sur Seine, was abandoned after four weeks because of the shortage of medical officers. Only

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<sup>58</sup> WD, SGO, *Training*, pp. 601, 606, 607, 769; Ashford, *Soldier in Science*, pp. 209–10, 248–49, 262; Nial F. Twigg, “Notes on Tetanus,” pp. 594–95.

<sup>59</sup> WD, SGO, *Administration, AEF*, p. 363; idem, *Training*, pp. 606–07, 769, 773; Ashford, *Soldier in Science*, p. 216.

<sup>60</sup> WD, SGO, *Training*, pp. 605, 607, 945 (first, second, third quoted words), 1005; Bailey K. Ashford, “A Lecture on Field Hospitals,” pp. 45 (fourth quoted words), 50–51, 53 (fifth quoted words), 56, 57.

the sanitary school at Langres was left to provide instruction for medical officers in the Advance Section of the Services of Supply.<sup>61</sup>

Plans for training for the AEF's dental personnel, most of whom were new to the military and in need of instruction in administrative matters as well as military dentistry at the division level, were abandoned when the Army created its own sanitary and dental schools. A school of instruction for incoming dental assistants continued to be offered, however, at the First Depot Division at St. Aignan. In December 1917 an intensive week-long course for dental surgeons started up at Langres, where dentists were able to work with medical officers because aspects of their professions overlapped. In February 1918, when U.S. troops first entered the front line and a more realistic understanding of the dentist's combat role became possible, the course was expanded to two weeks. Study of such subjects as military law and map and compass reading were added to the curriculum, and greater emphasis was placed on preparing the dentist for the life of a soldier.<sup>62</sup>

Among others receiving instruction in the Services of Supply during the first year of the war were medical supply personnel and bacteriologists. The former were trained at medical supply depots, beginning with the depot at Cosne. Once trained, they were sent out to man new depots as they were opened. Because of special arrangements made not long after American troops began arriving in France, medical officers were sent to the Pasteur Institute in Paris and to the French Medical Department's surgical research center at Epernay for instruction in wound bacteriology—an important area of expertise in identifying the specific organisms behind infection. A few officers were also given instruction in wound bacteriology at various hospitals scattered throughout France.<sup>63</sup>

To make up for a serious shortage of experienced anesthetists that the Surgeon General's Office was slow to recognize, nurses, enlisted men, and officers were taught to administer inhalant anesthetic agents (which are administered together with oxygen). Nitrous oxide, usually regarded as a poor anesthetic, was pronounced by members of an interallied surgical conference in April 1918 to be the best choice for patients suffering from shock. Chloroform was abandoned when its dangers to the patient were fully recognized. Training in administering local anesthesia, which was also used in the American Expeditionary Forces, was apparently not offered. Realizing the benefits to be gained by relying on nurses to administer anesthesia, the British began to train women in the required skills. As a result, some of the American nurses serving with the British Expeditionary Forces took advantage of these courses, especially the training offered at Base Hospital No. 4 in Rouen. Major Crile had organized the hospital, which was particularly well equipped to provide this type of instruction.<sup>64</sup>

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<sup>61</sup> AEF GO no. 45, 8 Oct 1917; AEF GO no. 14, 23 Jan 1918; WD, SGO, *Training*, pp. 571, 579, 584.

<sup>62</sup> WD, *ARofSG*, 1919, pp. 1307–08; WD, SGO, *Administration, AEF*, pp. 108, 112, 113; idem, *Training*, pp. 579, 584, 609, 622, 642, 644, 645–46, 649.

<sup>63</sup> WD, SGO, *Administration, AEF*, p. 210; idem, *Finance and Supply*, p. 751; idem, *Training*, pp. 585–86; WD, *ARofSG*, 1919, p. 1494.

<sup>64</sup> Crile, *Autobiography*, 2:332–33, 335; WD, SGO, *SGO*, p. 419; idem, *Army Nurse Corps*, p. 320; *History of the Pennsylvania Hospital Unit (Base Hospital No. 10, U.S.A.) in the Great War*, p. 67; Marianne Bankert, *Watchful Care*, p. 47; Fowler, ed., *History of Base Hospital No. 61*, p. 59; WD, *ARofSG*, 1919, p. 1698.

Although the Medical Department made strenuous efforts to prepare its personnel for the demands that the active participation of U.S. troops in World War I would place upon them, more than marginal success in this endeavor was impossible. Ports were not ready to receive the ships, men, and supplies that poured into them during the first year of U.S. participation. Shortages of available buildings and construction material delayed the opening of many hospitals and supply depots. Inadequate transportation disrupted the distribution of personnel and supplies. A lack of both instructors and students curtailed instruction. The situation could well have been expected to improve had more time been allowed to prepare for the wholesale entry of U.S. troops into the front lines, but for the Medical Department and the AEF medical service the German offensives of the spring of 1918 brought with them the turmoil and confusion of having to do too much with too little.

## Chapter 9

# ZONE OF THE ARMIES MEDICAL ACTIVITIES



Even as the Medical Department struggled to maintain the health of the troops in the base sections and the Intermediate Section, it was also attempting to prepare for the care of the sick and wounded in what was known as the zone of the armies (or the combat zone). Only five U.S. divisions had arrived in France as late as February 1918, and in General John J. Pershing's opinion all required at least an additional two months of training before they would be ready for active service. After a relatively short period in training camps in the Advance Section, American troops underwent combat initiation with French troops in quiet areas. There the few casualties that occurred were most often caused by poor discipline in dealing with poison gas attacks. During this period the greatest concern for medical personnel with the combat divisions of the American Expeditionary Forces (AEF) was keeping disease at bay.<sup>1</sup>

By the spring of 1918, however, the Germans, freed by the Russian withdrawal from the conflict the preceding fall, had achieved numerical superiority on the Western Front. The Allies were running short of supplies, their financial problems were growing, and their morale, both among civilians and within the armed forces, was low. The spring German offensives, which drove deep salients into the Allied front and revived the danger of a breakthrough to Paris, rendered the Allies' situation acutely precarious. By late March 1918 prompt large-scale U.S. participation in the fighting seemed to be the only alternative to immediate Allied collapse. In response, but without giving up his ultimate goal of an independent American army, General Pershing put all his available U.S. forces at the disposal of the French.<sup>2</sup>

Throughout the spring and early summer of 1918, the Germans attempted repeatedly to break through to Paris. Except for a few units training with the British

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<sup>1</sup> John J. Pershing, *My Experiences in the World War*, 1:311.

<sup>2</sup> Pershing, *My Experiences*, 1:66, 353 and 2:89; A[lexander] N. Stark, "Medical Activities of the American Expeditionary Forces in the Zone of the Armies," p. 154; James A. Huston, *The Sinews of War*, p. 312; Albert Gleaves, *A History of the Transport Service*, p. 17; Lyn Macdonald, *The Roses of No Man's Land*, pp. 254–55; War Department (WD), Surgeon General's Office (SGO), *Training*, p. 572; idem, *Sanitation*, p. 595.

in northern France, U.S. divisions involved in the struggle served as part of French armies and under French tactical control. Several were thrown into battle barely more than a month after they arrived in France. The AEF medical service was not adequately prepared to care for those wounded in combat, and any ability it had to respond promptly to combat situations was crippled by the French insistence on keeping their military plans secret, even from those whose presence was saving them from utter defeat.<sup>3</sup>

### *Divisional Medical Organization*

When American units first entered combat, the organization of medical support had never been tested in action, and few of the medical personnel available to fill the positions it called for were experienced in caring for troops in action. A system that may have seemed logical on paper quickly proved to be inadequate in practice, and while necessity produced invention, experience brought confusion.

The organization of the medical service for the combat troops who were arriving in France was designed around the newly enlarged 28,000-man combat division, which consisted of a three-regiment artillery brigade and two infantry brigades of two regiments each plus other smaller supporting units. Although from two to six of these divisions, together with artillery, engineer, signal, sanitary, and supply units, formed a corps for administrative and command purposes, the division was the heart of the American Expeditionary Forces. The Medical Department, however, found the organization at the division level to be “undesirable and confusing.” At General Pershing’s headquarters, G-4 was increasingly assuming the control of medical units with combat troops, but it sent no representative to serve at the division level. But G-4 exercised so much control over the division’s medical support that both the AEF chief surgeon and for a time his Line of Communications (LOC) and then Services of Supply (SOS) counterpart were to a large degree bypassed. As a result, the authority of the division surgeon grew increasingly independent of the control of his medical chain of command.<sup>4</sup>

One of the division surgeon’s greatest concerns was caring for the sick. Thus the division relied on sanitary trains to deal with those who fell slightly ill while in a training camp where there was no camp hospital or while with a detached command sent to an area far from the unit. Sanitary trains included eight infirmaries of 10- to 50-bed capacity, one for each regiment in the division. Supplemental equipment was available to transform an infirmary into a regimental hospital so that, should the regiment be separated from the rest of the division, the sick and wounded could receive care until they could be evacuated to more permanent facilities.<sup>5</sup>

<sup>3</sup> WD, [Annual] *Report of the Surgeon General*, 1919, pp. 1555, 1567 (hereinafter cited as *ARofSG*, year); WD, SGO, *Field Operations*, pp. 444–45.

<sup>4</sup> John J. Pershing, *Report of General John H. Pershing, U.S.A., Commander-in-Chief, American Expeditionary Forces, Cabled to the Secretary of War, November 20, 1918, Corrected January 16, 1919*, p. 3; WD, SGO, *Administration, American Expeditionary Forces*, pp. 33 (quoted words), 835 (hereinafter cited as *Administration, AEF*); WD, *ARofSG*, 1919, pp. 1425, 1463.

<sup>5</sup> WD, SGO, *Administration, AEF*, pp. 23, 283; idem, *Finance and Supply*, 252–53, 258–59; WD, *ARofSG*, 1919, p. 1341.



*Army Camp by George Harding*

If wounded in the field, the individual soldier was responsible for his own initial care, relying on his first aid packet until the arrival of medical personnel—most often the aidmen assigned two to a company. When action appeared imminent, the wounded that could still walk—an average of 40 percent of the total wounded—had to get themselves to an aid station. The fifty or so enlisted medical personnel in each regiment retrieved the more seriously wounded, occasionally aided by members of the regimental band. Once the troops entered active combat, arrangements to use men from the line were often made on an informal basis.<sup>6</sup>

Although the responsibilities of the regimental and battalion surgeons often tended to be more administrative than medical, their duties at aid stations included checking on dressings, either supervising their reapplication or handling this responsibility themselves; checking on or applying splints; administering antitetanus serum; and taking the initial steps to neutralize the effects of mustard gas on skin and eyes. By the end of the war, however, the usefulness of the aid stations at the regimental level had become a subject of debate. Some considered them to be, for the most part, “a useless block in the line of evacuation.” Even though one of the division’s four ambulance companies and one of its four field hospitals relied on horses for transportation, no comparable system to deal with equine casualties

<sup>6</sup> WD, SGO, *Field Operations*, p. 1024; idem, *Training*, pp. 1049, 1136–37; WD, *ARofSG*, 1919, p. 1481; J. W. Grissinger, *Medical Field Service in France*, pp. 76–79; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 340 (hereinafter cited as *History of MD*).





*First aid packet, pattern 1907,  
with two dressings and safety pins*



*Medical Department individual equipment, adopted in 1916; (below) litterbearers  
wearing their individual equipment*



was developed until late in the war. For many months each division within a corps had its own veterinary organization, and the lack of coordination of their efforts that resulted led to what was described as “a great loss of animals.”<sup>7</sup>

When the wounded left the regimental aid station, the division’s medical personnel assumed responsibility for their care. An officer from one of the division’s ambulance companies at the aid station supervised members of the division’s sanitary team, who moved the wounded from the aid station to the ambulances located at the farthest point forward that they could reach. The ambulances then transported the wounded to a field hospital. Should no aid station have been established, however, the division’s sanitary train collected casualties directly from the field. For those in perilous condition, an intermediate stop at an ambulance dressing station before reaching the field hospital might prove necessary. At these stations casualties could be given any necessary basic care (including tetanus shots) and kept warm—a step vitally important for those in shock—before completing the trip to field hospitals. Unfortunately, a chronic shortage of ambulances severely handicapped evacuation from the field, and the situation only became worse with the return to open warfare in the spring of 1918, when ambulances had to handle longer runs during which they were vulnerable to shelling.<sup>8</sup>

No surgery except that necessary to save life was performed before patients reached one of the division’s field hospitals. The location of field hospitals, like that of dressing stations, was the responsibility of the division surgeon working under orders from the division commander. Four field hospitals of an average capacity of 216 beds served each division, as did eight infirmaries for those not in need of hospitalization; a medical supply unit; and eventually a mobile laboratory plus four ambulance companies that formed the division’s sanitary train. As needed, a medical supply depot, a mobile laboratory, or a mobile surgical unit might be added to the sanitary train, and specialized equipment was often issued to each hospital according to its particular needs. For hospitals handling surgical patients, X-ray equipment was vital to make it possible to locate foreign bodies, identify fractures, and determine the nature of chest wounds. Gas hospitals needed to have an ample supply of water for decontaminating patients and their clothing and to be supplied with the appropriate chemicals for neutralizing the various gases—bicarbonate of

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<sup>7</sup> WD, SGO, *Training*, pp. 1136–37, 1049, 1139 (first quoted words); idem, *Administration, AEF*, p. 437 (second quoted words); idem, *Field Operations*, pp. 288, 131; WD, *Manual for the Medical Department, U.S. Army, 1916, Corrected to June 15, 1918*, p. 204; Ashburn, *History of MD*, 340; Address by William C. Gorgas, 26 Oct 1917, pp. 4–5, Gorgas Family Papers, W. S. Hoole Special Collections Library, University of Alabama (UA), Tuscaloosa, Ala; WD, General Staff, *Organization of the Services of Supply, American Expeditionary Forces*, p. 105, containing outlines of the chain of evacuation from front line to base hospital.

<sup>8</sup> Statement of Col Paul C. Hutton, 1 Jul 1918, p. 7, file 213, Entry 588, GHQ–IG, Record Group (RG) 120, National Archives and Records Administration–College Park (NARA–CP), College Park, Md.; WD, SGO, *Field Operations*, pp. 129, 1024, 1031–32, 1034; idem, *Training*, pp. 609, 895, 1049–50; idem, *Finance and Supply*, pp. 236, 398; idem, *Administration, AEF*, pp. 837, 838; W. C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, pp. 45, 46; Charles E. Heller, *Chemical Warfare in World War I*, p. 84; Ashburn, *History of MD*, p. 340; Grissinger, *Medical Field Service*, p. 31; Walter B. Cannon, “Wound Shock,” pp. 504–05; Bailey K. Ashford, “A Lecture on Field Hospitals,” p. 560; WD, *ARofSG*, 1919, p. 1485; Pershing, *My Experiences*, 2:308.

soda, for example, to counteract mustard poisoning and castor or olive oil to coat the stomachs of those who had ingested contaminated food or drink.<sup>9</sup>

Equipping field hospitals had to be undertaken with care lest their all-important mobility be seriously compromised. Experience had suggested and policy dictated that initial debridement to remove dead tissue be conducted within twelve hours of wounding or, at the very least, within thirty-six hours to limit the inroads of infection, and thus the system recognized that operations often had to take place at the field hospital level. Triage, or sorting patients according to their condition and determining when, where, and under what conditions further treatment and evacuation should take place, was also often handled at one or more of these hospitals, although the dressing stations sometimes managed this responsibility either formally or informally. At least 25 percent of those going through triage had to be operated on without waiting for evacuation further to the rear.<sup>10</sup>

After leaving the division's field hospital, casualties were usually taken by either trains or boats to the LOC/SOS evacuation and base hospitals. Medical Department planners had envisioned relying on an evacuation ambulance company for this responsibility, but when the AEF troops began arriving in France, such units were nonexistent. By December 1917 Col. (later Brig. Gen.) Francis A. Winter, MC, as the LOC chief surgeon, believed that unless thirty sections of the U.S. Army Ambulance Service, still in the United States but ready to be shipped, were sent to serve in the Line of Communications, then a "complete breakdown [was] imminent." He concluded, however, that by using personnel and equipment from base hospitals until more of these ambulances could be obtained, enough evacuation ambulance companies could be formed to handle the needs of training areas and units along the Line of Communications. Nevertheless, as late as March 1918, the exact composition of evacuation ambulance companies was still being discussed.<sup>11</sup>

The Line of Communications and, as of January 1918, the Services of Supply initially controlled the evacuation hospitals. Throughout the war, however, these units occupied in the minds of many a form of no-man's-land in the command structure. Before the United States entered the conflict, the institution of the evacuation hospital was familiar to the Army only in theory. In the early months of active American participation in the war, when the French and British bore the responsibility for troops working under their command, the activities of the first American evacuation hospital in France resembled that of a base hospital. Later in the war, necessity dictated that some base hospitals function as evacuation hospi-

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<sup>9</sup> WD, SGO, *Administration, AEF*, pp. 23, 284, 367; idem, *Training*, p. 1004; idem, *Field Operations*, pp. 328, 381, 1023; WD, *Manual*, pp. 207–08, 212; WD, General Staff, *Organization*, p. 105; Gorgas, *Inspection of Medical Services*, p. 17.

<sup>10</sup> WD, SGO, *Training*, pp. 828, 1004, 1005, 1019–20, 1021, 1051; idem, *Field Operations*, p. 1034; Gorgas, *Inspection of Medical Services*, pp. 18, 19, 46; Ashburn, *History of MD*, p. 341; Grissinger, *Medical Field Service*, p. 31. See also Bailey Kelly Ashford, *A Soldier in Science*, p. 230.

<sup>11</sup> WD, SGO, *The Surgeon General's Office*, p. 354 (hereinafter cited as SGO); idem, *Administration, AEF*, pp. 342 (quoted words), 343, 344–45; idem, *Finance and Supply*, p. 251; idem, *Training*, p. 829; idem, *Field Operations*, p. 328; Address by Gorgas, 26 Oct 1917, pp. 4–5, Gorgas Papers, UA; Gustavus M. Blech, "The Strategy of the Medical Service," p. 375.

tals. From the outset evacuation hospitals were regarded as “combat” organizations. Although plans called for each division at the front to have two evacuation hospitals, no more than thirty were actually ever activated in France.<sup>12</sup>

Need rather than doctrine played an important role in defining the function of evacuation hospitals. In general, they handled triage, provided hospitalization for those who needed immediate treatment, and evacuated farther to the rear all those who could be moved. During battle, they often took wounded directly from the ambulances that brought them from dressing and collecting stations, bypassing field hospitals. Some served largely as way stations in the chain of evacuation, retaining only patients whose conditions made it impossible for them to be moved further back. The Americans attempted to locate evacuation hospitals at railheads linked to field hospitals by good roads. Evacuation hospitals needed to maintain a certain mobility so that they could follow in the wake of the advance and to keep beds open for the wounded who so often poured back in a seemingly unending stream from field hospitals. As a result, neither the French evacuation hospitals nor the groups of casualty clearing stations favored by the British served as a model for the AEF medical service. Both were too large and too complex to keep up with a rapidly moving army.<sup>13</sup>

In staffing the various divisional facilities, the division surgeon utilized the services of specialists. Consulting specialists from the Chief Surgeon’s Office, AEF, assigned to work under the division surgeon’s direction, joined the division when it arrived in its training area. While following their orders to instruct medical officers about their various areas of expertise, the consultants gained a much-needed understanding of the organization of combat divisions. Until the spring of 1918, however, the lack of central coordination of the efforts of these officers contributed to considerable confusion in the system—“too many orders, too many reports, [and] too many inspection trips.” In addition, when assigned to a division, the surgical consultant was unable to follow the treatment of his patients who usually were promptly evacuated to a hospital in the rear. Because of the many difficulties involved and the fact that little surgery beyond that necessary to stabilize the patient took place in hospitals at the division level, these specialists were eventually assigned at the corps level rather than that of the division. Having consultants, whatever their specialty, swarming about division headquarters apparently proved to be unnerving to many a division surgeon, who was not sure about what he was to do with them or about whether he was obliged to take their suggestions. On the other hand, probably new to the military and devoid of all but a minimum

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<sup>12</sup> WD, SGO, *SGO*, p. 65; idem, *Administration, AEF*, pp. 285, 837; idem, *Field Operations*, p. 1047; idem, *Training*, pp. 1021, 1027, 1033, 1035, 1073, 1184; Robert B. Osgood, “Medical Work with the American Expeditionary Forces,” p. 373; WD, *ARofSG*, 1919, pp. 1469, 1508, 1677, 1698 (quoted word); Stark, “Medical Activities,” p. 154.

<sup>13</sup> Gorgas, *Inspection of Medical Services*, pp. 18–19; WD, SGO, *Training*, pp. 1020, 1021, 1022; idem, *Finance and Supply*, p. 289; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 334; Interrogation of Clarence J. McWilliam by Dawson Olmstead, 21 May 1918, pp. 1–2, Exhibit C, Entry 588, GHQ–IG, RG 120, NARA–CP; Elliott C. Cutler, “The Organization, Function and Operation of an Evacuation Hospital,” p. 29; WD, *ARofSG*, 1919, p. 1466; Charles H. Peck, “The Hospitals of the American Expeditionary Force,” p. 465; Ashburn, *History of MD*, p. 341.

of training, consultants themselves might also be in a state of confusion. Along with the consultant specialists, the division surgeon created his own specialists by directing his staff medical officers to both perform regular duties and concentrate their efforts in a specific area. One might be given the responsibility for orthopedic patients, another for patients with urological problems, and a third for the victims of neuropsychiatric difficulties.<sup>14</sup>

The division's psychiatric consultant proved his value at the division level. Working in field hospitals under the division surgeon, he attempted to identify malingerers and examined men charged with crimes and military offenses as well as those whose suffering resulted from concussions or mental or nervous conditions. Because of the shortage of American or French evacuation hospitals and because the services of neuropsychiatrists were not initially effectively utilized, some of the many soldiers who broke down under the stress of combat were needlessly evacuated far back from the front. Thus their services were lost to the division and perhaps to the American Expeditionary Forces as well. Neuropsychiatrists were also responsible for seeing that the hospitals to which patients with neuropsychiatric problems were evacuated could provide the specialized care they needed.<sup>15</sup>

Because of the guidance of the division neuropsychiatrist, many soldiers whose services might otherwise be lost to combat units could return in a remarkably short time to their duties at the front, but these specialists were in such short supply that plans to utilize their services were often frustrated. Although their work was regarded as particularly important to the morale and efficiency of their units, neuropsychiatrists were relatively few in number and initially not included in tables of organization. Because plans called for one to be allotted to each division, these consultants joined their respective units only after they arrived in France.<sup>16</sup>

Similar shortages afflicted all the major specialties. Serious effort went into assigning to divisions those specialists most vital to maintaining the division's fighting strength. Ideally they were placed in the division surgeon's office so that he could in time of battle assign them where they were most needed. The orthopedists and psychiatrists were likely to be stationed at triages. After early July 1918, when one field hospital in each division of I Corps was ordered set aside for surgical patients, the urologists were assigned to this facility.<sup>17</sup>

The division surgeon's team also included a division sanitary inspector, usually assisted by laboratory and water supply officers. In those instances when a division arrived in France without a laboratory officer, the AEF chief surgeon's section of infectious diseases assigned one, providing him with the equipment needed to set

<sup>14</sup> WD, SGO, *Administration, AEF*, pp. 354 (quoted words), 361-62, 927; James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," pp. 471, 476, 503.

<sup>15</sup> WD, SGO, *Training*, pp. 1052-53; idem, *Neuropsychiatry*, pp. 281, 283, 291-92, 304, 305-06, 308-09, 321, 323-24; Frank G. Norbury, "The Relation of Defective Mental and Nervous States to Military Efficiency," p. 31.

<sup>16</sup> WD, SGO, *Neuropsychiatry*, pp. 273, 274, 281.

<sup>17</sup> WD, SGO, *Administration, AEF*, pp. 355-56, 358-59, 360, 365-66, 373; idem, *SGO*, p. 389; Gorgas, *Inspection of Medical Services*, pp. 7, 9; WD, *ARofSG*, 1919, pp. 1481, 1515; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, pp. 77, 81, 84; Osgood, "Medical Work," p. 372; Bevans, "Function of Consulting Staffs," p. 491, 502-03.



*Division water point; (below) chlorinating water by hand*



up a small laboratory for clinical pathology. Time permitting, plans called for both the laboratory officer and the division's water supply officer to undergo training at the Central Medical Laboratory at Dijon. Should an epidemic strike and the laboratory officer find himself overwhelmed, he was entitled to request the assistance of a mobile laboratory car, manned by a commissioned officer, a driver, and a technician. The role of the water supply officer became particularly important in France, where almost all the water proved to be polluted. Usually a member of the Sanitary Corps, he was responsible for seeing that chlorination was properly handled and that the supplies necessary to purifying water were always available.<sup>18</sup>

The division's medical team grew with time. Beginning in the late spring of 1918, it might include food and nutrition experts. Although for the most part the field parties they formed worked with considerable independence, they were placed under the direction of the division surgeons and sanitary inspectors. Initially, dental officers also served under each division surgeon. Although tables of organization did not call for a formal divisional dental service, the AEF headquarters created one in June 1918. So soldiers need not be removed from their commands to have restorative work undertaken, a dental clinic was established in each division's training area. Both a dental clinic and a dental laboratory were generally located at the field hospital farthest from the front. When the division entered combat, dental clinic personnel assisted in providing first aid at the front and were sometimes asked to give anesthesia.<sup>19</sup>

As the hospital system was designed for use in combat, each division left camp with all of its medical personnel, leaving no one to care for any sick or injured who might have to stay behind. Although the problem was predictable, improvisation was the initial solution. Sometimes divisional medical personnel were left behind to run a camp hospital, and sometimes the AEF chief surgeon "dismember[ed] the base hospitals as they arrived and scatter[ed] their personnel to all parts of France to supply the camp hospitals." A barter system was also established to trade casual personnel with base and evacuation hospitals, even though this approach seriously depleted the medical personnel available for those facilities.<sup>20</sup>

Supply needs at the division level were processed more simply than those for medical personnel. The division's medical supply officer, who was a member of the Sanitary Corps, was responsible for handling requisitions, which he filled as far as was possible from within the division. Requisitions for any items that could not be supplied at this level were sent on to the corps headquarters. Only when requisitions could not be filled in any other way were they sent back to the advance depots of the Services of Supply. For units in combat, replenishment was called for on a ten-

<sup>18</sup> WD, SGO, *Administration, AEF*, pp. 135, 139, 192, 206, 207; idem, *Sanitation*, pp. 547–48, 554, 786, 811; idem, *Field Operations*, p. 1040; WD, *ARofSG*, 1919, p. 1330; Edward M. Coffman, *The War To End All Wars*, p. 132.

<sup>19</sup> WD, SGO, *Administration, AEF*, pp. 108–09, 116, 117 [AEF GO no. 99, 19 Jun 1918]; idem, *Sanitation*, pp. 706–07; idem, *Finance and Supply*, p. 623; WD, *ARofSG*, 1919, pp. 1300, 1303; Grissinger, *Medical Field Service*, p. 53; S. D. Boak, *History of the Dental Section of the Army Sanitary School, Army Schools, American Expeditionary Forces, France, December 10, 1917 to December 10, 1918*, ch. 4, pp. 2–3.

<sup>20</sup> WD, *ARofSG*, 1919, pp. 1295–96, 1439 (quoted words), 1440; WD, SGO, *Field Operations*, p. 20.

day basis, but formal requisitions and receipts were not required under these circumstances, and the supply officer was held accountable only for nonexpendable items.<sup>21</sup>

When the corps were formed to serve above the division level in January 1918, the organization of the AEF medical service began to grow more complex. Initially, however, the function of the corps was strictly administrative, for tactical command rested with the French armies and corps with which the various divisions served. In early July, however, when nineteen American divisions were serving in France, the AEF medical service was beginning preparations to handle the casualties that might result from offensive operations. Before the Germans launched their final offensive in mid-July the I and II Corps entered the line—the former with the French in the Chateau-Thierry area, the latter with the British to the north. Shortly thereafter, the III Corps was activated. As more divisions became ready for combat, other corps of two to six divisions were organized. Corps came to be attached to specific sectors, with divisions joining or leaving the corps according to their geographical location.<sup>22</sup>

The medical staff serving these corps included a corps surgeon and a varying number of other medical officers, often among them an assistant corps surgeon, an executive officer, a sanitary inspector, a medical gas officer, a commanding officer of the corps sanitary trains, a chief dental surgeon, and senior medical and surgical consultants and various consultants serving under them to assist divisional consultants. Each corps had its own stationary laboratory. These units eventually functioned as if they were base laboratories in the various sections.<sup>23</sup>

One of the most important roles played by the corps surgeon was coordinating hospitalization and evacuation among the various divisions of the corps in the interests of maximum efficiency. To do so, he needed “full advance information . . . concerning the battle.” A corps sanitary train of four ambulance companies and four field hospitals, all drawn from replacement divisions and all motorized, handled clearing the sick and wounded from the field hospitals. Corps hospitals were to care both for those patients deemed unable to withstand safely being moved still further back to evacuation hospitals and for those who would be ready to return to duty within a few days. But divisions entered and left the different corps too rapidly for standardization to be practical, and approaches to evacuation and hospitalization continued to vary greatly from division to division and time to time. Severe shortages of both vehicles and personnel added to the considerable confusion and frustration, rendering an organization that appeared coherent on paper less so as far as the Medical Department was concerned. As a result, the immediate responsibility of the corps surgeon for evacuating the sick and wounded dwindled with the passage of time.<sup>24</sup>

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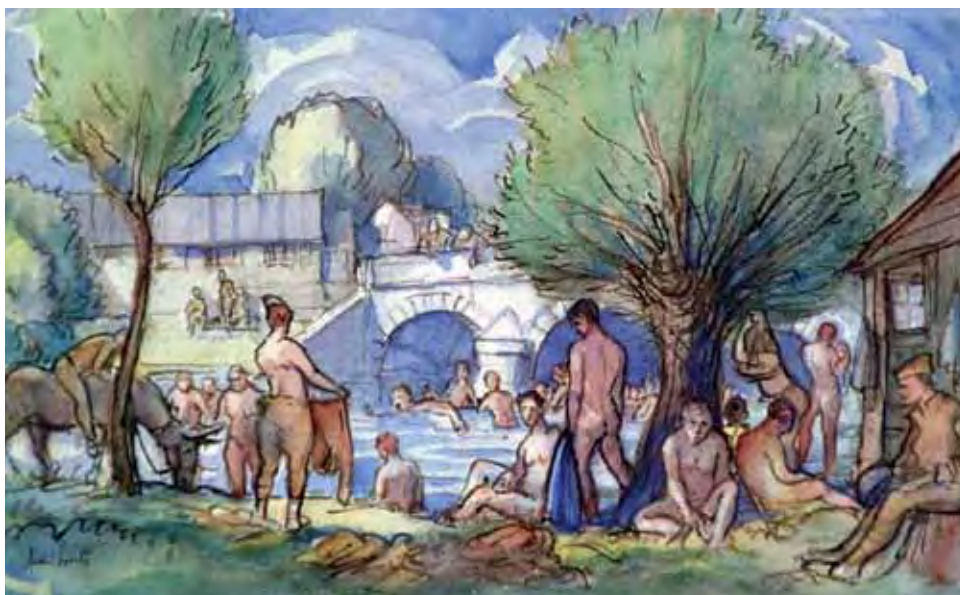
<sup>21</sup> AEF GO no. 73, 12 Dec 1917; WD, SGO, *Finance and Supply*, p. 261. The section surgeon had no control over supply depots until after the Armistice. See idem, *Administration, AEF*, p. 448.

<sup>22</sup> WD, SGO, *Sanitation*, p. 551; idem, *Field Operations*, pp. 66, 342; idem, *Administration, AEF*, pp. 356, 838; Maurice Matloff, ed., *American Military History*, pp. 391–94; Pershing, *Report*, p. 3; idem, *My Experiences*, 1:369–70. The corps organization did not operate when American divisions were serving under French control.

<sup>23</sup> WD, *ARofSG*, 1919, pp. 1300–301; WD, SGO, *Administration, AEF*, pp. 139, 355; idem, *Field Operations*, pp. 67–68, 342; Grissinger, *Medical Field Service*, pp. 60–61.

<sup>24</sup> Grissinger, *Medical Field Service*, p. 63; WD, SGO, *Field Operations*, pp. 69–71, 383, 432 (quoted words), 635; idem, *Administration, AEF*, p. 285; Ashburn, *History of MD*, p. 341; WD, *ARofSG*, 1919, p. 1512; Pershing, *My Experiences*, 2:175.





Rest Area near Neufchateau *and* (below) In the Toul Sector,  
*both by J. Andre Smith*



Nevertheless, through G-4-B, the medical section of G-4 in General Pershing's headquarters, the corps surgeons tended to have earlier knowledge of the military situation in general, of the condition of roads, and of the location of supply points than the division surgeons. Thus, from the outset, they remained responsible for the initial placement of all field hospitals within the respective corps. They shared decisions concerning subsequent changes of location with the division surgeons involved and, once a corps sanitary train became available, were able to relieve them of all responsibility for evacuation from field hospitals. G-4-B retained responsibility for the overall management of medical units in battle and functioned much as would the chief surgeon of an army.<sup>25</sup>

### *Advance Section Training Camps*

The first combat divisions began arriving for their formal training in camps of the Advance Section in the summer of 1917, months before the Advance Section surgeon's office was formally organized in November 1917. Units from these divisions returned to these camps when they left combat for rest and to receive replacements. The Advance Section surgeon bore a burden far greater than that borne by his counterparts in the other sections because he was ultimately responsible not only for the sanitary services of the training camps but also for the major advance medical supply depots; for 15 percent of the AEF's base and evacuation hospitals; and for the ambulance companies and the field, camp, and evacuation hospitals of divisions training in the section. The fact that the Advance Section's commanding officer did not control many organizations under his surgeon's supervision—among them base hospitals, medical supply depots, and the schools that provided medical personnel with further instruction in their duties—also complicated the latter's situation.<sup>26</sup>

To meet the challenge of disease prevention, the Advance Section was divided geographically into sanitary areas, each with its own local sanitary officer reporting to the section's sanitary inspector. In September 1917 the AEF commander planned to have each divisional training area assigned two sanitary squads. These units were initially formed within the divisions at the training camps in the United States, and thus in France confusion arose about whether they were attached to a particular camp or to the division occupying that camp. The AEF headquarters resolved the problem by placing sanitary squads under the Services of Supply rather than continuing them as part of the divisions.<sup>27</sup>

Among the duties of sanitary squads was installing "practical sanitary contrivances" in the divisional training areas, a particularly serious responsibility in the many French towns that had no sewer systems. In all of France, few houses had more than primitive toilet or bathing facilities. "Street filth [was] common in the villages of eastern France because of the lack of labor and the fact that most

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<sup>25</sup> WD, SGO, *Field Operations*, pp. 57, 58, 299, 383; idem, *Administration, AEF*, p. 64; *United States Army in the World War, 1917-1919*, 14:94-95.

<sup>26</sup> WD, SGO, *Administration, AEF*, pp. 447-48; Ashburn, *History of MD*, p. 333; WD, *ARofSG*, 1919, p. 1674.

<sup>27</sup> WD, SGO, *SGO*, p. 969; idem, *Sanitation*, pp. 541, 553; idem, *Administration, AEF*, p. 448.

of the villagers were farmers, who saved all manure to spread on their lands.” In the Gondrecourt area, the piles of manure in front of most houses “served a useful purpose in warming Gondrecourt, and were the only method utilized for heating the town when cold weather came.”<sup>28</sup>

Because this area of France with its crude sanitation lacked medical attendance, any epidemic in the civilian population could easily spread to the camps. Commanding officers were held responsible for seeing that their men kept themselves, their tents, and their barracks clean, while medical officers who suspected that this duty was being neglected were required to report the company commander or squad leader involved to his commanding officer for discipline. In their effort to maintain the health of combat troops, medical officers stayed alert for signs of disease in the communities surrounding the camps. The American Red Cross cooperated by opening a hospital at Neufchateau in March 1918 and by sending teams, each composed of a medical officer and a nurse, out into nearby civilian communities to set up clinics. Red Cross physicians gradually replaced those from the Army with civilians, and the American Medical Service they created stayed in France to help even after the end of the war.<sup>29</sup>

While most of the instruction received by the divisions training in France was purely military, the AEF commander recognized that preventing disease and disability dictated that troops be familiarized with the requirements of personal hygiene. Much time was devoted to checking on this matter, for “the American soldier has inherited the aborigines’ unwillingness to visit a formal temple for the worship of Nature.” In addition, lice were common. Each soldier also had to pay for his laundry unless he was hospitalized, weakening his cooperation with efforts to improve his hygiene—a situation the AEF chief surgeon’s protestations proved unable to change until January 1918. The senior orthopedist with the American Expeditionary Forces, however, observing that many men were not to be fit enough to fight, successfully urged that an orthopedist be assigned to each division, where his duties would include training “many of the men in the proper use of the body, so that they would be able to meet the requirements of combat training.”<sup>30</sup>

### *Trench Warfare Lessons*

The condition of the Allies was such that most of the preparation of U.S. troops for combat had to take place in combat, under the tactical control of either the British or the French. Five divisions of the American Expeditionary Forces trained in Britain until the spring of 1918, when they became part of a U.S. corps serving under British command, entering combat for the first time early in July. British

<sup>28</sup> John M. T. Finney, *A Surgeon’s Life*, p. 178; WD, SGO, *Sanitation*, p. 542 (quoted words); idem, *Administration, AEF*, p. 448 (first quotation); Coffman, *War To End All Wars*, p. 135; Ashford, *Soldier in Science*, p. 201 (second quotation).

<sup>29</sup> WD, SGO, *Training*, p. 673; idem, *Administration, AEF*, p. 370; Pershing, *My Experiences*, 1:228; Address by Gorgas, in Ltr, Col Furbish to Rumford Press, 3 Nov 1917, p. 4, Gorgas Papers, UA; Hugh Young, *Hugh Young*, pp. 294–99.

<sup>30</sup> Ashford, *Soldier in Science*, p. 210 (first quoted words); Pershing, *My Experiences*, 2:278; WD, SGO, *Sanitation*, p. 643; Goldthwait, *Division of Orthopaedic Surgery*, pp. 46 (second quoted words), 48.

plans called for British medical officers to serve as liaison with the AEF divisions and for the British to assume the ultimate responsibility for the sick and wounded. Those injured during training received initial care from divisional medical personnel before being evacuated to British casualty clearing stations, the equivalent of American evacuation hospitals. During actual battle, wounded AEF troops were evacuated to their own divisional facilities. From these stations or hospitals, British ambulance trains then removed all sick and wounded, whether British or American, whether in battle or in training, to British facilities. When possible, AEF troops went to those British base hospitals managed by U.S. personnel. Neuropsychiatric patients who had served with British troops were usually taken promptly to England; the British eventually set up a base hospital for these cases, the counterpart of the neuropsychiatric facility at La Fauche. AEF soldiers who were mildly sick as well as those considered unfit for further service were collected in British hospitals at Rouen, whence AEF ambulance trains then moved them back to American facilities for care.<sup>31</sup>

While the American teams were in training, small British teams served with them to instruct them, and AEF medical officers rotated through the British equivalent of the American field hospital and ambulance company. In August 1918, when the AEF's First Army was formed, the three U.S. divisions that returned to American command were able to leave behind the British equipment they had used for training because their own equipment was just arriving in France. Only two U.S. divisions were able to complete the training cycle exactly as planned. The remainder sent half of their sanitary trains directly to AEF units without having them spend any time with the British.<sup>32</sup>

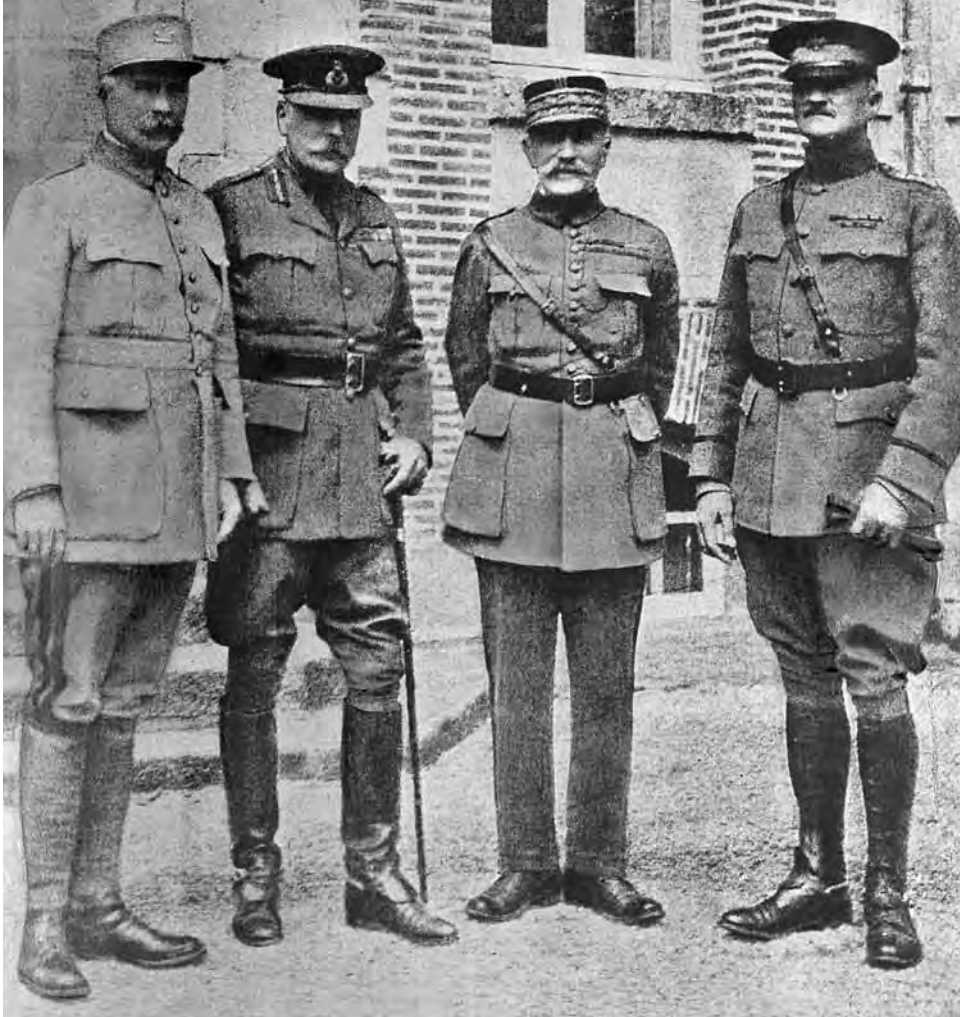
The remaining divisions of the American Expeditionary Forces trained as part of French armies. For the period of active U.S. participation, French General (soon Marshal of France) Ferdinand Foch exercised strategic—albeit not tactical—command over all Allied forces as of March 1918. As a result, American soldiers served a long period of tutelage with the French as they fought by their side, and AEF medical personnel had the benefit of the French advice in attempting to care for troops in situations not envisioned in field regulations and department manuals. Nevertheless, no amount of shared experience and expertise could produce a coherent response to the medical demands placed on both French and Americans by the desperate struggle to stem the German offensive of the spring of 1918.

For the first divisions to arrive in France, the sick rate was, just as it had traditionally always been, higher than the injured rate, sometimes three times higher. Attaining good standards of sanitation was especially difficult in the trenches. One of each division's four field hospitals eventually had to be put into service specifically to care for the victims of contagious diseases. The few among the sick who could not be returned to the front within a few days were evacuated back to base hospitals in the Services of Supply. A camp was also opened for the victims of venereal disease and

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<sup>31</sup> WD, SGO, *Administration, AEF*, p. 952; idem, *Training*, p. 1021; idem, *Field Operations*, pp. 875, 880; idem, *Neuropsychiatry*, pp. 282, 306–07; W. G. Macpherson, *Medical Services . . .*, 2:101–02, 104, 105–07.

<sup>32</sup> WD, SGO, *Field Operations*, pp. 884–85; Macpherson, *Medical Services . . .*, 2:103, 104, 105.



*Allied commanding generals—Henri Philippe Pétain, Sir Douglas Haig, Ferdinand Foch, and Pershing*

for those afflicted with scabies. Scabies, which could be complicated by impetigo, a skin infection that resulted from scratching, threatened the effectiveness of units in the field, although it formed no direct threat to life. The British had discovered that scabies cut a soldier's efficiency in half merely because of the loss of sleep through itching and scratching. In June 1918 Maj. Harvey W. Cushing maintained that 40 percent of all men lost to combat because of illness up to that point were suffering from either scabies or impetigo. The scabies hospital set up at Baccarat by the 77th Division came to be known as "Scratchville-by-the-Sea."<sup>33</sup>

<sup>33</sup> WD, SGO, *Field Operations*, 295, 302; idem, *Training*, p. 1081; idem, *Administration, AEF*, 922, 923; WD, *ARofSG*, 1919, pp. 1582, 1592, 1653; Frank C. Knowles, "War Dermatology in France

Water-borne disease was, as always, a threat, even when precautions were taken to defeat it. One division camped at a seemingly good site, offering “comforts not usually enjoyed by troops at the front. The water supply was abundant . . . ,” coming largely from the Paris Aqueduct, which was regarded as a source of unquestionably pure water. But “a complete survey later [demonstrated] that this elaborately protected water supply . . . was contaminated,” a source of bacillary dysentery. Laboratory proof of a diagnosis of dysentery was frequently not forthcoming so that the exact extent to which it was a problem could not be established. In another instance, an area where the men obtained their water from springs and wells, seven men came down with typhoid fever in spite of their presumed immunization against the disease. All men in the American Expeditionary Forces received a triple vaccine for typhoid fever and both types of paratyphoid fever; even today, vaccination is only 70–90 percent effective, and heavy exposure to the causative organism can override immunity. Occasional outbreaks of typhoid erupted from time to time throughout the summer.<sup>34</sup>

When AEF units entered the trenches, medical officers encountered unfamiliar complications in managing evacuation. The 1st Division reached the Ansauville sector, regarded as “generally quiet” in spite of “occasional active days”; however, to avoid being spotted by the Germans, any casualties had to be moved from battalion aid stations at night through a half mile or more of trenches knee deep in mud (*see Map 4*). From regimental aid stations located in the shelter of cellars of damaged buildings, protected from bombs by logs, stones, or sandbags, ambulances from two ambulance companies and working from a central ambulance park, supplemented as needed by vehicles from other companies, transferred them to a dressing station. Those in need of further evacuation were taken to the first American evacuation hospital, which was put into service on 4 February. This facility, like the ambulances that ran back and forth between it and field hospitals, were at this time still the responsibility of the Services of Supply.<sup>35</sup>

Nevertheless, until late March 1918, the problems that the AEF medical service encountered providing hospitalization for troops in the field were met with relative ease. With the launching of the German offensive in May, however, four U.S. divisions were swept up in the desperate effort to stop the enemy, and the drawbacks involved in relying heavily on the French for hospitalization began to become apparent. With action taking place on a wide front, from Belgium in the north to Verdun, and their situation desperate, the French experienced difficulty keeping their commitment to move to French hospitals all AEF casualties who could not quickly be restored to action. The scattering of sick and wounded among hospitals all over France, which made keeping

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and the Preventive Measures Taken,” pp. 200–201; Harris P. Mosher, “A Summary of the Activities of the Section of Otolaryngology,” p. 646; Harvey Cushing, *From a Surgeon's Journal, 1915–1918*, p. 373; Young, *Young*, p. 358 (quoted words).

<sup>34</sup> WD, *ARofSG*, 1919, pp. 1552 (quoted words), 1553; WD, SGO, *Administration, AEF*, p. 181; idem, *Sanitation*, pp. 892, 1101; Diary, p. 37, Ms C14, Jefferson Randolph Kean Papers, National Library of Medicine, Bethesda, Md.

<sup>35</sup> Heller, *Chemical Warfare*, p. 55, 2n; WD, SGO, *Field Operations*, pp. 292 (quoted words), 293–95, 300; idem, *Administration, AEF*, p. 343; WD, *ARofSG*, 1919, pp. 1580, 1677.



track of their condition impossible for weeks at a time, on the other hand, distressed Americans.<sup>36</sup>

No American evacuation hospitals were available to handle the AEF casualties that occurred when the enemy reached the Marne in the Chateau-Thierry area, within 50 miles of Paris, at the end of May. French evacuation hospitals did not have large enough staffs to handle all of the wounded. The AEF chief surgeon thus sent in five surgical teams to help conduct the necessary operations at field hospitals. For several weeks thereafter those Americans who were most seriously injured or gassed were taken from field hospitals to a facility initially established for French aviators by the wealthy American Mrs. Harry Payne Whitney. Although the Red Cross hospitals in Paris to which those in less serious condition were removed were "splendid," these casualties suffered as a result of the fact that the roads they had to travel were in very bad shape.<sup>37</sup>

By this point, the French were no longer able to cling to the illusion that their evacuation hospitals could care adequately both for their own soldiers and for the Americans as well. The AEF medical service was now free by default to handle evacuation and hospitalization as it saw fit. Increasingly heavy involvement in combat, however, highlighted the numerical inadequacies of enlisted medical personnel and the shortages of equipment. The need for enlisted men for combat units was too great to allow for assigning sufficient numbers to medical units or to give high priorities on transports to ship them to France. In recalling the problems experienced in this period, the future surgeon of the First Army noted ruefully that "actual conditions in war do not admit always of the nice adjustment of theories formulated in peace."<sup>38</sup>

The response to a scathing criticism of the medical care provided the wounded of the 2d Division in early June 1918 was revealing. A cable that a well-known newspaper reporter planned to send back to his paper in the United States led to an investigation by the AEF inspector general. Lengthy testimony led both to the exoneration of the AEF medical service and to an abject apology by the reporter. The AEF inspector general blamed the many admitted difficulties experienced by the medical team serving the 2d Division on factors essentially beyond its control, including repeated abrupt changes in French plans for the use of the 2d Division; the French inability to provide to American troops the hospitalization they had promised, a failure that was itself largely the result of the previous heavy loss of French facilities to the Germans; congested rail lines; a lack of adequate hospitalization available in Paris; and a severe shortage of Medical

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<sup>36</sup> WD, SGO, *Field Operations*, pp. 306, 334; Pershing, *My Experiences*, 2:47; WD, *ARofSG*, 1919, pp. 1459, 1592; Stark, "Medical Activities," pp. 154, 155; Ashburn, *History of MD*, pp. 343-44.

<sup>37</sup> Stark, "Medical Activities," pp. 155-56; WD, *ARofSG*, 1919, pp. 1461, 1509, 1510, 1552; Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical Department," p. 662 (quoted word); WD, SGO, *Field Operations*, p. 305. Total casualty figures generally included men who were taken prisoner and who were suffering from poison gas as well as the killed and wounded, but finding a complete breakdown of the figures can, in some instances, be difficult.

<sup>38</sup> Stark, "Medical Activities," p. 156 (quoted words); S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 184.



Department personnel. Among the inspector general's recommendations were an increase in Medical Department personnel and greater representation for the Chief Surgeon's Office on the General Staff so that it could be better informed of the military situation.<sup>39</sup>

The first chance for the AEF medical service to control hospitalization and evacuation for U.S. units in combat under other than desperate circumstances came during the Aisne-Marne operation in July 1918, when the Germans in response launched their final offensive. For the medical personnel of the units involved in this effort, the situation represented a considerable improvement over the chaos of previous engagements, largely because the French Sixth Army granted the American divisions serving with it permission to provide their own evacuation hospitals and to handle their own evacuation (*Maps 5 and 6*).<sup>40</sup>

Under American control, the battle to keep the chain of evacuation moving smoothly for AEF troops seemed for a brief, happy time after the Germans began their offensive to have been won. By this point, evacuation hospitals had been emptied of their patients (hospital trains, most of them American, had removed more than 3,000 patients from one evacuation hospital and still more from field hospitals), leaving these facilities ready for the casualties to come. Two evacuation hospitals and a mobile hospital were in place, and specific facilities were designated as the destination of the casualties from each corps.<sup>41</sup>

In meeting the German drive, the French and American medical services cooperated in their attempts to deal with the problems that faced them. During the first four days of the German's final offensive, the evacuation service of the AEF's reserve division was combined with those of the French. Two American field hospitals were attached to French triages, where casualties were sorted and assigned to care according to their conditions. Five American medical officers and forty litterbearers reported for evacuation work to a French division, several American surgical teams were sent to French hospitals, and the American Expeditionary Forces provided a few additional ambulances. Very precise arrangements at the regimental level were made for managing evacuation from the front, and both line and medical personnel were carefully assigned to the various duties involved.<sup>42</sup>

With considerable effort and the aid of the Red Cross, which set up hospitals of its own to function under the command of the Paris Group chief surgeon, the AEF medical service made significant progress in dealing with the need to clear field hospitals of patients who could not promptly be restored to action. As the war increasingly became one of movement, however, the challenge became more difficult. Too few trucks were available to move evacuation hospitals forward so as to minimize the distance between them and field hospitals, yet hospital trains could

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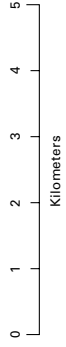
<sup>39</sup> In file 213, Entry 588, GHQ-IG, RG 120, NARA-CP, see: Telg, Eltings to Brewster, 1 Jul 1918; Statement of Casper Whitney, 4 Jul 1918; Statement of S. H. Wadhams, 9 Jul 1918; Rpt, Fred T. Murphy to A. W. Brewster, 7 Jul 1918; Rpt, IG, AEF, to Commander-in-Chief, AEF, 17 Jul 1918; Ltr, A. W. Brewster to Casper Whitney, 29 Jul 1918; and similar documents, including the testimony of witnesses at the IG investigation conducted in July 1918.

<sup>40</sup> WD, SGO, *Field Operations*, pp. 341, 421; Pershing, *My Experiences*, 2:61.

<sup>41</sup> WD, SGO, *Field Operations*, pp. 353, 354, 421.

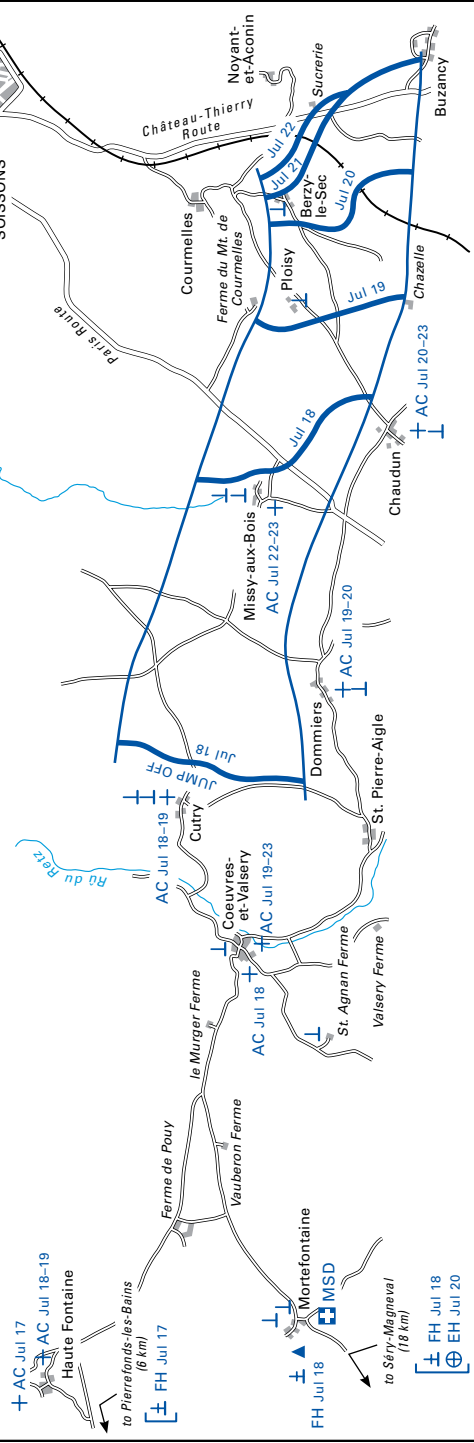
<sup>42</sup> WD, SGO, *Field Operations*, pp. 358, 380, 381; Young, *Young*, p. 368.

**1ST DIVISION MEDICAL SUPPORT**  
**AISNE-MARNE OPERATION**  
 17-23 July 1918



**LEGEND**

- ⊕ Evacuation Hospital
- ⊕ Field Hospital
- + AC Ambulance Company
- ⊥ Division Aid Station
- ▲ Triage
- ⊕ MSD Medical Supply Depot



MAP 5



not come near enough to the front to carry patients from evacuation hospitals back to more distant facilities.<sup>43</sup>

Division surgeons continued to work with considerable autonomy and to devise their own approaches to the needs of their units. One accomplishment involved developing a scheme for handling evacuation within a division that worked well enough to be adopted by other divisions and to be used for the rest of the war. The plan received an early testing just in the first day of the struggle at Chateau-Thierry, when one division suffered more than 1,600 casualties, with 1,280 going through a single dressing station in the course of an eighteen-hour period. As the troops went forward, ambulance companies set up dressing stations just behind them. The companies were rotated “on the leapfrog scheme, a company in reserve passing a company operating, which latter company closed its stations as soon as its need disappeared.” The fact that roads from the front were rarely completely blocked, and thus evacuation was never unduly delayed, favored the success of this approach at this time. The division’s commanding officer also found that its triage reports on the number and origin of casualties, which were turned in every two hours, proved useful because the figures so obtained helped him to envision where the enemy’s resistance was strongest.<sup>44</sup>

Secrecy, described at the time by the then 2d Division commander Maj. Gen. James G. Harbord as “the peculiar staff methods of the French, by which no information is given to responsible American commanders of their contemplated movements,” contributed significantly to the problems experienced by American medical personnel. Because the AEF medical service was only beginning to recognize that a war of movement required a larger reserve of supplies than trench warfare, the divisions had no chance of accumulating additional supplies without advance warning of the operation. Even the headquarters of the Paris Group was not kept informed in a timely manner of future military activity, and divisions were moved from one place to another without informing the group’s medical representative. Ironically, the Paris Group learned of the whereabouts of one division from a Red Cross representative who delivered supplies to it.<sup>45</sup>

Experience revealed other problems, including those that stemmed from shortages or from placing field hospitals too far to the rear, apparently in an attempt to find buildings for shelter to avoid using tents. This approach lengthened the journey litterbearers and ambulances, both in short supply, had to take. The inspector general’s representative commented after one battle that the allowance of Medical

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<sup>43</sup> WD, SGO, *Field Operations*, p. 353; WD, *ARofSG*, 1919, pp. 1467, 1583; Stark, “Medical Activities,” pp. 156, 157. See Chapter 7 for a discussion of the Paris Group.

<sup>44</sup> WD, *ARofSG*, 1919, pp. 392, 1584 (quoted words), 1653; WD, SGO, *Field Operations*, p. 622.

<sup>45</sup> WD, SGO, *Field Operations*, pp. 361–62, 366, 372–73, 445; Young, *Young*, pp. 367–68; Finney, *Surgeon’s Life*, p. 191. See also Substance of Remarks by Officers of the 1st and 2d Divisions Regarding the Battles of 18–23 July 1918, esp. by Col Mabee, Col Hanner, and Capt Martin, attached to Memo, Col Overshine for IG, AEF, 7 Aug 1918, sub: Conditions in 1st and 2d Divisions with Reference to Actions of 18–23 July 18, encl to Memo, Col Spinks (for Maj Gen Brewster) for CofS, AEF, 14 Aug 1918; Memo, Col Ovenshine to IG, AEF, 7 Aug 1918, pp. 2, 6, encl to *ibid*; and Memo, Col Ovenshine to IG, AEF, 22 Aug 1918, esp. Maj Gen Harbord remarks (quoted words). All file 244, Entry 588, GHQ–IG, RG 120, NARA–CP.

Department enlisted men, having been developed when infantry regiments were smaller, should be increased from 48 to 100. Litters were also few in number, and in some instances the bearers were poorly organized. The situation led to wounded lying for hours on the battlefield or being evacuated on improvised litters by comrades who were needed on the battlefield, and then remaining for lengthy periods at regimental dressing stations. Supply shortages made it necessary to rob the bodies of the dead of their first aid packets to provide emergency dressings. The perennial shortage of vehicles, the roads clogged with ammunition trucks and artillery moving forward, and the ubiquitous mud complicated ambulance evacuation, as did the paucity of maps. At least one regimental surgeon noted a lack of liaison with the rear, adding: "It is with great difficulty that he is heard. He is isolated in to a marked degree and left to work out his own salvation as best he may."<sup>46</sup>

Medical personnel were among those injured, further handicapping the care of the wounded. With many regimental medical officers among the casualties, physicians with some of the noncombatant units, such as the ammunition and supply trains, had to be assigned to the regiments. Litterbearers forced to work in the open were vulnerable to machine gun fire, and several were killed or injured. As a result, many wounded had to remain in a shell hole or other sheltered spot until they could be retrieved after dark. They arrived at field hospitals "in much worse condition than would have been the case otherwise." Using German prisoners to retrieve the wounded relieved some of the pressure and made it possible for more medical personnel to stay at the front to render first aid.<sup>47</sup>

One particularly unfortunate episode for American wounded occurred during and following an engagement where the French had agreed in advance that, unlike the American divisions serving under the French Sixth Army, the two American divisions functioning as part of their Tenth Army would be responsible only for evacuating patients from the front and that the French would deal with evacuation from the field hospitals. Unfortunately, in the effort to maintain total secrecy about the upcoming operation, the French avoided setting up new hospitals nearer the front, and the distance to hospitals already in existence was long. All available ambulances were initially put on the circuit from the front to triage, but during the battle the casualties were so numerous that the French were unable to evacuate field hospitals rapidly enough to prevent overcrowding. American ambulances, some of which were provided by the Red Cross, thus had to assume responsibility for this aspect of the chain of evacuation as well and even evacuated some French wounded. Vehicles, including trucks, from supply trains, the Red Cross, the

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<sup>46</sup> In file 244, Entry 588, GHQ–IG, RG 120, NARA–CP, see Substance of Remarks by Officers of the 1st and 2d Divisions Regarding the Battles of 18–23 July 1918, esp. by Maj Gen Summerall, Brig Gen Hines, Col Mabee, Capt Gage, and Col Hanner, attached to Memo, Col Overshine for IG, AEF, 7 Aug 1918, encl to Memo, Col Spinks (for Maj Gen Brewster) for CofS, AEF, 14 Aug 1918; Memo, Col Overshine for IG, AEF, 7 Aug 1918, pp. 2, 6, encl to *ibid.*; Memo, Col Overshine for IG, AEF, 22 Aug 1918; Rpt, Maj Hagins to CO, 18th Inf, 27 Jul 1918 (quotation), sub: Medical Department Work During the Offensive of July 18-19-20-21-22; Rpt, Brig Gen Hines to CG, 1st Div, sub: Operations South of Soissons, 4 Aug 1918; and Rpt, Capt Gage and Capt Pallen, 1st Bn Aid Station, 28th Inf, 18 Jul 1918. See also WD, SGO, *Field Operations*, pp. 328, 363, 365, 369–70.

<sup>47</sup> WD, SGO, *Field Operations*, pp. 361, 362 (quoted words), 364.



*First aid in trench warfare*

Salvation Army, and the Young Men's Christian Association were pressed into service to move patients.<sup>48</sup>

Finally, the French told the Americans to take their wounded from their field hospitals back to a railhead where hospital trains would pick them up. The Services of Supply, however, not warned of this impending action, did not send the trains. Only several days later, by which point as many as 400 wounded were lying near the railroad track without care and with little food and water, was it discovered that the trains had not arrived. Only one medical officer, an American, was with the casualties, along with a handful of other Americans. The French, who were to have provided personnel to care for American wounded being loaded on trains, had apparently not understood the critical nature of the situation. At the orders of the III Corps commanding officer, the corps surgeon rounded up a few American medical officers to care for the patients, apparently obtaining them from an American evacuation

hospital newly arrived in the area but not yet open for patients. Sources do not agree whether this evacuation hospital arrived in time to be of significant assistance. Two days later when trains were available to evacuate the 1,000 patients then awaiting their arrival, the French hospitals receiving them were soon filled to overflowing. Because the American base hospital at Tours was also full, the five military Red Cross hospitals in Paris once again played a vital role in caring for the wounded.<sup>49</sup>

Many of the difficulties encountered during the offensives in July 1918 were blamed on a lack of coordination and poor communication with the French, absorbed in a need for secrecy, and also on the fact that the Americans failed to press the point of how desperate they believed the situation to be. One division surgeon, serving with the French Sixth Army and thus less handicapped by difficulties

<sup>48</sup> Memo, Col Ovenshine for IG, AEF, 7 Aug 1918, p. 2, encl to Memo, Col Spinks (for Maj Gen Brewster) for CofS, AEF, 14 Aug 1918; Memo, Col Ovenshine for IG, AEF, 22 Aug 1918, esp. Brig Gen Neville remarks. All in file 244, Entry 588, GHQ-IG, RG 120, NARA-CP. See also WD, SGO, *Field Operations*, pp. 363, 365-66, 371, 374.

<sup>49</sup> WD, SGO, *Field Operations*, pp. 368, 372, 374-75, 377, 378-79; Young, *Young*, p. 368; Pershing, *My Experiences*, 2:195; Stark, "Medical Activities," p. 158; WD, *ARofSG*, 1919, p. 1512; Memo, Col Ovenshine for IG, AEF, 22 Aug 1918, esp. Maj Gen Harbord remarks, file 244, Entry 588, GHQ-IG, RG 120, NARA-CP; Harold Barclay, *A Doctor in France*, pp. 155-56.

with the French than some of his colleagues, doubted the existence of a satisfactory answer. To have enough ambulances on hand to evacuate the wounded from battle, a division would have to have permanently on hand far more ambulances than it could possibly use at any other time. Had the French and the Americans worked more closely together, however, medical care would undoubtedly have been rendered more promptly to many of the soldiers whose efforts in July 1918 turned the tide of World War I. From the point of view of the Medical Department, "a great catastrophe" was only "narrowly averted because of poor coordination."<sup>50</sup>

As the Allied advance continued in the summer of 1918, the effort to clear field and evacuation hospitals in anticipation of future offensives was demanding, and the threat of disease was unending. Evacuation hospitals' inability to clear patients because of a shortage of transportation meant that they could not move promptly behind the units they served. As a result, the distance between evacuation and field hospitals for a time became longer, placing greater strain on transportation. Field hospitals, delayed in clearing their patients by the long evacuation lines and as well as by congestion in evacuation hospitals, were then delayed in moving forward with their divisions. The use of the corps sanitary train to handle evacuation from field hospitals proved successful in at least one instance, but the shortage of vehicles threatened even this approach. One division surgeon attempted to improve the rate at which patients could be moved from field hospitals by equipping trucks so that they could evacuate from field to evacuation hospitals twelve patients on litters or twenty-four sitting without too much discomfort, reserving the use of ambulances to the rear of field hospitals for the most seriously injured patients.<sup>51</sup>

As they gained experience, division surgeons, attempting to use their field hospitals more efficiently, experimented with several different approaches other than the standard one calling for one field hospital to be kept in reserve and for patients to be assigned entirely on the basis of the nature of their injuries or illnesses. One division surgeon recommended that "psychopathic cases" not be evacuated from the division but rather held near the front and provided "complete rest in bed . . . , sufficient food, and no treatment other than suggestive therapeutics," an approach enabling him to return as many as 40 percent of these cases to their units within three to five days.<sup>52</sup>

### *Poison Gas Attacks*

Some of the hardest lessons that AEF soldiers and the medical personnel who cared for them had to learn in the field concerned poison gas. Despite what the troops must have heard from the British and French about gas attacks, they tended to be too casual about the danger. Their exposure to poison gas first occurred in late February, after British intelligence informed the 1st Division that a gas attack was imminent. On the twenty-sixth the light wind favored the use of such a weapon; under these cir-

<sup>50</sup> WD, SGO, *Field Operations*, pp. 358, 379 (quoted words), 421; WD, *ARofSG*, 1919, p. 1548.

<sup>51</sup> Stark, "Medical Activities," p. 159; WD, SGO, *Field Operations*, pp. 387, 398, 412; WD, *ARofSG*, 1919, p. 1474.

<sup>52</sup> WD, SGO, *Field Operations*, pp. 392, 402 (quoted words), 411, 412, 759-60.



On the Gas Alert by *George Matthews Harding*

cumstances gas fumes would remain low and cling to the heavy underbrush. When the attack came, many 1st Division troops were slow to don their masks. Then, when it was over, some made the mistake of removing their masks before they were ordered to do so. As a result, 85 of the 225 exposed to phosgene and chloropicrin at this time suffered for their carelessness; 2 soon died and 6 of the 62 admitted to the field hospital later succumbed. Only a few days thereafter, the Germans launched mustard gas, necessitating the evacuation of all the officers and men of a field artillery battery. Of the total of 674 patients entering the field hospital while the 1st Division was in the Ansauville sector, 323 suffered from the effects of poison gas.<sup>53</sup>

The experiences of the 1st Division with poison gas were representative of those of units that followed, both because the gases employed against them were those most commonly used and because carelessness with the use of gas masks was typical of men inadequately familiarized with the dangers that these chemicals posed. The effects of the three gases to which the 1st Division was exposed were already well known, but mustard gas had become the gas of choice by the time American soldiers began playing an active role in World War I in significant numbers.<sup>54</sup>

<sup>53</sup> Heller, *Chemical Warfare*, p. 76; Alden H. Waitt, *Gas Warfare*, p. 21; WD, SGO, *Field Operations*, p. 294.

<sup>54</sup> WD, SGO, *Medical Aspects of Gas Warfare*, pp. 79, 260.





*A gas attack*

Classified as a vesicant (in other words, an agent that causes blisters), mustard gas is a brown oily liquid that vaporizes slowly at normal temperatures and adheres stubbornly to clothing unless subjected to very high temperatures. Although gas masks offered good protection to the areas they covered, mustard easily penetrated leather and fabric and clung to the surface of the ground and the plants for four days or more. Thus even when masks were donned in a timely fashion and kept in place until the attack was well over, a considerable danger remained for those who stayed in or entered a gassed area, wore or handled contaminated clothing or blankets, lay down on contaminated soil, or brushed against contaminated plants. Elaborate procedures became necessary to deal with the threat. Soldiers had to be warned to avoid contaminated drinking water. Both men and their clothing had to be thoroughly and carefully washed. Extra clothing and equipment had to be kept on hand for those who were having mustard removed from their original clothing and equipment. And careful precautions had to be taken to avoid having dugouts and even hospital tents themselves contaminated, either by the gas attack or by the entrance of victims of the attack.<sup>55</sup>

Of concern to AEF medical officers was the fact that the characteristic odor of mustard became apparent only in concentrations heavier than those needed to cause injury. Even the irritation of the skin, eyes, and throat that mustard produced did not become immediately apparent. Susceptibility to minor concentrations varied

<sup>55</sup> WD, SGO, *Gas Warfare*, pp. 54, 75, 77–79, 541; “Warfare Gases,” pp. 5, 13–14; Edward M. Spiers, *Chemical Warfare*, pp. 4–5; Macpherson, *Medical Services . . .*, 2:504; Heller, *Chemical Warfare*, pp. 78–79.

from individual to individual. A small exposure could numb the nose to greater concentrations encountered thereafter, even to concentrations that could result in rapid death from asphyxiation. A victim who felt reasonably well for four to six hours before the onset of significant symptoms, might still die as the result of pulmonary edema that produced death through the sloughing of large pieces of dead tissue from the respiratory tract. Death most commonly resulted, however, from bacterial infection, possibly weeks after poisoning, as mustard did not produce edema on the scale characteristic of the sufficant gases.<sup>56</sup>

The effects of mustard outside the respiratory system, however, although potentially quite debilitating, were not likely to be fatal. A victim's eyes eventually recovered from the effects of this gas, such as intolerance to light or even blindness for many days, and the possibility of infection posed an additional danger. As a rule, mustard affected the digestive system temporarily, if at all, and had no direct effects upon the heart, which might be stressed by breathing difficulties. The skin could be heavily blistered and burned in areas most likely to be moist with sweat, especially the armpits and genital area. As far as the gas victim without respiratory problems was concerned, the Medical Department's main pre-occupation soon became the possibility that he might become "a psychoneurotic," a situation to be prevented by getting him out of bed within two or three days and keeping him from becoming "introspective."<sup>57</sup>

Phosgene and chloropicrin, both classified as suffocating gases, presented a different challenge to medical officers, as did diphosgene, which replaced phosgene. Diphosgene proved to be a more dangerous gas than phosgene, killing most of its victims within twenty-four hours and increasing the burdens of those responsible for them still further because experience had revealed that walking was dangerous. Inhalation was followed by excess fluid collecting in the affected tissues. Death might follow within a few hours, generally resulting from a progressive edema of the lungs. The patient essentially drowned in his own body fluid after a grim struggle, during which the rate of respiration sometimes reached sixty or



*Gas masks for a soldier and his horse*

<sup>56</sup> WD, SGO, *Gas Warfare*, pp. 75, 83, 85, 98–99, 259, 260, 263; George W. Norris, "Toxic Gases in Modern Warfare, with Special Reference to Diagnosis and Treatment," p. 1824.

<sup>57</sup> WD, SGO, *Gas Warfare*, pp. 79, 262–63, 264, 301; idem, *Administration, AEF*, p. 945 (quoted words).

even eighty times a minute, “frequently labored and superficial. In many patients the pain [became] very severe. . . . A thin, serous, foaming, blood-tinged expectoration [was] frequently presented, especially after spasms of coughing. This fluid [flowed] from the mouth and nose until a mushroom-shaped collection of bloody froth [formed] on the face.” The victims of phosgene and diphosgene sometimes felt well enough for a time to continue on duty despite minor discomfort. Medical officers had to watch closely even over convalescents, for whom exertion continued for some time to be dangerous, to the point where walking a few hundred yards to the latrine or taking a stroll about the wards could prove fatal. Nevertheless, most of the victims of phosgene “with rare exceptions [made] splendid recoveries in two to three months.” The victim of phosgene who neither died as a direct consequence of having inhaled the gas nor improved within three to four days had probably developed bronchopneumonia. If this did not kill him, he could be tormented by bronchitis and digestive problems for weeks. The particular danger posed by chloropicrin, on the other hand, lay in the fact that it caused pain in the chest and upper abdomen and violent vomiting that often led any soldier whose mask was not entirely effective to remove it, thereby rendering himself vulnerable to phosgene or any other gas that might be mixed with the chloropicrin.<sup>58</sup>

When they entered the war, U.S. soldiers were not only completely unfamiliar with the use of poison gas but, to a large extent, relatively new to military discipline as well. Neither the British nor the French were prepared to have the Americans thrown into combat in such numbers so soon. The period of their tutelage under the British and, especially, under the French, was, therefore, inevitably a time of confusion. Much of the AEF’s medical service and almost all medical personnel were untried in the field. Moreover, when U.S. troops first entered active combat, few base hospitals were in operation for hospitalization beyond the division level. Worn and desperate after almost four years of war, the French seriously overestimated their own capacity for handling the training of American personnel, thus further complicating the work of divisional medical organization, for whom promptly clearing field hospitals was vital. In the first sixteen months of American participation in the war, ominously growing shortages of personnel and equipment also added to the confusion. Although U.S. military leaders looked forward eagerly to taking over tactical control of American divisions in the field, the creation of the First Army would bring the medical service of combat units a change without a difference. As far as the Medical Department was concerned, the Americans taking charge of their own destiny would not significantly change the destiny.

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<sup>58</sup> WD, SGO, *Gas Warfare*, pp. 54, 84, 253, 257–58, 259, 297–98; Norris, “Toxic Gases,” pp. 1823, 1824; Robert Harris and Jeremy Paxman, *A Higher Form of Killing*, p. 18; “Warfare Gases,” pp. 36, 45–46 (quoted words), 48; Waitt, *Gas Warfare*, p. 258.

## Chapter 10

# ON THE EVE OF NEW BATTLES



General John J. Pershing's goal of an independent American force was finally attained in August 1918, as the Allied forces, having ended the German threat along the Marne River, prepared to launch a new offensive. General Pershing addressed preparations for upcoming operations with enthusiasm. Although careful planning could to some extent ameliorate the effects of severe shortages of trained personnel and equipment that increasingly hampered efforts to care for American casualties, it could not eliminate them. The demand for more ambulances, more equipment, and more supplies for front-line medical organizations grew at the same time as the demand for more troops, more ammunition, and more weapons. On the battlefields of France, the flexibility that would have permitted the most effective use of limited resources was often rendered unattainable by mud that swallowed ambulances and trucks, by endless shell holes that made roads impassable, and by congestion that brought movement along vital routes to a standstill. As a result, while the American Expeditionary Forces (AEF) pushed the Germans back toward their borders with gradually increasing rapidity, its medical service, with too few men and too little transportation, struggled with increasing desperation to keep up with the demands being made upon it. By the time the war had ended, as many as 37,500 or more Americans may have been killed in action and another 14,700 or more may have died from their wounds, although precise figures differ, while more than 50,000 died from disease.<sup>1</sup>

### *Organizational Changes*

A number of organizational changes in the Medical Department as well as in the American Expeditionary Forces as a whole were required by the creation

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<sup>1</sup> John H. Pershing, *My Experiences in the World War*, 2:246–65; War Department (WD), Surgeon General's Office (SGO), *Administration, American Expeditionary Forces*, p. 577 (hereinafter cited as *Administration, AEF*); idem, *Finance and Supply*, pp. 286, 400; idem, *Field Operations*, pp. 331, 1041; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1919, p. 1368 (hereinafter cited as *ARofSG*, year); Jonathan H. Jaffin, "Medical Support for the American Expeditionary Forces in France During the First World War," M.A. thesis, p. 2; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 340 (hereinafter cited as *History of MD*); Stanhope Bayne-Jones, *The Evolution of Preventive Medicine in the United States Army, 1607–1939*, p. 151. On the various casualty figures for the period 1 April 1917 through 31 December 1919, see those reported in "Deaths Among American Troops During Our Major Wars," pp. 73–75.

of the First Army. Most U.S. divisions were now under the AEF's direct tactical control, although a few continued to serve with the British as part of the II Corps or as individual divisions with the French. The First Army, which included the I and III Corps and French units, was initially under the personal command of General Pershing himself; Col. Alexander N. Stark, MC, served as the army surgeon. Planners apparently assumed the Paris Group was no longer needed at this point; however, in late August, when the First Army was ordered to Neufchateau to prepare for the final push against the Germans, the group had to be re-formed a few days after disbanding to control troops remaining in the Marne area.<sup>2</sup>

The army-level medical organization resembled in some aspects that of the corps, in others that of the division, and, like both, it suffered from personnel shortages. In many instances U.S. Army consultants and their assistants replaced corps consultants, assigned to serve with corps in May 1918, because corps surgeons found the presence of specialists unnecessary. Psychiatrists, however, were an exception to the rule; they were apparently found at all levels, including that of the corps, in both the St. Mihiel and Meuse-Argonne campaigns. Psychiatrists at the army-level were necessary to ensure that neuropsychiatric patients were sent to hospitals qualified to treat them properly and that any division psychiatrist in need of assistance received it. Their work became all the more important because commanding officers of field hospitals did not always appreciate the work of division psychiatrists. Too often assigned to dress minor wounds, division psychiatrists found it impossible to care for those who, if treated promptly for shell shock or similar problems, could be quickly returned to duty.<sup>3</sup>

The army sanitary train resembled that of the division, except that it was supplemented by mobile hospitals, which supplied the equipment for six surgical teams; by mobile surgical units, which provided surgical teams but not hospital facilities; and by evacuation hospitals, which now came under First Army rather than Services of Supply (SOS) control. Establishing army-level hospitals was complicated, however, by the fact that meeting the goal of a mobile hospital and two evacuation hospitals per division serving in the zone of the armies (or the combat zone) had proved impossible. Personnel for mobile hospitals were found only by picking up uncommitted physicians, nurses, and enlisted wherever they could be found and by calling in those who had been serving with British hospitals. Base facilities had to be used as evacuation hospitals, and, despite earlier regulations forbidding the use of American Red Cross personnel in the zone of the armies, Red Cross hospitals had to be brought in to function as evacuation hospitals and under the command of a medical officer.<sup>4</sup>

<sup>2</sup> Edward M. Coffman, *The War To End All Wars*, p. 286; Ashburn, *History of MD*, pp. 324–25; AEF GO no. 120, 24 Jul 1918; Pershing, *My Experiences*, 2:175, 402; WD, SGO, *Field Operations*, pp. 419, 446.

<sup>3</sup> James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 476; WD, SGO, *Administration, AEF*, pp. 360–62, 926–27; idem, *Neuropsychiatry*, pp. 307–09, 321–22.

<sup>4</sup> WD, SGO, *Administration, AEF*, pp. 284, 285; idem, *Training*, p. 1056; idem, *Field Operations*, pp. 21, 813–14, 1025, 1046; WD, *ARofSG*, 1919, p. 1440; AEF GO no. 70, 6 May 1918; *United States Army in the World War, 1917–1919*, 14:112, 113, 114; Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical Department, A.E.F.," p. 637; Ashburn, *History of*



*Interior of a typical hospital train*

The First Army shared with its corps sanitary trains the responsibility for evacuating patients from field hospitals often directly to evacuation hospitals, where the injured were able to obtain more definitive surgery than was possible at field hospitals and to benefit from the care of female nurses. Surgeons had concluded, however, that many patients could safely wait for surgery for as long as thirty-six hours after wounding. Therefore, when patients were arriving at evacuation hospitals at a rate of 1,000 patients or more within twenty-four hours, many who would otherwise have been scheduled for surgery were loaded on board trains for movement to the rear.<sup>5</sup>

When the First Army was formed, the inappropriateness of leaving the evacuation hospital under SOS control was obvious. Changing its status in this regard, however, did not solve another difficulty. The two roles played by evacuation hospitals were already conflicting because they were becoming the sites of “the urgent surgery of the war” rather than “mere forwarding depot[s].” Surgical teams of specialists were formed to assist the general surgeons who worked there, caring

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*MD*, p. 342. The area of the front was variously referred to as the zone of the advance or the zone of the armies. The latter term is used in this volume to avoid confusing it with the Advance Section.

<sup>5</sup> Ashburn, *History of MD*, p. 341; WD, SGO, *Training*, pp. 1004, 1021; Elliott C. Cutler, “The Organization, Function and Operation of an Evacuation Hospital,” pp. 9, 11, 19, 32.

not only for the wounded but also for patients in need of appendectomies or hernia repair or other surgery (for example, an accidental skull fracture caused by a horse or mule kick to the head). Experienced teams reached a peak of efficiency; although such a unit generally consisted of no more than two–three medical officers and two orderlies, along with two nurses (in theory, no nurses were supposed to be assigned to evacuation hospitals), three operating tables were kept busy—two where surgery was actively being performed and the third where a nurse was anesthetizing the next patient. When casualties were heavy, however, teams unfamiliar with the nature of military surgery had to be called in on a temporary basis. In time the staffs of evacuation hospitals came to resemble those of base hospitals, lacking only one of the two dentists.<sup>6</sup>

Under pressure to retain those who could be returned to duty within a few days, the character of evacuation hospitals was transformed. They grew in size from fewer than 500 beds to 1,000 and more, a change that made for more efficient use of scarce personnel at a time when base hospital staffs were being stripped in favor of hospitals nearer the front. Late in the war 1,000-bed evacuation hospitals were divided into two sections, a mobile section with 500 folding cots and a partially fixed section with regular beds and mattresses. Their equipment became more complete than that of field hospitals but less elaborate than of base hospitals. The few evacuation hospital laboratories that had arrived before the end of the war were concerned mainly with wound bacteriology and postmortem examinations rather than the broader spectrum that concerned base hospital laboratories.<sup>7</sup>

According to need, whether under SOS or field army control, the evacuation hospital played various roles. It was occasionally used as a base hospital at a hospital center or as a temporary camp hospital, or its personnel were divided up among existing camp hospitals. Others led the peripatetic existence that might have been expected for all evacuation hospitals; one left Brest, where it had arrived in late April 1918, for Bazoilles, then moved to Meaux, and finally arrived in late July at Chierry, near Chateau-Thierry, where it spent its last days as part of the Services of Supply working closely with a mobile hospital to evacuate patients to Paris by canal boat on the Marne or by train. The greater the distance an evacuation hospital was from the front, the greater the strain it placed upon an already overtaxed ambulance system.<sup>8</sup>

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<sup>6</sup> WD, SGO, *Training*, pp. 609, 1020 (quoted words); idem, *The Surgeon General's Office*, pp. 352, 639 (hereinafter cited as *SGO*); idem, *Administration*, AEF, pp. 447–48; idem, *Finance and Supply*, p. 289; Robert B. Osgood, “Medical Work with the American Expeditionary Forces,” p. 373; Bevans, “Function of Consulting Staffs,” p. 476. At least nine appendectomies were performed at Evacuation Hospital No.1 from 17 May through 8 August 1918. See Hospital Diary, 1918, bk. 1, pp. 29–30, and bk. 2, pp. 7, 16, 21, 54, 56, 69, 89, 104, 116, 198, Ms C289, Eugene Hillhouse Pool Papers, National Library of Medicine (NLM), Bethesda, Md.; WD, *ARofSG*, 1919, pp. 1702, 1729.

<sup>7</sup> WD, SGO, *Administration*, AEF, pp. 187, 188, 285, 307, 836; idem, *Finance and Supply*, pp. 289, 290; idem, *Training*, pp. 1022–23; *United States Army in the World War*, 14:107, 112; WD, *ARofSG*, 1919, pp. 1441, 1466; War Diary, p. 14, Ms C117, Merritte W. Ireland Papers, 1911–1931, NLM. Ireland maintained that an evacuation hospital had been sent to Gondrecourt in the summer of 1917, but his statement is nowhere else confirmed. Although the hospital had been requested, it is likely that it did not arrive until the spring of 1918.

<sup>8</sup> WD, *ARofSG*, 1919, pp. 1678–79, 1694–95; *The History of Evacuation Hospital Number Six, United States Army, 1917–1919*, pp. 12–14; Ashburn, *History of MD*, p. 342.

The Army's lack of familiarity with the evacuation hospital as an institution and with the varied roles it was called upon to play made drawing up a uniform set of regulations to govern its management very difficult. The guiding principle had to be, as it had to be for all of the Army's medical facilities, "the most good for the greatest number," even when this approach was "in some individual instances . . . of serious consequence to single cases." For all hospitals the emphasis was placed on their obligation to restore as promptly as possible those capable of returning to their duties at the front. The belief that the wounded required immediate surgery if infection was to be prevented was discovered to be erroneous in the case of minor wounds, making it possible to delay working on the injured until they reached hospitals further back from the front. Therefore, with exceptions only for those who had undergone head, chest, or abdominal surgery, when the number of patients sent back from field hospitals was great, all who could not be quickly restored to duty were not to remain in an evacuation hospital more than twenty-four hours before being loaded on hospital trains for the trip back to the base hospitals. In normal times this period allowed enough time for surgery and the application of splints, a procedure often guided by the members of a mobile splint team.<sup>9</sup>

A mobile surgical hospital often worked closely with an evacuation hospital. The army surgeon was responsible for the distribution and use of these facilities to reinforce the work of field and evacuation hospitals. The institution of the mobile hospital, a smaller version of a French model but new to the U.S. Army, was not adopted by the American Expeditionary Forces until the spring of 1918, when the Medical Department recognized the need to be able to bring prompt aid to the seriously wounded and thus spare them relatively long trips. Mobile hospitals, like evacuation hospitals, were initially placed under SOS control. In addition, no uniform set of regulations governed their administration. The mobile hospital was not authorized by a table of organization but rather formed in response to need, holding patients only briefly until they could be moved elsewhere. The personnel for its operating teams were obtained by stripping base hospitals of personnel—a surgeon, an assistant, an anesthetist, two nurses, and two orderlies for each formal team. Those described as "casual teams" had only one nurse and one orderly. Some such units specialized as neurological, shock, or splint teams.<sup>10</sup>

In the case of mobile facilities, plans, once again, did not prove to be realistic. Twenty mobile hospitals were ordered, but apparently no more than ten were delivered before the end of the war. Each was to be staffed by eleven medical officers, a Sanitary Corps officer, twenty-one or twenty-two Army Nurse Corps nurses, and eighty Medical Department noncommissioned officers and enlisted men. Each was

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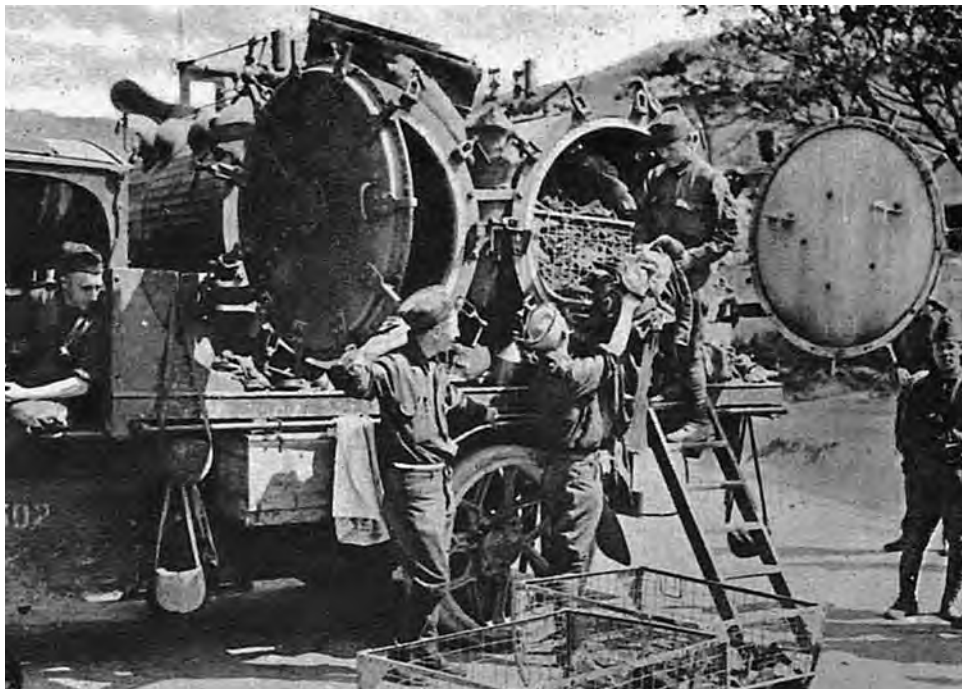
<sup>9</sup> WD, SGO, *Training*, pp. 1021, 1069; Cutler, "Organization of an Evacuation Hospital," pp. 9, 30 (quoted words); Gustavus M. Blech, "The Military Aspect of Base Hospitals," p. 510; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, pp. 10, 18; Ashburn, *History of MD*, p. 343.

<sup>10</sup> WD, *ARofSG*, 1919, pp. 1368 (quoted words), 1369; Charles H. Peck, "The Hospitals of the American Expeditionary Force," pp. 464, 465; WD, SGO, *Administration, AEF*, pp. 282, 283, 285; idem, *Training*, pp. 598, 1069; idem, *Field Operations*, p. 439; Rea P. McGee, "The Maxillofacial Surgeon in a Mobile Hospital," p. 118; S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 194; AEF GO no. 70, 6 May 1918; Wadhams and Tuttle, "Some of the Early Problems," p. 660; Bevans, "Function of Consulting Staffs," p. 480.





*General Motors-built truck retrofitted to carry X-ray equipment; (below) mobile delousing unit*





*Delousing clothes from the front line*

to provide 120 beds for the nontransportable wounded and to have on its staff a laboratory officer and two enlisted assistants, all especially trained in wound bacteriology and laboratory work. One mobile hospital was reportedly set aside for a period of time to treat only patients with head wounds. The mobile hospital had two trucks, which carried sterilizing and X-ray equipment, generators, operating room supplies sufficient for six operating teams, tents, and a mobile laundry (used in the battle against lice). It could work either independently or as part of another unit. But mobile hospitals proved to be less mobile than had been hoped for; their usefulness was limited by their need for especially designed trucks to carry their X-ray and surgical equipment. Few mobile laundries could be obtained, and tents and equipment designed for this type of use were not available.<sup>11</sup>

In the course of preparations for the upcoming assault on the Germans, gas defense received renewed emphasis. The First Army had its own gas consultant and established, as needed, its own gas hospital or gas hospitals, the first of which opened 29 August 1918, operated by base and evacuation hospital personnel on loan or by

<sup>11</sup> Wadhams and Tuttle, "Some of the Early Problems," p. 660; WD, *ARofSG*, 1919, pp. 1369–70; AEF GO no. 70, 6 May 1918; WD, SGO, *SGO*, pp. 355–56; idem, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, pp. 334–35; idem, *Administration, AEF*, pp. 187, 191, 284, 285, 835; idem, *Sanitation*, pp. 645, 648; McGee, "Maxillofacial Surgeon," p. 1118; Morris, "Overseas Division," p. 194. Morris states that only six mobile hospitals were organized and delivered overseas (see p. 195).



*Interior of field laboratory car, Central Medical Laboratory, Dijon*

casuals wherever they might be found. Orders were also issued requiring all medical officers who were to serve as division gas officers to complete a four-day course at the School of Pharmacy of the University of Paris before assignment. Actual instruction, however, apparently did not start until October.<sup>12</sup>

Supplementing the work of the various types of hospitals in the field were mobile surgical units, basically mobile hospital staffs without their equipment, and mobile laboratories. The former were authorized at the same time as mobile hospitals and were staffed by one officer and twelve noncommissioned officers and enlisted men. They were entirely designed to supplement the work of division, corps, and army hospitals and had no bed capacity; Surgeon General William C. Gorgas described them succinctly as “flying surgical teams.” Apparently only four of these units ever arrived in France. A mobile laboratory was also to be supplied to each army as well as to divisions, both

to check for disease and to test water supplies (85 percent of which were found to be unsafe in the summer of 1918). Implementation was delayed, however, to allow for some experience to be gained in the field to determine if such a unit was necessary. Until that point, the approach used by the British was adopted, and field laboratory cars were sent out from the Central Medical Laboratory at Dijon when laboratory studies were needed. By the time the conflict ended only five mobile laboratories had been sent overseas, each with a Medical Corps officer, a Sanitary Corps officer, a noncommissioned officer, and three enlisted men.<sup>13</sup>

As the Allies drove back the Germans in the summer and fall of 1918, the exact locations of these various units at any one time were unclear. Hospitals—be they evacuation, field, or mobile—tended to arrive in France without notification to the Chief Surgeon’s Office, AEF, and to open, close, or combine with others without the chief surgeon being made aware of the changes. Behind the problem was the same slowness of communications, partly engendered by the need to transmit

<sup>12</sup> WD, SGO, *Administration, AEF*, p. 383; idem, *Medical Aspects of Gas Warfare*, pp. 7, 44, 48; Charles E. Heller, *Chemical Warfare in World War I*, pp. 55, 82.

<sup>13</sup> Gorgas, *Inspection of Medical Services*, p. 19 (quoted words); WD, SGO, *SGO*, p. 356; idem, *Administration, AEF*, pp. 145, 181, 196, 207, 210, 285; idem, *Sanitation*, pp. 549, 790; Morris, “Overseas Division,” pp. 194–95; AEF GO no. 70, 6 May 1918; Wadhams and Tuttle, “Some of the Early Problems,” pp. 659–60; WD, *ARofSG*, 1919, p. 1600.



*Mules on the front line*

messages and reports in code. Consequently, the division surgeon functioned with considerable independence.<sup>14</sup>

As the medical supply system was organized in the summer of 1918, each army or corps had both its own supply park and its own mobile supply depot, while each division had a medical supply unit. The park's medical supply dump was for only combat equipment and supplies; attempts to carry a limited number of items for hospitals produced confusion and rendered the dump itself less mobile. Items for organizations at the front were filtered through large railway yards or regulating stations, which received railcars from the depots and sorted them out according to the division to receive them. Supplies for combat troops at the front were entirely in the hands of the armies involved and of their chief surgeons.<sup>15</sup>

The medical organization as outlined in the summer of 1918 provided, at least in theory, for the care of the animals that would take part in the offensive. The chief veterinary officer of the American Expeditionary Forces served under the chief surgeon, but an assistant to the chief veterinary officer served each separate army, to whom corps and division veterinarians and veterinary officers assigned

<sup>14</sup> WD, SGO, *Administration, AEF*, p. 235.

<sup>15</sup> WD, *ARofSG*, 1919, pp. 1441, 1495–96; WD, SGO, *Administration, AEF*, pp. 402, 403; idem, *Finance and Supply*, pp. 890–91.

to mobile organizations looked for professional guidance. At this point, however, disease was rampant among the AEF's animals, with more than 30 percent noneffective, and "the prospects seemed excellent for a complete breakdown of the veterinary service and the practical immobilization of animal organizations." Despite the existence of a veterinary system, when rail evacuation of animals was finally allowed, veterinarians were initially not permitted to supervise the process. Predicting veterinary needs was a difficult task, because increased reliance on motor transportation reduced reliance on animals.<sup>16</sup>

Plans for the medical organizations of the Second and Third Armies generally resembled those formulated for the First. When the Second Army was officially formed on 12 October 1918 to hold the line between the First Army on the left and the French Eighth Army, a laboratory car was placed in the office of the First Army surgeon to work under the sanitary inspector in his effort to deal with epidemic disease. Other plans for the Second Army included a requirement that it establish a sanitary school to train enlisted men and noncommissioned officers. The IV and VI Corps were assigned to the Second Army, along with four evacuation hospitals and two mobile hospitals detached from the First Army. The First and Second Armies each had a mobile veterinary hospital, and similar facilities were available for five of the corps, with others being prepared for three other corps. Veterinary hospital sections were created under the command of veterinary officers to receive sick and injured animals from the various divisions and to supervise their move by rail to the SOS's twenty-three veterinary hospitals, while the American Red Star Animal Relief was authorized to provide emergency aid and supplies. Although the Third Army was created on 7 November 1918 and placed under the temporary command of Maj. Gen. Joseph T. Dickman, its medical staff had not been set up by Armistice Day four days later.<sup>17</sup>

### *St. Mihiel Medical Support*

Planning for the reduction of the St. Mihiel salient, the first operation in which American units would operate free of French dominance, began in great secrecy. On 9 September 1918, only three days before the assault was actually launched, Surgeon General Gorgas noted while on an inspection tour in France that Assistant Surgeon General Merritte W. Ireland thought, rather than knew, that a new assault against the enemy was being planned. The extent of preparations was such, however, that while Ireland could have been in doubt about the date of a new offensive, he could hardly have had any question about the fact that one was imminent.<sup>18</sup>

<sup>16</sup> WD, SGO, *Administration, AEF*, p. 429 (quoted words); idem, *Finance and Supply*, p. 104; idem, *Field Operations*, p. 288.

<sup>17</sup> WD, SGO, *SGO*, pp. 557, 1180; idem, *Administration, AEF*, pp. 182, 435; idem, *Sanitation*, p. 553; idem, *Field Operations*, pp. 288, 843; Pershing, *My Experiences*, 2:335; A. N. Stark, "Medical Activities of the American Expeditionary Forces in the Zone of the Armies," p. 168; AEF GO no. 198, 7 Nov 1918.

<sup>18</sup> Pershing, *My Experiences*, 2:225, 266; "Trip to France," p. 4, Gorgas Family Papers, W. S. Hoole Special Collections Library, University of Alabama (UA), Tuscaloosa, Ala. Whether Ireland knew more than he was willing to say to Gorgas is an unanswered question. Ireland received the rank of major general and the position of assistant surgeon general on 23 August 1918.

U.S. forces participating in the new campaign were for the most part under the control of the American First Army. The I, IV, and V Corps, which included a French division, and the French II Colonial Corps, a total of fourteen divisions, five of which were French—as many as 600,000 men, although figures vary—all served under General Pershing's command. The general's staff coordinated planning for hospitalization and evacuation. With the difficulties experienced by the I and II Corps during the July offensive fresh in mind, the French and the Americans cooperated closely. The French provided hospitals to supplement those of the Americans and on 31 August agreed that Americans fighting as part of the French II Colonial Corps, which was entirely served by French hospitals, would be permitted to set up their own evacuation hospitals. They also agreed that their plans for American divisions serving with them would not again be shrouded in secrecy from their allies.<sup>19</sup>

Other problems as experienced in previous battles were also anticipated, and attempts were made to prevent them before they could reoccur. In doing so, AEF planners, usually officers from G-4-B in consultation with the First Army surgeon, resorted to such "dangerous expedients" as scavenging vehicles of every possible type from every possible source, including sections of the U.S. Army Ambulance Service, to supplement the chronically inadequate supply of ambulances; using field hospitals as evacuation hospitals; and, to prevent the acute shortage of personnel that had hampered earlier operations, assigning nonmedical personnel to positions usually held by medical personnel and shifting men from divisions still in training. Authority was received to assign to sanitary trains 1,200 men who were serving in an orthopedic battalion because of their flat feet. Cars and buses were obtained from every possible source, but, even so, the First Army lacked 750 vehicles of the number it should in theory have had, a shortage that was manifest particularly at the division and corps levels. Attempts were made to avoid the crowding on roads serving the battlefield that had delayed evacuation in previous engagements; each division knew a week or more before the offensive was launched what evacuation routes it would use, where its hospitals and its triage would be located, what types of patients it was likely to have, and how they should be apportioned among the available hospitals. Plans for caring for the wounded near the front also included trying a scheme tested earlier along the Marne, that of moving one field hospital in each division near the front and using it for triage, thereby eliminating the need for dressing stations and stations for the slightly wounded.<sup>20</sup>

Hospitalization and evacuation plans were based on the assumption that 33,000 casualties would occur among approximately 490,000 men. To help evacuate the

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<sup>19</sup> Coffman, *War To End All Wars*, pp. 273–74; WD, SGO, *Field Operations*, pp. 376–77, 452, 454; Pershing, *My Experiences*, 2:212, 262; Stark, "Medical Activities," p. 162. Statistics concerning this campaign often disagree. Figures concerning the number to take part, including both French and Americans, vary between 490,000 and 666,000. See, for example, Ashburn, *History of MD*, pp. 337–38; WD, SGO, *Field Operations*, p. 452; and Pershing, *My Experiences*, 2:254–56.

<sup>20</sup> WD, *ARofSG*, 1919, pp. 1445–46, 1515, 1516; WD, SGO, *Administration, AEF*, p. 64; idem, *Finance and Supply*, p. 400; idem, *Field Operations*, pp. 233, 453 (quoted words), 461–63, 469–73, 487–89; idem, *Training*, pp. 1152–53; "Trip to France," pp. 4–6, Gorgas Papers, UA; Pershing, *My Experiences*, 2:285; Stark, "Medical Activities," pp. 164, 166; Diary, p. 39, Ms C14, Jefferson Randolph Kean Papers, NLM.

disabled, the French agreed to provide forty-five ten-car hospital trains and the Americans seventeen. The trains were to come as close as possible to the front, and railroad traffic was to be directed through a new regulating office set up at St. Dizier, the station at Is-sur-Tille being too "congested" to handle the needs of the St. Mihiel campaign in addition to those of SOS units and two French armies south of Nancy. Plans were laid for a "preoperative train," regarded as a "necessary and valuable part of the medical care of the wounded," for patients who could without harm endure being moved before undergoing the surgery they needed; the senior consultant in surgery provided the First Army surgeon with a list of the types of cases that could be handled safely in this way. A circular was also issued ordering that antitetanus serum be administered prophylactically both immediately after a soldier was wounded, regardless of how slight the injury was, and after secondary operations or such procedures as removing drains that adhered to tissue.<sup>21</sup>

With the aid of the trains, hospitals in the Chateau-Thierry area, including field hospitals, were cleared of patients by 4 August 1918. Additional facilities, including a barrack and both evacuation and base hospitals, were taken over from the French, who assisted in preparing them to meet the needs of the new campaign. By late August a complex and far-reaching network of facilities awaited Americans who were injured or fell ill in the operation to come. In the Toul sector six evacuation hospitals and a corps field hospital serving as an evacuation hospital, an army-level field hospital, two more corps-level field hospitals, three mobile hospitals, a gas hospital, two base hospitals, an American Red Cross hospital, the second of the neurological hospitals to serve the First Army, and a unit to care for those with communicable diseases awaited the wounded of the I and IV Corps. In the Verdun sector four evacuation hospitals, two mobile hospitals, a gas hospital, a neurological unit run by a base hospital team, a French-controlled facility for contagious diseases, and emergency beds provided by a French general hospital had been prepared for casualties from the V Corps. Medical supply was handled separately for the two sectors, with medical supply parks being set up at Toul and at Souilly. Three officers, two Americans at Toul and Souilly and a French officer with the French II Colonial Corps at Brizeaux, were named to coordinate hospitalization and evacuation, while the AEF chief surgeon coordinated all activities, including supply. From his headquarters at Neufchateau he maintained telephone contact with four medical officers handling evacuation along the Toul sector and with two more in the Verdun sector. The French, attacking the point of the St. Mihiel salient, handled their own casualties.<sup>22</sup>

Ireland may have had an overly optimistic view of his preparations for the coming offensive. On 4 September he stated that a total of 100,000 hospital beds were available for the casualties of the planned offensive, but Percy M. Ashburn in

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<sup>21</sup> WD, SGO, *Field Operations*, pp. 451 (quoted word), 452; idem, *Administration, AEF*, pp. 363, 969-70; Cutler, "Organization of an Evacuation Hospital," p. 10 (quoted words); WD, *ARofSG*, 1919, pp. 1499, 1514; Stark, "Medical Activities," pp. 161-62, 166. Pershing stated that the hospital trains standing by numbered 65 and that 5,900 beds awaited patients in the western sector. See Pershing, *My Experiences*, 2:260n.

<sup>22</sup> WD, SGO, *Field Operations*, pp. 404, 451, 453-54, 467; idem, *Neuropsychiatry*, pp. 327, 343; Pershing, *My Experiences*, 2:262; Stark, "Medical Activities," pp. 161, 162; WD, *ARofSG*, 1919, pp. 1514, 1516.

his history of the Medical Department maintained that the figure was only 60,000 and that even by 25 September it was no higher than 80,000. By 6 September the I and IV Corps surgeons had formulated the required detailed outlines of the evacuation routes and the locations of hospitals and triages and listed the types of patients each field hospital was to take (*see Map 7*). But even though base hospitals in the rest of France had been stripped of nurses and enlisted men and both base hospitals and units in training of surgeons, thousands more medical personnel were needed; the entire American Expeditionary Forces was short 60,000 at this point. The shortage of ambulances also threatened the effectiveness of such careful planning; only 50 percent of the authorized number of ambulances had arrived in France. While the I Corps had its own sanitary train with three motor ambulance companies, to which another seven ambulances were provided from among those allotted to the First Army, the V Corps surgeon had neither transportation nor, except for a single U.S. Army Ambulance Service section, a corps sanitary train. Nevertheless, by 10 September, the hospitals and ambulance companies of the First Army were as ready as they could be, under the circumstances, for the new offensive.<sup>23</sup>

Cooperation between the French and the Americans had not compromised the secrecy of the planning, and when the attack was finally launched in a heavy fog on 12 September 1918, the Germans, who were in the process of withdrawing, were totally surprised. The Allied advance thereafter was extremely rapid, the period of active conflict brief, and casualties few. Except for the need to free field hospitals to take more patients should they come in, evacuation hospitals were not moved forward. Including French wounded and gassed, the total injured, according to the First Army surgeon, was less than 5,000, most of whom were found on the Toul front—3,446 wounded and 532 gassed. Only 158 were reported to have died from their wounds. The St. Mihiel effort was, in the words of French Marshal Ferdinand Foch, “a splendid success, and I hastened to send my congratulations to General Pershing.”<sup>24</sup>

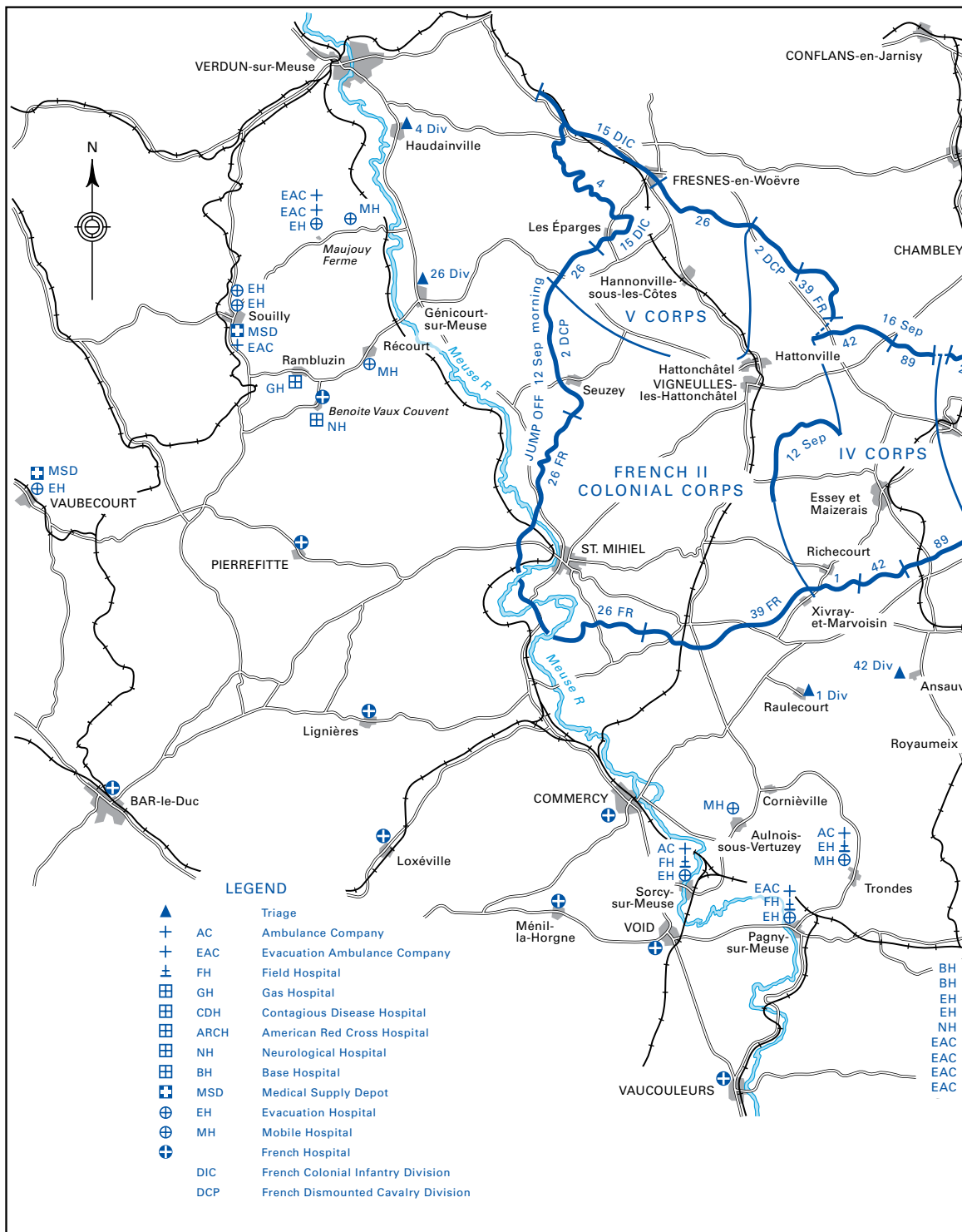
The very success of the offensive directly or indirectly produced a variety of difficulties for those responsible for the care and evacuation of American wounded. Although having to evacuate their charges over relatively short distances, ambulance drivers found their way blocked by trenches and barbed wire that the troops had overrun as they pursued the enemy, and mud further slowed their progress. In the 5th Division, I Corps, enlisted litterbearers taken from line units abandoned their litters on 11 September as they marched to join the fray. The increased need for litterbearers that resulted from these problems became so great that German prisoners of war were pressed into service. With transportation so difficult, litterbearers were also used to carry supplies back when they left off their casualties. Fortunately, poison gas was not among their problems; the area in which the 5th Division operated was too large and the weather too cool for gas to be a successful weapon, and, in addition, the troops were by this time familiar enough with gas warfare not to be terrified by it. Both supply and evacuation problems

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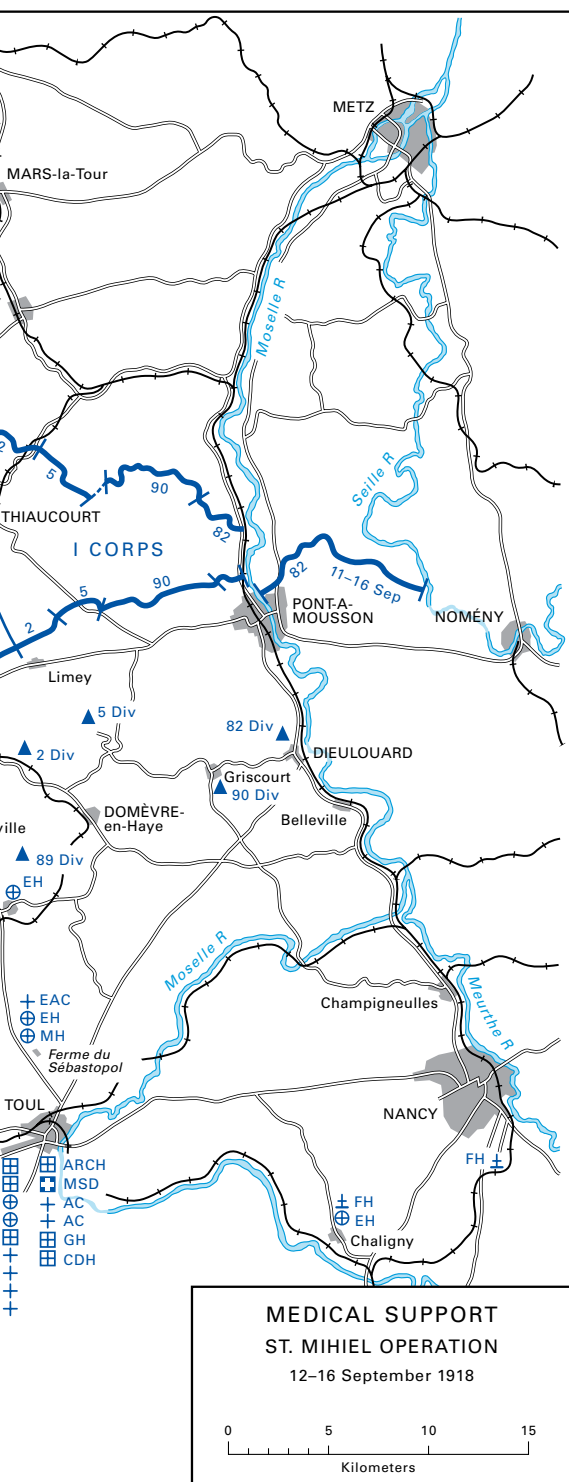
<sup>23</sup> WD, SGO, *Field Operations*, pp. 233, 461–63, 467, 469–73, 487–89, 501; Pershing, *My Experiences*, 2:256; Ashburn, *History of MD*, p. 337; Stark, “Medical Activities,” pp. 162, 165.

<sup>24</sup> Ferdinand Foch, *The Memoirs of Marshal Foch*, p. 402 (quoted words); Stark, “Medical Activities,” pp. 162–64; WD, *ARofSG*, 1919, pp. 1514, 1515; WD, SGO, *Field Operations*, p. 452.





MAP 7



were eventually eased with the finding of German maps that made it possible both to identify better roads for the ambulances to take and to locate German hospitals from which supplies could be retrieved. Despite the difficulties, kitchens were ready at all dressing stations and field hospitals where soldiers, even if not wounded, could get hot food—Army rations supplemented by less Spartan treats from the Young Men's Christian Association. At the height of the offensive these kitchens were open around the clock, and after a good meal some soldiers who had reported for medical care returned to the front.<sup>25</sup>

Other divisions encountered difficulties like those that confronted the 5th. The roads encountered by the 90th Division, I Corps, were in such poor condition, and the men moved forward so swiftly that medical carts drawn by a single animal could not keep up. If two animals were not available to pull them, as often happened, these vehicles were left behind and supplies either went forward to aid stations on the backs of enlisted men or were abandoned by the side of the road to be retrieved later by a supply officer. Barbed wire and barricades blocked roads to the rear for several days and although routes were finally opened, one had to be abandoned because it could be observed from balloons and thus was subject to direct shell fire. Ambulances were in such short supply that touring cars and trucks had to be brought in to evacuate casualties from the triage. Congested roads interfered with the progress of the ambulances of the 89th Division, IV Corps, forcing medical personnel to set up a dressing station to serve as a hospital. The 26th Division, V Corps, was, like other divisions, short of medical personnel, both commissioned

<sup>25</sup> WD, SGO, *Field Operations*, pp. 463, 473, 474, 476.



*Young Men's Christian Association hut at St. Nazaire*

and enlisted. When the no man's land that had separated Allied and German lines, now overrun by American troops, made the use of ambulances impossible, twelve litterbearers detailed from each line company had to be utilized to carry casualties to battalion aid stations.<sup>26</sup>

Varying approaches were devised to deal with delays caused by roads rendered impassable or nearly so by barbed wire, barricades, shell holes, and mud. The 26th Division conquered this problem by creating an engineer squad in each ambulance company to make road repairs rather than waiting for the arrival of members of the Corps of Engineers. In those instances both in the St. Mihiel campaign and later, where roads were impassable to motor vehicles, divisions also sometimes found that horse- or mule-drawn ambulances could get through, but the animals were often in such poor condition that they were soon exhausted and unable to continue. All along the way, however, large amounts of supplies abandoned by the enemy in his flight proved most welcome.<sup>27</sup>

During the offensive considerable reliance was placed on specialized hospitals, especially the field hospitals set aside for the use of the victims of poison gas at the division level. These facilities were often used to shelter those who could not be promptly returned to the front but who were also in no condition for immediate transport to the gas hospitals established for corps or for the army, probably because of the particular danger of movement to the victims of phosgene. Ambulances transporting those in this category were ordered to move slowly.

<sup>26</sup> *Ibid.*, pp. 467, 468, 469, 473, 490, 500–501, 571; WD, *ARofSG*, 1919, p. 1671.

<sup>27</sup> WD, SGO, *Administration, AEF*, p. 836; *idem*, *Field Operations*, pp. 452–53, 467, 468, 473, 475, 478, 490, 500–501, 502, 503, 571, 684–85, 766; WD, *ARofSG*, 1919, p. 1671.



*Litterbearers in action*

Space permitting, division gas hospitals also held for observation those whose exposure to poison gas had been either slight or was suspected of having been nonexistent. The personnel for the two gas facilities set up at the army level for the St. Mihiel offensive—one at Toul and the other as part of a French gas hospital at Rambluzin—were often casualties (men who had not been assigned to a unit) or those loaned from a variety of sources (from ambulance companies to division gas hospitals). At least one officer regularly assigned to each gas facility was familiar with caring for gas victims, and a consultant in gas poisoning supervised the care given. The real strength of gas as a weapon came from the fact that so many people and so much time and equipment were required to care for its victims; experience demonstrated that on the whole, those who survived thirty-six hours were likely to recover.<sup>28</sup>

Hospitals for the victims of psychoneurosis, principally those with what became known as shell shock, were also established at both the corps and army levels. The senior consultant in neuropsychiatry had concluded, however, that at least 65 percent of the shell-shock patients from previous battles, who had formed 10 percent of the casualties, could have been returned to combat within ten days if their care had been rendered at division hospitals. As a result, an attempt was made during the St. Mihiel campaign to assign psychiatrists both to divisional triages and to division-level hospitals; at least one expert even urged having a specialist at each aid station. Many psychiatrists at field hospitals apparently refused to help other units, however, a problem that was solved in September

<sup>28</sup> WD, SGO, *Administration, AEF*, p. 383; idem, *Field Operations*, pp. 456, 479, 501; idem, *Gas Warfare*, pp. 80, 266; H. L. Gilchrist, "Chemical Warfare and Its Medical Significance," pp. 484, 487.

1918 by officially assigning them as assistants to division surgeons. Using this approach, 79 percent of the shell-shock patients were able to return to combat within three days. Those who could not be returned to duty promptly were evacuated from field hospitals to corps hospitals or to one of the two army-level neuropsychiatric hospitals, specifically used for patients who could presumably be restored to action within two to three weeks. With morale high, shell shock never became a significant problem in the St. Mihiel offensive. Nevertheless, it was regarded, as it was throughout the war, as “a reflection on the man’s mental ability,” and attempts were made to segregate the victims of this problem from those with other disabilities.<sup>29</sup>

Neurosurgical teams were also present at many facilities, even far forward, yet many of the wounded with head injuries were operated upon by general surgeons, often with disastrous results. On occasion, members of neurosurgical teams had already been assigned to general surgery when the victims of head injuries came in. In some instances, too, more than one neurosurgical team was required to screen cases and to guarantee that those in need of their services would not be turned over to the general surgeons. Whether in spite of or because of these difficulties, half of these cases failed to survive to reach base hospitals.<sup>30</sup>

The burden facing field hospitals during the St. Mihiel offensive was increased by the influenza epidemic, whose effects were already beginning to be felt at the front; the need to minimize the distances over which victims were moved and to limit their exposure to other men complicated evacuation. Because of the need to care for a multitude of patients as rapidly as possible, records could not be carefully kept at this point. Nevertheless, in his annual report for 1919, Surgeon General Ireland was able to boast that Evacuation Hospital No. 3 with its twelve operating tables, its 1,000 beds, and its surgical staff supplemented as needed “functioned like clockwork.” It handled 1,111 American wounded and 76 seriously wounded prisoners of war in a period of four days and nights. Patients were evacuated once or twice a day to keep beds free, with only a few being kept more than three days after surgery. The fact remained, however, that, no matter how effectively the available men and machines worked during the St. Mihiel offensive, had the number of casualties approached those anticipated, shortages of personnel, ambulances, hospital equipment, and hospital trains would have brought the medical service to the brink of catastrophe.<sup>31</sup>

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<sup>29</sup> WD, *ARofSG*, 1919, pp. 1515, 1516, 1657 (quoted words); WD, SGO, *Administration, AEF*, pp. 379–80, 945; idem, *Training*, pp. 1164, 1165; idem, *Field Operations*, pp. 456–57, 519, 633n; idem, *Neuropsychiatry*, pp. 274, 325–26, 343; Stark, “Medical Activities,” p. 64; K. M. Bowman, “Report of the Examination of the Regiment, U.S.A., for Nervous and Mental Disease,” p. 651; L. C. Frost, “Treatment in Relation to the Mechanism of Shell Shock,” p. 360; Frank Garm Norbury, “The Relation of Defective Mental and Nervous States to Military Efficiency,” p. 33.

<sup>30</sup> WD, SGO, *Administration, AEF*, p. 364; Bevens, “Function of Consulting Staffs,” p. 480.

<sup>31</sup> Diary, p. 40, Ms C14, Kean Papers, NLM; Warfield T. Longcope, “Survey of the Epidemic of Influenza in the American Expeditionary Forces,” p. 190; Alfred W. Crosby, *America’s Forgotten Pandemic*, pp. 156, 161, 162; Hugh Young, *Hugh Young*, p. 378; WD, *ARofSG*, 1919, pp. 1677, 1683 (quoted words); Stark, “Medical Activities,” p. 165. Ireland served as surgeon general from 4 October 1918 to 31 May 1931.

*Meuse-Argonne Medical Support*

Although the St. Mihiel offensive had provided greater insight into ways in which future problems with evacuation and hospitalization could be handled, hard fighting and high casualties, especially when complicated by a rapid advance, still threatened disaster for the Medical Department. The influenza epidemic and the pneumonia with a 32- to 50-percent fatality rate that came with it added to the burdens of division hospitals. The effort planned for the fall of 1918, which became known as the Meuse-Argonne offensive, was carefully designed, both by the American Expeditionary Forces as a whole and by the Medical Department, but no way was found to eliminate shortages of personnel and equipment, which remained to frustrate plans and thus to place a premium on flexibility.<sup>32</sup>

The new campaign called for Allied attacks on a broad front, from the English Channel to the Vosges mountain range. The divisions assigned to the I, III, and V Corps of the American First Army served on an east-west line, roughly from the Argonne Forest area east to the Meuse River. The French Fourth Army, which included two American divisions, was on the left, and the French XVII Corps, which included another two American divisions, serving as part of the First Army, was on the right, on the east side of the river. The ultimate goal was cutting the rail line between Mezieres and Sedan, thereby forcing the Germans to retreat from the area north of that point to the North Sea. Pershing intended to maintain twenty-five divisions in the Meuse-Argonne sector, using two or three for each of the three corps with another in reserve and rotating the divisions that faced the Germans so as to constantly confront them with fresh troops. Once the American Second Army was formed, he moved additional divisions in from it as needed. A British-French-Belgian force, aided by two American divisions as part of the French command, attacked the Germans from Flanders, and a British force, including two American divisions, struck in the area of the Somme River.<sup>33</sup>

In preparing for the coming offensive, the AEF medical service again worked under all the handicaps posed by a need to keep plans absolutely secret. As German Chief of Staff General Erich Ludendorff wrote in 1922, "More than the French, the Americans thought the success to be dependent on surprise. Their success, which was so much bigger than that of the French, justified their view." Without making the reason for such preparations obvious, the department cleared the hospitals established for the St. Mihiel drive of all their sick. In addition, railheads, evacuation hospitals, and supply depots for the troops being concentrated were set up two weeks before the offensive was to be launched. Each facility was required to ready itself to provide detailed reports from which the Chief Surgeon's Office could keep informed about the quality of care being provided; excessive numbers

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<sup>32</sup> WD, SGO, *Administration, AEF*, p. 450; idem, *Field Operations*, p. 453; idem, *Sanitation*, p. 1109; Stark, "Medical Activities," pp. 165, 166; Crosby, *Forgotten Pandemic*, pp. 8-9; WD, *ARofSG*, 1919, p. 1699; Diary, p. 41, Ms C14, Kean Papers, NLM; Samuel Bradbury, "The Recurrence of Influenza in a Regiment," p. 471; Longcope, "Survey," p. 191.

<sup>33</sup> Stark, "Medical Activities," pp. 165, 169, 173; WD, SGO, *Field Operations*, pp. 635, 737, 801, 863; WD, *ARofSG*, 1919, pp. 1477, 1516, 1519; Report of 4th Section, General Staff, First Army, Argonne-Meuse Operation, p. 11, file 100-13, Army War College (AWC) Curricular Archives, U.S. Army Military History Institute (MHI), Carlisle, Pa.



*79th Division aid station in the Bois de Consenvoye*

of amputations or high rates of gas gangrene would suggest improper care somewhere along the line of evacuation.<sup>34</sup>

Some of the difficulties that would be encountered during the offensive were predictable from the outset. Planners took advantage of French offers to loan the Americans some of their facilities. Nevertheless, by 26 September only 18,000 beds awaited casualties. No one had the illusion that this number was adequate, but it represented all the resources the office could muster. In addition, not all of these facilities could be ideally located; Evacuation Hospital No. 11, for example, while on the edge of the Argonne Forest near the front, was not near a rail line, and patients ready to be evacuated to a base hospital had first to be moved to a facility where they could be loaded on a train. Finally, the number of ambulances believed necessary to handle evacuation for a force of the size that was engaged in

<sup>34</sup> Charles F. Horne and Walter F. Austin, eds., *Source Records of the Great War*, 6:356 (quotation). General Ludendorff also noted admiringly that “full justice must be done to the skillful and far-sighted way—very much like the way the Germans acted before the beginning of their offensive in spring—in which the Americans hid the extensive preparations for their intended attack between the Meuse and the Argonne, though they were obliged to put off the time of the beginning by several days” (*ibid.*, 6:355). See also WD, SGO, *Field Operations*, pp. 545, 613, 614; Report of 4th Section, General Staff, First Army, Argonne-Meuse Operation, p. 1, file 100–13, AWC Curricular Archives, MHI.

the Meuse-Argonne offensive could not be found, in spite of the fact that, in recognition of the desperate need, the Chief Surgeon's Office had arranged for the return of U.S. Army Ambulance Service car sections from the Italians and had obtained additional sanitary sections and buses from the French. These vehicles were divided according to the areas they were to evacuate. Despite these efforts, the total number of ambulances available fell 750 short of the number that tables of organization required.<sup>35</sup>

AEF planners scrutinized the entire chain of evacuation, from the line of battle to evacuation hospitals and special facilities, searching for ways to improve the approach used in the St. Mihiel offensive. To make the process more orderly, they created the position of evacuation officer and attached it to the First Army's G-4 office. The evacuation officer, working with his assistants, had to keep abreast of all casualty reports and the number of free beds in each hospital, as well as to regulate the flow of casualties into evacuation and mobile hospitals. Appropriate highways to be used for evacuation were also laid out in advance and plans formulated for controlling their use. When needed, officers who were familiar with the location of available beds were stationed at strategic points to direct ambulances to the appropriate hospitals, thirty of which were serving the First Army area when the Meuse-Argonne campaign started.<sup>36</sup>

During the battle that followed, which became known as "the greatest, most prolonged in American history," circumstances inevitably continued to dictate changes in plans and approaches as medical officers, significantly too few in number from the outset, attempted to meet the demands of a brutal campaign while handicapped by inadequate transportation. Some problems experienced earlier had by this point been resolved; for example, possible gas victims were no longer moved back to evacuation hospitals before their diagnoses could be confirmed. Many, however, continued essentially unabated, either because the situation that caused them had not changed or because in the confusion of battle, they, like the need for promptly administering antitetanus serum, continued to be easily overlooked.<sup>37</sup>

Because, despite all efforts, the shortage of ambulances and trained personnel to handle them continued and because the new offensive produced a high number of wounded, evacuating casualties remained one of the most difficult challenges. Evacuation ambulance companies, intended for moving casualties from field hospitals to facilities farther from the front, as well as fifteen sections of the U.S. Army Ambulance Service returned by the Allied armies, often had to be brought in to help remove patients from dressing stations to field hospitals. Because only seventy evacuation ambulance companies had arrived in France before the end of the war and because the Ambulance Service sections still in the United States that were called for in the fall of 1917 were not actually ready for

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<sup>35</sup> WD, *ARofSG*, 1919, pp. 1516, 1517, 1709; Stark, "Medical Activities," p. 166; Ashburn, *History of MD*, p. 342; WD, SGO, *Administration, AEF*, p. 348; idem, *Field Operations*, pp. 533, 538, 540. The account here is somewhat confusing, largely to the occasional use of the term *car* when *ambulance* is clearly meant.

<sup>36</sup> WD, SGO, *Field Operations*, pp. 532, 542-43; idem, *Training*, p. 1079.

<sup>37</sup> Pershing, *My Experiences*, 2:294 (quoted words); WD, *ARofSG*, 1919, pp. 1290-91; WD, SGO, *Field Operations*, p. 839.





*Loading casualties on ambulances at the Vichy railroad station*

shipment until the end of October 1918, this approach did not suffice to meet the need for ambulances.<sup>38</sup>

Great emphasis had to be placed on flexibility to make the best use of resources; when additional units were available, they were often loaned to the First Army at either the army or corps level so that they could be quickly moved about to meet emergency needs. Ammunition and ration trucks returning from the front often had to be used to move men who were only slightly wounded. To further speed evacuation, the First Army surgeon finally took the additional step of having guards placed on roads leading to hospitals to direct patients to hospitals with vacant beds so that they were more evenly distributed. Still unavoidable, however, were delays in evacuation resulting from the higher priority given to ammunition and troops moving toward the front at times when roads were few and heavily damaged. Taking everything into consideration, the AEF inspector general was able to conclude that evacuation from the battlefield was, “on the whole, prompt.”<sup>39</sup>

Although the inspector general apparently believed that evacuation within the First Army was handled as well as it could have been under the circumstances, he obviously concluded that surgery could have been better managed. Evacuation

<sup>38</sup> WD, SGO, *Administration, AEF*, pp. 345–46; idem, *Field Operations*, p. 838; WD, *ARofSG*, 1919, p. 1414.

<sup>39</sup> WD, SGO, *Field Operations*, pp. 532, 837 (quoted words), 839; Ashburn, *History of MD*, p. 342; *Evacuation Hospital 6*, p. 16. The AEF inspector general took notes concerning what he saw during both the St. Mihiel and Meuse-Argonne offensives, from which he prepared a report that he submitted to General Pershing on 11 December 1918. His report is largely a generalized one, although in some instances specific dates are noted.

hospitals, where the personnel and equipment for conducting surgical operations were generally much superior to those available at field hospitals, had become the locus of most surgery, the hope being that the use of field hospitals could be limited to dealing with shock, hemorrhage, and emergency abdominal and chest surgery. When the Meuse-Argonne offensive started, field hospitals were only a slight distance forward of evacuation hospitals. In at least one division, when transportation permitted it, all field hospitals worked as triages or collecting stations and all patients were sent directly to the appropriate evacuation hospitals. In some of the other divisions, however, evacuation was delayed so that surgery could take place in field hospitals.<sup>40</sup>

Evacuation hospitals, like the field hospitals, suffered as a result of transportation shortages. Many facilities had too few trucks to enable them to move forward promptly in the wake of the troops, although all available sources of vehicles had been tapped. A hospital so large was not really mobile, although, with sufficient transportation, it was obviously movable. Ireland noted that the hospital itself was not mobile, but rather the patients who were constantly being evacuated. By using preoperative trains, an evacuation hospital could restrict surgery to those in bad condition or whose wounds were more than thirty-six hours old, moving all others. Unfortunately, however, those moved back from the evacuation hospitals included patients with mild illnesses or slight wounds who could have been quickly restored to front-line duties. As the distances from field to evacuation hospitals lengthened, moreover, ambulance turnaround times became longer, which exacerbated the effect of ambulance shortages; one officer patient en route to an evacuation hospital only 15 miles away spent thirty-six hours in an ambulance. Not until late in the offensive was a mechanism developed by means of which men in good condition could be returned directly to their units from evacuation hospitals.<sup>41</sup>

Despite the need for the evacuation hospital to serve as a backup for the field hospital, the number called for by doctrine—two per division—was never achieved because of the low priority given to shipping the organic equipment from the United States. Furthermore, some of the evacuation hospitals that did arrive in France were actually broken up, with their personnel being assigned to augment the staffs of those already established; shortages of medical officers, nurses, and medical enlisted men continued to afflict some evacuation hospitals throughout the Meuse-Argonne offensive. Evacuation from these hospitals received considerable emphasis. To minimize the chances of overcrowding, they were required to submit frequent reports detailing not only the rate at which patients were leaving but also the rate at which they arrived.<sup>42</sup>

Under such adverse circumstances, evacuation hospital staffs were often forced to work long hard hours and to exercise considerable ingenuity to provide the best

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<sup>40</sup> Bailey K. Ashford, "A Lecture on Field Hospitals." p. 560; Osgood, "Medical Work," p. 371; WD, SGO, *Field Operations*, pp. 545, 624.

<sup>41</sup> WD, SGO, *Field Operations*, pp. 535, 840, 841; Stark, "Medical Activities," p. 171; WD, *ARofSG*, 1919, pp. 1521, 1678, 1684, 1693, 1696; Ashburn, *History of MD*, p. 342.

<sup>42</sup> Ashburn, *History of MD*, pp. 342–43; WD, *ARofSG*, 1919, pp. 1368, 1710; WD, SGO, *Field Operations*, pp. 538, 635, 822, 828–31, 840.

possible care for their patients. At times the surgeons were required to conduct their vital work under enormous pressure, handling as many as fifteen cases in the course of a twelve- to eighteen-hour day. Those who were prominent in their fields in private life and who were likely to be older men found the “rigorous discipline,” the lack of importance of the individual surgeon, and the severe physical demands placed upon the entire staff difficult to endure. As a result, “the use of young and vigorous personnel” received considerable emphasis in selecting staff for this type of facility.<sup>43</sup>

Evacuation hospitals that used facilities formerly occupied by the French were often located near “large military centers right at or near the main depot and railroad loading platforms for military supplies”. When, however, like Evacuation Hospital No. 11, they were not located directly on a rail line, removal of patients to locations where they could be loaded onto trains became a complicated process, involving rough ambulance rides through deep mud and around shell craters. To deal with this type of problem, Evacuation Hospital No. 6 was finally dubbed an evacuating area; three other evacuation hospitals, two mobile hospitals, a gas hospital, a neurological hospital, and a hospital for contagious patients all sent patients by ambulance to No. 6 to await transportation by train (*Map 8*).<sup>44</sup>

The AEF medical service eventually turned also to grouping and generalizing facilities to receive casualties in any category, thus expediting evacuation by simplifying the route that had to be taken by ambulances carrying patients with different types of wounds. Even evacuation hospitals tended to specialize in either surgical or medical patients and to have annexes devoted to gas, neurological, contagious, or similar types of cases. Six base hospitals of Toul’s so-called Justice Group, initially established for the wounded and gassed of the St. Mihiel offensive, were used as evacuation hospitals during the Meuse-Argonne offensive under the control of the First Army and then the Second Army. The effect of grouping hospitals and more closely monitoring evacuation to them produced a reduction in “confusion, delays, and waste of transportation.”<sup>45</sup>

Many of the evacuation hospitals in service were, however, scattered about the countryside, handling American troops serving as part of French corps or armies. When they, too, restricted the patients they took to certain specific types, ambulance drivers faced a difficult and confusing situation in their attempts to deliver their passengers to an appropriate facility. The problem was eventually met by sending teams of surgeons trained in the various specialties to each forward evacuation hospital as well as to each mobile hospital.<sup>46</sup>

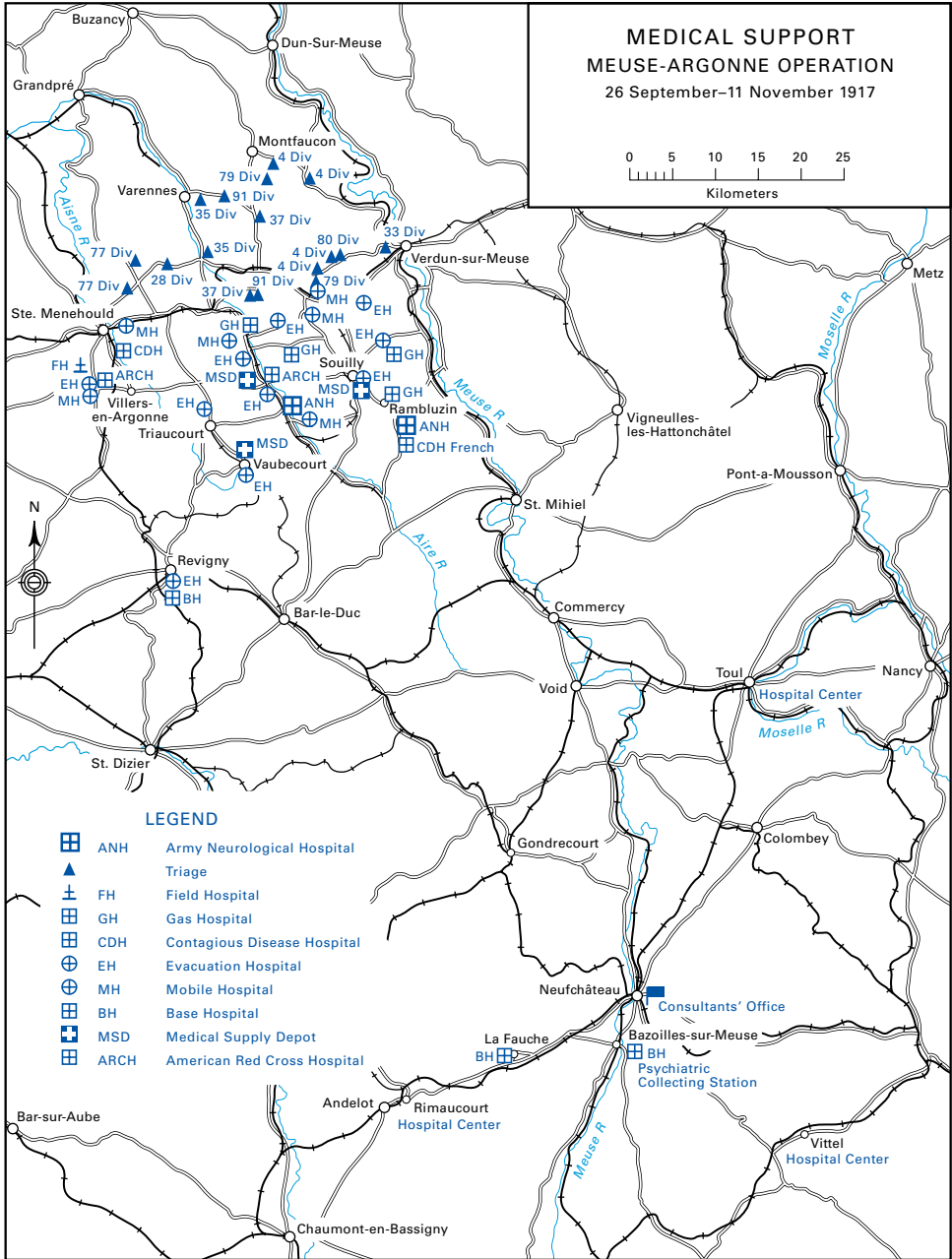
Even mobile hospitals proved not to be very mobile under the circumstances that prevailed in many areas during the Meuse-Argonne offensive.

<sup>43</sup> WD, SGO, *Field Operations*, pp. 821–22; Cutler, “Organization of an Evacuation Hospital,” pp. 11, 14–15 (quoted words), 32.

<sup>44</sup> WD, SGO, *Training*, p. 1034 (quoted words); idem, *Field Operations*, pp. 816, 827; WD, *ARofSG*, 1919, p. 1696.

<sup>45</sup> WD, SGO, *Field Operations*, pp. 635, 833–35 (quoted words), 836, 891; idem, *Administration, AEF*, pp. 189, 614; idem, *Gas Warfare*, p. 49; WD, *ARofSG*, 1919, p. 1467.

<sup>46</sup> Stark, “Medical Activities,” pp. 168, 173; WD, SGO, *Administration, AEF*, p. 189; idem, *Field Operations*, p. 539; Bevans, “Function of Consulting Staffs,” p. 480; WD, *ARofSG*, 1919, p. 1467.



MAP 8

Because the purpose of creating these facilities was to bring care for non-transportable patients close to the front and thus to relieve some of the load of divisional field hospitals, they had to be able to follow the troops closely to function as intended. To make this possible during the last ten days of the war, the surgical and X-ray trucks of the various mobile hospitals were reassigned to field hospitals.<sup>47</sup>

The attention of hospitals and physicians focused principally on those who were disabled during or as a result of battle, all the more so because casualties were much higher than had been expected; with influenza rates rising, however, disease continued to add to the number of men who were for at least a time unable to fight. Figures differ, but hospitals during the course of the final offensive received almost 69,000 medical cases, roughly 70,000 wounded, 2,000 shell-shock victims (almost 60 percent of whom were returned to duty within three days), and 19,000–24,000 gas casualties. Many of the sick were laid low by influenza, cases of which first appeared in significant numbers just before the offensive was launched, at a time when military necessity precluded extensive use of such customary preventive measures as isolating and masking the sick. For a time in October a serious threat to military operations seemed possible through the reduction in the number of medical personnel available to care for and evacuate the victims. Special hospitals at the corps level and the division level were established to care for flu patients, who often arrived at hospitals in already desperate condition. Morbidity and mortality rates from influenza proved to be much lower in troops at the front than among those serving at SOS bases, however, a situation credited in part to the fact that the men to a large extent lived outdoors.<sup>48</sup>

Because adequate sanitation was not always possible, diseases associated with polluted food and water and inadequate personal hygiene also developed. With units continually on the move, sanitation of necessity went from bad to worse during the campaign. Delousing efforts, including bathing and reclothing entire divisions on the front line, though tedious and time-consuming, helped prevent serious outbreaks of lice-borne disease among the troops. Outbreaks of diarrhea-like illnesses, however, while they were not on the whole a hazard to life, threatened the effectiveness of afflicted troops. Men who had no source of good water drank whatever they could find; often they did not have the means of purifying it. The greater availability of means of chlorinating water late in the campaign was followed by a decline in the incidence of this type of illness. A few cases of typhoid fever appeared in spite of the requirement that all soldiers be immunized, but in some instances these minor outbreaks could be traced back to the United States. Diphtheria was no longer a threat to combat divisions

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<sup>47</sup> WD, SGO, *Field Operations*, pp. 554, 735.

<sup>48</sup> Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, p. 90; WD, SGO, *Administration, AEF*, p. 310; idem, *Field Operations*, pp. 541, 634–35, 760, 774–75, 809; Stark, "Medical Activities," pp. 169, 172; WD, *ARofSG*, 1919, pp. 1311, 1521, 1705; *United States Army in the World War*, 15:372, where Col. Haven Emerson, MC, reporting for the AEF chief surgeon on 28 February 1919, noted that "disease caused from 60% to 90% of the noneffectiveness in the A. E. F." According to Jack Fincher, "America's Deadly Rendezvous with the 'Spanish Lady,'" p. 139, censorship concealed the severity of the situation at this time from the public.

because suspicious cases were evacuated without waiting for the diagnosis to be confirmed.<sup>49</sup>

Because American troops spent relatively little time in the trenches during the cold and wet season of the year, trench foot—defined as “a preventable form of damage to the skin, underlying soft parts, and the blood vessels of the feet and legs owing to prolonged exposure to cold and wet”—did not prove to be a major problem. General orders were issued requiring attention to foot care, to maintaining circulation, and to keeping the feet as dry as possible. Most of the 1,000 cases of trench foot diagnosed in the American Expeditionary Forces during the war occurred during the Meuse-Argonne campaign, when units had to fight for several weeks while exhausted, wet, cold, and inadequately shod, but almost as many cases developed in the winter months following the Armistice. Trench mouth, which caused sores in the mouth, was a minor problem and easily managed by means of improved oral hygiene.<sup>50</sup>

The challenge facing the AEF medical service varied as the offensive progressed. From 26 September to 3 October troops were slowed to a crawl by mud, rain, and natural obstacles, including the terrain of the Argonne Forest. In some areas the roads, which were few in number, were mined and had craters 100 feet wide and 40–50 feet deep, necessitating bypasses. Heavy rain had been falling for some time when the campaign was launched, saturating an area that included “the most difficult and heavily wooded country to be found in France.” Attrition among the vehicles the First Army could obtain was guaranteed to be high, because the terrain became increasingly difficult as the Americans advanced.<sup>51</sup>

Evacuation was further complicated by enemy action. Machine-gun fire was occasionally so intense that prompt evacuation became impossible, and for significant lengths of time the wounded had to seek shelter wherever they could manage to find it. Heavy fire often prevented ambulances from reaching aid stations, making it necessary for litterbearers to move casualties all the way from the line to ambulance heads or dressing stations. The shortage of medical personnel led to extensive use of combat troops for this duty. With the work of litterbearers, according to Surgeon General Gorgas, “very arduous and dangerous, requiring a clear head and a vigorous physique,” the use of those who were not physically or mentally up to this duty proved “hazardous to this cause and endanger[ed] the lives of those intrusted to their care.”<sup>52</sup>

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<sup>49</sup> WD, SGO, *Sanitation*, pp. 533–34, 826, 892, 1019, 1104; idem, *Field Operations*, pp. 592, 659, 682–83, 718, 792–93, 837, 841–42, 873; Stark, “Medical Activities,” p. 174; WD, *ARofSG*, 1919, pp. 1310, 1427, 1551, 1568, 1572–73, 1591, 1669, 1682; J. W. Grissinger, *Medical Field Service in France*, pp. 104–05; Scrapbook, 16 Aug 1918 entry, vol. 3, Ms C206, William Shainline Middleton Papers, 1902–1973, NLM; Marcus P. Neal and Alan C. Sutton, “Diphtheria in the American Expeditionary Force,” p. 433.

<sup>50</sup> WD, SGO, *Sanitation*, pp. 536, 537, 1114 (quoted words), 1115, 1116; idem, *Training*, p. 1123; AEF GO no. 11, 17 Jan 1918; Haven Emerson, “Minor Communicable Diseases in the A.E.F.,” pp. 647–48; WD, *ARofSG*, 1919, p. 1591.

<sup>51</sup> Stark, “Medical Activities,” pp. 167 (quoted words), 171; WD, SGO, *Field Operations*, p. 536.

<sup>52</sup> WD, SGO, *Field Operations*, pp. 546, 626, 838; Gorgas, *Inspection of Medical Services*, pp. 20 (first quoted words), 21 (second quoted words).

When rules set up to govern the use of the roads were not enforced, the difficulties involved in managing the chain of evacuation escalated. Although ambulances had the right of way when moving to the rear, even these vehicles might be held up for as long as twenty-four hours at a time. Evacuation could take so long that division and corps field hospitals had to be set up along the line to serve as rest stations for ambulance convoys; these stations also relayed information about overcrowding at hospitals to the rear so that patients could be rerouted as necessary. Despite precautions, before the end of September 1918, one evacuation hospital alone had received 7,000 or more wounded within a seven-hour period, many of them in bad condition, with wounds as much as three days old, and some surgical teams had to work eighteen hours a day for four days in succession.<sup>53</sup>

For the I Corps, the first phase of the offensive was the most difficult. Casualties were generally high. Before noon on 29 September the 35th Division triage team was overwhelmed with almost 1,000 patients, many with shell shock, exhausted, or slightly gassed. To deal with the congestion, medical personnel had to stop passing trucks to get them to assist ambulances. Despite careful planning about routes to be taken to the various hospital sites, ambulance drivers became confused when crowded roads and hospitals dictated that they move casualties to facilities other than those initially designated; the commander of the corps sanitary train was forced to station enlisted men at key points to direct ambulances to hospitals with available space. Spreading information about which hospitals could handle more patients proved difficult, however, not only because of congested roads but also because of unreliable phone service. The 35th Division found animal-drawn ambulances far better than motor vehicles in crossing trench lines where no roads existed, while other I Corps divisions discovered them to be useful only in the densely wooded Argonne Forest. Supply shortages sometimes produced ludicrous situations. In one instance a corps specialist lodged a complaint about the management of a field hospital because the shortage of bedpans had led to the utilization of helmets as a substitute.<sup>54</sup>

Time and experience produced some notable successes, however. Management of the I Corps sanitary train improved with time; it was retained at the headquarters of the corps surgeon and used as a reserve to be sent where and when needed and returned later to be available to meet later emergency requirements. Plans for a rest camp set up in three corps field hospitals located in a quiet area for those who were slightly injured or gassed or merely exhausted also worked well. Many men who during the St. Mihiel campaign would have been sent back to base hospitals and lost to the front line for considerable lengths of time were returned to action in a few days. Exhaustion was an important element in shell shock, and often those suffering from shell shock or gassing could return from the camp to the line after a few days of rest; however, if they were not ready for duty after seven to ten days or if they became seriously ill during that period, they were sent to a hospital. The rest camp eased the load on hospitals, both near the front and even in the Services

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<sup>53</sup> WD, SGO, *Field Operations*, pp. 554-55, 620, 696, 734-35, 777; WD, *ARofSG*, 1919, pp. 1520, 1684; Young, *Young*, p. 373.

<sup>54</sup> WD, SGO, *Administration, AEF*, p. 836; idem, *Field Operations*, pp. 557, 558, 571, 575, 639-40; idem, *Training*, p. 1101; WD, *ARofSG*, 1919, p. 1609.



*Members of the 110th Sanitary Train, Field Hospital No. 137, 35th Division, tending to casualties in an old war-battered church*

of Supply, to which many of the slightly ill would otherwise have been sent when their convalescence took longer than a few days. The basic concept of holding near the front those whose ability to serve would be restored by a short period of rest continued to be used within the various divisions as well as at the corps level.<sup>55</sup>

At this time the III Corps occupied an especially narrow sector, through which some of the wounded from other corps were moved obliquely to reach the facilities that would care for them. The III Corps surgeons experienced many of the problems encountered by the I Corps surgeons, among them soaked and congested roads and a shortage of both litterbearers and surgical teams. Initially the roads through the III Corps area were particularly muddy, making movement unusually difficult.<sup>56</sup>

The challenges encountered with evacuation and hospitalization within the V Corps were similar to those encountered by the I and III Corps, but were complicated by the fact that the V Corps sector was essentially without roads. As a result, evacuation had to take place obliquely through the I and III Corps sectors,

<sup>55</sup> WD, SGO, *Administration, AEF*, p. 383; idem, *Field Operations*, pp. 555–58, 639, 640, 655, 680, 742; WD, *ARofSG*, 1919, pp. 1518, 1658; Stark, “Medical Activities,” p. 167; Ashford, “Lecture on Field Hospitals,” p. 560; John F. W. Meagher, “Prominent Features of the Psychoneuroses in the War,” pp. 344–45.

<sup>56</sup> WD, SGO, *Field Operations*, pp. 615, 617, 626; WD, *ARofSG*, 1919, p. 1518.



an approach that, while it “violated an established principle,” as the First Army’s Colonel Stark put it, had to be accepted because “nature made the land before man formulated the principle, and terrain always governs war.”<sup>57</sup>

For the V Corps as for the I Corps, the problems caused by personnel and equipment shortages, poor road conditions, and enemy action differed in varying degrees from division to division. Evacuating 37th Division casualties became for a time impossible because of the ambulance shortage. Many wounded held in dugouts were forced to “lie all night in the rain with only such shelter as could be obtained from tarpaulins, none of which stood up through the night in the storm.”<sup>58</sup>

On 4 October, after reorganizing his troops, bringing in fresh and experienced units, General Pershing launched the second phase of his offensive just as the Germans were sending out their first requests for an armistice. During the lull the enemy brought in more troops, so progress during the second phase of the Allied attack continued to be relatively slow. The Argonne Forest was not finally cleared until 10 October, three weeks before the second phase of the attack ended with the Germans driven from their positions.<sup>59</sup>

The challenge facing the First Army’s medical personnel continued to grow. The intensity of the attack left no time to repair roads or bring up supplies. In some instances, setting up and operating dressing stations and field hospitals became exceedingly difficult. During the second phase, troops pursuing the retreating Germans had to cross the terrain that had separated German and Allied forces, a no a-man’s-land gouged by shellfire and deep in mud. The tangle of trees and barbed wire that was the Argonne Forest, the machine gunners behind them, and the approach up steep cliffs—all of these conditions made the area especially difficult both to take and to evacuate.<sup>60</sup>

As October wore on, with strongly fortified positions still to be taken, influenza patients increasingly added to the stress placed on medical personnel, ambulances, and facilities, taking its greatest toll just at the time battle casualties were at their peak. Two new evacuation hospitals were set up exclusively for the use of patients from the zone of the armies, and other evacuation hospitals also took in their share. The Germans, too, were suffering from the disease, which weakened their ability to resist the Allied drive. By late October delays in evacuation were on occasion so great that the strain placed on dressing stations, triages, and field hospitals became intense. Roads through what had been no-man’s-land were in such poor condition that evacuation and mobile hospitals could not be brought up behind the troops until improvements were completed and congestion was reduced.<sup>61</sup>

<sup>57</sup> WD, *ARofSG*, 1919, p. 1518; Stark, “Medical Activities,” p. 169 (quoted words).

<sup>58</sup> WD, SGO, *Field Operations*, p. 598.

<sup>59</sup> *Ibid.*, p. 629; Foch, *Memoirs*, pp. 434, 435, 436.

<sup>60</sup> Pershing, *My Experiences*, 2:320; WD, SGO, *Field Operations*, pp. 620–30, 735, 776; WD, *ARofSG*, 1919, p. 1518.

<sup>61</sup> Pershing, *My Experiences*, 2:337–38; WD, SGO, *Administration, AEF*, p. 381; *idem*, *Finance and Supply*, p. 399; *idem*, *Sanitation*, p. 533; *idem*, *Field Operations*, pp. 528, 838; Crosby, *Forgotten Pandemic*, pp. 8–9; Ashburn, *History of MD*, pp. 337–38, 341–42; *Diary*, p. 41, Ms C14, Kean Papers, NLM; Memo, Forward Office, IG, AEF, for Commander in Chief, AEF, 17 Oct 1918, file 104, Entry 588, GHQ–IG, Record Group (RG) 120, National Archives and Records Administration–College Park (NARA–CP), College Park, Md.

The common but not universal practice of setting up only one divisional dressing station, often far from many battalion and regimental aid stations, meant that in some instances evacuation had to take place over congested roads subject to enemy fire; experience continued to demonstrate that the Germans did not hesitate to attack either sanitary trains or field hospitals. When several dressing stations were set up, however, they could be located both nearer aid stations and on less heavily used and shelled roads.<sup>62</sup>

For the I Corps as a whole, the transportation situation apparently improved during the final stages of the offensive as American troops were pushing the Germans back with increasing rapidity. Three U.S. Army Ambulance Service sections, an ambulance company, an evacuation ambulance company, a French sanitary section (with eleven ambulances), and six French sight-seeing buses were available, although trucks still had to be used to make sure that all wounded were promptly evacuated. For individual divisions, however, the situation continued to vary. The 42d Division, I Corps, horses and mules were exhausted by the struggle to move vehicles across saturated ground to avoid roads rendered impassable by mines, and medical carts were abandoned. Exhausted medical personnel had to carry many of their supplies on their own backs. For a short period, a small station had to be set up at each end of a mined section and casualties carried on the back of their comrades across the mud from one station to the other, where motor ambulances waited to continue the journey. On one occasion, enemy planes bombed the 78th Division sanitary train, killing one member of the train and injuring many others while seriously damaging vehicles. Under such circumstances, evacuation took considerably longer than the desired eight hours. In spite of the pressure placed upon dressing stations by these problems, however, that serving the 77th Division was able to treat many wounded civilians and to give them both food and shelter.<sup>63</sup>

In the last days of the Meuse-Argonne offensive, when Allied troops were moving through an area that had not been heavily contested and thus the roads were in better condition than they had been earlier, I Corps plans functioned well. Regimental surgeons set up battalion and regimental aid stations and sent out litterbearers, among them men from the line previously trained in first aid, under the supervision of their division surgeons. Each division had triages that sorted out casualties as nontransportable, seriously wounded, gassed, slightly wounded, or neurological cases, and divided the sick as contagious or noncontagious. They were then sent to hospitals all along the previously outlined evacuation routes according to their classifications rather than according to their divisions. Any French soldiers who were sick, wounded, or gassed went to a Red Cross hospital. Division collecting stations were even established for animal casualties, which were then sent to forward corps collecting stations for further evacuation.<sup>64</sup>

During the last weeks of the campaign the III Corps surgeon undertook to experiment with the use of division hospitals as corps hospitals. He designated

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<sup>62</sup> WD, SGO, *Field Operations*, pp. 534, 546, 586, 597, 650, 742–43.

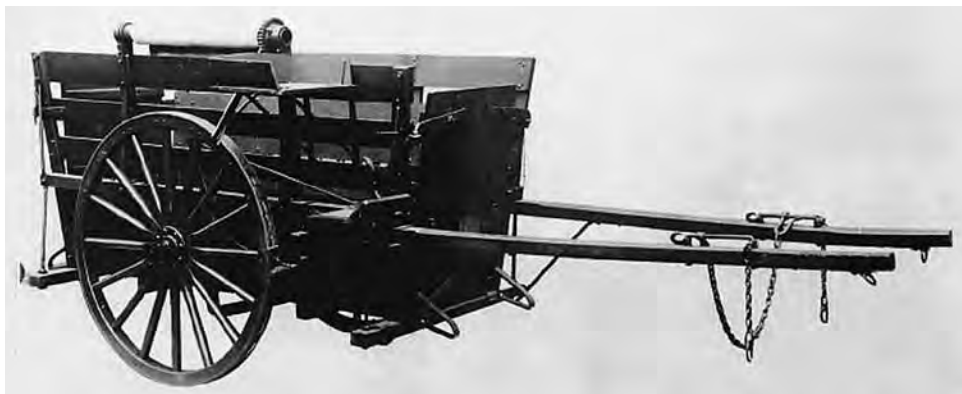
<sup>63</sup> WD, SGO, *Field Operations*, pp. 732, 739, 742–43, 751, 752, 745. One battalion of the 77th Division was for a time in early October cut off in the Argonne Forest, earning itself the name of the Lost Battalion. See Pershing, *My Experiences*, 2:323–24.

<sup>64</sup> WD, SGO, *Field Operations*, pp. 639–40, 738, 838.



American Wounded Making Way to First Aid Station in the Village of Marne During German Attack by *George Matthews Harding*; (below) First Aid Station in an Abandoned Gun-pit by *Lester Hornby*





*Veterinary Corps ambulance*

one to serve as the corps gas hospital and a second, established well back of the front, to care for medical cases and to serve as the relay station required by the First Army surgeon for patients whose path of evacuation was particularly long or time-consuming. He made a third responsible for all nontransportable cases—defined in the III Corps as those who were hemorrhaging actively, who were in shock, who had chest wounds through which air was being taken in, or who had suffered partial traumatic amputations so severe that no blood was reaching the area below the injury—with a mobile surgical unit standing by to assist if needed. A fourth hospital handled overflow for the entire corps. Each division rotated two shock teams in and out of the corps hospital to care for preoperative and postoperative cases as well as for soldiers who had become chilled since they were wounded. Two field hospitals of each division were assigned to work as a part of a unified triage for the entire corps, an approach that made for improved effectiveness.<sup>65</sup>

Evacuation between hospitals was handicapped for the III Corps by the fact that animal-drawn ambulances, which were found especially useful because they could negotiate more difficult terrain, were sometimes limited because of the toll taken among horses and mules by enemy shelling of roads that were open to enemy view. The road most used for evacuation, however, was in good condition by 1 November. The corps surgeon assumed direct responsibility for evacuation from divisional triage stations and field hospitals to evacuation facilities, sending a representative there to coordinate the use of ambulances and trucks—the corps stopped all passing trucks to load them with wounded—and to make sure that communications were kept open between the triage team leader, the corps surgeon, and the First Army surgeon.<sup>66</sup>

The divisions making up the III Corps retained some of their field hospitals for their own use. The number of gas victims was such that eventually each division had to have its own gas facility, and each reserve hospital played the role of a dressing station. A hospital for the sick and wounded, which could be used as a rest station, was kept far forward. Although an attempt was made to have each

<sup>65</sup> *Ibid.*, pp. 620–21, 698, 699, 781.

<sup>66</sup> *Ibid.*, pp. 542, 617, 694, 695, 696, 781, 792.

division triage its own men, the III Corps casualties could be taken in by any division hospital.<sup>67</sup>

The 80th Division surgeon, working with the semi-independence characteristic of division surgeons throughout the American Expeditionary Forces, developed his own approach to field hospitals, using the forward hospital or even several hospitals for triage if evacuation was easy, moving patients directly from them to evacuation hospitals. If transportation was slow and difficult, the forward hospital served as a collecting station; receiving and evacuating departments and both surgery and paperwork were limited to a minimum. The division surgeon adopted the leapfrog approach as the troops moved forward, the collecting station, which sometimes consisted of two field hospitals, becoming the triage station and the triage, which also often consisted of two hospitals, going forward to become the collecting station. The 80th, like so many other divisions, resorted to using trucks returning from the front to evacuate casualties from field hospitals to evacuation facilities.<sup>68</sup>

Except for influenza, illness within the various divisions of the III Corps varied. While with the III Corps, the 3d Division noted that it was experiencing many fewer cases of shell shock than it had during the struggle along the Marne River. In the 5th Division many men were ill in the last month of the war, the result of exposure, exhaustion, poor food, and polluted water; “everyone had bronchitis and nearly everyone . . . gastroenteritis with diarrhea.” The division assigned a psychiatrist to one of the unit’s hospitals to separate shell-shock victims from those who were merely attempting to avoid duty out of fear, a measure that markedly reduced the number who escaped action because of psychoneurosis.<sup>69</sup>

During the second phase of the advance the V Corps was involved in little action, but challenges relating to evacuation grew in the last days of the war. Increasing numbers of casualties were loaded into V Corps ambulances that were required to follow the same roads that I Corps drivers used, and officers in charge of triage stations loaded ambulances with patients with differing destinations as well, inevitably increasing congestion and confusion. Initially the V Corps sanitary train did not have its full quota of either hospitals or ambulance companies. The situation that was aggravated by an acute shortage of litterbearers; unlike the I Corps, the V Corps had not permitted line troops to be detailed for training in first aid and litter-bearing. The V Corps surgeon was no longer able to send gas cases on to the corps gas hospital after emergency treatment at division-level facilities, and divisions had to retain for twenty-four hours in their field hospitals those whose claims of having been gassed were suspect. Although this move added to hospital congestion, it also produced a drop in the number who were evacuated rather than returned to duty.<sup>70</sup>

After the V Corps set up specialized corps hospitals for cases evacuated from the divisional field hospitals, the need to keep field hospital beds free for newly arriving patients suggested the wisdom of handling only emergency surgery and sending the wounded back promptly, conducting only emergency surgery at the

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<sup>67</sup> *Ibid.*, pp. 698, 711–12, 781.

<sup>68</sup> *Ibid.*, pp. 624, 625.

<sup>69</sup> *Ibid.*, pp. 717, 792–93 (quotation).

<sup>70</sup> *Ibid.*, pp. 584, 669, 671, 760, 761–62; Memo for Asst CofS, G–4, First Army, 4 Nov 1918, sub: Moving of Evacuation and Mobile Hospitals, p. 2, AWC Curricular Archives, MHI.

field hospital level. Unfortunately, in many V Corps divisions, medical officers once again proved so eager to perform surgery themselves that triage and treatment of shock suffered as a result. Ironically, however, in at least one V Corps division, limits on the amount of surgery done in field hospitals led to deaths among those who had been evacuated without operation.<sup>71</sup>

Neither the influenza epidemic, now waning, nor the intensification of armistice negotiations slowed the pace of the last days of the offensive, with the advancing V Corps troops taking prisoners from German units that had not yet officially entered the line. Thus the challenge to those responsible for evacuating the sick and wounded increased up until the moment the Armistice became effective on 11 November 1918. Improved road conditions and greater emphasis on coordinating ambulance routes with available hospital spaces somewhat alleviated the problems caused by the considerable distance that by then lay between the line and evacuation hospitals. During the last stages of the offensive, evacuation of 1st Division casualties became so easy that medical officers were sometimes able to avoid setting up field hospitals by sending some to other divisional field hospitals or by evacuating others directly to mobile or evacuation facilities.<sup>72</sup>

For the 2d Division, V Corps, however, a high number of casualties precipitated a crisis. The division entered the campaign with sixteen fewer medical officers than it should have had, and seven of those who were serving with the division were wounded as their unit moved forward. Dental surgeons were assigned to take their place, and a shortage of litterbearers was partially alleviated by the use of German prisoners of war. Experience gained during the campaign had suggested the wisdom of locating all divisional field hospitals at the same site, with a field hospital rather than an ambulance company handling triage, thus freeing members of the company to handle litters. As a result, efficient use of available medical personnel was undermined during a rapid advance, when all field hospitals with many of their patients moved forward, and thus some men had to be left behind to care for those still awaiting evacuation.<sup>73</sup>

Although by early November the 2d Division field hospitals and triage station were, in the opinion of the inspector general, "well located and planned," roads were rapidly deteriorating because of constant use by the I and V Corps vehicles. Attempts to evacuate casualties were crippled; ambulance transmissions failed as a result of miles of pushing through mud in low gear, and mule teams were exhausted. When the wounded were retrieved, often by passing trucks, they occasionally had to endure trips of more than twelve hours when overflowing evacuation hospitals could not take them in and they were evacuated still further back. The 1st Division loaned the 2d some of its ambulances, but the two field hospitals dedicated to non-transportables were overflowing, and the army mobile hospital that was moved up to avoid submitting them to long trips was also soon overwhelmed. When 1,600 refugees were encountered, some seriously injured, the 2d Division sanitary train

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<sup>71</sup> WD, SGO, *Field Operations*, pp. 759–60, 584, 680.

<sup>72</sup> Diary, p. 44, Ms C14, Kean Papers, NLM; WD, SGO, *Sanitation*, p. 535; idem, *Field Operations*, pp. 729, 737, 777, 838; Pershing, *My Experiences*, 2:347.

<sup>73</sup> WD, SGO, *Field Operations*, pp. 765, 771.

could not assist them, and supply trucks had to be sent from the 1st Division to move the civilians to safety.<sup>74</sup>

Troops occupied with the final push against the Germans had little time for the niceties of sanitation, no matter how important they might be. Although the men of the 89th Division had suffered remarkably little serious illness, they had endured every kind of adverse condition—the influenza epidemic, cold, wet weather, and sheer exhaustion—when they learned scarcely more than two hours ahead of the event that an armistice was about to be declared. Their final goal then became taking nearby German billets believed to have baths so that these facilities would be available when the armistice took effect, and orders were duly issued that they push forward at once toward this worthy goal. Thus, apparently, the reward of their final effort was hot showers all round.<sup>75</sup>

The First Army bore the brunt of the final offensive, because the Second Army was created too late to do much more than supply fresh troops. The Second Army never conducted an offensive but served rather as a holding force, with much of its wartime life consumed by the process of organization. It was composed of the American IV and VI Corps, the latter of which existed principally on paper, and of the French II Colonial Corps, which was then replaced by the French VIII Corps. With the creation of the Second Army, personnel changes ensued: Lt. Gen. Hunter Liggett replaced General Pershing as field commander of the First Army; Lt. Gen. Robert L. Bullard became commanding general of the Second Army, with Col. Charles R. Reynolds, MC, as the army surgeon. In the brief wartime life of the Second Army, unlike the First Army, casualties were few, and thus problems were few as well. Surgeon General Ireland later deplored the organization of the Second Army surgeon's office as inadequate, consisting as it did of only four commissioned officers, including Reynolds, even though in practice additional commissioned officers could usually be found working there.<sup>76</sup>

An officer to direct evacuation for the Second Army was appointed to guarantee that all ran smoothly, but the challenges he encountered were few. By 7 November the lines of evacuation for the Second Army had been outlined, not only for human casualties but also for sick and injured animals as well. Each division was responsible for evacuation to field hospitals, using corps ambulances plus Second Army reserve ambulances as needed for transportation to evacuation and mobile hospitals and to base hospitals serving as evacuation hospitals; the Toul base hospitals that had been serving as evacuation hospitals for the First Army were within easy evacuation distance of the Second. Because many of the troops in the new army were in the miscellaneous category and scattered throughout the area of operations, setting up a medical organization to cover each unit proved too difficult. The army surgeon therefore divided the area into zones and established an ambulance station in each.<sup>77</sup>

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<sup>74</sup> Ibid., pp. 766, 767, 840 (quoted words).

<sup>75</sup> Ibid., pp. 592, 771, 774–75.

<sup>76</sup> Ibid., pp. 843, 845, 846; WD, *ARofSG*, 1919, pp. 1525, 1526; Stark, "Medical Activities," p. 169; Pershing, *My Experiences*, 2:402; Coffman, *War To End All Wars*, p. 329; Memo, A. W. Brewster for Commander in Chief, AEF, 10 Nov 1918, file 104, Entry 588, GHQ–IG, RG 120, NARA–CP.

<sup>77</sup> WD, SGO, *Field Operations*, pp. 845–46, 847; WD, *ARofSG*, 1919, pp. 1526–27, 1529.



*Beasts of burden and ambulances mired down*





The number of base hospital beds available for Second Army use totaled 37,000, including 17,000 at nearby Toul. In addition, in early October at least three evacuation hospitals, the personnel of another, and two mobile hospitals were transferred from the First Army to care for casualties. One of the evacuation hospitals left the area on 22 October, after having cared for 236 gas victims, 299 medical cases, and 1,602 surgical cases. A second evacuation facility admitted a total of 5,802 patients and also set up a kitchen to serve hot meals to as many as 1,500 a day. A gas hospital, a neurological unit, and a contagious disease hospital also served the Second Army, as did a field hospital, an ambulance company, two Army Ambulance Service sections, and seven evacuation ambulance companies.<sup>78</sup>

Within the American divisions serving in the IV and VI Corps as part of the Second Army, division surgeons, like their First Army counterparts, took varying approaches to the handling of their field hospitals. The surgeon of the 7th Division, IV Corps, which saw most of the action involving the Second Army during the last weeks of the war, had his nontransportable wounded taken directly to a field hospital handling surgery without going through triage. A second field hospital handled triage; a third, the sick; and a fourth, gas victims. The surgical patients, many of whom had been passed through three aid stations before arriving at the field hospital and thus were in poor condition, were cared for by a mobile surgical team as well as by division surgeons. Almost 75 percent of the wounded went through a special shock room, set up to receive casualties.<sup>79</sup>

Medical personnel in the VI Corps were challenged when both the 7th Division and the 92d Division were heavily attacked on the last full day of the war. The 7th endured heavy shelling and the 92d a particularly heavy gas attack. Most of the 92d's gas victims were returned to duty either from regimental aid stations or from triage. The 7th Division's field hospitals were to a large extent bypassed during the last four days of the war, limited to triage and caring for the victims of poison gas, but on 10 November a second triage was set up. A mobile hospital was moved up, to which the division evacuated nontransportable patients directly from triage. The triage team sent seriously ill and shell-shock patients directly to the hospitals at Toul. During the final four days of the war only gas victims, who were likely to have received their basic care at the dressing station or at a divisional degassing unit, were treated within the Second Army's field hospital system.<sup>80</sup>

Even though the Second Army was in action a very short time and did not sustain unusually heavy casualties, its medical service, particularly that of the 7th Division, was severely handicapped by the shortage of ambulances, despite careful planning for handling evacuation. The 7th Division's sanitary train, which had received excellent training in the United States but had trained for only five weeks in France, functioned well under the circumstances, according to Surgeon

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<sup>78</sup> WD, *ARofSG*, 1919, pp. 1519, 1525, 1526, 1527; Stark, "Medical Activities," p. 168; WD, SGO, *Neuropsychiatry*, pp. 351-52; idem, *Field Operations*, pp. 838, 845, 846, 869. The Medical Department historians responsible for the department's history of World War I noted that "information concerning Second Army hospitals is generally of very little value" (ibid., p. 857).

<sup>79</sup> WD, SGO, *Field Operations*, pp. 849, 853-54, 855, 856-57; WD, *ARofSG*, 1919, pp. 1571, 1575.

<sup>80</sup> WD, SGO, *Field Operations*, pp. 851-52; WD, *ARofSG*, 1919, pp. 1573-75.

General Ireland. Unfortunately, the circumstances included the presence of barely one fifth of the transport that the tables of organization allotted to the division. As a result, according to the surgeon general's annual report for 1919, "the Medical Department was in the face of the enemy, immobilized. The functioning value of the personnel was lowered 25 to 50 per cent on account of lack of motor transport. Many requests were made without avail."<sup>81</sup>

The story of the Medical Department's role in the final defeat of the Germans is a story of endurance: As American soldiers came ever closer to final victory, the field medical service came ever closer to total disaster. The ability to meet myriad challenges was crippled not only by the lack of preparation for the conflict that affected all of the American Expeditionary Forces but also by the low priority that was given to dealing with the growing shortages of both personnel and transport. All too often casualties lay on the field for hours, their condition deteriorating as a result of unrelieved pain, cold, and shock, because of a lack of men to remove them. All too often again they waited in ambulances for hour upon hour, stranded by the side of impassable roads or waiting while vehicles carrying ammunition and combat soldiers moved past them on their way to the front. All too many casualties had to endure painful transport in trucks not designed for moving those with shattered limbs and then had to wait for the surgery they needed. How many more men suffered because their physicians and those who assisted had been inadequately trained in the routines of military medicine or had been misassigned to function in areas in which they had no expertise will never be known. Although hospital trains working through five regulating stations moved more than 270,000 patients, with almost 155,000 going through St. Dizier alone between 26 September and 11 November 1918, no amount of determination and devotion to duty on the part of medical personnel could overcome the handicaps imposed by the desperate haste with which AEF divisions were thrown into combat to prevent the defeat of the Allies.<sup>82</sup>

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<sup>81</sup> WD, SGO, *Field Operations*, pp. 853–54; WD, *ARofSG*, 1919, p. 1570 (quotation).

<sup>82</sup> Stark, "Medical Activities," p. 165; Donald Smythe, *Pershing*, p. 230; *United States Army in the World War*, 14:77; WD, SGO, *Field Operations*, p. 453.



## Chapter 11

# MEDICAL BURDENS OF HARD FIGHTING



The medical service of the American Expeditionary Forces (AEF) faced intensified challenges as AEF troops in France increasingly took the offensive. Transportation remained inadequate. Personnel shortages grew. With Americans entering active operations against the Germans in ever-increasing numbers and with the burden borne by the hospitals, ambulances, and hospital trains in the Services of Supply (SOS) growing rapidly, medical personnel had to be stripped from overburdened SOS facilities and rushed forward; new medical officers, in particular, had to be assigned to units without the training they needed. Because building materials were at times almost unobtainable and because French civilians healthy enough to handle construction had long since been called into the armed forces (in some instances, German prisoners of war were used for this type of labor), hospital construction fell behind schedule. Almost overlooked in efforts to meet the urgent needs of troops at the front were the health of newly deployed units, arriving more rapidly than had been anticipated and not always physically fit; the care of the sick and injured among SOS personnel; and the sanitation in the geographical sections, all the responsibility of the Services of Supply. Necessity inspired invention, and coordination became more important than control.<sup>1</sup>

### *Hospitalization*

Except for field and, beginning in August 1918, evacuation hospitals, all hospital organizations of the American Expeditionary Forces remained at least technically a part of the Services of Supply throughout 1918. Even so, the SOS hospital system barely existed in the first year of the war, partly because the need for hospital care was minimal and partly because acquiring the necessary facilities and bringing in the necessary personnel and equipment was a slow process.

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<sup>1</sup> War Department (WD), *[Annual] Report of the Surgeon General*, 1919, p. 1337 (hereinafter cited as *ARofSG*, year); WD, Surgeon General's Office (SGO), *Administration, American Expeditionary Forces*, pp. 491, 537 (hereinafter cited as *Administration, AEF*); idem, *Field Operations*, pp. 13, 1042; Theodore V. Symanski, "Dental Service in the First Replacement Depot, A.E.F., France," p. 46.

Precisely categorizing hospitals is in some instances difficult, for the need dictated the use of such facilities regardless of formal classification. As the system took form, however, most hospitals were either grouped within other individual base or specialized facilities as part of hospital centers or were strictly local hospitals, principally camp hospitals. Those in the latter category fell under the control of the commanding generals and the surgeons of the geographical sections. Hospitals in the first group, on the other hand, functioned as if they were general hospitals, controlled directly by the AEF chief surgeon. As far as hospital centers were concerned, the commanding general of a section was responsible only for discipline, guards, inspection, construction, fire protection, and supply.<sup>2</sup>

Successful evacuation from the front required that an adequate number of hospital beds be available within the Services of Supply to care for the evacuees. Although the number of hospital beds grew from 30,000 in May 1918 to more than 260,000 by the end of the war, on 12 October 1918, with both the Meuse-Argonne campaign and the influenza epidemic in full swing, General John J. Pershing was becoming increasingly concerned about a hospitalization situation that he regarded as ever “more critical.” Almost all beds in all sections, back to the base sections, were in use, and sufficient personnel to open new base hospitals were not available. The slow shipment of needed equipment and supplies continued to hamper the effort to create enough space to shelter all the sick and wounded adequately. So too, despite French cooperation, did the lack of buildings in which hospitals could be housed, the French hospital system having been virtually destroyed in the course of the conflict. Heavy reliance had to be placed on the erection of new facilities, but construction fell far behind the need because of the slow processing of the paperwork necessary to lease land, the shortage of building materials, and similar problems.<sup>3</sup>

The consequences of this situation were grave for both hospitals and patients. Sick and wounded men were sent to hospitals long before construction had been completed, only to find themselves with barely more than a roof over their heads. This situation, tolerable when the weather was warm, would have produced disaster had the approach of winter found patients, many with influenza or related respiratory ills, sheltered in unfloored and unheated tents. The guidelines for evacuating back to the United States, on the other hand, called for no one to be taken out of France unless four months or more would be required to restore him to the line. On occasion the shortage of beds resulted in returning to the United States patients

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<sup>2</sup> WD, *ARofSG*, 1919, p. 1440; WD, SGO, *Administration, AEF*, pp. 232–33, 783. A more or less detailed discussion of the nature and history of each camp hospital, base hospital, and hospital center serving the American Expeditionary Forces during World War I can be found in *ibid.*, pp. 489–790.

<sup>3</sup> WD, SGO, *Sanitation*, pp. 286, 363 (quoted words); *idem*, *Administration, AEF*, pp. 263, 280–81, 575; *idem*, *Field Operations*, p. 334; John J. Pershing, *My Experiences in the World War*, 2:221; WD, *ARofSG*, 1919, p. 1337; “Some Accomplishments of the Services of Supply,” 2d ed. (Prepared by Statistics Branch, General Staff, Headquarters, Services of Supply, American Expeditionary Forces), p. 104, copy in Library, U.S. Army Center of Military History (CMH), Washington, D.C.; James A. Tobey, *The Medical Department of the Army*, p. 40. The exact figures concerning the number of available beds vary according to the source. See, for example, WD, *ARofSG*, 1919, p. 1341; Memo, Forward Office, IG, AEF, for Commander in Chief, AEF, 17 Oct 1918, file 104, Entry 588, GHQ–IG, Record Group (RG) 120, National Archives and Records Administration–College Park (NARA–CP), College Park, Md.

who could otherwise have remained in France. The great strain laid on all hospitals serving the American Expeditionary Forces in the last six months of the war forced those responsible for such facilities to remain very flexible concerning all aspects of their management.<sup>4</sup>

In the desperate need for hospital beds, much reliance was placed on camp hospitals, which were created for the most part in the hope of being able to retain all but the most seriously ill or injured with their units. Some of these facilities had started life in England as camp infirmaries for rest camps or as a "United States hospital, American rest camp." A single camp hospital was the only facility, except for small infirmaries, to care for all American sick and wounded in Belgium and Holland. A camp hospital in Base Section No. 2 cared for German prisoners of war as well as for members of an AEF labor battalion in the area, taking in the sick and injured from a total population of 10,000 (the death toll among Germans taken captive by the Allies in World War I was low, averaging about 4 percent.). Also included among camp hospitals was a 600-bed facility at Issoudun in the Intermediate Section for patients from hospital trains coming in from the front.<sup>5</sup>

Most camp hospitals were poorly equipped, and their personnel were gathered from here and there in a haphazard fashion. Officially, only 300 beds were authorized for them, but in the last months of the war some grew to enormous size, with more than 2,000 beds. Although many of these facilities were established after the end of the war, more than fifty had been set up by the fall of 1918, with a large majority including some form of laboratory. In many instances, they took on the character of base hospitals. One camp hospital, located in a town in the Intermediate Section that had no civilian doctor, even held daily sick call for civilians. After July 1918 camp hospitals were more numerous than evacuation and mobile hospitals, and significantly more autopsies were performed at them than at either mobile or evacuation hospitals.<sup>6</sup>

As they developed during the active phase of American participation in the war, base hospitals, too, came to differ considerably in character. In the opinion of Surgeon General William C. Gorgas, their numbers were always inadequate. All were intended to have a 1,000-bed normal capacity that could be doubled in any emergency by the use of tents. Some served as "a natural drain for the evacuation hospitals of the concerned area." Some were "no more than overflow hospitals or, perchance, demobilization hospitals." The staffs of still others were divided up among other facilities so that they never actually functioned as a unit. At least one

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<sup>4</sup> WD, SGO, *Administration, AEF*, pp. 253, 254; Pershing, *My Experiences*, 2:148; Charles H. Peck, "The Hospitals of the American Expeditionary Force," p. 466; James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 481; William C. Gorgas, *Inspection of Medical Services with American Expeditionary Forces*, p. 20.

<sup>5</sup> WD, SGO, *Administration, AEF*, pp. 287, 763, 764 (quoted words), 775, 778, 790. Brief descriptions of all camp hospitals serving American troops in France, including those created after the end of hostilities, can be found in *ibid.*, pp. 749–90; Richard M. Garfield and Alfred I. Neugut, "Epidemiologic Analysis of Warfare," p. 689.

<sup>6</sup> WD, SGO, *Administration, AEF*, pp. 201, 288, 781; Bevans, "Function of Consulting Staffs," p. 481; WD, *ARofSG*, 1919, pp. 1321, 1441. The latter source contradicts itself on the actual number of camp hospitals in existence in France at the time of the Armistice, giving fifty-six in one place and fifty-eight in another.



*Mobile Hospital No. 39 near Chalons-sur-Marne in the St. Mihiel sector; (below)  
Evacuation Hospital No. 20, a component of the Beau Desert hospital center*



base hospital was organized in France from men already in that country but not assigned until that time to a specific unit. In the late summer of 1918 one American base hospital was sent to serve with the Italian army in Base Section No. 8.<sup>7</sup>

Although most American base hospitals were set up in France, several were sent to England to treat the sick and wounded from among American troops serving with the British. With the spring of 1918, casualties among U.S. units serving with the British increased to the point where some had to be sent to British hospitals. In August an American hospital in England was set aside for American soldiers suffering from “war neuroses.” Other American base hospitals initially formed under the American Red Cross, although located in France, continued throughout the war to serve the British Expeditionary Force, taking in both British and American casualties. Among them was the hospital created by the staff of Maj. George W. Crile’s Lakeside Hospital in Cleveland. The patients handled by the Army’s hospital system included the wounded from Navy and Marine units who, if in need of more extensive treatment, could be transferred from their own facilities, with the cost of their care billed back to the organization from which they came.<sup>8</sup>

Many base hospitals became specialty hospitals, designated for the treatment of certain types of cases, among them orthopedic or neuropsychiatric cases or patients suspected of having tuberculosis, and staffed by personnel chosen because of their familiarity with the specialized treatment required. Occasionally, when the need was great, a base hospital was set aside for the care of patients with contagious diseases, who would otherwise be confined to an isolation ward. Creating hospitals for the different infectious diseases did not work as well as housing all in one hospital even when the chance of cross-infection was considered.<sup>9</sup>

In the course of planning for the fall’s campaigns, the need for more beds for psychiatric patients at Base Hospital No. 117 at La Fauche became evident. By the time the Armistice was signed, the facility held 1,000 beds. Staffing at the facility was a critical issue, and thus an attempt was made to engage nurses and attendants familiar with the needs of neuropsychiatric patients as a way to either reduce or eliminate the number of onsite guards. In addition, a series of lectures was inaugurated to familiarize the La Fauche staff with the peculiar needs of the victims of war neuroses. Predictably, staff members were also used to support the neuropsychiatric hospitals established for the Meuse-Argonne campaign in the fall of 1918, a situation that increased the burden at the La Fauche facility.<sup>10</sup>

The great importance placed on rehabilitating amputees led to naming two base hospitals as specialty facilities for this type of patient. Specialists instructed

<sup>7</sup> Gustavus M. Blech, “The Military Aspect of Base Hospitals,” p. 510 (quoted words); Gorgas, *Inspection of Medical Services*, pp. 20, 667, 671; WD, SGO, *Administration, AEF*, pp. 288, 710, 719–20, 741; idem, Part 1, *Physical Reconstruction and Vocational Education Part 2, The Army Nurse Corps*, p. 297.

<sup>8</sup> WD, SGO, *Administration, AEF*, pp. 73, 630, 638–40, 647, 655, 660–61 (quoted words), 664–66, 742; idem, *The Surgeon General’s Office*, p. 1293 (hereinafter cited as SGO).

<sup>9</sup> WD, *ARofSG*, 1918, p. 314; Robert B. Osgood, “Medical Work with the American Expeditionary Forces,” pp. 373–74; WD, SGO, *Administration, AEF*, pp. 380–81, 646–47; idem, *Field Operations*, p. 1043; S. J. Morris, “History of the Overseas Division, Surgeon General’s Office, During the War Period,” p. 190; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, pp. 99–100.

<sup>10</sup> WD, SGO, *Neuropsychiatry*, pp. 278, 281, 327, 359.



surgeons working at the front about ways in which to preserve as much of an injured limb as possible, while considerable emphasis was placed upon timely exercise to preserve muscle function and prevent contracture. A unit to fit artificial limbs on patients before they left the Chateauroux facility was created, and an expert from the Red Cross was assigned to run it. Every effort was also made to avoid permitting the amputee to regard himself as a cripple by emphasizing what he could still accomplish. With this in mind, what were termed “curative workshops” were set up in the orthopedic centers, although plans called for most vocational training to be given once the patient returned to the United States.<sup>11</sup>

Most often specialty hospitals were part of hospital centers, to which camp hospitals sent important cases. The head of the professional services at the center sent incoming specialists there so that their skills could be scrutinized before they were given permanent assignments. Despite the slow start that was made in creating hospital centers, twenty had been opened—five in the Advance Section, eight in the Intermediate Section, and seven in the various base sections—by the time of the Armistice, and still others were in various stages of planning or construction. They spread in a network, usually along the main rail lines, from the Advance Section back to the ports. The last center to open, on 7 November 1918, was composed of a relatively widely scattered group of hospitals on the Riviera. Many of these hospital centers shared problems relating to delayed or defective construction; at Allerey, for example, members of the staff of the Mayo-based unit actually helped complete plumbing, wiring, and ditches for the sewage disposal system. Common were deficient sources of water or power, inadequate sewage systems, and, when located in existing buildings, a lack of heat as well.<sup>12</sup>

Although only one of the hospital centers actually opened before the spring of 1918, centers were found in all SOS sections by the time of the final drive against the Germans. Some were never completed as planned. The process of classifying patients, according to both the type of injury or illness and prognosis, could be most effectively handled at these centers. When they began to open in the summer and fall of 1918, these large groupings of several base hospitals maximized efficiency in the use of personnel. Their existence also made possible loading a hospital train with patients suffering from various types of wounds and illnesses and sending them all to the same area, assured that each would receive skilled care there.<sup>13</sup>

As they finally evolved, the largest hospital centers resembled small cities. Because the availability of buildings was a crucial factor, the structures used in some instances were physically separated but administered as a single unit. Centers

<sup>11</sup> Osgood, “Medical Work,” pp. 373–74, 375 (quoted words); Goldthwait, *Division of Orthopaedic Surgery*, pp. 102–03.

<sup>12</sup> Clark W. Nelson and John M. Kutch Jr., “The Doctors Mayo and Military Medicine,” p. 295; John M. Swan and Mark Heath, *A History of United States Army Base Hospital No. 19, American Expeditionary Forces, Vichy, France APO. 781*, p. 57; WD, SGO, *Administration, AEF*, pp. 473, 556, 558, 598, 656–57, 710, 722, 737. Unless otherwise indicated, discussions of the various hospital centers (particularly, at Allerey) can be found in *ibid.*, pp. 489–627.

<sup>13</sup> Goldthwait, *Division of Orthopaedic Surgery*, pp. 86–87; WD, SGO, *Administration, AEF*, pp. 357, 635; A[rthur] D. Bevan, “The Problem of Hospital Organization, with Special Reference to the Coordination of General Surgery and the Surgical Specialties,” p. 150.

might have their own gardens or even farms, where pigs could be employed to dispose of the center's garbage. Centers might include, like the one at Mesves, a warehouse, a saw mill, a motor transport park, a steam laundry, a bakery, and a small factory to make concrete block.<sup>14</sup>

The character of the hospital centers varied according to circumstances, but the most unusual was the so-called Justice Group of hospitals at Toul. Here base facilities were temporarily used as field, evacuation, and convalescent hospitals, and two field hospitals were used as base hospitals. The character of this center was perhaps the most obvious example of the motherhood of necessity, with the line between base and evacuation hospitals blurred. The center made no attempt to set up an overall system of triage until the end of hostilities. In this regard the hospital handling the emotionally wounded served as an evacuation facility, sending the 37 percent of its patients who did not recover promptly further back to hospitals permanently designated for the care of such cases. The close proximity to the zone of the armies (or the combat zone) and the close involvement with the field hospital system that resulted made turning the control of this center over to the First Army rather than the Services of Supply an obvious move. More conventionally organized centers grew up from the front, and these were controlled through the Services of Supply.<sup>15</sup>

Some centers became well known for the work of one or more of their component hospitals. Beginning in early September 1918, patients in need of maxillofacial surgery were typically sent to Vichy, a community renowned for its springs. Hotels had sprung up to accommodate visitors taking the water, while music was provided in the park twice each day and an opera company gave twice-weekly performances. Although one of the hospitals at the Vichy center became especially well known for its work in the specialty of maxillofacial surgery and reconstruction, the entire center was populated by experts in related fields, including otolaryngologists, ophthalmologists, and dental surgeons, to assist as needed. Concentrating many of the available experts and their equipment at one site was not only an efficient use of resources but also made it possible to provide systematic instruction to other surgeons who might be confronted with this type of injury.<sup>16</sup>

Not all plans went as had been hoped for, however. Despite strenuous efforts on the part of the Medical Department, little of the specialized equipment for maxillofacial reconstruction had arrived in France by the time of the Armistice. Even so, two-thirds of patients with this type of injury were treated in France and returned to the front. The remaining 700, who required extensive reconstruction, had to be sent back to the United States for treatment.<sup>17</sup>

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<sup>14</sup> WD, SGO, *Administration, AEF*, pp. 288, 486, 493; Thomas J. Burrage, "An American World War Hospital Centre in France," pp. 352–53.

<sup>15</sup> WD, SGO, *Administration, AEF*, pp. 615, 616, 743–44; idem, *Training*, p. 1099; Gorgas, *Inspection of Medical Services*, p. 20.

<sup>16</sup> Bevans, "Function of Consulting Staffs," p. 481; WD, SGO, *SGO*, p. 461; idem, *Administration, AEF*, pp. 367–68, 479–80, 618, 620, 621; Lucius W. Johnson, "Plastic Surgery in Relation to the Armed Forces, Past, Present and Future," p. 99; George C. Schaeffer, "Experience of an Area Consultant in Facial Surgery," p. 1335; Swan and Heath, *History of Base Hospital No. 19*, p. 25.

<sup>17</sup> WD, SGO, *Administration, AEF*, pp. 122, 368.



*Two small hotels operating as part of the Vichy hospital center*

The various convalescent camps operated in connection with hospital centers were a new concept for both the Americans and the British at this time. For the American Expeditionary Forces, they were initially authorized in June 1918, with the first opened the following July. Surgeon General Merritte W. Ireland later lamented that they should have been authorized much earlier, but apparently the fact that tables of organization did not call for such an institution was behind some of the delay.<sup>18</sup>

The convalescent camp made it possible for men who would soon be ready to return to duty to leave hospital centers, thus freeing beds for those in need of medical and nursing care. Although most convalescent camps were connected with a single hospital center, that at Mars-sur-Allier took in patients from several centers. Ideally the camp connected with a hospital center would hold a number of beds equivalent to one-fifth of those in the center, under the command of medical officers rather than officers from the line, with specialists in orthopedics and cardiology available for consultation. In practice, however, tents were often used for all but the common areas of the camp, such as the kitchen, mess hall, and recreation room. The overall plan resembled that of a regular army camp. Despite these dif-

<sup>18</sup> WD, SGO, *Training*, pp. 259, 286; idem, *Administration, AEF*, p. 1036; W. S. Thayer, "The Medical Aspects of Reconstruction," p. 769; WD, *ARofSG*, 1919, p. 1439.

facilities, the fact that many such camps were in operation by November made it possible for the hospitals themselves to care for all the sick and wounded resulting from the final campaigns of the war, and the camps continued to prove valuable as long as convalescent soldiers remained in France.<sup>19</sup>

At these camps, which were not always located at the site of the center they served and were ideally located relatively near the front, men were provided with "light duties, entertainment, and interesting occupations . . . [to] rest their minds from the worries incident to battle." At the same time they were "brought back into a military atmosphere" so that when the time came they could return to duty reinvigorated in spirit as well as in body. Frequent medical examinations that might serve to encourage the psychosomatic aspects of an illness were discouraged. An attempt was made to identify those unable to return to combat but still useful to the army so that they could undergo vocational training to prepare them for future roles.<sup>20</sup>

The connection between convalescent facilities and hospital centers was not inevitable. Some camps were run independently of hospital centers. The Red Cross opened at least two convalescent homes, each with 200 beds, independently of hospital centers. One of these was set up for Army Nurse Corps nurses and civilian Army employees near St. Nazaire in the summer of 1918, while the other was established near Cannes for Army, Navy, and Red Cross nurses and for U.S. civilian women, including those sent by the Red Cross to work in recreation facilities connected with AEF hospitals. Not every center had its own camp; patients from Vichy, for example, as well as those from several independent hospitals, were handled by the camp at Mars-sur-Allier.<sup>21</sup>

Laboratories provided an even more vital support for hospital centers than convalescent centers. Beyond the Central Medical Laboratory at Dijon and the laboratory serving the Intermediate Section, every hospital center had its own system of laboratories. A small laboratory served each separate base hospital unit within a center, performing such duties as removing blood and pus from used gauze as part of the process of preparing it for reuse. Any hospital functioning independently of a center also had its own laboratory. A large central laboratory handled more complex work whose personnel and equipment were largely taken from the laboratories that would otherwise form an integral part of a separate hospital unit. The central laboratory often handled bacteriological cultures, vital in guiding surgeons' decisions about when to close wounds and also important for diagnosing of disease. The central laboratory, as a rule, also prepared cultures and handled serological work.<sup>22</sup>

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<sup>19</sup> Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 333 (hereinafter cited as *History of MD*); WD, SGO, *Administration, AEF*, pp. 260, 286, 836; idem, *Training*, pp. 945, 946; Osgood, "Medical Work," pp. 375–76; Bevans, "Function of Consulting Staffs," p. 481; Burrage, "American Hospital Centre," p. 357; WD, *ARofSG*, 1919, pp. 2146–49; AEF GO no. 43, 6 Mar 1919.

<sup>20</sup> WD, *ARofSG*, 1919, pp. 2147, 2149 (first quoted words); WD, SGO, *Training*, pp. 945 (second quoted words), 946, 950, 1037, 1038; Thayer, "Medical Aspects," p. 767.

<sup>21</sup> WD, SGO, *Administration, AEF*, pp. 578, 966; idem, *Army Nurse Corps*, pp. 320–30; AEF GO no. 39, 24 Aug 1918.

<sup>22</sup> WD, SGO, *SGO*, p. 1125; idem, *Administration, AEF*, pp. 171, 172, 195, 197, 200, 220; idem, *Training*, p. 969; WD, *ARofSG*, 1919, p. 1320; Royale Fowler, ed., *The War History of United States Army Base Hospital No. 61, AEF*, p. 82.



*Exterior and interior views of a Red Cross recreation hut in France*



Hospital laboratories also performed autopsies, which were strongly encouraged but could be done only at the request of a hospital's commanding officer. A shortage of pathologists capable of handling and "intelligently interpreting the results" of postmortem examinations limited the number that could be performed. Furthermore, commanding officers did not always appreciate the importance of the work of pathologists, assigning them to serve as mess officers or to some other role that diverted them from the important work that they alone could do. The situation began to improve in the early fall, when more pathologists arrived in France. As many as 92 percent of the deaths in hospitals was followed by autopsy in August and September, but battle and influenza deaths literally overwhelmed the pathological service in October. A lack of transportation made it impossible to send pathologists to field hospitals to conduct postmortem examinations.<sup>23</sup>

Far from limiting its supplementation of the Army's facilities in France to convalescent camps, the Red Cross augmented Medical Department facilities at crucial points within the Services of Supply by opening a variety of hospitals, which to differing degrees it managed as well. By the early spring of 1918 three were in existence, with one specifically for officers; others were added as needed. Personnel for the Red Cross military hospitals (known as Army Red Cross), which served principally as evacuation facilities, and the Red Cross convalescent homes came from both the Red Cross and the Army, with the Red Cross providing most of the equipment and supplies. Those in Paris proved especially valuable in the period before the Chateau-Thierry operations because until that point, the French refused to allow the American Expeditionary Forces to open facilities in that city. One of the Paris Red Cross hospitals eventually became the destination of those with maxillofacial injuries sent to the Paris area. Another, opened in August 1918, became a gas hospital, while still another handled the treatment of cases of venereal disease, provided a school for urologists, and assisted in treating American soldiers with scabies and lice.<sup>24</sup>

With the passage of time, the number of psychiatric patients held temporarily at Savenay grew to considerable proportions. An effort was made, as the case load increased, to set up separate accommodations for those suffering from psychoses and other serious mental ills. Shell shock victims were not sent back to base hospitals because of the belief that they should be treated at the front if their chances for return to duty were to be maximized.<sup>25</sup>

Retraining and rehabilitating patients who were deemed to be permanently disabled, among them the blind and amputees, began at Savenay while they awaited transportation home. During this period the orderlies who would accompany the

<sup>23</sup> WD, SGO, *Administration, AEF*, pp. 200, 918–19; L. B. Wilson, "The Pathologic Service of the American Expeditionary Force," pp. 700–703, 710 (quoted words); WD, *ARofSG*, 1919, p. 1327; Moses Barron, "Necropsy Studies at a Hospital Center," p. 317.

<sup>24</sup> WD, SGO, *Administration, AEF*, pp. 283, 288, 368; idem, *Field Operations*, pp. 33, 326–27, 329, 330, 331, 332–33; WD, *ARofSG*, 1919, pp. 1452, 1457, 1458, 1751–54; Goldthwait, *Division of Orthopaedic Surgery*, p. 96; Foster Rhea Dulles, *The American Red Cross*, pp. 181, 182, 183; Gorgas, *Inspection of Medical Services*, pp. 13–14; Bevans, "Function of Consulting Staffs," p. 479; Francis A. Winter, "The American Red Cross with the A.E.F.," p. 556.

<sup>25</sup> WD, SGO, *Neuropsychiatry*, pp. 410–11, 415, 417; idem, *Administration, AEF*, pp. 607, 608–09; Sanger Brown II, "Nervous and Mental Disorders of Soldiers," p. 425.



*Administering a hot drink to a shock case*

blind on the voyage received training. The Red Cross, which played an important role in making the lives of all of those at Savenay easier by providing books, games, clothing, and a large auditorium, assisted in programs to teach the blind braille and typewriting and in other ways helped them to adjust to their disability. In its care of the amputee, the amputation service at the center took special precautions to avoid having the skin shrink away from the stump, an event that would make further amputation necessary before a permanent prosthesis could be fitted. Physical training was also provided to avoid having injured muscles contract permanently and to teach the amputee how to handle his new body.<sup>26</sup>

Although shortages of beds, equipment, and transportation handicapped the AEF medical service, the most desperate shortage was that of personnel. Despite the aid of the Red Cross, this shortage was having far-reaching effects by September 1918. Because medical personnel were so desperately needed, those new to France could not stay long enough at the replacement depot to complete more than two weeks of training. The goal of having medical personnel number almost 15 percent of the American Expeditionary Forces was impossible to attain when less than 8 percent of the space on transports was allotted to medical officers, nurses, and department enlisted men. By early October 1918 the need for medical personnel had become, according to SOS commander Maj. Gen. James G. Harbord, so “urgent” that it could “not be too strongly stated.” The situation in the Services of Supply

<sup>26</sup> Gorgas, *Inspection of Medical Services*, p. 13; WD, SGO, *Administration, AEF*, pp. 606, 611, 613; Bevans, “Function of Consulting Staffs,” p. 482.



Corporal with Both Legs Gone  
by Charles Baskerville

was particularly difficult because shortages at the front were met by stripping base hospital staffs. Patients could and did die as a result of sudden and unexpected hemorrhages when attendants trained to prevent such fatalities were not available.<sup>27</sup>

For most of the war a shortage of consultants made it impossible to assign to each hospital center consultants in all the specialties. The situation was met by attempting to have senior consultants at one center visit all other hospital centers, both to guarantee that standard procedures were followed and to assist in making decisions about the future of patients who needed prolonged treatment. Visiting consultants played an entirely advisory role, however, as far as hospitals other than their own were concerned, because each had its own staff specialist. Consultants tended to be assigned to base hospitals and hospital centers, which were in a better position than units in the field to make the best use of their skills; they were often chiefs of service, thus with a fixed and

recognized place in the hierarchy. The Medical Department filled vacancies in consultant positions at a hospital center from within the center's staff if at all possible, a policy that tended to solidify the position of specialists within the Services of Supply.<sup>28</sup>

Nevertheless, the shortage of consultants precipitated problems even within the Services of Supply, occasionally requiring surgeons to work outside their areas of expertise. At some hospital centers, despite the efforts of the Red Cross to prevent it, a periodic shortage of trained female nurses forced consultants in general surgery to select and train enlisted men to serve as hospital attendants. Disaster was always a possibility when physicians without training in bacteriology were assigned to work as bacteriologists or surgical consultants to work as orthopedists. Because of the relative paucity of orthopedic surgeons, Medical Department

<sup>27</sup> WD, SGO, *Sanitation*, p. 363 (quoted words); idem, *Administration, AEF*, p. 91; Diary, p. 38, Ms C14, Jefferson Randolph Kean Papers, National Library of Medicine (NLM), Bethesda, Md.; Ashburn, *History of MD*, pp. 328, 340; Jonathan H. Jaffin, "Medical Support for the American Expeditionary Forces in France During the First World War," M.A. thesis, p. 2; WD, *ARofSG*, 1919, pp. 1291, 1368; John M. T. Finney, *A Surgeon's Life*, p. 176.

<sup>28</sup> Bevan, "Problem of Hospital Organization," p. 150; Ashburn, *History of MD*, pp. 333–34; Goldthwait, *Division of Orthopaedic Surgery*, pp. 79–80; WD, SGO, *Administration, AEF*, pp. 354, 357, 358, 363, 478–79; Bevans, "Function of Consulting Staffs," pp. 476, 493–94.





*Cape worn by reconstruction aide,  
Services of Supply, c. 1918*

authorities attempted to cultivate an awareness of hospitals in need of their services so as to plan the moves of the specialists they did have to cover as many hospitals as possible, but poor transportation handicapped all attempts to move personnel from location to location.<sup>29</sup>

A new type of nonphysician specialist was needed in the Services of Supply after the Medical Department realized that men with serious injuries would have to begin what was called reconstruction before they were shipped home. Orthopedists discovered that those with orthopedic injuries needed to undertake work to regain function as soon as possible. The department began to ask that reconstruction aides, civilian women who, while not trained nurses, were often college graduates, be sent in as large numbers as possible to serve as occupational therapists and as physiotherapy aides in hospitals in France, distracting the wounded from preoccupation with their condition while they worked to ease disabilities. Conditions in AEF hospitals while the conflict continued, however, were such that little in the way of occupational therapy could actually be accomplished, and until November 1918 many

<sup>29</sup> WD, SGO, *Administration, AEF*, pp. 376, 383, 479, 480; idem, *Sanitation*, pp. 363–64; idem, *Army Nurse Corps*, pp. 325, 333; Goldthwait, *Division of Orthopaedic Surgery*, p. 89.

aides functioned chiefly as nurses. The work of these teams proved to be so valuable that although the need for their services in France dropped as patients were returned to the United States, some members were retained in Europe until June 1919.<sup>30</sup>

### *Evacuation*

Men who could not be quickly restored to duty had to be evacuated from hospitals near the front to free up beds needed by new waves of casualties. As a result, providing beds and transportation for the sick and wounded became an urgent responsibility for the Services of Supply. With patients constantly coming in to the Advance Section, both hospitalization and transportation problems there tended to be more acute than they were elsewhere in France. A secondary level of evacuation became necessary to move the chronically ill and the most seriously wounded further back, in some instances from the Advance Section all the way to the ports of the base sections and thence to the transports that would take them back to the United States.<sup>31</sup>

Until Americans could assume responsibility for the care and evacuation of their own casualties, they had to rely on the French for help. French hospital trains with AEF-provided personnel and medical equipment moved American casualties from French evacuation hospitals to French base hospital centers in the rear, ideally to a center that included an American base hospital. As necessary, these trains moved patients thence to ports for the trip back to the United States. Americans, however, tended to look upon the French rail system with some condescension. They were understandably apprehensive about the prevalent lack of workable air brakes and unhappy about the lack of communications between railroad cars that complicated the process of feeding patients on French trains. But beggars could not be choosers, especially because the shortage of hospital trains in the spring of 1918 was both great and growing in proportion to the need.<sup>32</sup>

The first American hospital train, made up of cars manufactured for the American Expeditionary Forces in England and ferried across the Channel for assembly at Nevers, went in service on 31 March 1918. By early summer nine such trains were in service, in addition to those rented from the French. The so-called medical groups of American officers then began to be assigned to work with the French regulating officers who managed the movements of hospital trains. An American officer became responsible for assigning AEF patients to base hospitals, a process requiring his having accurate information on the number of sick and wounded in need of hospitalization and on the number of vacant beds and the types of patients that could be assigned to them.<sup>33</sup>

<sup>30</sup> WD, SGO, *SGO*, pp. 1270–71; idem, *Administration, AEF*, pp. 128, 129; idem, *Physical Reconstruction and Vocational Education*, pp. 5, 64, 65, 66, 67, 68–69, 72; Goldthwait, *Division of Orthopaedic Surgery*, p. 109; Jaclyn F. Low, “The Reconstruction Aide,” p. 40; Thayer, “Medical Aspects,” p. 769.

<sup>31</sup> WD, *ARofSG*, 1919, p. 1674.

<sup>32</sup> WD, SGO, *Field Operations*, pp. 277, 329; idem, *Administration, AEF*, p. 330; Edward M. Colie, “Notes on Hospital Train Service in the A.E.F.,” p. 331; Goldthwait, *Division of Orthopaedic Surgery*, pp. 86–87.

<sup>33</sup> WD, *ARofSG*, 1919, pp. 1359, 1479, 1742; WD, SGO, *Administration, AEF*, p. 317; idem, *Field Operations*, pp. 266, 268; Colie, “Notes,” p. 329.



*Loading an evacuation train*

The way in which hospital trains were used thus assumed great importance as Allied forces took the offensive. The potential for wasting resources and creating confusion when trains from three nations were moving back and forth from the battlefield to various hospitals and ports throughout France was great. The regulating station was basically a new concept for the U.S. Army. Each station was basically “a large railway yard,” where rail lines from the rear met those from the front and cars were made up into trains. Using these stations minimized the potential for chaos, which was growing. To eliminate arduous travel that had been producing high casualties among American horses and mules, the First Army finally allowed railheads to be used to evacuate animals. As more and more American soldiers entered active combat, the Medical Department recognized the need to have a medical representative at each regulating station.<sup>34</sup>

The large number of patients going through regulating stations necessitated a more complex medical organization at these sites than might otherwise have been justified. Each regulating station had its own hospital, usually of 100 beds, to serve the terminal’s personnel and to temporarily hold patients being evacuated by train from nearby hospitals. The medical contingent also included a sanitary squad to set up prophylactic stations, to maintain sanitation in the buildings, and to watch over the water supply.<sup>35</sup>

Including roughly three hours required for unloading the train, the roundtrip by rail from the front to base hospitals in the Advance Section and back took twenty-four hours or less. The roundtrip between the front and hospitals in the base sections consumed a week. In the effort to keep evacuation hospitals cleared to receive more patients, the initial move for most casualties was only from the

<sup>34</sup> WD, SGO, *Field Operations*, pp. 262 (quoted words), 266–67, 277, 288; idem, *Administration, AEF*, p. 438; Pershing, *My Experiences*, 1:139.

<sup>35</sup> WD, SGO, *Administration, AEF*, p. 785; idem, *Field Operations*, pp. 271, 272.

front to the Advance Section. Other hospital trains, as available, then became responsible for secondary evacuation, transporting patients still farther back. Despite careful planning, slow communications and the false assumptions about the availability of hospital trains that could result sometimes led to increased suffering for patients who lay without cover for long periods of time waiting for a train that never came.<sup>36</sup>

The complexities of evacuation by train became abundantly apparent during the St. Mihiel campaign. The First Army evacuated 21,000 sick and wounded from St. Mihiel through St. Dizier. Seven U.S. trains made twenty-eight trips and French trains another twenty-eight, together averaging four trips a day. The pattern followed in handling so many evacuees called for the regulating station at Is-sur-Tille to be informed about the current number and location of vacant beds. As it pertained to base hospitals in the Advance Section, this information was provided directly by hospitals themselves. As it pertained to base hospitals in the Intermediate Section and the various base sections, it was furnished by the Services of Supply. The Is-sur-Tille station then relayed this information to the St. Dizier station, which managed all train evacuation from the First Army area. Although for the most part the Office of the Chief Surgeon, AEF, at Tours directed secondary evacuation, for a brief period the Is-sur-Tille station directly regulated secondary evacuation when facilities within the Advance Section were involved. After mid-October 1918 evacuation hospital demands for trains decreased sufficiently to permit making one uninterrupted run from these facilities to hospitals in the base sections and the Intermediate Section, thus eliminating the need for patients to be left off temporarily at base hospitals in the Advance Section.<sup>37</sup>

Hospital trains also played a vital role during the Meuse-Argonne campaign. They were in such constant use during this period that the French complained that no time had been allowed to grease the axles of those lent to the Americans. The Americans, in turn, noted that the French trains were not as well suited as their own to evacuating the wounded and that difficulties arose because the orderlies on so many of the French cars could not speak English.<sup>38</sup>

When the influenza epidemic added to the Meuse-Argonne casualty list, the demands on the hospital train system reached a peak. In September and October 1918 American and French trains made 282 trips to move 146,902 men; of these, 29,426 were evacuated in the week of 17–23 October alone. Evacuation stations were established at two hospitals that were located along the rail lines where patients could be accumulated to await the arrival of hospital trains. A G-4 officer and another representing the army surgeon coordinated the movement of patients from each center to the regulating station. An innovation at this time was the so-called preoperative train, used when evacuation hospitals were under particularly great pressure to take transportable surgical patients to the nearby base hospitals.<sup>39</sup>

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<sup>36</sup> Colie, "Notes," p. 335; WD, SGO, *Field Operations*, pp. 278, 284.

<sup>37</sup> WD, SGO, *Field Operations*, pp. 268, 284, 285, 441, 458.

<sup>38</sup> Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical Department, A.E.F.," p. 655; WD, SGO, *Field Operations*, p. 839.

<sup>39</sup> WD, SGO, *Field Operations*, pp. 268, 280, 283–85, 539, 635, 735; Gorgas, *Inspection of Medical Services*, pp. 46–47.

As it evolved through the summer and fall of 1918, the organization of hospital trains became quite elaborate. A commanding officer was in charge of each train, responsible for the management of all aspects of its operations. He was required to telegraph both the AEF chief surgeon and the respective base hospital to which the patients were going about the number and type of patients (how many gassed, how many sick, and how many wounded) on board. Patients received tags that indicated the type and timing of any treatment to be administered on the train. The responsibilities of the officer in charge of the train included the discipline of both patients and train personnel.<sup>40</sup>

The life of attendants on trains, whether male or female, was a hard one. Orderlies were not allowed to leave the train for any reason. Nurses could leave for up to two hours, but even they were not permitted to do so in the zone of the armies. Some debate existed over the role of female nurses. While their skills and devotion to duty were not questioned, “unavoidable inconveniences undoubtedly arose from the confinement of the two sexes in the contracted space.” Some questioned whether the benefit derived from their presence justified the “inconveniences.” Care was required both in selecting the nurses to serve on hospital trains and in providing recreation for them because the cramped quarters, irregular hours, and motion of the trains made this a particularly difficult assignment.<sup>41</sup>

Supplies for hospital trains came from a number of sources. Initially the depot at Cosne provided them, but later a special hospital train store was set up at the central train depot and supplementary depots were created when needed. If absolutely necessary, supplies could be obtained from base hospitals or quartermaster depots at base hospitals. Hospital trains attempted to carry a three-day supply of water on board, where purifying equipment was available. Experience had demonstrated that water supplies at French rail stations were not always safe.<sup>42</sup>

As used by the American Expeditionary Forces, the hospital train system was regarded as very successful for both soldiers and civilians. For soldiers, it made possible prompt surgical intervention when the patient’s condition required it. For civilians “in quiet times and out of the way places, [it] offered a rare opportunity to minister to the medical needs of a large civil population deprived by the war of all assistance of this sort.”<sup>43</sup>

The ambulance system never attained the success achieved by the hospital train organization. In the Services of Supply as in the zone of the armies, the vehicles needed to carry patients between trains and hospitals could not meet the demand for their services. In late April 1918 an estimate of the ambulances needed by the various SOS organizations was formulated, but it was, in essence, only a wish list. The ambulance shortage went from 40 percent in April to 50 percent in September, and did not fall to 20 percent until October.<sup>44</sup>

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<sup>40</sup> WD, SGO, *Administration, AEF*, pp. 324, 325; Colie, “Notes,” p. 333.

<sup>41</sup> Colie, “Notes,” p. 334 (quoted words); WD, SGO, *Administration, AEF*, p. 325; idem, *Army Nurse Corps*, pp. 335–36.

<sup>42</sup> WD, SGO, *Administration, AEF*, p. 323; idem, *Sanitation*, pp. 785–86.

<sup>43</sup> Colie, “Notes,” p. 337.

<sup>44</sup> WD, SGO, *Administration, AEF*, pp. 344–45, 348.

In the spring of 1918 the U.S. Army Ambulance Service ambulances that had been evacuating French casualties since the fall of 1917 undertook to move American patients as well, from station to hospital within the city and back again to the station for evacuation to base hospitals as needed, all under the direction of a Sanitary Corps officer. The additional Ambulance Service units urgently requested in the fall of 1917 were slow in arriving from the United States. The personnel who had been working with the French were not always familiar with the U.S. Army's approach to evacuation or with the required paperwork, although in time they formed "a smooth, highly organized machine." On 6 November 1918 the AEF chief surgeon, repeatedly assured by the General Staff that he had the authority to assign all AEF ambulances as he thought best, ordered that an ambulance pool be created to control the assignments of ambulances throughout the Services of Supply to make the most efficient use of available vehicles.<sup>45</sup>

### *Health of Aviators*

As Surgeon General Ireland later maintained, "At the beginning of the Great War the medical principles involved in flying were realized even less than many of the other problems of aeronautics." Enough had been learned, however, to make it obvious both that the root causes of most accidents were "poor judgment and bad flying" resulting from inadequate training, poor physical condition, and an incomplete understanding of the strain of flying combat missions. Attempts to deal with training and health problems had to be concentrated in France, for most of the 2,034 U.S. pilots and observers who served with the American Expeditionary Forces received their combat flight training overseas. The first heavy attacks on the enemy from the air were launched in the summer of 1918, and by the end of the war the magnitude of the problems involved in preparing pilots to fly had become quite apparent. While 169 had been killed in action, 203 more died as a result of accidents at the training schools in France and another 42 in accidents at the front. For every 100 pilots who arrived at the front, more than 15 were killed before they got there.<sup>46</sup>

Flight surgeons needed not only to be thoroughly trained themselves but also to be intimately associated with the pilots on a day-to-day basis as both friend and physician so as to be in a position to identify health problems without having to wait for aviators to report to sick call. Only then could the flight surgeon be in a position both to initiate measures that would prevent loss of mental and physical fitness and to keep those who were not fit on the ground. Ideally, therefore, each squadron would have its own flight surgeon who lived and messed with the men. To provide each squadron with its own medical officer, three to four flight surgeons would have to be stationed at each field, but the

<sup>45</sup> WD, *ARofSG*, 1919, pp. 1411 (quoted words), 1752; WD, SGO, *Administration, AEF*, p. 346; idem, *Field Operations*, p. 254; H. C. Connor, "The American Red Cross Assistance to the United States Medical Department in the United States," p. 240.

<sup>46</sup> William H. Wilmer, *Aviation Medicine in the A.E.F.*, pp. 4 (quotation), 17, 25, 47–48, 205, 208, 224 (quoted words), 243, 265; Lydia M. De Witt, "Aviation from a Medical Point of View," p. 200; Lee Kennett, *The First Air War, 1914–1918*, p. 215; Edward M. Coffman, *The War To End All Wars*, p. 196; WD, *ARofSG*, 1919, p. 1391.



*Training camp for American aviators in France*

first trained flight surgeons to arrive in France did not arrive until August 1918. Furthermore, none of these thirty-four medical officers, the first group to have gone through the course established for them in the United States, was initially assigned to a squadron.<sup>47</sup>

Learning more about aviation medicine took first priority. The Medical Department sent ten flight surgeons to England to visit training centers and to study the work of their British counterparts. It also assigned five more flight surgeons to the recently established Medical Research Board in France. The board had two branch units, a total of thirteen officers, stationed at the Aviation Instruction Center at Issoudun, the first and largest of such centers to be established (one branch was later moved to Tours), and a six-officer ophthalmological unit operating temporarily at Vichy. Fifteen enlisted men trained in the laboratory work so necessary to detecting and dealing with physical problems were also sent to France. Although work had started to create a laboratory at Issoudun, it was not usable until after the Armistice and was terminated early in 1919.<sup>48</sup>

The first flight surgeon to work directly with aviators in France was assigned to an airfield in mid-September 1918. Another flight surgeon was sent to the Second Aviation Instruction Center and a third to the Seventh Aviation Instruction Center. Each flight surgeon messed with the aviators he served. At this time a school for flight surgeons was established at the Third Aviation Instruction Center, but it had only three students at the time of the Armistice. Although twenty-five squadrons served during the St. Mihiel effort and forty-five squadrons were stationed at the front by the war's end, the American Expeditionary Forces had only nine flight surgeons actively serving in that capacity in late October. The Armistice ended the hope that each landing field and balloon station near the front would have its own flight surgeon.<sup>49</sup>

<sup>47</sup> Wilmer, *Aviation Medicine*, pp. 16–17, 24, 25, 47–48, 51; WD, SGO, *Training*, p. 1114; WD, *ARofSG*, 1919, pp. 1390–91; Stephen C. Craig, “The Life of Brigadier General Theodore C. Lyster,” p. 1051; Mae Mills Link and Hubert A. Coleman, *Medical Support Army Air Forces in World War II*, p. 19. There is disagreement about whether thirty-three or thirty-four medical officers were in the first group.

<sup>48</sup> Wilmer, *Aviation Medicine*, pp. 16–17, 19–20, 247; Link and Coleman, *Medical Support*, p. 19; Coffman, *War To End All Wars*, p. 198; W. H. Wilmer, “The Early Development of Aviation Medicine in the United States,” pp. 132–33; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 34–35, 40.

<sup>49</sup> Link and Coleman, *Medical Support*, p. 19; Wilmer, *Aviation Medicine*, pp. 28–29, 48, 50, 52; Coffman, *War To End All Wars*, p. 196.

The Medical Research Board especially emphasized the importance of examining each pilot who had been ill or wounded before permitting him to return to duty, but the only specific examination required before allowing a man to fly at this time was the rotation test. Aware of the dangers posed by what was termed *staleness*, the board also recommended more recreation, more exercise, and a half day off in the middle of the week. Initially, any pilot who thought he needed to see a physician had to have the permission of his commanding officer to do so. Commanding officers, however, considered the number of pilots on duty to be more important than their fitness to fly. They also limited to no more than two days the amount of leave a medical officer could allow to a man found to be unfit. Not surprisingly, by the fall of 1918, the aviators stationed at the nine airfields in the Issoudun area were all in poor physical condition, eating too much, drinking too much, and exercising too little. Morale was low, and the increasing number of deaths inspired a fatalistic attitude among the pilots.<sup>50</sup>

The Medical Research Board also investigated the types of design flaws that led to unnecessary threats to the physical safety of pilots, in one instance urging the removal of windshields in a particular type of plane because they interfered with the vision of short pilots and caused injuries if the machine nosed over in landing. In identifying these and similar problems and emphasizing the importance of dealing with them in the fall of 1918, the Medical Research Board saved both lives and machines.<sup>51</sup>

Although the flight surgeon was responsible for seeing that only fit men took to the air, he was not responsible for treating anything more than the most minor ills. Either the flight surgeon or the training department sent aviators with serious health problems and those sent back from the front because of their condition to a group of consultants appointed from the research laboratory to check them over. Like any other patient, the hospitalized aviators became the responsibility of the post surgeon or, in a larger facility, the medical officer in charge.<sup>52</sup>

### *Medical Supply*

By the time U.S. troops became actively involved on a large scale in the fighting in France, the system through which medical supplies moved was basically established. Although closer control proved necessary as demand rose, the principal difficulties could be traced, either directly or indirectly, not to the distribution system but to the shortage of supplies, which was often related to problems with transportation all along the supply line from U.S. ports to units and facilities in France. The situation was particularly acute in the last four months of the war, when base hospitals arriving in France often found that their equipment and supplies had been left behind in the United States, to be shipped a month or more after personnel departed.<sup>53</sup>

<sup>50</sup> Wilmer, *Aviation Medicine*, pp. 17–18, 20, 22, 23, 37; idem, “Early Development,” p. 133; Coffman, *War To End All Wars*, p. 206; Memo, Benjamin D. Foulois for IG, AEF, 9 Sep 1918, sub: Efficiency of Air Service Personnel, Entry 588, RG 120, NARA–CP.

<sup>51</sup> Wilmer, *Aviation Medicine*, pp. 25, 26.

<sup>52</sup> *Ibid.*, pp. 18, 23, 48–49, 50; WD, *ARofSG*, 1919, pp. 1391, 1693; WD, SGO, *Administration, AEF*, pp. 755–56, 768.

<sup>53</sup> WD, SGO, *Administration, AEF*, p. 484; Gorgas, *Inspection of Medical Services*, p. 21; Pershing, *My Experiences*, 1:391.



The slowness with which needs were communicated and met and the lack of “good medical representation upon the docks in the United States and in France” frustrated the automatic supply system that seemed so logical. When supplies sufficient for the number of units being sent overseas did not arrive in a timely fashion, demands had to be met from reserves, precipitating another problem. The requirement that the reserve consist of a ninety-day supply had never been reached, nor was the reduced requirement of a forty-five day supply. Some needed items, from ambulances to dental and laboratory equipment, remained unshipped within the United States or disappeared in transit, while others temporarily vanished in the confusion at French ports. Slow unloading of ships further delayed the arrival of supplies.<sup>54</sup>

In the attempt to make the best of the supply situation, the AEF chief surgeon further refined the system that had been established before U.S. units entered combat on a large scale. He ordered that each base section divide its storage facilities into a base storage section and an issuing depot, the former to be under his or one of his representatives’ control and the latter to remain under the section surgeon’s control. Construction problems delayed setting up these base depots; however, once established, they made greater efficiency of transportation possible by holding supplies until enough had been accumulated to fill a railroad car. As part of the effort to increase efficiency in managing supplies, a medical depot was established early in August 1918 at Liverpool so as to avoid having to ship supplies destined for facilities in England first to France. Items shipped from the United States to this depot were supplemented with those bought in England. Under this new system of controlled supply, the AEF chief surgeon gave each base depot a list of the items and amounts it was to retain, requiring that anything beyond this be shipped to the Intermediate Section depots.<sup>55</sup>

With the formation of the large hospital centers, the need for each center to have its own internal supply system became obvious. A center-wide medical supply depot made it possible to ship supplies to the centers in large lots, thereby making them less vulnerable to irregularities in the transportation system, but the chronic shortage of railroad cars made deliveries unpredictable. This depot had to be more than a mere warehouse for storage; it had to be ready to issue needed items as called for by the various hospitals that formed the center. Each hospital unit at the center also had its own small depot, thereby making it possible both to deliver supplies in bulk directly to the hospital center from the ports and, by dividing the total quantity up among many storage areas, to reduce the potential for a single fire to destroy everything being held by the center.<sup>56</sup>

Although the shortages that resulted from transportation problems were often temporary, caused by delays in delivery rather than lack of goods, real shortages of some items were acute and to a large extent insurmountable. Most

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<sup>54</sup> WD, *ARofSG*, 1919, pp. 1490, 1491 (quoted words), 1493; Gorgas, *Inspection of Medical Services*, p. 21; WD, SGO, *Administration, AEF*, pp. 117, 118, 137, 170; idem, *Finance and Supply*, p. 624; Pershing, *My Experiences*, 2:188.

<sup>55</sup> WD, SGO, *Administration, AEF*, pp. 396, 404; idem, *Finance and Supply*, pp. 784-85, 787; WD, *ARofSG*, 1919, p. 1347.

<sup>56</sup> WD, SGO, *Administration, AEF*, pp. 397-98, 505; idem, *Finance and Supply*, p. 792; WD, *ARofSG*, 1919, p. 1347.

crucial was the scarcity of instruments. By August 1918 the situation was extremely serious, causing the Medical Department to buy up everything that dealers in the United States had on hand that even resembled items on the supply list and to ship them "on a fast transport," a step that somewhat relieved the emergency. Dental supplies continued to be difficult to obtain in adequate quantity; such stress was placed on the resources of the Allies that the French and then the British put strict limits on the amounts that could be bought within their boundaries.<sup>57</sup>

To deal with the situation, the Army turned to civilian volunteer agencies much as it had in both the Civil and Spanish-American Wars. The principle organization upon which the Medical Department relied for supplies in France during World War I was the American Red Cross, which opened its storehouses to the Army without restriction and which in late August 1918 was authorized to set up its own system of supply trains. The Red Cross took on the responsibility for providing standardized splints and dressings in quantity and created and operated a factory to make anesthetics, including nitrous oxide, in France. This situation led to confusion. Until they were required to obtain approval from higher authority, some medical officers requisitioned supplies from the Red Cross and the Army both, a situation that was seen as contributing to extensive shortages in such items as sheets on the world market. In addition, some Red Cross personnel, unfamiliar with the Army and its organization, were ignorant of the fact that the Medical Department had its own supply service. Many organizations outside the Red Cross also donated some form of aid. The Benevolent and Protective Order of Elks of the United States, for example, provided all the funding for a base hospital mobilized with personnel from the University of Virginia in the spring of 1918.<sup>58</sup>

### *Field Instruction*

One of the responsibilities of the Services of Supply was instruction, made all the more important by the increasing haste with which medical personnel were dispatched to Europe. The various approaches used included classes at a hospital in one or another specialty and formal courses of instruction at the Central Medical Laboratory at Dijon. Every effort continued to be made to profit from the experiences of the Allies. Because surgeons at the front apparently lacked full understanding of the blood and nerve supplies to muscles so critical for effective debridement, an intensive course was begun in June 1918 to provide the requisite instruction concerning wound management. Other subjects covered included the bacteriology of wounds and epidemic disease, shock and resuscitation, and the examination of water supplies, among others. By the end of the war the goal of

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<sup>57</sup> WD, SGO, *Finance and Supply*, pp. 533 (quoted words), 625; idem, *Administration, AEF*, pp. 114–15.

<sup>58</sup> AEF GO no. 139, 24 Aug 1918; Wadhams and Tuttle, "Some of the Early Problems," p. 661; WD, SGO, *Administration, AEF*, pp. 407–08; idem, *Finance and Supply*, p. 805; idem, *Training*, p. 1125; Julian M. Cabell, *A Brief Sketch of Base Hospital No. 41 by the Commanding Officer*, pp. 3–4.

providing each hospital center and each independent base hospital with at least one medical officer familiar with this type of work had been reached. The shortage of medical officers was sufficiently acute to inspire increased emphasis on preparing dentists to serve as medical officers should the need arise. The Medical Department was also responsible for one of the schools designed to provide instruction in dealing with gas warfare. Although the medical education available in the AEF schools was highly regarded, not everyone was totally fascinated by the classes. On 25 June 1918 Maj. Harvey W. Cushing philosophically noted in his journal that “a superfluity of lectures causeth ischial bursitis.”<sup>59</sup>

With an awareness of the problems precipitated by shock growing as more U.S. troops entered active combat, study of ways of dealing with it intensified. The condition itself was identified by the fact that the victim was prostrated—unable to maintain his body temperature, to walk or coordinate his muscular activity, or to think clearly. Classes for base hospital surgical staffs began at Dijon in May 1918, with the intention of organizing resuscitation teams to work with this category of patient in hospitals at the front. Students learned, among other things, that pain being a factor in shock, morphine in large doses proved helpful, especially in patients who had also endured long exposure to cold and wet. With blood loss another important factor, a class in blood transfusion (by this time a “routine procedure”), including matching blood types and using transfusion equipment, was also provided. This instruction provided training in matching blood types—four blood types were recognized—and in the use of transfusion equipment. Emphasis was also placed on the need to keep the patient warm. The success of instruction plans was limited, however. Medical officers were in short supply, making it difficult to release them from their duties long enough to take courses.<sup>60</sup>

To remedy a shortage of surgeons familiar with the requirements of maxillofacial surgery, both surgeons and dental surgeons studied in British and French hospitals and in special schools. Experts in the field were sent out to hospital centers to teach the highly specialized techniques required, and the senior consultant in prosthetic dentistry also visited each major base hospital and hospital center to instruct their staffs. A school to train surgeons and visiting surgeons to meet the requirements of maxillofacial surgery was also established at Vichy, where the French, more experienced in handling this type of challenge, also had a hospital specializing in maxillofacial surgery, enabling them to provide additional instructors.<sup>61</sup>

<sup>59</sup> WD, SGO, *Administration, AEF*, pp. 209, 326; idem, *Training*, pp. 579, 584–86, 599, 610–11, 655–57; Harvey Cushing, *From a Surgeon's Journal, 1915–1918*, p. 386 (quoted words); Bailey K. Ashford, “The Preparation of Medical Officers of the Combat Division in France at the Theatre of Operations,” p. 117; United States, Congress, Senate, Committee on Military Affairs, *Hearings Before the Subcommittee of the Committee on Military Affairs*, 66th Cong., 1st sess., p. 152.

<sup>60</sup> George W. Crile, *An Autobiography*, 2:337 (quoted words); WD, SGO, *Administration*, p. 226; idem, *Training*, pp. 593, 594, 597, 598–99, 881, 891, 1004; idem, *Field Operations*, p. 774; W. B. Cannon, “Wound Shock,” pp. 494, 505–06; Marianne Bankert, *Watchful Care*, pp. 40–41; Fowler, *History of Base Hospital No. 61*, p. 56; Bailey K. Ashford, “A Lecture on Field Hospitals,” p. 560; Diary, p. 27, Ms C14, Kean Papers, NLM; Kim Pelis, *Taking Credit*, pp. 271–72.

<sup>61</sup> WD, SGO, *SGO*, pp. 451, 461, 469, 475; idem, *Administration, AEF*, pp. 114, 368; idem, *Training*, p. 652; Johnson, “Plastic Surgery,” p. 97; WD, *ARofSG*, 1919, p. 1306; Gorgas, *Inspection of Medical Services*, p. 13.

*Preventive Medicine*

Efforts to limit the inroads of communicable disease within the American Expeditionary Forces were, with the important exception of respiratory disease, successful to a significant degree, even at the height of the Allied offensive. The ills encountered in France were, for the most part, no different from those at camps in the United States. Of the approximately 50,000 deaths from disease throughout the Army, including Marines attached to the Army, from the start of the war to July 1919, almost 11,500 were from the American Expeditionary Forces. Roughly 43,000 AEF soldiers, including those fighting in Russia and Siberia, died of their wounds, either on the battlefield or in a hospital (laboratory work suggested that streptococcal infection caused 70 percent of deaths from infected wounds). Disease was responsible for 71 percent of the time lost from duty in the entire Army in 1918. Serious illness, like serious injury, became the responsibility of the AEF medical service. Statistics on the disease rate have to be narrowly considered, however, given that the influenza epidemic continued to rage after the war's end and to cause many deaths, obviously including the deaths of some who fell ill before the war's end. Figures differentiating between those who died of wounds and those who were killed in action also differ, according to how the terms are defined.<sup>62</sup>

A successful battle against communicable disease required both rapid identification of disease when it first appeared and measures to prevent further spread. The work of the Dijon laboratory in the closing months of the war contributed significantly to the effort. Medical officers assigned to the laboratory headed teams going into the field to investigate epidemics. Beginning in the spring of 1918, other officers from the laboratory trained division medical personnel in the techniques necessary to assuring the purification of water supplies. Although researchers at the Dijon laboratory had already identified the body louse as the vector for trench fever, a disease that kept soldiers out of action for significant periods but was generally not fatal, the organism responsible still eluded bacteriologists there. The greater potential threat posed by typhoid fever, on the other hand, was reduced by immunization, which limited its inroads among those serving in less-than-ideal sanitary conditions and among those serving in support positions behind the front. Some medical officers, however, assumed that because of immunization, typhoid fever would never appear. Thus, the differentiation between diarrhea symptomatic of late-stage typhoid fever and diarrhea caused by other conditions was not always promptly made. Occasional outbreaks still occurred, often at rest camps located in areas where typhoid was common in the civilian population. This failure allowed a wider spread of the disease than might have otherwise been the case. The average monthly rate for the American Expeditionary Forces was, with the exception of July 1918, under ten cases.<sup>63</sup>

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<sup>62</sup> Albert G. Love, "Brief Summary of the Vital Statistics of the U.S. Army During the World War," p. 165; United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, 65th Cong., 1st sess., p. 30; WD, *ARofSG*, 1919, p. 49; Leonard P. Ayres, *The War with Germany*, p. 123; J. Hill, *Silent Enemies*, pp. 99–100; "Some Accomplishments of the Services of Supply," p. 104, copy in Library, CMH. See also Garfield and Neugut, "Epidemiologic Analysis," p. 688.

<sup>63</sup> WD, SGO, *Administration, AEF*, pp. 207, 213; idem, *Sanitation*, p. 1104; idem, *Training*, p. 599; idem, *Communicable and Other Diseases*, pp. 24, 28, 30–31; Gorgas, *Inspection of Medical*

For those trying to prevent the spread of other communicable diseases, replacement depots posed a considerable problem. Men who might well be immune to the specific diseases that had afflicted their own units were now exposed to a host of other ills as they entered and left the depot by the thousands at a time when moving troops quickly on to the front had the highest priority. Strenuous efforts to spot disease early and to promptly separate those who were sick from those who were not were certainly in part responsible for limiting the inroads of such diseases as measles, mumps, diphtheria, and meningitis. Rates were regarded as relatively low at the First Replacement Depot at St. Aignan, where each day as many as 4,000 men recently exposed to disease at mobilization camps, on crowded and poorly ventilated transports, and at base ports arrived to be equipped and briefly trained before being sent on their way to replace men lost to service at the front.<sup>64</sup>

Venereal disease (VD) in the American Expeditionary Forces continued to be a major concern of the Services of Supply because VD rates increased markedly when soldiers went on leave. To make sure that prophylaxis was widely available to soldiers no matter where they were, even the Young Men's Christian Association (YMCA) set up stations. Paris and its temptations, including French-licensed houses of prostitution, were off limits for soldiers on leave. The YMCA helped to set up specific areas where appropriate recreation was provided, and publicity was given to the fact that those who contracted venereal disease were helping the enemy.<sup>65</sup>

Eternal vigilance was the price of low VD rates. Trains had to be carefully inspected; prostitutes were sometimes found hiding in the washrooms of trains taking soldiers on leave. In Base Section No. 1, where so many soldiers from the United States first landed, stricter restrictions were placed on leave in August 1918. Later in the fall, peer pressure was added to the weapons used against venereal disease. Organizations of good character were given more liberal leave, while those with higher rates faced greater limitations. The effort was, on the whole, regarded as successful. VD rates were high in all the armies involved in World War I, but the rate for the American Expeditionary Forces was reportedly less than that in any other army.<sup>66</sup>

Unlike venereal disease, influenza was an episodic rather than a constant problem. Influenza and diarrhea were the only two epidemic diseases to strike the American Expeditionary Forces. After appearing in mild form at scattered sites in the spring, the influenza epidemic hit the American Expeditionary Forces both in

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*Services*, p. 40; Cushing, *From a Surgeon's Journal*, pp. 278, 300; Hill, *Silent Enemies*, pp. 84–85; John Ellis, *Eye-Deep in Hell*, p. 57; Frederick F. Russell, "Typhoid Fever in the American Army During the World War," p. 1864; Haven Emerson, "General Survey of Communicable Diseases in the A.E.F.," p. 410; O. G. Brown, "Problems in the Control of Infectious Diseases at Replacement Depots," p. 62.

<sup>64</sup> Brown, "Problems," pp. 59–62; WD, SGO, *Administration, AEF*, p. 207; idem, *Sanitation*, pp. 536, 883–84, 895–96, 898, 1095; Ashburn, *History of MD*, p. 334.

<sup>65</sup> Gorgas, *Inspection of Medical Services*, pp. 22–23, 24; Ashburn, *History of MD*, p. 337; WD, SGO, *SGO*, p. 1013; idem, *Sanitation*, p. 942; Tobey, *Medical Department*, p. 43; Allan M. Brandt, *No Magic Bullet*, pp. 109–10, 116.

<sup>66</sup> Brandt, *No Magic Bullet*, pp. 110, 115; WD, SGO, *Sanitation*, p. 917; Ellis, *Eye-Deep in Hell*, p. 153.

France and in England hard in August, September, and October of 1918, causing more hospital admissions than any other disease that year. The burdens posed by this disease were particularly great in the Services of Supply because so many cases were acquired on board transports and brought into France with debarking troops. Furthermore, the disease affected those housed in barracks more than those who were serving in the field. It also appeared less often among troops in France than among those remaining in the United States—a state of affairs explained by the fact that the men sent to France were “more seasoned” and that many had had influenza before they arrived in France. Among those who did contract influenza in France, however, 5 to 10 percent developed pneumonia, and mortality among them could on occasion rise as high as 50 percent. In general, pneumonia caused more deaths among the men in France than any other single illness.<sup>67</sup>

The American Expeditionary Forces was in no position to deal with the epidemic effectively. “Military necessity demanded every sacrifice.” Ports were overwhelmed. Where arriving troops were gathered at St. Aignan, quarantine was impossible; men were quartered in private homes and widely dispersed. Hospitals were in no way prepared to deal with so many flu victims. The Mesves facility could not obtain enough sheets and had to use newspapers. Tents could be put up and special temporary hospitals created, but additional medical personnel were generally not available.<sup>68</sup>

An increase in diphtheria rates in the American Expeditionary Forces coincided more or less with the appearance of the influenza epidemic, which may have also delayed accurate diagnosis. An epidemic at the Allerey hospital center in the fall of 1918 was blamed in part on delayed recognition of the existence of a problem, many cases having been assumed to be the results of gassing rather than infection. Once the disease was identified, the usual methods of control and the use of mobile laboratories to identify carriers and mild cases succeeded in limiting its spread.<sup>69</sup>

Among diseases of generally minor significance that affected the troops were trachoma, a viral infection of the eyes; German measles (also known as Liberty measles); rabies (one case of which was said to have resulted from the bite of a cow, which never contracted the disease); anthrax (once again blamed on shaving brushes); whooping cough; and hookworm. Chicken pox, important only because it was sometimes mistaken for smallpox, was present in the French civilian population, among whom vaccination for smallpox was not mandatory. Meningitis, though often fatal, did not appear in epidemic form in the American Expeditionary

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<sup>67</sup> WD, SGO, *Sanitation*, pp. 533, 535 (quoted words), 1108–09; idem, *Administration*, AEF, pp. 450, 462, 719; WD, *ARofSG*, 1919, pp. 1310, 1311; Emerson, “General Survey,” pp. 417–18, 419; Warfield T. Longcope, “Survey of the Epidemic of Influenza in the American Expeditionary Forces,” pp. 189–90; Samuel Bradbury, “The Recurrence of Influenza in a Regiment,” p. 472; Hans Zinsser, “The Etiology and Epidemiology of Influenza,” p. 288; F. M. Meader, J. H. Means, and J. G. Hopkins, “An Account of an Epidemic of Influenza Among American Troops in England,” pp. 370, 378–79; Robert H. Ivy, “The Influenza Epidemic of 1918,” p. 622; Deane C. Howard and Albert G. Love, “Influenza—U.S. Army,” pp. 529, 547; Brown, “Problems,” p. 63; “Some Accomplishments of the Services of Supply,” p. 111, copy in Library, CMH.

<sup>68</sup> WD, SGO, *Sanitation*, pp. 362–63, 535 (quotation); idem, *Administration*, AEF, pp. 459, 512, 582, 690, 701–22; Ashburn, *History of MD*, pp. 335–36; Brown, “Problems,” pp. 60–61, 63.

<sup>69</sup> Marcus P. Neal and Alan C. Sutton, “Diphtheria in the American Expeditionary Force,” pp. 434–35; WD, SGO, *Administration*, AEF, p. 513; idem, *Sanitation*, pp. 536, 1091.



*Surgical ward at the Allerey hospital center*

Forces; as was true with other communicable diseases, most cases that were encountered occurred in base ports and had probably been contracted on board transports. Measles and scarlet fever rates in the American Expeditionary Forces were higher than they were among other Allied troops, especially so among units arriving near the end of the war. Once again, many cases of scarlet fever seemed to originate in the camps in the United States and on the transports bringing fresh troops overseas. Surprisingly, mumps caused more time lost from duty—reportedly more than a million days—than other contagious diseases, in part, presumably, because of its long incubation period and the fact that physicians did not then know how it was transmitted or what caused it.<sup>70</sup>

While not all communicable diseases were easily controlled, they were generally better understood than mental and nervous diseases. One physician maintained that at least 90 percent of AEF troops had “a healthy and stable mental attitude.” Nevertheless, the few who were mentally unhealthy and unstable caused considerable concern. Cases classified as insanity increased in wartime, from 1 per 1,000 per year in civilian life to 3 in 1,000 during the conflict along the Mexican border

<sup>70</sup> WD, SGO, *Sanitation*, pp. 536, 1093, 1095, 1096–98, 1099–1100, 1110–1111, 1113, 1114, 1116; Emerson, “General Survey,” pp. 399, 401.

in 1916–1917 and then to 12 in 1,000 in the American Expeditionary Forces in late April. Attempts were made to draw a clear line of distinction between mental conditions of the type also commonly seen in peacetime (mental retardation, psychoses, and neuroses that might be exacerbated by combat experience) and the problem known as war neurosis, believed by many authorities, both American and Allied, to be the effect of combat on those who probably had a previously unrecognized predisposition toward breakdown. Some authorities appeared to be skeptical about the theory that, except for a very few instances, shell shock was a phenomenon apart from mental problems seen in the United States.<sup>71</sup>

While every effort was exerted to retain close to the front those with problems believed to have occurred as a result of combat, plans did not call for keeping those with neuropsychiatric illnesses in Europe unless their condition was such that they could, at the very least, be profitably used in noncombat positions. Although attempts were made to weed out malingerers, those for whom the prognosis was poor quickly became the responsibility of SOS medical facilities. Those initially sent to French facilities were transferred to American base hospitals with neuropsychiatric departments. Patients suffering from this type of problem might be briefly treated in the Services of Supply, but if they did not respond favorably, they were sent to base port facilities and, when a sufficient number had been accumulated, evacuated to the United States. Confusion over policy, however, led the commanding officer at one hospital center to believe that any soldier who had ever suffered from any psychoneurotic symptoms should be classified as unable to return to duty and ~~thus~~ transferred to the United States. Men who were obviously psychotic were initially sent to the center at Bazoilles or to other hospitals prepared to care for them, and then collected at base ports for their return voyage; those considered to be suffering from “marked emotional instability, sexual psychopathies . . . , paranoid trends, and specific criminalistic traits” were also sent home.<sup>72</sup>

For the most part, shell shock victims requiring more than a few days of rest, good food, warmth, and encouragement were sent back to the Base Hospital No. 117 at La Fauche, where especially trained staff handled almost 3,000 cases between the end of June 1918 and Armistice Day on 11 November. Because the shell shock victim was regarded as suffering from an “infantile reaction,” treatment called not only for some kindness but also for the physician to “call to his aid some of the resources of the schoolmaster,” the “physician’s mastering the patient” being important to effecting a cure. As one expert said, “There must be some air of magic about the performance.” The punitive approach developed by the French, involving the “brusque application of galvanic currents, strong enough to be extremely painful” was never used within the American Expeditionary Forces, where the gentler British approach was favored. Occupational therapy, sometimes in the form of painting the details of the patient’s experiences at the front or of using

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<sup>71</sup> Brown, “Nervous and Mental Disorders,” p. 419 (quoted words); Pearce Bailey, “War Neuroses, Shell Shock, and Nervousness in Soldiers,” p. 2149; Cushing, *From a Surgeon’s Journal*, p. 348; WD, SGO, *Administration, AEF*, p. 378; Lyn Macdonald, *The Roses of No Man’s Land*, p. 213. See also, for example, A. E. Brownrigg, “Neuropsychiatric Work in the Army,” p. 461.

<sup>72</sup> WD, SGO, *Administration, AEF*, pp. 924, 925 (quoted words), 926, 946, 948; idem, *Neuropsychiatry*, pp. 282, 285, 299, 405; Gorgas, *Inspection of Medical Services*, p. 16; Brownrigg, “Neuropsychiatric Work,” p. 460.



tools in the hospital workshop, sometimes in the form of breaking up the stones needed to improve roads to the hospital, was provided to lessen the patient's fears by demonstrating that his condition was only temporary. If necessary, however, the patient might be denied leave until after he had returned to the front. Relapses were frequent and were seen as "indicative of a bad morale on the part of the patient, of an unwillingness to profit by what he has learned, [in response to which] strict and if necessary disciplinary measures should be used." The patient who could not be assigned some form of duty, full or limited, within two to three weeks might be subject to evacuation to the United States.<sup>73</sup>

At war's end, the number of psychiatric patients was growing, and plans were being laid for creating facilities for neuropsychiatric patients at several hospital centers. The camp hospital at the replacement depot at St. Aignan had a 114-bed psychiatric facility, and the number of patients with neuropsychiatric diagnoses held at Savenay was increasing. Related to conditions that were unquestionably mental or emotional was one whose exact nature physicians did not entirely understand and concerning which there is speculation to this day. This, a condition that first drew attention during the Civil War, became variously known as the irritable heart syndrome, soldier's heart, neurocirculatory asthenia, and the effort syndrome. Whether these patients were treated in the United States or in France, the success of the treatment was found to depend largely on the skill of the physicians caring for them.<sup>74</sup>

For medical units and personnel in the Services of Supply, as for those at the front, the war entered with so little preparation ended abruptly. Many, if not most, of the huge hospital centers that had been designed for the care of the AEF casualties had not been completed by 11 November 1918. Construction for some had scarcely been started. Personnel were still being shifted from one place to another in a desperate attempt to meet at least the most pressing needs for their services. The problems caused by inadequate transportation and inadequate communications remained unsolved. Even the hospital train system had not yet reached all the goals set for it. The perception that the AEF medical service was a supply department was untenable to some Medical Department leaders. The new AEF chief surgeon, Col. Walter D. McCaw, MC, attributed the cause to the fact that his medical organization was regarded merely "as one of the supply departments, instead of a great technical and administrative department which has at the front very important tactical problems and in the Services of Supply complex administrative problems entirely different from those of the supply departments." Long enough to identify the serious nature of the problems that the Services of Supply could

<sup>73</sup> WD, SGO, *Neuropsychiatry*, pp. 230–31, 295–98, 361 (first quoted words), 362–63, 364–66; Bailey, "War Neuroses," pp. 2151 (second and fourth quoted words), 2152 (third quoted words), 2153 (fifth quoted words); Gorgas, *Inspection of Medical Services*, pp. 16–17; Ben Shephard, *A War of Nerves*, pp. 130–31. See Chapter 1 for information on the background of neuropsychiatry in the United States.

<sup>74</sup> WD, SGO, SGO, p. 380; idem, *Neuropsychiatry*, pp. 285–86; WD, *ARofSG*, 1919, pp. 1373–74; Thayer, "Medical Aspects," p. 766. See also, for example, Jeff Wheelwright, *The Irritable Heart: The Medical Mystery of the Gulf War* (Princeton, N.J.: W. W. Norton, 2001).

face in a conflict fought on such a scale, U.S. participation in the war was not long enough to allow solutions to those problems and, indeed to the problems faced by the American Expeditionary Forces as a whole, to be fully developed.<sup>75</sup>

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<sup>75</sup> WD, *ARofSG*, 1919, pp. 1439 (quoted words), 1499.



## Chapter 12

# CHALLENGES IN OTHER THEATERS



While the U.S. troops fighting in Western Europe were concluding their participation in what has been called “the greatest drama of all time,” other American soldiers were “performing burlesque antics in fantastic sideshows” in North Russia and Siberia.<sup>1</sup> The sideshows, which began in earnest in the summer of 1918, continued even after the great drama had been played out and troops in Western Europe were either in the process of leaving France or serving as occupation forces in Germany. The troops who served as part of the occupation force in Germany were no longer in the spotlight, and guarding their health was a more or less routine assignment for the Medical Department. In other theaters, however, preserving the health of soldiers afflicted by low morale and struggling with rampant diseases and guerrilla warfare in an unforgiving climate presented challenges that in many ways resembled more those of the Indian Wars of the preceding century than those that became familiar in World War I. And meanwhile, forgotten, relatively small numbers of troops continued to serve in American possessions in the Caribbean and the Pacific.

### *In North Russia*

As later recalled by General Peyton C. March of the period when he served as the Army chief of staff (19 May 1918 to 30 June 1921), “President [Woodrow] Wilson only interfered twice with the military operations of the War Department during the war . . . , and both times he was wrong. The first of these was the Siberian Expedition; the other sending American troops to Murmansk and Archangel, in northern Russia.” On 27 May 1918 military attaches of the various Allied nations met in Moscow and, after erroneously concluding that the Germans were about to move a major force from Finland into Russia, agreed that the Allies should intervene in North Russia. On 1 June, over the objections of Secretary of War Newton D. Baker, President Wilson agreed that some troops from the American Expeditionary Forces (AEF) should participate in the venture. The next month, on 17 July, the president ordered a regiment to North Russia and “then washed [his] hands of the whole matter.” British ships were used to transport men and materiel to North Russia. Lacking

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<sup>1</sup> John Cudahy, *Archangel*, p. 2.

guidance, the commanding officer of the North Russia Expedition concluded that his superiors wished him to allow the British to control his command.<sup>2</sup>

When the troops of the 339th Infantry arrived in North Russia in the late summer of 1918, they became part of a conglomeration of soldiers from various nations, all serving in a strange and primitive land of bitter cold populated by guerrilla bands who knew well both the terrain and the people who inhabited it. By the time the soldiers who had been fighting in Western Europe were heading for home, the struggle for those sent to North Russia was just beginning. The first snow fell in November, and by January 1919 it was three feet deep. The men soon discovered that “when the wind is high and the air filled with great, white blasts, this cold of Russia presses on the diaphragm like a ponderous weight and breathing becomes a gasping effort. In the depth of winter, the sun is banished . . . .” As recorded by another participant, “The Russian campaign, especially after the Armistice, [became] a struggle against extermination, with no ideals to fight for; no assistance, no morale, no fresh meat or vegetables, no recreation. . . .”<sup>3</sup>

Apparently neither before nor after becoming surgeon general was Merritte W. Ireland significantly involved in either the planning or the management of the medical aspects of the North Russia Expedition. He maintained that as late as September 1918, he did not know if the expedition’s medical personnel (27 officers and 269 enlisted men) or its medical supplies were sufficient to meet its needs. Like the 4,477-man regiment and the battalion of engineers that accompanied the expedition, medical personnel had all been fed, clothed, and supposedly trained in England; in actual fact, many, possibly all, of the Medical Department’s enlisted men who were involved “had had practically no medical training.” Both on the British transports and in North Russia, they were without American guidance or support concerning hospitalization and medical care.<sup>4</sup>

American troops in Russia encountered sanitary conditions that represented a cold climate’s version of those encountered in the Philippines at the turn of the century. Even in Archangel, which had a peacetime population of about 60,000, sewage ran in open ditches and “in the Spring, when the temperature went from below zero to ninety above in a few days, the resulting rivers of excrement were not pleasant.” Apparently every house in the countryside had a steam bath, but those used to billet the troops were often infested with the mite that causes scabies. The men also found that the drinking water made them sick, whereas the Russians preferred tea.<sup>5</sup>

<sup>2</sup> Peyton C. March, *The Nation at War*, pp. 113 (quotation), 139 (quoted words), 143; Cudahy, *Archangel*, pp. 22, 26–27, 210; Dennis Gordon, ed., *Quartered in Hell*, pp. 5, 9, 10; Edward M. Coffman, “The Intervention in Russia, 1918–1921,” p. 65; idem, *The War To End All Wars*, p. 360.

<sup>3</sup> Coffman, “Intervention,” pp. 61–62, 66; Cudahy, *Archangel*, p. 46 (first quotation); Gordon, ed., *Quartered in Hell*, 4, 6, 10, 145 (second quotation from Robert P. Boyd).

<sup>4</sup> Cudahy, *Archangel*, p. 28; Gordon, ed., *Quartered in Hell*, pp. 8, 64 (quoted words), 180, 205; Coffman, “Intervention,” p. 64; March, *Nation at War*, p. 146; War Department (WD), [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1919, p. 1479 (hereinafter cited as *ARofSG*, year); idem, *ARofSG*, 1920, pp. 391–92; Joel R. Moore; Harry H. Mead; and Lewis E. Jahns, *History of the American Expedition Fighting the Bolsheviki*, p. 209; WD, Surgeon General’s Office (SGO), *Sanitation*, p. 351.

<sup>5</sup> Cudahy, *Archangel*, pp. 42–43; Gordon, ed., *Quartered in Hell*, pp. 86, 87, 182 (quoted words); WD, SGO, *Sanitation*, p. 606; WD, *ARofSG*, 1920, p. 402; Moore, Mead, Jahns, *History*, p. 93.

When the 339th Infantry first arrived at Archangel, influenza landed with it. Few of the regiment's medical supplies could be found on board the transports, and even the expedition's chief surgeon, Maj. Jonas R. Longley, MC, was gravely ill. Because facilities to shelter so many sick were not available, those who were ailing had to remain on board for two days in harbor before accommodations could be found for them on shore, and as many as 100 died. Of the most seriously ill, 25 were moved to a British hospital. Capt. John C. Hall, MC, the regiment's chief medical officer, quickly set up an infirmary in barracks at Archangel; however, his attempts to find more space became an issue to the British, who ruled that the Americans would not be permitted to set up their own hospital in the town because they lacked the requisite hospital equipment, supplies, and personnel. As a result, some patients were placed in a small building near the American headquarters, while almost 400 more were loaded on barges and taken 6 miles up the Dvina River from Archangel to Bakaritzza, on the opposite bank of the river and at the northern end of the Archangel-Vologda rail line (*see Map 9*). Here the field hospital was set up in a vermin-infested "crude Russian hospital." The building was quickly filled to overflowing, making it necessary to take over "several of the rude barracks." Because of the lack of beds, patients had to lie on stretchers in their uniforms, covered only by a single blanket; and the available but limited medical supplies were soon exhausted in their care. The death toll here eventually reached sixty.<sup>6</sup>

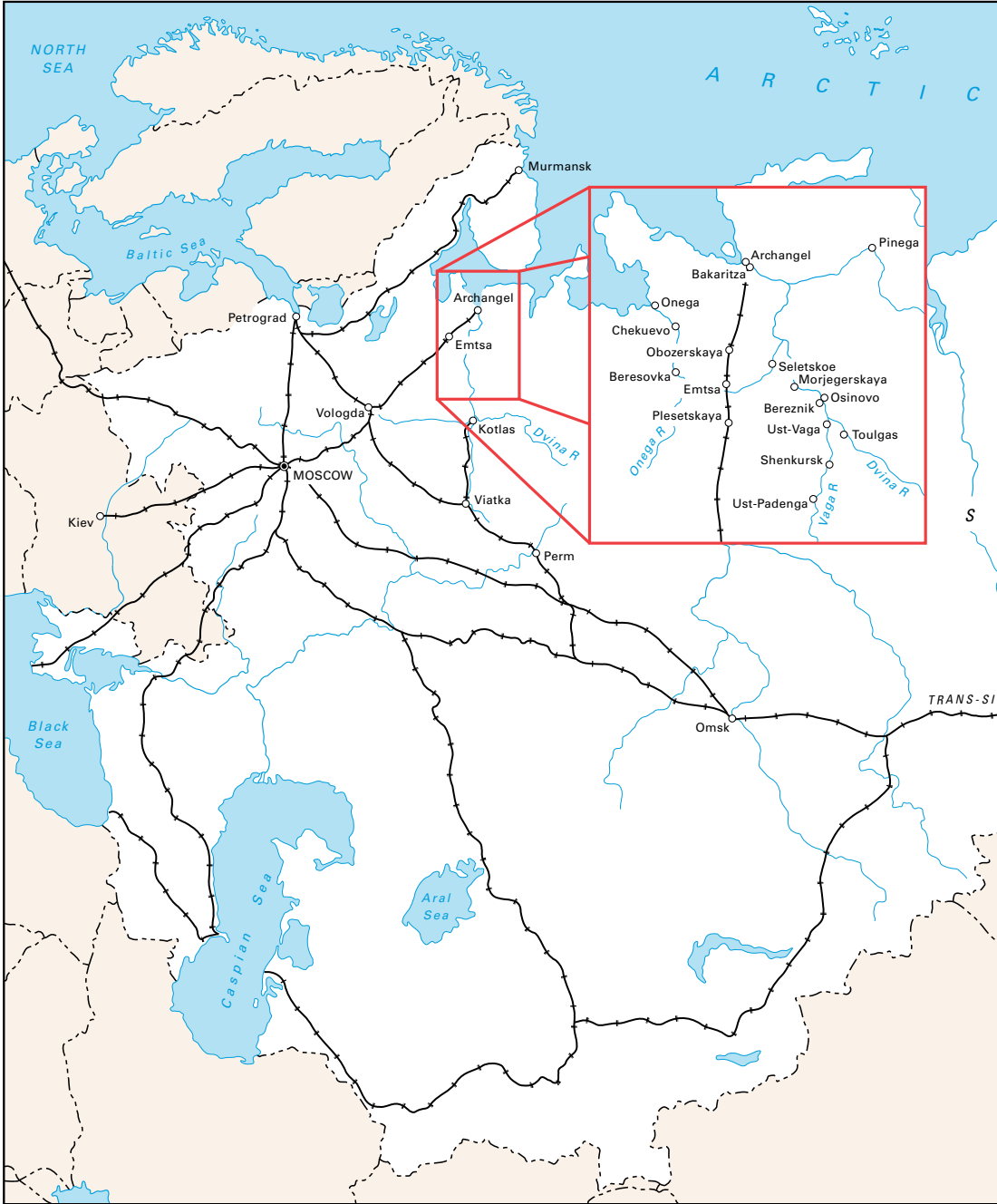
With the immediate crisis over, Captain Hall searched for better accommodations for his patients. Becoming aware of the fact that an order of Russian nursing sisters owned a building in Archangel that would be suitable for his purposes, he quickly joined an American Red Cross officer in raising the American flag over the building, daring "the British to take it down." When the challenge was ignored, the Red Cross provided beds, linens, supplies, and other needed items for the 20-bed facility. The Russian Red Cross supplied nurses, and Hall and another U.S. medical officer served as the hospital's physicians.<sup>7</sup>

On 1 October the Americans also opened a 100-bed convalescent hospital in Archangel, housing it in a building with double-paned windows that had once been a school for merchant seamen and locating the chief surgeon's office there. They rewired the building and installed heated latrines and equipment for ridding patients of vermin. Each room was heated by its own brick stove, and each patient was given five blankets. Many of the men sent to this hospital were evacuated to other facilities or even back to England. The patients who remained were basically convalescent wounded who were able to handle much of the work connected with the facility; the Medical Department needed to provide only two sergeants and three privates to guarantee that cleaning, kitchen, clerical, and guard work as well as building maintenance were properly handled. Annexes were opened in nearby buildings and, with the coming of spring, in tents as well, to expand the total capacity of the hospital to 282. Patients were allowed to barter British-supplied rations for items the Russians could provide, and the Red Cross supplied such luxuries as cocoa, chocolate, raisins,

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<sup>6</sup> Gordon, ed., *Quartered in Hell*, pp. 59, 64 (quoted words), 65, 206, 207; Cudahy, *Archangel*, pp. 50, 130; Moore, Mead, Jahns, *History*, pp. 15–16, 89–91, 209; WD, SGO, *Field Operations*, pp. 945, 947–48; WD, *ARofSG*, 1920, pp. 393, 395.

<sup>7</sup> Gordon, ed., *Quartered in Hell*, p. 64; Moore, Mead, Jahns, *History*, pp. 16 (quoted words), 90.



MAP 9





condensed milk, honey, sugar, oatmeal, and canned fruit. The hospital mess reputedly became known as the best place to eat in all of Russia.<sup>8</sup>

The British having abandoned their initial opposition to having another U.S. military hospital at Archangel, the American Red Cross took over a "fine old building" adjoining the convalescent hospital to serve as a receiving hospital for patients evacuated to Archangel and agreed to operate and supply it for the Army. American medical officers operated here, while once again soldiers who had recovered sufficiently for light physical work but not enough to return to the front handled maintenance. The new facility initially had 100 beds, although it was later expanded, and the Red Cross provided it with two female nurses. It served as the expedition's base hospital, taking in a total of 103 patients until the soldiers of the expedition left Russia in the spring of 1919. Because it had no X-ray equipment, patients in need of this type of examination had to be sent to a British hospital.<sup>9</sup>

Smaller facilities were also established in the Archangel area. Four more infirmaries joined the infirmary that Captain Hall initially set up. Delousing stations were organized in a barracks and at the convalescent hospital, their work supplemented at the front by small portable plants. As part of the effort to prevent venereal disease (VD), a special threat to soldiers serving in the Archangel area, numerous prophylactic stations were created. Two dental officers also set to work, while an acting dental surgeon apparently traveled from post to post.<sup>10</sup>

The expedition's men were scattered among multiple small posts along a 400-mile front. To provide coverage, medical personnel had to be divided and to work under sometimes unorthodox arrangements. Although the chief surgeon's office was permanently located in Archangel, field hospital and ambulance company personnel and equipment moved as circumstances required, and some Americans served in British, French, or Russian facilities. All Allied facilities in North Russia were open to men from all forces, and responsibility for some hospitals in forward areas changed hands as troops were assigned and reassigned, a situation that made keeping records concerning American sick and wounded exceedingly difficult.<sup>11</sup>

Because the senior medical officer in every area was British, arrangements for medical supplies had to be made through the British. Requiring that both American and British medical personnel follow their own regulations in regard to supplies, however, produced considerable confusion. This confusion also afflicted the management of personnel, contributing to animosity and resentment between British and Americans. As agreed upon on 9 January 1919, the chief surgeon of the U.S. troops had control of U.S. medical personnel and the senior medical officer of the area, always British, commanded those under him. Personnel assignments could be made only after consultation with the British deputy director of medical services. All decisions concerning policy, relief of personnel, drafting of orders, medical

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<sup>8</sup> Moore, Mead, Jahns, *History*, pp. 263, 264, 265, 266, 268, 269; WD, SGO, *Field Operations*, p. 948.

<sup>9</sup> Moore, Mead, Jahns, *History*, pp. 16, 18 (quoted words); WD, *ARofSG*, 1920, p. 394; WD, SGO, *Field Operations*, p. 948.

<sup>10</sup> WD, *ARofSG*, 1920, pp. 394, 397, 405; Moore, Mead, Jahns, *History*, pp. 16, 97; WD, SGO, *Field Operations*, p. 948.

<sup>11</sup> WD, SGO, *Field Operations*, pp. 945, 948; WD, *ARofSG*, 1920, p. 392; WD, SGO, Gordon, ed., *Quartered in Hell*, p. 14.

administration, and similar matters were to be made after consultation not only with the British deputy director of medical services but also with the senior medical officer involved, an arrangement not calculated to promote efficiency.<sup>12</sup>

Occasional conflicts over authority were inevitable, especially because British medical officers invariably appeared to outrank their American counterparts; some Americans concluded that insignia of higher rank had been applied to British shoulders specifically for this purpose. An American medical officer in charge of a temporary hospital was recalled when the British medical officer who was his superior complained about the American's refusal to order the few Medical Department enlisted men present at the post to dig latrines for the British officers' quarters. On another occasion Captain Hall himself defied an order that he believed would deprive American casualties of the attention they needed, daring the British to carry out their threats to execute him for disobeying an order in wartime. Complaints arose about the management of American patients in the facilities the British controlled, and eventually guidelines were issued requiring that to the extent possible American patients not be sent to British hospitals.<sup>13</sup>

The medical personnel who served with units at the front were assigned in detachments of from two to thirty-five men. Distinctions between the men of the ambulance company, the field hospital, and the regiment's medical contingent soon had to be forgotten, however, in the need to distribute medical personnel widely among many small posts; each group was divided and redivided to meet the needs of widely dispersed units. The ambulance company was initially divided into three sections, an officer and thirty-five men being detailed to forces protecting the railroad into Archangel, another officer and thirty-six men to Allied forces on the Dvina River, and the remainder of the ambulance company to the base at Archangel itself. From Archangel, a five-man detachment from the ambulance company and a second detachment of medical regimental personnel then accompanied troops to Onega and set up a hospital, later going forward with troops to Chekuevo. Not long thereafter, personnel from the ambulance company were sent to Berezniak to set up a 100-bed hospital. On 7 October those remaining in Bakaritzia moved to set up a 100-bed hospital at Shenkursk, a town of 4,000. In January 1919, when Shenkursk was evacuated, they relocated to Osinovo and divided once again—one part taking over a small hospital from the British and the other taking over another British hospital at Ust-Vaga.<sup>14</sup>

For a time the field hospital stayed at Bakaritzia, 6 miles up the Dvina River from Archangel, where 378 sufferers from influenza were admitted in September. Its personnel were soon also divided into sections and dispersed among many small posts. One detachment set up a hospital on a barge, one of the "long, blunt-nosed and clumsy" vessels customarily used to carry fish, hides, cattle, lumber, and produce up and down the river. Not long thereafter, a tug took the barge in tow to ply the Dvina River as far south as Toulgas, where an American medical officer had set

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<sup>12</sup> WD, SGO, *Field Operations*, p. 946.

<sup>13</sup> Moore, Mead, Jahns, *History*, pp. 17–18, 208–09.

<sup>14</sup> WD, *ARofSG*, 1920, p. 392; Gordon, ed., *Quartered in Hell*, p. 18; WD, SGO, *Field Operations*, pp. 945, 947, 948; Moore, Mead, Jahns, *History*, pp. 90–91, 207; Cudahy, *Archangel in Hell*, pp. 42–43.

up a hospital. In the course of the ten months that American soldiers were serving in North Russia, the Medical Department eventually established more than twenty hospitals, dressing stations, and aid stations, most of them outside the immediate Archangel area. Their bed capacity ranged from 10 to more than 200, but few were larger than 60. They were located in villages foreign to Americans not only in their character but also in their very names—Ust-Padenga, Morjegerskaya, Seletskoe. American patients were not limited to these facilities, however, because British hospitals had double the capacity of those established by the Americans. The number and location of hospitals in operation at any one time varied considerably, not so much with the need as with changes in control. Some of the facilities the Americans managed had been taken over from the British, while other facilities were transferred to the White Russians when they took up advance positions in the course of the conflict.<sup>15</sup>

In the snow and cold of these primitive areas where guerrillas prowled, little communication, if any, but the rivers and the Archangel-Vologda railroad linked one post with another. Barges and boats could be used to evacuate the sick and wounded and bring in supplies as long as the river was not frozen over, but by fall navigation along the upper Dvina was limited by low water. Pony-drawn sleighs with hay for bedding moved patients going overland during the winter, often through miles of desolate forest. For safety's sake, the sleighs moved in convoy, the ponies trotting the entire time, often at an average rate of no more than 2 miles an hour, "with their noses in the hay of the sleigh ahead, continually eating. The wounded who started out high up on a pile of hay, ended up at [their destination] on the cold bare sleigh floor." On long journeys, stops were made along the way at rest houses located from 5 to 25 miles apart and manned by British medical personnel. In spring and fall, thaws and rains turned roads into "sloughs of deep mire, and little travel [was] attempted," but more than 500 patients were evacuated by sleigh to Archangel in the winter of 1918–1919, with only one death, this in a man suffering from advanced tuberculosis. Troops and those responsible for evacuating the wounded were further handicapped by a lack of good military maps and of information about roads and the paths that had to be followed to travel safely through forests steeping in the waters of marshes and swamps.<sup>16</sup>

The war in Europe was long over when the troops posted along the Dvina and Vaga Rivers heard of it in midwinter. The effects on them were profound. They assumed that they would soon be leaving the frozen hell for home; however, when they began to realize that they would not be, their morale plummeted. They were not told why they were not going home, and they, along with their more fortunate comrades in the Archangel area, concluded that they had been forgotten. A man who had attempted to lead a mutiny was, along with three of his equally guilty

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<sup>15</sup> Moore, Mead, Jahns, *History*, pp. 90–91, 96; Gordon, ed., *Quartered in Hell*, pp. 65 (quoted words), 66; WD, *ARofSG*, 1920, p. 393; WD, SGO, *Field Operations*, pp. 947, 952.

<sup>16</sup> Cudahy, *Archangel*, pp. 45, 58, 67–68; Gordon, ed., *Quartered in Hell*, pp. 13, 18, 46 (quoted words), 188 (quotation); Coffman, "Intervention," p. 66; WD, SGO, *Sanitation*, pp. 763–64; idem, *Field Operations*, pp. 950–51; Moore, Mead, Jahns, *History*, pp. 95–96, 98; WD, *ARofSG*, 1920, pp. 393, 399, 400.

comrades, allowed to go free after he bared his chest to the Archangel court-martial to support his claim that he was half-starved and half-consumed by lice.<sup>17</sup>

“Certain difficulties and hardships” were “inherent in the situation” in North Russia. As was the case decades earlier during the Indian Wars in the United States, the problem lay not in the ratio of medical personnel to soldiers but in the fact that the troops were divided into small groups serving at widely separated posts with hostile guerrilla forces threatening those who attempted to move between posts. The surgeon general noted that soldiers exacerbated the situation by their reluctance to use the first-aid dressings that they had with them, expecting medical personnel to care for them even when the wide area the corpsmen had to cover made this impossible. The need for American medical personnel to care for the soldiers of other nations further complicated the situation.<sup>18</sup>

In the course of their time in North Russia, American troops suffered many casualties as a result of enemy action, disease, and exposure to a severe climate. Although figures are not entirely consistent, these included as many as 109 deaths in action, 35 more as a result of wounds received in action, and 110 caused by accidents and disease. Another 305 men were wounded but survived. The most frequently fatal disease was pneumonia, a familiar complication to influenza, although the British hospitals where many cases were treated did not record the presence of pneumonia as a complication until it produced a fatal outcome. Venereal disease, especially syphilis, was common in the Archangel area despite the availability of information, the proximity of prophylactic stations, and the threat of court-martial. Given the conditions under which American soldiers were serving in North Russia, the cases of mental illness recorded were remarkably few, just 14 at the Archangel Convalescent Hospital; only 1 suicide and 1 attempted suicide were noted, even though many men apparently found their “sanity reeling in the short-lived, murky, winter days, the ever encircling menace of impending disaster.”<sup>19</sup>

Men whose condition dictated extensive treatment or a period of convalescence before returning to duty, among them many victims of pneumonia, were in theory not allowed to remain in North Russia but were scheduled for evacuation back to England. At least 527 fell into this category. But because the effects of winter limited transportation, whether by water or by land, most of these men could not leave until June 1919. By this point, many could have been restored to some type of duty as convalescents, but the regiment’s commanding officer was adamant that no one rejoin the unit who could not at once be restored to full duty.<sup>20</sup>

On board the vessels taking American patients from North Russia, the conflict between the British and the Americans was once more evident. The British, apparently, fed their sick and wounded officers better than they fed their sick and wounded enlisted men, a distinction the Americans did not make. In at least one instance, a request that the Americans on board be given more and better food brought a

<sup>17</sup> Gordon, ed., *Quartered in Hell*, pp. 149, 223–24; March, *Nation at War*, pp. 147, 151–52; Cudahy, *Archangel*, pp. 158–61; Coffman, “Intervention,” p. 67.

<sup>18</sup> WD, *ARofSG*, 1920, pp. 394 (quoted words), 395.

<sup>19</sup> March, *Nation at War*, p. 150; Gordon, ed., *Quartered in Hell*, p. 25; WD, *ARofSG*, 1920, pp. 396, 397, 408–09; Moore, Mead, Jahns, *History*, pp. 267, 268–69; Cudahy, *Archangel*, p. 3 (quoted words).

<sup>20</sup> Moore, Mead, Jahns, *History*, pp. 266–69; WD, SGO, *Field Operations*, p. 951; Joel E. Goldthwait, *The Division of Orthopaedic Surgery in the A.E.F.*, p. 1.

reply asking whether the Americans expected to be better fed than their British counterparts.<sup>21</sup>

In March 1919 Secretary of War Baker decided that no more American troops would be sent to North Russia and that those already there would be brought home. Beginning in May, therefore, American troops began gathering near Archangel in an area the British had been using as their camp, preparing for evacuation to Brest and Camp Pontanezen in France and thence home. A regimental hospital was set up, which was able to handle all the victims of the mild epidemic of gastrointestinal problems that struck the men, thus sparing the sick a trip to the Archangel hospital. Most of the American contingent in North Russia left during the period 3–15 June. All those leaving were deloused before departure and checked both for venereal or other transmissible diseases and for any type of vermin.<sup>22</sup>

From afar, Surgeon General Ireland concluded that despite delays in treatment resulting from transportation and communication difficulties, no one suffered long-range consequences from the situation. While not directly contradicting Ireland's conclusion, however, some veterans of North Russia disagreed. One noted that the men of his company suffered "untold agonies for want of proper shelter and medical attention"; another commented that there were "some things the doughboy and officer from America will never have grace enough in his forgiving heart to ever forgive. Those were the outrageous things that happened to the wounded and sick in that North Russian campaign."<sup>23</sup>

### *In Siberia*

The men involved in what General March considered to be President Wilson's second mistake, sending U.S. troops to Siberia, were led by Maj. Gen. William S. Graves, commanding general of the 8th Division and of the Siberian Expedition. General Graves maintained that he "was not only ignorant as to the discussion which led to intervention in Siberia but [also] ignorant as to the political schemes of the Far East." He was given vague instructions that he should help the thousands of Czechoslovak soldiers who had been taken prisoner by the czar's troops and whose help against the Germans was sought, he should guard military stores, and he should help the Russian people. Graves received no guidelines about how to wend his way among the various factions of the Russian people, and he discovered that, despite the beliefs of many, the Czechs were in no need of help; they were in control of Vladivostok when the Americans arrived there. General Graves apparently interpreted his instructions to mean that he should keep open the Trans-Siberian Railroad that ran from Vladivostok to Moscow (*see Map 9*), thinking the Czechs might need to use it in their effort to reach the Western Front, and that he should guard the Suchan coal mines whence came the coal for the trains.<sup>24</sup>

<sup>21</sup> Moore, Mead, Jahns, *History*, p. 17.

<sup>22</sup> Cudahy, *Archangel*, p. 167; Gordon, ed., *Quartered in Hell*, pp. 24–25, 124, 281, 287; WD, *ARofSG*, 1920, pp. 405, 406; WD, SGO, *Field Operations*, pp. 951, 954; March, *Nation at War*, p. 150; Coffman, "Intervention," p. 68.

<sup>23</sup> WD, SGO, *Field Operations*, p. 950; WD, *ARofSG*, 1920, p. 398; Gordon, ed., *Quartered in Hell*, p. 147 (quoted words); Moore, Mead, Jahns, *History*, p. 89.

<sup>24</sup> William Signey Graves, *America's Siberian Adventure*, pp. 7, 8, 9, 26, 55, 56, 58–59, 67 (quotation), 343; Virginia Cooper Westhall, "AEF Siberia—The Forgotten Army," pp. 14–15; N.

The American troops sent to Siberia consisted of the 27th and 37th Infantry regiments, a field hospital, an ambulance company, and a telegraph battalion company from the Philippines, a total of less than 3,000 men, with the regiments brought up to strength by the addition of 5,000 more infantry troops from the 8th Division, which was then preparing for overseas duty at Camp Fremont in California. Of these men, 698 were officers and enlisted men of the Medical Department. An evacuation hospital from Fort Sam Houston, Texas, and a base hospital from Camp Lewis, Washington, a veterinary field unit, and several more medical officers later joined the expedition in Siberia. The men from the Philippines landed at Vladivostok in August 1918. By 11 November 1918 slightly more than 9,000 officers and men were serving in Siberia.<sup>25</sup>

According to Surgeon General Ireland, the medical personnel under the command of General Graves and his chief surgeon, Col. James S. Wilson, MC, in Siberia found daily life quite routine, having “practically no interesting features whatever along the lines of sanitary service in combat. It resembled the expeditions that have been conducted by American troops on entering Cuba, Philippines and China.” Because medical and dental personnel were once again required to care for troops at many widely separated small posts, their numbers proved inadequate. In this instance, however, the situation was exacerbated by the fact that many experienced officers and men sent to Siberia as members of the so-called emergency army were eligible for discharge with the end of the war in Western Europe, and the railroads apparently made it possible for these men to leave for home with relative promptness. Many of their replacements were poor physical specimens who lacked the training to work independently with complete success, and communications between posts did not permit careful supervision of their work; both rail and telegraph lines were often severed, effectively cutting off from contact with their headquarters medical personnel at Verkhne-Udinsk, 1,700 miles from Vladivostok. These factors led to a decision to send home those with hernias originating before entry into the Army rather than having them undergo surgery in Siberia. The small size of the dental service in Siberia also made it necessary to limit dental care to that required on an emergency basis.<sup>26</sup>

With medical personnel coming and going, exact figures on their numbers at any given time are difficult to obtain and sometimes inconsistent, but during the entire period that American troops were in Siberia the medical contingent averaged

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Gordon Levin Jr., *Woodrow Wilson and World Politics*, p. 86; March, *Nation at War*, pp. 122, 124–25, 140–44; Coffman, *War To End All Wars*, p. 360. The “many” apparently included many in the Surgeon General’s Office, because the Medical Department’s history of World War I includes references to a significant defeat for the Czechs by the Bolsheviks in 1918. See WD, SGO, *Field Operations*, pp. 963–64; Kendrick A. Clements, *The Presidency of Woodrow Wilson*, p. 112.

<sup>25</sup> Ltr, Wilson to Gorgas, 31 Aug 1918, and Rpt, 9 Jan 1919, both in Ms C104, James Sprigg Wilson Papers, 1918–1930, National Library of Medicine (NLM), Bethesda, Md.; WD, SGO, *Field Operations*, p. 955; Coffman, “Intervention,” p. 63; Westhall, “AEF Siberia,” p. 12; Graves, *Siberian Adventure*, pp. 2, 34; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 352 (hereinafter cited as *History of MD*); WD, [Annual] *Report of the Secretary of War*, 1919, p. 218 (hereinafter cited as *ARofSW*, year).

<sup>26</sup> WD, *ARofSG*, 1920, pp. 409 (quotation), 416, 419; *ibid.*, 1921, p. 179; March, *Nation at War*, pp. 127, 130; Westhall, “AEF Siberia,” p. 12, 16; WD, *ARofSW*, 1919, pp. 227–28; WD, SGO, *Field Operations*, pp. 957–58.

44 medical officers, 10 dentists, 3 Sanitary Corps officers, 3 veterinarians, 18 nurses, and 640 Medical Department enlisted men. Colonel Wilson reported that all the medical officers at Vladivostok in January 1919 were of high professional caliber; however, because they lacked military training and administrative experience, work was not handled as efficiently as the colonel would have wished. Dentists were handicapped by a lack of equipment, and veterinary officers lacked accommodations for handling extensive treatment. Despite a shortage of trained noncommissioned officers, the enlisted contingent performed well, while members of the Army Nurse Corps “rendered the usual valuable assistance.” Although General Graves praised the uncomplaining self-reliance of the nurses, service in Siberia proved hard on their morale. Colonel Wilson had apparently anticipated this problem, at least to the point of successfully suggesting that the usual two-year tour of foreign duty be modified to a year in Siberia and a year in the Philippines. The American Red Cross provided nurses for men stationed at Verkhne-Udinsk in the summer of 1919, paying their expenses in anticipation of reimbursement by the Medical Department.<sup>27</sup>

Evacuation and hospitalization were simpler for the troops in Siberia than they were for those assigned to North Russia, principally because they were all serving near a rail line, although guerrillas periodically attacked trains, damaged bridges, and cut telegraph lines, and roads to and from the railroads were miserable. Under normal circumstances, however, patients could be evacuated back to Vladivostok whenever extensive treatment or hospitalization was required. In the fall of 1918 a 100-bed field hospital was also set up at Khabarovsk, and smaller regimental facilities were established at smaller posts. These facilities were generally handicapped by a lack of adequate water supplies and baths, by lavatories that were poorly located, and by the difficulties encountered whenever barracks were converted for the use of the sick and wounded. The primitive state of sanitation in villages where posts were located also formed a challenge; in the spring of 1919 “streets through the business section of Spasskoe turned into puddles of muck from which oozed putrid odors from all the garbage and offal that had been thrown from doors and windows since the freeze-up the autumn before.”<sup>28</sup>

The evacuation hospital at Vladivostok, the largest facility in Siberia, was initially handicapped by a lack of both safe water and sewage systems, while a portable generator was the only source of power for the operating room. Presumably as a result of the demobilization of personnel called up for the war emergency, its entire staff was replaced in March 1919, but between 18 October 1918 and 23 March 1920 more than 8,000 patients received care here, and only 86 died. During that period apparently the only battle casualties cared for at Vladivostok were those resulting from action on 25 June 1919, when 25–27 wounded arrived for care after their unit was caught by a surprise attack at Romanovka, just to the east of Vladivostok. Some patients came from German prisoner of war camps, while others were sail-

<sup>27</sup> Rpt (quoted words), 9 Jan 1919, Ms C104, Wilson Papers, NLM; Graves, *Siberian Adventure*, p. 142; WD, SGO, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 298; idem, *Field Operations*, p. 967; WD, *ARofSG*, 1920, p. 416.

<sup>28</sup> WD, *ARofSG*, 1920, pp. 414, 415, 416; WD, SGO, *Field Operations*, pp. 959–60, 968; Ltr, James S. Wilson to William C. Gorgas, 27 Oct 1918, Gorgas Family Papers, W. S. Hoole Special Collections Library, University of Alabama (UA), Tuscaloosa, Ala.; Rpt, 9 Jan 1919, Ms C104, Wilson Papers, NLM; S. G. Kindall, *American Soldiers in Siberia*, p. 53 (quotation).

ors from U.S. battleships in the harbor of Vladivostok or American civilians, often from the staff of the Young Men's Christian Association or the Knights of Columbus. During the winter the hospital held an average of 300 patients, both sick and wounded. It was officially closed on 31 March 1920.<sup>29</sup>

Unlike the evacuation hospital at Vladivostok, the field hospital moved from place to place as needed. It journeyed with the 27th Infantry to Khabarovsk, where extensive changes had to be made to bring running water and a crude sewage system to the four main buildings it occupied, then to floored and framed tents at Verkhne-Udinsk, and finally to barracks at Beresovka. The Medical Department was also responsible for a prisoner-of-war hospital located about 13 miles from Khabarovsk, which served a 1,800-man prisoner-of-war camp guarded by a company of the 27th Infantry. When the field hospital left Khabarovsk, its patients were moved to the 100-bed military hospital at Spasskoe, which was enlarged in June 1919 because guerrilla raids were producing so many casualties.<sup>30</sup>

Long evacuation lines mandated the use of hospital trains. Because all troops were stationed at or near rail lines, hospital trains made medical care, as well as evacuation for those with problems not easily managed, possible even for small detachments. "After considerable trouble with the local authorities," these trains were created from small freight cars equipped with regimental supplies and bunks from a U.S. Army transport. The ward on each such car held twelve bunks. Two trains, one with six cars, the second with four, were in operation from Vladivostok to Khabarovsk, 480 miles



*Outfit worn by American troops in Siberia*

<sup>29</sup> WD, *ARofSG*, 1920, pp. 413, 418; Ltr, Wilson to Gorgas, 31 Aug 1918, and Rpt, 9 Jan 1919, both in Ms C104, Wilson Papers, NLM; WD, SGO, *Field Operations*, pp. 959, 968; Kindall, *American Soldiers*, pp. 25, 56–58.

<sup>30</sup> WD, SGO, *Field Operations*, pp. 958, 965, 966, 967, 968; idem, *Sanitation*, p. 605; WD, *ARofSG*, 1920, p. 413.





*Winter cap, pattern 1907*

away, until the end of November 1918. When the weather turned cold (one of the incidental responsibilities of medical officers was keeping records of the temperatures encountered in various parts of Siberia), warmer and more elaborate equipment became necessary; a self-contained car was obtained, complete with kitchen, lavatory, ward, and housing for personnel, to be used in conjunction with a car that carried fuel, hospital supplies for posts along the line, and baggage. In spite of guerilla attacks and damage to bridges and telegraph lines, these trains ran almost continuously throughout the period American troops were in Siberia.<sup>31</sup>

The ambulance company, responsible for moving patients to and from hospitals and hospital trains, was divided among posts, with half of the enlisted men detached to work with troops guarding a railroad. Difficulties abounded, for the animal ambulances were, according to Colonel Wilson, “old and worn,” while the supply of spare parts for motor ambulances was inadequate. In addition, the poor condition of the roads was hard on ambulances, and having more than six operable at one time was a rare event. During the last two months that American troops served in Siberia, the motor ambulance service operated with only three vehicles loaned by the American Red Cross.<sup>32</sup>

The medical supply situation in Siberia was generally good. The only shortages were temporary ones in vaccines and sera that had a short shelf life, because only small amounts could be kept on hand and new supplies had to be requisitioned as needed. A shortage of storage space also caused occasional difficulty, especially when more supplies were on hand than were actually needed, and a large volume of material eventually had to be turned over to the American Red Cross for storage. Supplies were distributed by the hospital train from the principal depot at Vladivostok, and after November 1918, with a special medical supply car attached, the train on its return trip carried laundry to be washed at the depot laundry and the baggage of patients being brought to the hospital.<sup>33</sup>

Among the greatest challenges for Medical Department personnel in Siberia was poor to nonexistent sanitation in the villages where American troops were stationed. A large part of their inhabitants lived in railroad cars in rail yards, where no latrines existed, and “the yards surrounding each station are covered

<sup>31</sup> Ashburn, *History of MD*, p. 352; WD, SGO, *Field Operations*, p. 960; Graves, *Siberian Adventure*, pp. 138, 141–42; Ltr, Wilson to Gorgas, 31 Aug 1918, and Rpt, 9 Jan 1919, Ms C104, Wilson Papers, NLM; WD, *ARofSG*, 1920, pp. 412 (quoted words), 413, 417.

<sup>32</sup> WD, SGO, *Field Operations*, pp. 958, 959; WD, *ARofSG*, 1920, p. 417; Rpt (quoted words), 9 Jan 1919, Ms C104, Wilson Papers, NLM.

<sup>33</sup> WD, *ARofSG*, 1920, p. 416; WD, SGO, *Field Operations*, p. 963; Rpt, 9 Jan 1919, Ms C104, Wilson Papers, NLM.



*Victims of cholera epidemic, 1919*

with human excrement, as no effort has been made in the past to remove it but once a year, in the spring.” Even public buildings in cities were sadly lacking in sanitary facilities. As a result, Siberian water supplies were almost invariably polluted. In a civilian population living crowded together under such circumstances, many types of disease were prevalent, from typhus and typhoid fever to smallpox, plague, and scarlet fever, while venereal diseases and vermin were very common. To prevent the spread of disease among his men, General Graves banned any use of alcoholic beverages, required passes for anyone out after nightfall, and forbade travel except in railroad cars that had been prepared and reserved for the use of U.S. troops.<sup>34</sup>

Medical officers serving in Siberia devoted more time to dealing with illness and problems caused by the cold than wounds. In the fall of 1918 the influenza epidemic affected Siberia as it did the rest of the world. At Vladivostok, whose population had doubled as a result of the unrest and upheaval, the disease appeared early in October 1918; when it had run its course, 1,666 men had been affected. American soldiers apparently did not fall victim to a cholera epidemic that struck late in the summer of 1919. The toll taken by cold was highest outside of Vladivostok, where the climate was surprisingly mild. Troops serving far from the coast could experience frostbite and cold-related injuries without quite realizing it when the air was calm. Although high winds were rare, when they occurred, they produced fearsome snowstorms and high drifts.<sup>35</sup>

<sup>34</sup> Ltr, Wilson to Gorgas, 31 Aug 1918, and Rpt, 9 Jan 1919, both in Ms C104, Wilson Papers, NLM; WD, SGO, *Sanitation*, p. 604; Graves, *Siberian Adventure*, pp. 140, 141; WD, *ARofSG*, 1920, pp. 410 (quotation), 411; Kindall, *American Soldiers*, pp. 43, 172.

<sup>35</sup> Ltr, Wilson to Gorgas, 27 Oct 1918, Gorgas Papers, UA; Wilson Talk, pp. 4–5, Rpt, 9 Jan 1919, and Ltr, Wilson to Gorgas, 31 Aug 1918, all in Ms C104, Wilson Papers, NLM; WD, *ARofSG*, 1920, pp. 409–10, 419.

The major disease problem for American troops in Siberia was, once again, venereal disease. Despite the usual precautions in the form of prophylaxis stations and information, almost 3,000 new VD cases were identified among American soldiers in this period. By the fall of 1919 the problem was so severe that Representative Jeannette Rankin of Montana suggested that the U.S. government buy land so that soldiers could be settled there after discharge rather than come home bringing disease and moral corruption with them. The surgeon general's annual report blamed the situation on the poor quality of the replacement troops sent in to Siberia, the "peculiarly low standard of morals" of the women, and the great poverty among civilians in general.<sup>36</sup>

Despite Representative Rankin's misgiving, American soldiers serving in Siberia were allowed to depart when their safety was threatened after the final defeat of the major White Russian force in December 1919. Those leaving posts along railroads arrived at Vladivostok in January 1920. The exact number of sick and wounded that the Medical Department had cared for in Siberia up to that point is not known, but estimates suggest from 50 to 52 wounded in addition to the 8 men who died of their wounds. Hospitalized patients began leaving Siberia on 16 January 1920, and by 9 March all the sick and wounded had left, bound for Manila. The last Medical Department personnel left the next day. In Manila "AEF Siberia passed out of existence" on 31 August 1920. It was "probably the least known and least publicized of any venture in US military history."<sup>37</sup>

### *In Germany*

Even though fighting continued without letup in North Russia and Siberia, in Western Europe hostilities ended at 1100 on 11 November 1918. Nevertheless, the Allies recognized both that the Germans might renew the struggle and that the steps taken to prevent a renewal of the war might provoke a revolution that could spread beyond the bounds of Germany. As part of the effort to prevent more armed conflict, therefore, on 14 November 1918 the Third Army was assigned to serve as the official Army of Occupation for the United States. After some shuffling of boundaries with the French, the American occupation zone was defined as extending from the eastern border of Luxembourg to the west bank of the Rhine River, or the Rhineland, an area that held a million civilians and an unknown number of disarmed German soldiers, to which in December all of Luxembourg except for the city of Luxembourg, the headquarters of the Allied commander in chief, was added. Following the conclusion of six months of peace negotiations, the Third Army was inactivated on 2 July 1919 and the staff and troops remaining in Germany became officially known as the American Forces in Germany (AFIG) on 3 July. The U.S. occupation contingent, which never numbered more than 300,000

<sup>36</sup> Ltr, Wilson to Gorgas, 27 Oct 1918, Gorgas Papers, UA; WD, *ARofSG*, 1920, p. 419 (quoted words); Kindall, *American Soldiers*, p. 229.

<sup>37</sup> March, *Nation at War*, pp. 129, 130, 132; Kindall, *American Soldiers*, pp. 225, 246–47; WD, *ARofSG*, 1920, pp. 104, 413–14, 418; Coffman, "Intervention," p. 70; WD, SGO, *Field Operations*, p. 968; Gordon, ed., *Quartered in Hell*, p. 8; Coffman, *War To End All Wars*, p. 361; Westhall "AEF Siberia," pp. 11 (quotation), 17 (quoted words); WD, SGO, *Army Nurse Corps*, p. 298.



*AFIG chief surgeon and his staff*

officers and men, was concentrated around the city of Coblenz and in the district of Trier, with reserves held between the Moselle and Meuse Rivers and along the Luxembourg border.<sup>38</sup>

On 14 November 1918 Col. Jay W. Grissinger, MC, became the Third Army's surgeon and then on 3 July 1919 the AFIG chief surgeon. His staff resembled that of the AEF chief surgeon, although a division of sanitation under chief sanitary inspector Maj. Stanhope Bayne-Jones was not added until January 1919. The assistant chief of staff, G-4, supervised and coordinated both Third Army and AFIG medical support with that of other organizations.<sup>39</sup>

The first tests involved preparing on very short notice for the formidable march into the Rhineland, which began less than two days after Colonel Grissinger reported for duty. Although those too ill or too badly injured to participate in the march were evacuated, by train when possible, to the appropriate base and mobile hospitals, hospitalization presented a challenge. The war had left rail lines destroyed and roads heavily pockmarked, initially making movement of evacuation hospitals forward behind the troops impossible. As a result, plans called for all men disabled en route who could not be quickly restored to duty, among them many who might have been able to rejoin their comrades after a few days care, to be evacuated back to base hospitals. Unfortunately, however, for two weeks this was not possible

<sup>38</sup> Ashburn, *History of MD*, p. 357; Stanhope Bayne-Jones, *Evolution of Preventive Medicine in the United States Army, 1607–1939*, p. 166; Jay W. Grissinger, "Field Service," p. 510; WD, SGO, *Administration, American Expeditionary Forces*, p. 813 (hereinafter cited as *Administration, AEF*); idem, *Field Operations*, pp. 895, 897.

<sup>39</sup> WD, SGO, *Field Operations*, pp. 900, 901; idem, *Administration, AEF*, 813; Ashburn, *History of MD*, p. 357; WD, *ARofSG*, 1919, p. 1354; Bayne-Jones, *Evolution*, p. 166.



*Stanhope Bayne-Jones*

because the hospital trains could not reach the field hospitals to remove the patients. Thus the field hospitals had to retain all sick and injured, despite the fact that they lacked the personnel, supplies, and nursing facilities to deal with hospitalization for this length of time.<sup>40</sup>

Still further difficulties were encountered in setting up evacuation hospitals. Plans for such a hospital in the city of Luxembourg were vetoed at the last moment by the French. On 24 November an evacuation hospital was organized in a small former German hospital at Briey, southeast of Longuyon and 50 miles from the most forward units, but faulty plumbing and damage inflicted on the building by the retreating Germans complicated its use. In addition, when hospital trains finally began coming through, the facility was quickly “greatly overcrowded”; although it had but 200 beds, it was called upon to shelter 1,000 patients,

few of whom, fortunately, were seriously ill. Evacuating patients beyond Briey, however, was in many instances not feasible because it dictated a long journey by ambulance to Toul and Verdun, a trip whose length also made it still more unlikely that recovered patients would be promptly returned to their units.<sup>41</sup>

The medical service of the three corps of the Third Army faced many challenges. Although the III Corps was to a large degree spared the increase in influenza and pneumonia cases that severely taxed IV Corps facilities while it rested for a week in Luxembourg, the men of both corps suffered severely from foot problems. Many soldiers had been issued shoes of a British design, heavier than those to which Americans were accustomed and built on a different last. As recalled by then Maj. Hugh H. Young, the soldiers in at least one division had worn completely through their soles by the end of the march into the Rhineland and were moving ahead almost barefoot on frozen ground. “Blistered and excoriated feet” made it impossible for many to continue, and their condition placed considerable strain on ambulance companies. Some additional illness was apparently believed to result, however, from the poor morale and low endurance characteristic of many replacements that joined the Third Army just before the beginning of the march.<sup>42</sup>

<sup>40</sup> Grissinger, “Field Service,” p. 514; WD, SGO, *Field Operations*, pp. 901–02, 918.

<sup>41</sup> WD, SGO, *Field Operations*, p. 901, 902 (quoted words); WD, *ARofSG*, 1919, pp. 1686, 1722–23.

<sup>42</sup> WD, SGO, *Field Operations*, pp. 926, 927 (quoted words), 928–29, 934; WD, *ARofSG*, 1919, p. 1596; Hugh Young, *Hugh Young*, p. 386.

The problem of providing care for former prisoners of the Germans as well as for refugees and sick and wounded Germans encountered during the march was resolved on a more or less case-by-case basis. The III and IV Corps customarily sent these unfortunates to corps hospitals until other arrangements could be made, while in eastern France the VII Corps detailed detachments to care for returned Allied prisoners of war as well as for French civilians and sick and wounded Germans. On the whole, the Americans who had been prisoners of the Germans seemed to be in relatively good condition. The Third Army's hospitalization officer, whom Colonel Grissinger had sent ahead to seek out potential hospital sites, discovered, however, about 160 Allied prisoners, among them some Americans, "in a pitiful condition," in a German facility in Trier. Despite German efforts to care for them, they had little food, none of it appropriate for the sick. Nevertheless, the AEF General Staff, which had determined that no AEF units were to cross into Germany until 1 December, refused to allow medical personnel and supplies to be sent ahead to care for them.<sup>43</sup>

Crossing into Germany in December 1918, the Third Army established its headquarters at Coblenz, in the southern Rhineland. A ninth section of the Services of Supply was opened with headquarters at Antwerp, Belgium, the base port supporting the Third Army. Army-level hospitals were organized, and the use of corps collection hospitals was abandoned. A system of veterinary hospitals was also set up, with Coblenz and Trier the site of the principal hospitals, and twenty more facilities scattered throughout the occupied area.<sup>44</sup>

The medical facilities for the occupation force were established in former German military hospitals, buildings suitable in every way except for their small size; in barracks; and in large schools. All hospitals were kept fully staffed and equipped so that as many patients as possible could be kept in Germany. Field hospitals generally performed the function of infirmaries. Those in need of minor surgery, medical cases that could be returned to duty within four days, and the victims of mumps were handled at the division level; except for emergency cases requiring immediate surgery, all other surgical cases were sent to an evacuation hospital. Patients who could not be returned to duty within two months were evacuated still farther back to the Services of Supply.<sup>45</sup>

Evacuation hospitals now served for the most part as base hospitals, operating either as independent facilities or as part of hospital centers—most often at Coblenz, where five evacuation hospitals were eventually located, and Trier. Whenever possible these hospitals, all under the commanding general of the Army of Occupation rather than local commanding officers, were grouped, but some separate facilities had to be established because the occupation force was widely dispersed. Evacuation hospital companies or sections of evacuation hospital companies were available to serve all hospitals. Initially hospital units were rotated so that those that had been longest overseas could be sent home, but by the spring of

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<sup>43</sup> WD, SGO, *Field Operations*, pp. 901, 902 (quoted words), 912–13, 918, 926, 937; Young, *Young*, pp. 380, 382; Grissinger, "Field Service," p. 515.

<sup>44</sup> WD, SGO, *Field Operations*, pp. 899, 919–20; idem, *Administration, AEF*, pp. 31, 435.

<sup>45</sup> WD, SGO, *Field Operations*, pp. 903, 905, 907, 909; idem, *Administration, AEF*, pp. 815, 816; WD, *ARofSG*, 1919, pp. 1706, 1741.

1919 the Medical Department was beginning to close down the hospitals, infirmaries, and prophylactic stations it maintained in Germany.<sup>46</sup>

Hospital care for U.S. soldiers serving at the American supply base at Antwerp was initially provided by a Belgian military facility. This approach removed American soldiers from the control of the U.S. Army, a situation that frequently led to differences of opinion concerning when patients should be discharged and even to “fraudulent release . . . through the Belgians not being familiar with the United States Army procedure.” In April 1919, therefore, a camp hospital was opened at Antwerp for units in Belgium and Holland, but it was closed in mid-July after having received only 250 patients.<sup>47</sup>

In addition to the hospital system serving the Army of Occupation, the Medical Department set up a network of laboratories, including two at army level (Coblenz and Trier), ten at evacuation hospitals, and seven at division level. Each army level laboratory provided clinical services for the hospital where it was located and provided supplies for the other laboratories in its area. The entire laboratory staff in Germany numbered forty-seven officers, ten of whom were stationed at Coblenz, whose work included wide-ranging bacteriological studies of water supplies and a limited amount of research, for the most part aimed toward detecting the first signs of tuberculosis infection.<sup>48</sup>

Two medical supply depots, the largest at Trier and a smaller one at Coblenz, served the Third Army. Medical supply management was complicated by attempts to consolidate storage in the interests of efficiency, and obtaining the requisite number of medical personnel, and particularly qualified personnel, for supply depots also proved difficult. For purely manual work, German civilians were hired, but the enlisted men available to work as clerks, storekeepers, and statisticians tended to be not only inexperienced but also so poorly educated as to make training them a slow process. In the immediate wake of the war, medical supplies in Europe were scarce. Because of the railway system congestion, the Medical Department undertook to relieve some of the shortages experienced by the civilian population by providing what they needed and charging their cost to the Germans.<sup>49</sup>

The United States did not sign the Treaty of Versailles that officially ended the war on 28 June 1919, leaving just the Rhineland to be occupied for another fifteen years. Only in July 1921 did Congress pass a joint resolution acknowledging that the war had come to an end; however, in recognition of the obvious, the Third Army was inactivated on 2 July 1919 and most of its units directed to return to the United States. On 3 July the staff and troops that remained in Germany, by 1 October numbering only 11,000, became the American Forces in Germany. Unlike the AEF’s Third Army, the American Forces in Germany served directly under the

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<sup>46</sup> WD, SGO, *Administration, AEF*, pp. 815–16; idem, *Field Operations*, pp. 905, 906, 908, 909, 911; WD, *ARofSG*, 1919, pp. 1705–06; J. R. Darnall, “War Service with an Evacuation Hospital,” p. 275.

<sup>47</sup> WD, SGO, *Administration, AEF*, pp. 790, 818–19 (quoted words).

<sup>48</sup> *Ibid.*, pp. 182, 189, 817.

<sup>49</sup> WD, SGO, *Field Operations*, p. 907; idem, *Administration, AEF*, p. 823; WD, *ARofSG*, 1920, pp. 390, 391; *ibid.*, 1921, p. 189; *United States Army in the World War, 1917–1918*, 14:77–78.

War Department and its chief surgeon reported directly to the surgeon general as far as professional matters were concerned.<sup>50</sup>

With the earliest difficulties of the postwar period having been met, the War Department apparently assumed that the American Forces in Germany as an organization should be neither extremely large nor complex. Initial plans based on the assumption that no more than 6,500 men would be needed proved, however, to be totally misleading. Such units as a 1,000-man provisional guard battalion, a company of engineers, and two regiments whose initially scheduled assignment to overseeing a plebiscite in western Poland had been canceled were eventually stationed in Germany as well. To care for these men, Medical Department units remaining in Germany included a medical supply depot established in buildings at a base hospital; a convalescent camp for men with venereal disease; three field hospitals; an ambulance company; an evacuation ambulance company; a hospital train; a provisional sanitary train; a port surgeon's office and a port hospital in Antwerp; medical personnel serving with infirmaries and prophylactic stations; and a veterinary service, in addition to the medical personnel who were a part of each regiment. Anticipating the arrival of military families in Germany, the Office of the Chief Surgeon, AFIG, added supervision of the work of an attending surgeon's office and an attending dental surgeon's office to the responsibilities it inherited from the Third Army.<sup>51</sup>

On 9 April 1920, less than a year after the closure of the first American facility in Antwerp and after extensive work had been undertaken to render a former German barracks suitable, the Medical Department found it necessary to open a second hospital, one with 60-beds, in the city for American soldiers. Complicated surgical cases and those in need of prolonged hospitalization, however, were sent to Coblenz at an average rate of two a month. This facility at Antwerp was closed in the spring of 1922.<sup>52</sup>

The unexpectedly large size of the American Forces in Germany complicated medical supply. More space was needed, but the buildings initially provided for medical supply at Coblenz had to be taken over to expand hospital facilities. In addition, stock on hand had to be sorted so that supplies found to be surplus could be disposed of. By 1921, however, Europe was able to provide most of the items the occupation force needed, making shipments from the United States no longer necessary.<sup>53</sup>

With the majority of the Army's patients in Germany, whether with the Third Army or the American Forces in Germany, sick rather than injured, the focus of Medical Department efforts had to change. A much higher proportion of internists to surgeons was now required. Some internists initially assigned to base hospitals that were scheduled for return to the United States had to be held back either to supplement those already assigned to the Third Army or to take the places of

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<sup>50</sup> Richard F. Nyrop, ed., *Federal Republic of Germany*, p. 24; Coffman, *War To End All Wars*, p. 359; I. L. Hunt, *American Military Government of Occupied Germany, 1918-1920*, 1:144; WD, SGO, *Administration, AEF*, pp. 813, 817; James Abner Tobey, *The Medical Department of the Army*, p. 43; WD, *ARofSG*, 1924, p. 299.

<sup>51</sup> WD, SGO, *Administration, AEF*, pp. 790, 817-18; WD, *ARofSG*, 1920, pp. 378-79; *ibid.*, 1921, p. 186.

<sup>52</sup> WD, *ARofSG*, 1920, p. 385; *ibid.*, 1921, pp. 191-92; *ibid.*, 1922, p. 201.

<sup>53</sup> *Ibid.*, 1920, pp. 390-91; *ibid.*, 1921, pp. 188-89.



men with longer service who were entitled to return home. Under peacetime conditions routine dental care now became possible, with dental services organized accordingly.<sup>54</sup>

Whether in peace or in war, the medical care rendered to soldiers followed guidelines that in broad outline had been familiar for some time, but no doctrine had been developed to direct the efforts of those dealing with men who, captured while serving with the armies of the United States or its Allies, had been imprisoned in German prisoner-of-war camps. The United States shared responsibility for these men with the Interallied Commission, the Red Cross, and various other agencies; after December 1918 the U.S. Military Mission handled the American role in dealing with former prisoners of war. Initially the mission consisted of 3 officers and 2 enlisted men; by February 1919 the staff numbered 800 men, of which 6 were medical officers and 20 dental officers. As the chief medical officer with the mission, Capt. Albro L. Parsons, MC, served as the U.S. Military Mission surgeon, and a Sanitary Corps member of the Sanitary Corps became Parsons' medical supply officer.<sup>55</sup>

By this point all American prisoners of war had been started on their way home, but many former prisoners of war of other nationalities continued to need care during the winter while they awaited repatriation. The duties of medical officers with the mission came to include escorting trainloads of former prisoners of war back to their home countries. Occasionally, on the return trip, they also accompanied groups of sick Germans journeying from wartime prisons back to their homes. Of particular concern at this time were the occupants of twenty-eight large camps and eighty-six small camps for former Russian prisoners of war whose numbers were not precisely known because the Germans had not kept accurate records; estimates ranged from 300,000 to 700,000 prisoners. Sanitary conditions had deteriorated after the Armistice ended German authority over the camps, and the questionable health of occupants soon became obvious. Tuberculosis proved a considerable threat, and typhus, spread almost entirely by the body louse, was occasionally brought in by new arrivals, men being transferred from other camps or captured in the continuing conflict along the front with Bolshevik Russia. The threat of a typhus epidemic was real, both because soap was scarce and because delousing efforts were frustrated by those who preferred the louse's diagnostic skills; a louse, the story went, could tell who had typhus and who did not and would avoid the former. Russian prisoners would, therefore, seek out louse-infested clothing to find out whether these creatures would land on them or avoid them. The process, of course, considerably increased the possibility that any who did not already have the disease would soon fall victim to it.<sup>56</sup>

The role of American medical officers at the Russian camps was largely limited to seeing that the prisoners were well treated and to caring for the 32 American enlisted men assigned to each camp to help Red Cross teams working there.

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<sup>54</sup> Ibid., 1919, pp. 1296-97; *ibid.*, 1920, p. 376; WD, SGO, *Administration, AEF*, p. 817.

<sup>55</sup> A. L. Parsons, "Extracts from the History, Medical Department, United States Military Mission, Berlin, Germany, August 10, 1919," pp. 113, 114-15, 116-17; WD, *ARofSG*, 1919, p. 1302.

<sup>56</sup> Parsons, "Extracts," pp. 115, 117, 119, 126, 128, 129, 130; E. W. Goodall, "Typhus Fever in Poland, 1916-1919," p. 269.

Medical care for former prisoners was handled by 32 Russian physicians sent in by the Interallied Commission, subject to the inspection of an American medical officer. When at last in the spring of 1919 the process of repatriation began, 6 American medical officers and a dental officer were assigned to accompany nine trains, each with 1,800 Russians, to the Bolshevik Russian front. There the former prisoners were provided with food sufficient for several days march and sent on their way. Their ordeal was apparently not over at this point, however, for on 5 July a U.S. medical officer was sent across the border to set up a food depot for 3,600 of the returnees.<sup>57</sup>

A continuing concern for the Medical Department throughout the entire period of American occupation, however, was the diseases and conditions favoring the transmission of disease among civilians that continued to pose a potential threat to soldiers serving in their proximity, 90 percent of whom were quartered in private homes. The responsibility proved to be very much a learning experience, for at this time the Army had neither programs nor policies in place to guide its efforts in dealing with the civilian population. With sanitation and healthcare systems in Germany on the verge of total breakdown when U.S. troops crossed the border, dealing with the threat of disease required that military and civilian sanitary authorities work together, sharing pertinent information relating to disease and conditions favoring its spread.<sup>58</sup>

To deal with its public health responsibilities as an occupying force, General John J. Pershing in December 1918 directed that the Department of Sanitation and Public Health, German Occupied Territory, be established. The 12 officers, 4 nurses, and 9 enlisted men of the new department were to both control and supervise the civil sanitary service in the interests of preserving the health of the American soldiers serving in the occupied area and to ensure that the civilian population of 835,000 received satisfactory medical care. To assist in achieving the latter goal, plans were made to care for civilian patients at military hospitals should the need arise as the result of an epidemic. Division commanders, who had to submit monthly reports on sanitation and disease to the chief sanitary officer, were ordered to supervise the work of the civilian sanitary services within the areas they occupied. A valuable source of information concerning the civilian community proved to be the physician functioning as the local civilian sanitary authority in each community. He could conduct inspections of sewage disposal, water and food supplies, and other aspects of sanitation and administer medical examinations to prostitutes, although he could not establish sanitary regulations.<sup>59</sup>

On the assumption that Third Army units would for the most part be remaining in one place, disease prevention and sanitation were left to local commanders, except for the efforts involved in handling prostitution, overseeing the purity of water supplies, and heading off the possibility that troops might eat vegetables that

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<sup>57</sup> Parsons, "Extracts," pp. 118, 119, 122, 129–30.

<sup>58</sup> WD, SGO, *Administration, AEF*, pp. 814, 825–26; idem, *Sanitation*, p. 754; Bayne-Jones, *Evolution*, p. 165; Richard M. Garfield and Alfred I. Neugut, "Epidemiologic Analysis of Warfare," p. 690; Hunt, *American Military Government*, 1:166–67.

<sup>59</sup> WD, SGO, *Administration, AEF*, pp. 821–22, 823; Bayne-Jones, *Evolution*, p. 167; WD, *ARofSG*, 1920, p. 368.

had been sprayed with liquefied night soil. In January 1919, because preventing contamination of water supplies was crucial to preventing disease, the Third Army organized under Sanitary Corps management an army-level water service, with sections both in the chief surgeon's office and in the office of the Third Army's chief engineer. These organizations both examined water supplies and recommended purification equipment.<sup>60</sup>

Investigation revealed that water pollution formed a real threat to the occupying force. Water for Coblenz and other larger communities often came from wells so near a river that pollution of the river affected water drawn from the wells. All buildings in Coblenz were connected with a central system, but the plumbing was old and tended to leak or cause backups even though the overall design was modern, thereby threatening the water. The solution to the problem in this city proved to be replacing the ineffective district physician responsible for the city's sanitation and chlorinating the entire water supply, a step that the Medical Department undertook to manage in 1919. In some communities ground water contaminated by runoff from sources that included manure piles also threatened water supplies. Troops were forbidden to resort to this type of drinking water except when they had used Lyster bags to chlorinate it. The initiative for such public health measures as removing manure piles and screening cesspools had to come from the Army.<sup>61</sup>

Two epidemics of typhoid broke out in the valley of the Ahr River during the U.S. occupation, both of which were concluded only after the Americans intervened by administering typhoid vaccine to the entire civilian population of the involved communities. The success of the Third Army's effort resulted in part from the fact that the Medical Department was using a one-shot program. German attempts to vaccinate by means of a multishot approach had failed because of the difficulty experienced in getting citizens to complete the series. In one community the Third Army also forced the replacement of the local official who had ignored the epidemic when it first appeared.<sup>62</sup>

By comparison, the effort to prevent the spread of waterborne diseases was more successful than that launched to keep occupation soldiers from contracting venereal disease from infected civilians. A medical officer familiar with the problem in Germany noted that the average American soldier was "keen to experience the sensations of a millionaire and to act like one," a sensation made possible by an inflation rate so high that American dollars became very valuable. Those who had already acquired a venereal disease were confined to a facility at Coblenz so that they could not spread their disease, whereas men who were free to circulate were apparently not deterred by regulations against visiting houses of prostitution and fraternization with Germans. Once initial restrictions against leave were lifted in the spring of 1919, VD rates among occupation troops soared higher than the rates characteristic of the American Expeditionary Forces in France and Army units in the United States. The rate increased again in the summer of 1919, when the Third Army was disbanded and the men were

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<sup>60</sup> Bayne-Jones, *Evolution*, p. 166; WD, SGO, *Administration, AEF*, pp. 813–14, 815.

<sup>61</sup> WD, *ARofSG*, 1919, p. 1554; *ibid.*, 1920, pp. 380, 387; *ibid.*, 1921, p. 186; *ibid.*, 1922, p. 198; Hunt, *American Military Government*, 1:123, 143; Bayne-Jones, *Evolution*, p. 144.

<sup>62</sup> Hunt, *American Military Government*, 1:133–34, 135–366.

subjected to strict examinations before being cleared to return home. When the rule against fraternization was rescinded on 27 September 1919 in the naive hope that soldiers would be encouraged to associate “with the better classes of the civil population,” VD rates rose from a low annual rate of 9 per 1,000 in the week ending 17 January 1919 to 422.65 per 1,000 per year in the week ending 21 October 1919.<sup>63</sup>

German antiprostitution laws called for prostitutes to be examined regularly and, if diseased, to be confined for treatment until pronounced cured. A woman suspected of being a prostitute could be confined while an exhaustive laboratory examination was conducted. American authorities attempted to enhance the effect of German law by requiring that undesirables be shipped out of the area without trial and made subject to military trial if they returned, but the assumption that German police at railroad stations would turn back those who attempted to enter the American zone without a pass proved to be unduly optimistic. By 1923, however, authorities had discovered that experienced, professional prostitutes did not constitute the principal problem; they were not popular with the men, were few in number, and did not exhibit a high rate of infection. The greatest difficulty arose rather from the women most difficult to identify and force into treatment, clandestine prostitutes, 35 percent of whom were believed to be infected with one or more venereal diseases.<sup>64</sup>

Hospitalizing those infected with a venereal disease, whether soldier or civilian, presented difficulties not encountered with other illnesses. Patients were disabled for a short time, if they were disabled at all, yet the period when they could be infectious to others was relatively long. The strict enforcement of laws against prostitution that required diseased women to be confined until cured placed a great burden on hospitals in the American zone, threatening to crowd out those seeking care for other health problems. Army of Occupation authorities then called for special hospitals to be set up for this type of case, but this requirement met with opposition, especially in Coblenz, where the citizens wanted the Americans to provide the facility; a hospital for 61 diseased women was not established until July 1919.<sup>65</sup>

In late 1918 diphtheria was found among civilians, chiefly along the Rhine in Coblenz and its vicinity, and the disease became a problem among soldiers as well. Cases were not evacuated but handled at the division level, with control placed in charge of the Third Army epidemiologist and sanitary inspector and the laboratory work handled by the Third Army laboratory at Coblenz. The annual rate in the 2d Division, which was most heavily afflicted, was 7.5 per 1,000. Preventive measures emphasized early diagnosis and prompt isolation both of those who were ill and of their contacts. Treatment called for large and promptly administered doses of antitoxin, repeated at two- to five-day intervals until three had been given. When

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<sup>63</sup> Ashburn, *History of MD*, p. 358 (first quoted words); Autobiography, p. 254, Ms C14, Jefferson Randolph Kean Papers, NLM; Young, *Young*, pp. 340–41; WD, *ARofSG*, 1920, pp. 382–83; Hunt, *American Military Government*, 1:146, 150 (second quoted words).

<sup>64</sup> Hunt, *American Military Government*, 1:144, 145–46; WD, SGO, *Sanitation*, pp. 985, 986–87, 989; WD, *ARofSG*, 1923, p. 196.

<sup>65</sup> Hunt, *American Military Government*, 1:146; WD, SGO, *Sanitation*, p. 987.

diphtheria became a more widespread problem in the fall of 1919, the AFIG chief surgeon directed that Schick tests be administered to all contacts and also that cultures be taken, with those found to be carriers hospitalized until they produced three successive negative cultures.<sup>66</sup>

Some diseases affected soldiers regardless of their prevalence in the civilian community. Lice and scabies mites made life miserable for many soldiers, especially in the immediate wake of the Armistice. By January 1919 an estimated 90 percent of the Third Army was afflicted with lice as a result of the absence of bathing and delousing equipment during the final days of the war and along the line of march into Germany. The medical organizations of the various divisions resorted to considerable improvisation to create the needed facilities, and by May the infestation rate had fallen to 1 percent or less. Scabies afflicted as many as 10 percent of the men in their first year in Germany, requiring the hospitalization of severe cases. Steam was used to eliminate the vermin in clothing and bedding. This problem, too, dwindled as the troops settled into their new quarters, falling to 2 percent in fiscal year 1921, although it continued to cause minor difficulties throughout the Army of Occupation.<sup>67</sup>

The incidence of respiratory disease waxed and waned among the members of the Army of Occupation as they did elsewhere, and precautions taken to prevent their spread and to care for the victims were essentially the same as well. In the winter of 1918–1919 the resurgence of influenza once again crowded wards, and medical officers found it necessary to evacuate patients to reduce the pressure on hospitals. Some convalescents from Coblenz were sent to Trier and others to hospitals controlled by the Services of Supply. In the fall of 1919 the number of cases began to increase again but did not reach epidemic proportions until late December, by which point the number of new cases in the occupation force was averaging 20 or more each day. The rate continued at this level throughout most of the rest of the winter, dictating the reinstatement of the policies used the preceding winter to deal with overcrowding at hospitals. The disease was generally mild, however, and apparently did not seriously affect the civilian population. Minor epidemics developed again in the spring of 1922 and again in December.<sup>68</sup>

On the whole, the physical health of the troops in Germany was regarded as quite good, especially in view of the fact that most of the men were recruits. The Medical Department credited their health to “the mild, equable climate of the Rhine; . . . the good health and sanitation of the civil population; and . . . the excellent housing conditions of the troops, most of them being in comfortable barracks; and . . . the careful supervision of sanitation by medical and line officers.”<sup>69</sup>

<sup>66</sup> Bayne-Jones, *Evolution*, p. 167; Marcus P. Neal and Alan C. Sutton, “Diphtheria in the American Expeditionary Force, pp. 521–22, 523, 525; WD, *ARofSG*, 1920, pp. 389–90.

<sup>67</sup> WD, SGO, *Administration, AEF*, p. 814; WD, *ARofSG*, 1920, p. 389; *ibid.*, 1921, p. 188; *ibid.*, 1922, p. 200; *ibid.*, 1923, p. 197.

<sup>68</sup> WD, *ARofSG*, 1919, p. 1705; *ibid.*, 1920, pp. 382, 389; *ibid.*, 1922, p. 199; WD, SGO, *Administration, AEF*, pp. 816–17; *idem*, *Field Operations*, p. 908.

<sup>69</sup> WD, SGO, *Administration, AEF*, p. 819; WD, *ARofSG*, 1920, p. 388 (quotation); *ibid.*, 1921, p. 187; *ibid.*, 1922, p. 199.

Mental problems continued to make themselves manifest in significant numbers in the Army of Occupation. During the winter of 1918–1919, even though the nation was no longer at war, more than a 1,000 neuropsychiatric cases were treated in the facilities established for them at Coblenz and Trier. Of these, 69 were afflicted with some form of addiction, either to alcohol or to a drug. The breakdown of many of these men who had managed to endure combat successfully might in the last decades of the twentieth century be described as posttraumatic stress syndrome, but at the time it was blamed on the “monotony and routine of a less active period” and the “more exacting demands of drill and inspection in the army of occupation.” Their case histories often showed “a lack of adaptability on the part of the individual extending over a varying length of time, for years in some instances.” Suicides were few, however, even though depressives were common in this group.<sup>70</sup>

The overall authority for neuropsychiatric cases in the Army of Occupation fell to the newly named consultant who had been the 42d Division psychiatrist. Each division in Germany had its own psychiatrist. The Medical Department regarded the caliber of the physicians and attendants assigned to the Coblenz and Trier hospitals to which neuropsychiatric patients were sent as superior. These physicians were specialists in this type of problem, and many of the enlisted men serving as attendants at Coblenz and Trier during the life of the Third Army had either served as nurses in mental hospitals in the United States or received special training while in the Army. When the Third Army was inactivated, however, these enlisted attendants soon left the service, and their replacements had not been trained to care for neuropsychiatric patients. Occupational therapy aides thereafter assisted in the care of these patients, setting up work areas within the hospitals as well as performing bedside physiotherapy in wards.<sup>71</sup>

The Medical Department’s goal was to have men likely to suffer from psychiatric problems identified as promptly as possible. Specialists at the division level were kept available to consult with representatives of the Judge Advocate General’s Office concerning men whose disciplinary problems might stem from neuropsychiatric illness. Early treatment often made restoration to duty possible, but those who could not be rendered fit for military service were sent back to the United States with a minimum of delay. Boards advised by psychiatrists determined which men were unsuited for duty, and those so identified were sent to Coblenz or to Trier. As necessary, as soon as they were calm enough to withstand a move, they were evacuated back to a base hospital in the Services of Supply, using hospital trains no longer needed for evacuating First and Second Army patients back to base ports; presumably mental patients, like others being evacuated from Germany, embarked for the United States from Antwerp. When possible they were moved by special hospital train, and each case was accompanied by a trained attendant, each train by a medical officer.<sup>72</sup>

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<sup>70</sup> WD, SGO, *Neuropsychiatry*, pp. 425, 428; idem, *Field Operations*, p. 906; WD, *ARofSG*, 1919, p. 1718 (quoted words).

<sup>71</sup> WD, SGO, *Neuropsychiatry*, pp. 425, 426–27, 432; idem, *Field Operations*, p. 907.

<sup>72</sup> WD, *ARofSG*, 1920, pp. 375–76; WD, SGO, *Neuropsychiatry*, pp. 423, 424, 426, 427; idem, *Administration, AEF*, pp. 336, 819.

*In Poland*

War is almost inevitably followed by increased rates of disease among civilian populations impoverished by the conflict, but by the summer of 1919 many western European nations had come to regard the typhus epidemic then raging in Poland as potentially “one of the world’s greatest catastrophes.” Because Poland itself was seen as the last barrier between them and disaster, a variety of agencies from a variety of nations soon joined the struggle against this disease. Both Polish authorities and Herbert Hoover, whose American Relief Administration played a significant role in the first struggles against the epidemic, sought the advice of Col. Harry L. Gilchrist, MC. Colonel Gilchrist had taken part in public health efforts both during his service in the Philippines after the Spanish-American War and when he was part of the Army team that briefly assumed responsibility for the health of San Francisco in the wake of the disastrous earthquake of 1906. He also had had considerable experience dealing with lice while leading the effort to delouse American troops returning to the United States after the signing of the Armistice.<sup>73</sup>

To Hoover, Colonel Gilchrist emphasized the importance of having a trained organization manage the effort in Poland. Obviously impressed by the colonel’s grasp of the situation, Hoover used his influence with President Wilson to have Gilchrist assigned on 25 June 1919 as head of a U.S. Army unit to work with the Polish Minister of Public Health. Gilchrist then organized a team, which became known as the Typhus Relief Expedition, to identify the needed equipment and to provide the instruction, the trained personnel, and the advisers necessary to enable the Poles eventually to handle the epidemic themselves.<sup>74</sup>

Many men were willing to volunteer for Colonel Gilchrist’s team, but the War Department was required by law not to allow officers with wartime, or emergency, commissions to remain in the service beyond 30 September 1919. As a result Gilchrist often had to accept inexperienced officers as replacements for those with whom he had worked while with the American Expeditionary Forces. At the request of the Polish government, the War Department permitted enlisted men who wished to volunteer for further duty to remain, but only through June 1920. On the basis that the experience gained by the medical personnel working in Poland would prove valuable, the Gilchrist team was given one final extension to continue its work until 1 November 1920. Nevertheless, Gilchrist’s efforts to obtain the help of officers and enlisted men experienced in this type of work, and

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<sup>73</sup> J. W. Kerr, “President’s Address,” p. 126; H. L. Gilchrist, “Typhus Fever in Poland,” p. 623 (quoted words); Gaines M. Foster, “Typhus Disaster in the Wake of War,” pp. 222–23, 226; Goodall, “Typhus Fever,” p. 201; Neal Pease, *Poland, the United States and the Stabilization of Europe, 1919–1933*, pp. 3, 7, 9; R. P. Strong et al., *Typhus Fever, with Particular Reference to the Serbian Epidemics*, pp. 99, 103; Rpt, Gilchrist to CO, A.T.F.E., 1 Feb 1920, pp. 1, 2, Entry 1334, Record Group (RG) 120, National Archives and Records Administration—College Park (NARA—CP), College Park, Md.; Rpt, I. L. Hunt to CG, AFIG, 3 Mar 1920, p. 2, file 1–66.1, Entry 1526, RG 120, NARA—CP.

<sup>74</sup> Alfred E. Cornebise, *Typhus and Doughboys*, pp. 17, 18, 21, 128; Ltr, Douglas MacArthur to Harry L. Gilchrist, 2 Feb 1934, Ms C322, Harry L. Gilchrist Papers, NLM; WD, *ARofSG*, 1921, 192; Strong et al., *Typhus Fever*, p. 100; “Information from Poland,” p. 226.

especially of those who spoke French, German, or Polish, were to a large degree frustrated. To obtain men who spoke Polish, he was allowed to recruit from among Polish-Americans who had been in Poland during the war and were planning to return eventually to the United States. By 23 October 1919 Gilchrist's team numbered 22 officers and 420 men but then expanded to 32 officers (9 of whom were physicians) and 500 enlisted men. A dental surgeon and a veterinarian also served in Poland.<sup>75</sup>

Drunkenness, theft, and violence against civilians soon became common. In 1919, during a period of three months, 96 men were tried for various offenses, including going absent without leave; selling supplies intended for the expedition's use, among them tires and cigarettes; and not taking adequate precautions against venereal disease. Many had arrived in Poland with some form of VD infection, and thus lost their eligibility for immediate return to the United States. The penalty exacted from them frequently involved being relieved from duty with the expedition and sent back to Germany. Gilchrist finally instituted the policy that only men found free of venereal disease could join the team in Poland. When their terms of service expired, many original team members elected to return home before the end of 1919. Thereafter, those who remained proved themselves by exercising responsibilities normally handled by officers, and disciplinary problems were far less serious.<sup>76</sup>

When Colonel Gilchrist set off for the four-day train trip to Poland on 6 August 1919, he left Capt. Fred Pumphrey of the Sanitary Corps in charge of his Paris office, where he was to collect and forward to Gilchrist the necessary equipment and personnel. Captain Pumphrey distinguished himself by apparently being almost as much a part of the problem as he was of the solution. "A bit corrupt," his *modus operandi* emphasized obtaining the items needed when they were needed without being unduly scrupulous about the methods employed in the process. Convinced that he "might as well be hung for an elephant as a



*Harry L. Gilchrist*

<sup>75</sup> Cornebise, *Typhus*, pp. 23, 24, 32, 75, 76, 127–28; Foster, "Typhus Disaster," pp. 224, 228–29; WD, *ARofSG*, 1920, p. 378; "Information from Poland," pp. 221–22, 223, 225–26; Gilchrist, "Typhus Fever," p. 629; Rpt, Gilchrist to CO, A.T.F.E., 1 Feb 1920, p. 5, Entry 1334, RG 120, NARA–CP. Figures vary to a minor degree.

<sup>76</sup> Foster, "Typhus Disaster," p. 213; Cornebise, *Typhus*, pp. 72, 74–75, 132, 142; WD, *ARofSG*, 1920, p. 378. Once again figures differ; Cornebise suggests that 23 officers and 155 men remained with Gilchrist in Poland after November 1919.





*Fred Pumphrey*

rat, and this stuff is going to be gotten to Poland, by hook or crook,” he cheerfully reassured Gilchrist that “Leavenworth is yawning, if they ever check up on our glue-fingered bunch.” He added that at least one superior officer had informed him that “he kept his eyes open when I was in his office, as we had a habit of taking things whether they were given to us nor not.” Pumphrey also became “embroiled in incessant conflict involving matters great and small. It was characteristic of him that he could not always distinguish between the two. Sometimes it was a case of much ado about nothing.” Pumphrey’s role in the struggle against the epidemic was limited in time, however. As an officer holding an emergency commission, he was required to leave the U.S. Army at the end of September 1919. Just at the time he left, the center of the supply operations for Gilchrist’s team was

moved to Coblenz, where Pumphrey’s successor began to function, apparently in a markedly less tumultuous manner.<sup>77</sup>

One way or another, supplies for Poland were apparently obtained in abundance. Almost all the steam sterilizers and mobile laundries that the American Expeditionary Forces possessed were bought from the American Liquidation Board in France and sent to Poland, along with 320 ambulances, 10,000 beds, a million sets of underclothes, 100 tons of soap, 40,000 towels, 50 tons of washing soda, and a myriad other items. Also included were 500 mules for pulling peasant carts when they were used as ambulances; few farm animals had survived the war. Unfortunately, the Polish official responsible for inspecting the purchased items accepted even those that had been damaged.<sup>78</sup>

Getting these purchases safely from France to their destination was no simple matter. The French were not particularly cooperative, claiming a shortage of coal as an excuse for not allowing trains to leave France with items destined for Poland from the end of August to mid-September. Because of Hoover’s influence,

<sup>77</sup> Cornebise, *Typhus*, pp. 27, 28 (quoted words), 29 (final quotation), 33 (remaining quotations), 38–39, 41; Foster, “Typhus Disaster,” p. 224.

<sup>78</sup> Cornebise, *Typhus*, pp. 17, 26, 36, 42, 53; “Information from Poland,” p. 222; “Memorandum no. 20, Headquarters of American Typhus Fever Expedition, United States Army, Warsaw, August 10, 1920,” pp. 485–86; Foster, “Typhus Disaster,” p. 224; Strong et al., “Typhus,” p. 100; Gilchrist, “Typhus Fever,” p. 627; Rpt, CO, A.T.F.E. to SG, USA, 1 Feb 1920, p. 4, Entry 1334, RG 120, NARA-CP; Rpt, I. L. Hunt to CG, AFIG, 3 Mar 1920, p. 6, file 1–66.1, Entry 1526, RG 120, NARA-CP.

the embargo was ended. Captain Pumphrey preferred motor convoys, a slow and costly approach to the problem that occasionally inspired near riots as a result of the antics of inexperienced and somewhat wild drivers. Subject to the tender mercies of their chauffeurs, vehicles broke down or were totaled in accidents. The officer in charge of one convoy clad a bevy of French women in Army uniform and brought them along, a feat that led to his conviction by court-martial. Convoys had to be guarded every mile of the way to Poland lest those with fingers as sticky as Pumphrey's abscond with the goods. After the supplies had arrived, care had to be taken lest the recipients sell them.<sup>79</sup>

In August 1919 the team undertook to train Poles to handle automotive repair, an effort that continued through the following October. Although the project was deemed successful, challenges caused by language differences, equipment in poor condition and short supply, inadequate training facilities, and the reluctance of many to serve as both mechanics and teachers complicated progress. Difficulties also arose from the need to make machine shop tools on the spot, the distance they would have to be shipped from bases in France or from Coblenz being too great.<sup>80</sup>

As commanding officer of a team dedicated to stemming the deadly tide, Colonel Gilchrist worked directly under Poland's minister of public health. The minister conducted the campaign against typhus, a situation that subjected the effort to the vagaries of Polish political rivalries. Gilchrist became a member of a central committee appointed by the minister, along with several Polish physicians. He assigned medical officers from his team to serve as advisers to the country's six administrative districts. Once the campaign was fully under way, he sent teams to certain individual communities both to prevent lice and the typhus they carried from entering Poland and to teach the population how to improve public health within Poland by setting up what were essentially pilot programs. To reach local communities, he also set up motorized mobile columns, each consisting of 1 commissioned officer, 3 noncommissioned officers, and 15 privates; plans called for forty columns but only four were ever formed. Every team took with it the equipment needed for providing baths and tents for showers while attendants sterilized clothes, stoves, bedding, and the like. Wherever typhus cases had been found, team members cleaned and disinfected the houses and the contents as well as set up bathing and delousing plants, instigating laws requiring their regular use. The concept of broadening the mission to include an effort to restore public health in general, and thus to fight any other diseases they encountered in the communities where they worked, was apparently not specifically stated. Nevertheless, while in the field, the teams treated such illnesses as trachoma, conjunctivitis, otitis, tuberculosis, skin diseases, goiter, and anemia.<sup>81</sup>

<sup>79</sup> Cornebise, *Typhus*, pp. 42–43, 48, 50; Foster, "Typhus Disaster," p. 224.

<sup>80</sup> Cornebise, *Typhus*, pp. 54–56; Rpt, I. L. Hunt to CG, AFIG, 3 Mar 1920, pp. 2, 3, file 1–66.1, Entry 1526, RG 120, NARA–CP.

<sup>81</sup> Gilchrist, "Typhus Fever," pp. 627–28; Cornebise, *Typhus*, pp. 54, 64, 71, 101; "Information from Poland," pp. 221–22; H. L. Gilchrist, "Delousing the American Army in France," p. 147; Foster, "Typhus Disaster," p. 227; Rpt, CO, A.T.F.E., to SG, USA, 1 Feb 1920, p. 4, Entry 1334, RG 120, NARA–CP; Rpt, I. L. Hunt to CG, AFIG, file 1.66.1, Entry 1526, p. 4, RG 120, NARA–CP. Sources differ concerning how many Polish physicians were on the committee.

The problems the teams encountered in the course of their work were many. Cars and trucks broke down on rough roads. Gasoline was in short supply. Rumors suggesting that the Americans had some evil intent behind their actions were widely prevalent. Sometimes even though children seemed to enjoy the bathing process, the adults refused to cooperate. The inhabitants in at least one community refused to use the town's bathhouse because the Germans had forced them to do so; authorities and two doctors told the team that none of the town's 7,000 inhabitants had taken a bath in at least a year. Americans learned, however, that although they did not assist in educating the populace about public health, such measures as refusing to provide bread or granting permission to take home the soap used in the bath produced cooperation where persuasion did not. The reluctance of villagers to cooperate with the mobile units led in at least some instances to the assumption of greater and greater power by the Americans involved in the effort.<sup>82</sup>

As the teams went from one small community to another, they encountered complications engendered by local customs, attitudes, fears, and conditions. These obstacles included not only a fear of strangers but also conflicts within the communities themselves. Jews and Catholics, for example, might insist on being appealed to and treated separately. Even when the epidemic continued to grow in intensity, a campaign by the Polish government to have villagers clean their houses was unsuccessful, and laws requiring bathing were ignored, an act of defiance made more understandable by the fact that a lack of coal made heating the water impossible.<sup>83</sup>

According to the severity of the problems found in a given town or village, a team might remain several weeks at one site or abandon the effort sooner, members having come to the conclusion that their time could be more profitably be spent elsewhere. Severe weather and a lack of an appropriate buildings to shelter those being bathed from the cold in one village could lead a team to abandon its work there to go on to another community. In one instance a plethora of Jewish holidays, bad weather, and the unhelpful attitude of town officials led a team to go elsewhere after bathing only half of the village's inhabitants.<sup>84</sup>

Dealing with refugees proved to be an even more challenging task than dealing with villagers. Huddled together to keep warm in the cold of winter, refugees "died by the thousands, their bodies being piled in great heaps in adjoining buildings, awaiting burial." The number of refugees streaming into Poland was staggering—approximately 2.4 million in fourteen months following the end of World War I, plus an estimated 500,000 more who did not go through obvious entry points, less than half of whom were Poles. In spite of this, the Polish government resisted setting quotas on the number who could enter the country. Any hope of stopping those whose arrival was not officially recorded to check for lice

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<sup>82</sup> Cornebise, *Typhus*, pp. 65, 67, 121–22; "Information from Poland," p. 224; Foster, "Typhus Disaster," pp. 227–28, 229; Rpt. I. L. Hunt to CG, AFIG, 3 Mar 1920, p. 2, file 1–66.1, Entry 1526, RG 120, NARA.

<sup>83</sup> Cornebise, *Typhus*, pp. 58, 67, 68–69; Strong et al., "Typhus," p. 96; Goodall, "Typhus Fever," p. 273.

<sup>84</sup> Cornebise, *Typhus*, p. 64.

and signs of disease was small. Nevertheless, Colonel Gilchrist attempted to do so, setting up fifteen delousing stations along the eastern borders in 1919. On 2 January 1920, at one of these quarantine stations, typhus fever took the life of an American medical officer.<sup>85</sup>

Early in 1920, in his attempts to meet lice at the border, Colonel Gilchrist turned to a mobile unit that ran four delousing plants housed in railroad cars. He assigned to the unit a lieutenant, based at Wilno, and eighteen enlisted men. After the Polish government ordered that all trains going through the Wilno railroad station be sterilized, three men were assigned to run a sterilizing station there, using a tractor with a steam boiler to rid an average of more than 200 railroad cars a week of vermin, and another to repair sanitary equipment on trains and the station sterilizer. Trains, each under the control of a noncommissioned officer, carried delousing equipment to cities where rail lines crossed into Poland. Relying on rail lines proved frustrating, however, because lines running northeast to southwest were of a different gauge from those running northwest to southeast. Polish citizens worked with the mobile unit to learn how to operate a delousing facility. It was hoped that they would eventually be able to take over the delousing effort in a given community, freeing the Americans to go elsewhere.<sup>86</sup>

The officer in command of the mobile unit had high hopes that his mission would result in complete control over the entry of disease through the northeastern border with Russia, but his efforts met with much frustration. The use of railroad cars for bathing and delousing apparently proved intimidating for the people. Permission given to Polish authorities to place a Polish doctor on each train to inspect refugees contributed to still further difficulties, both because these physicians attempted to give orders to others and also because of the strong prejudice against Jews characteristic of so many Poles at this time; complaints arose on the three trains where the Polish physicians were of the Jewish faith. Even greater difficulties arose in 1920 as a result of the turmoil in Russia. The Poles were inspired to take advantage of the situation to attempt taking a bite from the land of their former conquerors, and the latter reciprocated by invading Poland, making prompt defeat of the disease impossible. Polish soldiers with their lice moved to the front before they could be systematically disinfested, and the invaders brought their lice with them as they drove toward Warsaw. As a result, the trains that were concentrating on the crossing point at Wilno had to be pulled back to avoid capture.<sup>87</sup>

The effort to use trains as part of the effort to close the border to disease ended after more than 32,000 people had been deloused and many railroad cars used by refugees freed of infestation. On 11 July 1920 arson claimed one of the trains, cut off after the Poles had blown up a bridge. Responsibility for the fire was never placed, and the fate of the remaining trains is not known.<sup>88</sup>

<sup>85</sup> Gilchrist, "Typhus Fever," pp. 622–23 (quotation), 624–25, 626; Foster, "Typhus Disaster," p. pp. 227, 229; Rpt. CO, A.T.F.E. to SG, USA, 1 Feb 1920, Entry 1334, RG 120, NARA–CP.

<sup>86</sup> Cornebise, *Typhus*, pp. 78, 79; Foster, "Typhus Disaster," p. 230; Rpt. I. L. Hunt to CG, AFIG, 3 Mar 1920, p. 6, file 1–66.1, entry 1526, RG 120, NARA.

<sup>87</sup> Cornebise, *Typhus*, pp. 79, 80, 82–83, 84, 86–87; Pease, *Poland*, pp. 9–10; Edgar Erskine Hume, *Victories of Army Medicine*, p. 181; Strong et al., "Typhus," p. 108; Rpt. CO, A.T.F.E., to SG, USA, 1 Feb 1920, p. 2, Entry 1334, RG 120, NARA–CP.

<sup>88</sup> Cornebise, *Typhus*, pp. 86–87.

Colonel Gilchrist's responsibilities also involved delousing the 12,000 men of the Polish Legion, Polish-Americans who had come to Poland to fight during the war and who were seeking to return to the United States. This challenge was more familiar to American medical personnel because the process differed little from delousing the men of the American Expeditionary Forces before their return home, and the medical officer whom Gilchrist placed in charge of the effort had handled delousing for the Third Army when it returned to the United States. Only two of these men proved to actually have typhus, and when they and their contacts were isolated, no further cases appeared.<sup>89</sup>

As in Germany, prison camps were also a concern for those fighting the spread of typhus. Bolsheviks captured with their lice in the course of the hostilities joined previously interned White Russians and their lice at a camp in Poland where typhus was common, as were smallpox, dysentery, and similar ills commonly found where sanitation was minimal and the sick were never segregated from the healthy. The camp hospital was soon overflowing, and nearby civilian hospitals were full of camp patients. The Bolshevik prisoners were not a total burden, however. Because their clothing was scanty, ridding them of lice was a relatively simple matter. Furthermore, because they were not merely detainees but genuine prisoners, they could be set to work to assist in the effort to delouse the camp, which by late July 1920 was pronounced to be free of typhus.<sup>90</sup>

Nevertheless, by the summer of 1920 such factors as political upheaval, ongoing military campaigns, waning enthusiasm in the United States and in Poland for the antityphus effort, conflicts between the short-range goal of stopping the epidemic and the long-range goal of educating the people about public health, and the uncertain status of the relief expedition itself were seriously interfering with the campaign. By the late summer of 1920 the Typhus Expedition members were reduced to concentrating on clearing the Polish-Americans for departure to the United States and managing delousing at a refugee center at Krakow. Polish authorities, however, hesitated to allow any more Polish-Americans to leave the country when the Bolsheviks were approaching Warsaw. As a result, the American team processing the Polish-Americans abandoned the attempt, packing all the supplies from the camp and moving in mid-August first to Danzig and then to Warsaw, where they arrived early in September. By the beginning of November 1920 most of the Gilchrist team had left Poland. Colonel Gilchrist and four enlisted men remained to complete paperwork and to sell the expedition supplies, which were offered first to American embassies and personnel in Europe and then to various welfare organizations. They left the country on 24 December 1920, and the campaign was officially terminated on 4 January 1921. The efforts of the Typhus Expedition were widely praised, but the epidemic had not been brought to an end.<sup>91</sup>

Although Medical Department personnel participated in other attempts to relieve the stricken populace of Eastern Europe, the Gilchrist team rep-

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<sup>89</sup> Cornebise, *Typhus*, pp. 101, 103, 109, 132-33; Foster, "Typhus Disaster," p. 230; Rpt, Gilchrist to Chief Surgeon, AFIG, 30 Apr and 31 May 1920, Entry 1334, RG 120, NARA-CP.

<sup>90</sup> Cornebise, *Typhus*, pp. 89-92, 96, 97

<sup>91</sup> Pease, *Poland*, pp. 10-11; Cornebise, *Typhus*, pp. 53, 111-12, 139, 143-45, 150; Foster, "Typhus Disaster," pp. 230, 231.

resented the only official Army team effort to reduce the toll taken by disease in that part of the world in the wake of World War I. The Typhus Commission that worked in Serbia during this period was officially a Red Cross organization, and its head, Lt. Col. Edgar Erskine Hume, MC, was the only active duty medical officer involved. Medical Department personnel also participated in civilian-led efforts to relieve famine and restore the medical system in Russia during 1921–1923, as part of an effort organized by Hoover’s American Relief Administration. Among those who also assisted the population of the Balkans during this period under the aegis of the American Relief Administration were officers from the food section of the AEF medical service.<sup>92</sup>



*Edgar Erskine Hume*

*In the Caribbean and the Pacific*

In the Philippines, in China, in Puerto Rico, in Panama, and in the Hawaiian Islands, small numbers of troops continued to serve as they had served before the United States entered World War I. In the Philippines and China, where fewer than 7,500 American troops were stationed, disease rates continued to be high, but influenza brought an admission rate for 1918 of more than 1,000 per 1,000 troops, including both Americans and Filipinos, when it had been barely more than 800 per 1,000 for Americans and less than 500 for Filipinos in 1917. Venereal disease continued to be a major problem among American troops, but not among Filipinos. Hawaii, where another 7,200 Americans served, continued to be a relatively healthy post, even when the rates of influenza and related respiratory infection were considered. Disease rates were almost as low among the 8,200 Americans in Panama, where increased rates of influenza were encountered in the spring and summer but not in the fall. Sick rates among Puerto Rican troops, however, both in Panama and in their native land, were high in 1918, more than 1,500 per 1,000. American soldiers needing hospitalization in Panama were as a rule hospitalized in facilities managed by the civilian government of the Canal Zone, thereby sparing the Army the need to erect hospitals.<sup>93</sup>

<sup>92</sup> Hume, *Victories*, p. 181; Gaines M. Foster, *The Demands of Humanity*, pp. 94–98; WD, *ARofSG*, 1919, p. 1333.

<sup>93</sup> WD, *ARofSG*, 1919, pp. 74–79, 82–89, 93–99, 103–10, 113–16; George A. Soper, “Health of the Troops in the United States During 1918,” p. 388; WD, SGO, *The Surgeon General’s Office*, pp. 632, 635.

That few significant or unusual challenges were presented to the physicians serving in the shadow of the great conflict was perhaps fortunate, to judge from the problems encountered in Panama, where the attractions of money to be gained from private practice in the area tempted medical reserve officers of apparently low quality to scheme for assignment to the Canal Zone. So tempting was the money to be earned and the prestige of an officer's uniform that one unscrupulous civilian of colorful background donned the uniform without authority, refusing to give it up until it was forcibly removed from his body.<sup>94</sup>

The war in France cast a long and sometimes dark shadow. It almost totally obscured the struggles of American troops in North Russia and Siberia from the view and the conscience both of the American government and of the American people. The medical personnel with these expeditions faced an almost impossible task, scattered among small posts isolated by the weather, the terrain, and relentless guerrillas and sharing the dangers faced by men whose health was threatened by crumbling morale as well as by cold, disease, and wounds. Medical personnel with the Army of Occupation also served in the shadow of World War I, fighting battles against disease in nations devastated by four years of a violent war at a time when Americans were increasingly eager to forget Europe and its troubles and to get on with their peacetime lives. Whether their struggles took place in Siberia or Poland, in Germany or North Russia, the officers and men of the Medical Department received neither glory nor the triumph that comes with victory.<sup>95</sup>

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<sup>94</sup> File 370.1–6 and Exhibit C, RG 395, NARA–CP.

<sup>95</sup> March, *Nation at War*, p. 132.

## Chapter 13

# GOING HOME



The final challenge of World War I for the Medical Department involved an undertaking of a dimension to cause many to conclude that “it is harder to demobilize than to mobilize.”<sup>1</sup> The department had to preserve the health of two million soldiers as they went from camp to camp in France and then from camp to camp in the United States. It had to provide care for the sick and wounded, both those few who had been returned to the United States before the end of the war and the many that were brought back after the Armistice. It had to administer demobilization physical examinations not only for them but also for another million soldiers who never left the United States, distinguishing in the process between physical problems related to military service and those that were not. And it had to assume responsibility for rehabilitation so that when officially discharged from military service, all veterans were as able as possible to resume productive lives as civilians.

A large majority of the medical personnel whose services were vital to rapid mass demobilization were, however, “emergency men,” eager themselves to seize the first opportunity to return to civilian life so that they could utilize in their private practices the skills that military service had taught them. Their departure obviously handicapped efforts to care for the sick and disabled. Fortunately, surplus medical supplies in France, which was handled by the Quartermaster Corps, was not among their responsibilities.<sup>2</sup>

### *The Demobilization Process*

Making room for the soldiers arriving from Europe for demobilization required promptly discharging troops occupying barracks at former mobilization camps in

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<sup>1</sup> F. H. Sexton, “Vocational Rehabilitation of Soldiers Suffering from Nervous Diseases,” p. 269.

<sup>2</sup> War Department (WD), [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1919, pp. 117–19 (hereinafter cited as *ARofSG*, year); *ibid.*, 1920, p. 109; *idem.*, [Annual] *Report of the Secretary of War*, 1919, pp. 227, 228 (quoted words) (hereinafter cited as *ARofSW*, year); Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 375 (hereinafter cited as *History of MD*); Erna Risch, *Quartermaster Support of the Army*, p. 698; Malcolm C. Grow, *Surgeon Grow*, pp. 4–5; Frederic L. Paxson, “The Great Demobilization,” p. 244. Because of the confusion attending both the war and the immediate postwar period, exact figures are not obtainable.





*French peasants expressing their joy to their liberators*

the United States. Freeing the camps for new occupants progressed at a surprisingly slow rate. Many of these men had been assigned to limited service because of minor disabilities. In each such case the examination had to reveal whether the disability had been worsened by military service or was in some way service-connected. Those suffering from venereal disease (VD), and thus ineligible for immediate discharge, were moved to newly established specialized convalescent centers to undergo VD treatment.<sup>3</sup>

Demobilization was even more complicated for troops who were in France on 11 November 1918. Various educational programs were devised to make the most of the time officers and men spent while awaiting their turn to embark. These programs included college-level and technical training at the American Expeditionary Forces (AEF) University and its College of Medical Sciences, which included departments of medicine, dentistry, veterinary medicine, and pharmacy, managed

<sup>3</sup> WD, *ARofSW*, 1919, pp. 218–19, 220. Edward M. Coffman, *The War To End All Wars*, p. 357; WD, Surgeon General's Office (SGO), *The Surgeon General's Office*, p. 346 (hereinafter cited as *SGO*); idem, *Activities Concerning Mobilization Camps and Ports of Embarkation*, pp. 26, 425.

by Medical Department officers. Plans called for the university to include some four-year programs, but it closed in June of 1919.<sup>4</sup>

All the diseases that threatened the effectiveness of the AEF troops during the war continued to be a danger, but venereal disease and vermin infestation clearly produced the most frustration for the Medical Department. In November 1918 an announcement was made that “all those found to be affected with venereal disease in a communicable stage . . . [would] be detained and placed in segregation camps,” to be kept there until deemed noninfectious. Syphilis is generally spread by contact, usually sexual, with infectious lesions. Thus when a victim of this disease reached the stage where lesions were no longer in evidence, generally after having completed a single course of treatment with Salvarsan (arsphenamine) or a similar drug and several months after contracting the initial infection, he was considered to have entered a noninfectious stage. Physicians admitted, however, that for a complete cure further treatment probably was necessary because a patient treated with only a single dose of Salvarsan might appear to be noninfectious and free of symptoms but still have some spirochetes remaining in the body.<sup>5</sup>

Ensuring proper and prompt preventive measures against the spread of venereal disease proved impossible, in spite of vigorous efforts on the part of the authorities, from General John J. Pershing and his chief surgeon, Col. (later Brig. Gen.) Walter D. McCaw, MC, on down. Despite prophylaxis facilities installed on trains and wholesome recreation offered at special leave areas, the VD rate continued to climb. The requirement that men suffering from conditions resulting from their own misconduct not be paid while under treatment was not always enforced. Gaining widespread and complete cooperation from the French remained difficult. Steps taken to penalize officers whose men were most severely infected had limited effect. As a result, as soldiers not affected by venereal disease were rapidly shipped home, the rate among those remaining in France stood at 766.55 cases per 1,000 men per year by September 1919.<sup>6</sup>

Lice created another problem for the Medical Department in France. These parasites sometimes infested as much as 75 percent of a command in France, and reinfestation was common. In early November 1918, Col. Harry L. Gilchrist, MC, was detailed to the Quartermaster Corps to conduct a campaign against lice. Colonel Gilchrist headed a team selected from among those who had served with him in the Chemical Warfare Service. Trained medical officers were sent to each division to manage delousing teams that worked at the regiment and battalion levels.<sup>7</sup>

<sup>4</sup> WD, SGO, *Administration, American Expeditionary Forces*, pp. 114, 535 (hereinafter cited as *Administration, AEF*); idem, *Training*, pp. 661, 662, 663; WD, *ARofSG*, 1919, p. 1308.

<sup>5</sup> AEF GO no. 215, 25 Nov 1918 (quoted words); WD, SGO, *Sanitation*, p. 394–95, 510, 964; idem, *Administration, AEF*, pp. 449–50, 454; WD, *ARofSG*, 1920, p. 367; WD, General Staff, *Organization of the Services of Supply, American Expeditionary Forces*, p. 24; H. L. Gilchrist, “Delousing the American Army in France,” p. 136; Diary, p. 60, Ms C14, Jefferson R. Kean Papers, National Library of Medicine (NLM), Bethesda, Md.; Jay Cassel, *The Secret Plague*, pp. 55–56; Allan M. Brandt, *No Magic Bullet*, pp. 40–41.

<sup>6</sup> WD, SGO, *Sanitation*, pp. 501–02, 922–24, 927–33, 934, 942, 946–47, 949–50, 951, 952–53; Brandt, *No Magic Bullet*, p. 117.

<sup>7</sup> *United States Army in the World War, 1917–1919*, 15:375; WD, SGO, *Sanitation*, p. 1062; idem, *Administration, AEF*, p. 449; Gilchrist, “Delousing,” pp. 129, 130, 131–32.



*Entering the so-called embarkation mill at Bordeaux; (below) receiving clean clothing*





*Getting a haircut at the barbershop; (below) exiting the mill and ready for home*



Not long after the Armistice, orders were issued to halt all troop movement until base ports could be equipped with delousing plants of sufficient size to disinfest 10,000 men within a 24-hour period. In these buildings, steam sterilizers, steam boxes, hot air disinfestors, and flat irons were used to disinfest clothing (steam heat was found to be more effective than dry heat), while the soldiers' heads were washed with acetic acid (vinegar) and their heads and bodies with alcohol, benzene, or various concoctions containing mercury compounds as well. Even so, infested billets reinfested men. A campaign to educate the men about the life of the louse and the dangers it posed was also undertaken, featuring lectures copiously illustrated with charts and circulars. After going through one of these plants, all men scheduled for return to the United States were restricted to camp in the effort to prevent reinfestation.<sup>8</sup>

Before troops could receive their final clearance for boarding the ships that would take them home, certification had to be provided to establish that all those with lice had been disinfested and that all those with venereal disease or scabies had been separated out and sent to the port's segregation camp for treatment. Throats had to be checked daily while the men waited, and temperatures taken within twenty-four hours of actual boarding. Reinspection became necessary if any significant period of time elapsed between inspection and embarkation.<sup>9</sup>

The process of hastily changing the direction of mass movement from eastward to westward inevitably complicated the challenge of providing adequate medical attendance for the ships that brought the American Expeditionary Forces home. By 11 November 1918 only very generalized guidelines for demobilization existed. The British ships that handled so much of the eastward movement were to a large extent no longer available, now occupied with returning British colonial troops to their respective homelands. U.S. transports at that point could move no more than 110,000 men a month. To deal with the problem, cargo ships hastily converted to transports, and battleships and cruisers were pressed into service. U.S. Navy crews took over and manned passenger liners once belonging to Germany. By May 1919 this assortment of ships was capable of returning 333,000 men a month to the United States.<sup>10</sup>

Because of the motley nature of the transport fleet, complications arose concerning medical attendance for the trip homeward. A medical detachment consisting of a transport surgeon, a sergeant, and four privates, all of whom traveled in the capacity of passengers rather than as part of the crew, accompanied each vessel carrying soldiers from the American Expeditionary Forces home. For the first year, Army nurses supplied by the Hoboken Port of Embarkation were also part of these teams. Each commercial vessel used as a transport also had her own ship's surgeon. When this physician was an Army contract surgeon who in this capacity was subject to the command of the transport surgeon, all might go well. Indeed, by using his own personal instruments, this physician spared the Army from having to

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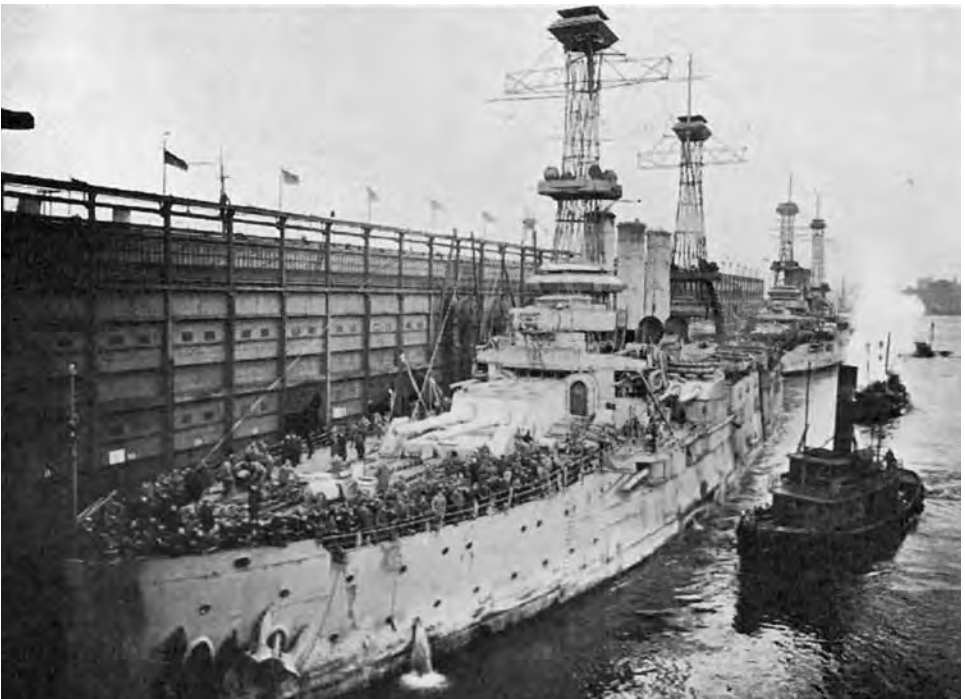
<sup>8</sup> WD, SGO, *Sanitation*, p. 1049; idem, *Activities*, p. 269; Gilchrist, "Delousing," pp. 134, 143, 144.

<sup>9</sup> WD, SGO, *Administration, AEF*, pp. 456-57, 470.

<sup>10</sup> Ibid., p. 806; WD, *ARofSW*, 1919, pp. 219, 229-30; Albert Gleaves, *A History of the Transport Service*, pp. 92, 93.



*Moving the troops eastward to the French ports; (below) warships with troops docking at Hoboken*



provide “nonexpendable articles.” If he were being paid by the liner’s owner, however, his cooperation with the transport surgeon was likely to be minimal. Further conflict occasionally erupted as a result of the failure of port authorities to take the advice of transport surgeons seriously. The base surgeon or the senior medical officer with the troops who were embarking might even order that the transport surgeon be replaced, and the resultant confusion caused many ships to arrive at New York in a state of poor sanitation.<sup>11</sup>

On shipboard as in embarkation ports, lice continued to be a problem. In spite of routine spraying of troop quarters and disinfesting all men shortly before embarkation, soldiers carried lice with them onto the transports, and medical personnel had to check men and sleeping quarters after the ship left port. Troops were ordered to check their clothing daily for signs of infestation. The nurses on board, whether they were returning home or part of the ship’s medical personnel, went over their own clothing, although they were not physically checked for lice. Treatment for all personnel found to be infested was carried out on board. After great numbers of troops began returning home, a final inspection by a team that included a representative of the vessel, the commanding officer of the troops on board, an officer from the port inspector’s office, and the port sanitary inspector was required at Hoboken before the men debarked. Any defects found in sanitation were to be corrected before the ship left the harbor to return to Europe.<sup>12</sup>

Orders required that all men remain under the jurisdiction of the port at which they landed. When they had been examined, deloused, provided with clothing, and divided into detachments or casual companies by geographical area, they were sent to demobilization camps nearest the sites where they had been inducted into the Army. Despite all precautions, examinations of disembarking troops revealed some infestation. On 20 November 1918 Surgeon General Merritte W. Ireland requested that Army Chief of Staff General Peyton C. March inform the commanding generals at Hoboken and Newport News that, in the future, all officers and men coming into those ports from Europe were to be deloused. Infestation was apparently not a problem among nurses returning through Hoboken, where a special demobilization station outprocessed them.<sup>13</sup>

At the camps to which returnees were sent from the debarkation ports, constructing delousing plants had essentially ceased with the end of the war, and for a time only makeshift facilities were available to carry out this procedure. During the earliest months after the end of the war, when large numbers of men came through Hoboken in a short period of time, these facilities had to be kept in operation twenty-four hours a day, using three shifts. By April 1919, however, only two shifts were necessary. By the summer of 1919 the surgeon general was able to maintain that lice infestations and skin diseases were being detected and dealt with effectively before troops debarked in American ports.<sup>14</sup>

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<sup>11</sup> WD, SGO, Part 1, *Physical Reconstruction and Vocational Education* Part 2, *The Army Nurse Corps*, p. 296; WD, SGO, *Activities*, pp. 262, 263 (quoted words).

<sup>12</sup> WD, SGO, *Activities*, pp. 267, 272; idem, *Sanitation*, pp. 396–97, 429, 1062.

<sup>13</sup> WD, SGO, *Activities*, pp. 289–92, 320, 422–23; idem, *Sanitation*, pp. 395, 401, 403, 404.

<sup>14</sup> WD, SGO, *Sanitation*, pp. 393, 394, 395–96; idem, *Activities*, pp. 269–70, 341, 382; WD, *ARofSG*, 1920, p. 367.

The debarkation ports also had to deal with the likelihood that returnees would pick up venereal disease after their arrival in the United States. The usual efforts, chiefly encouraging sexual morality and discouraging prostitution, were utilized to prevent the men from becoming infected while awaiting transportation to demobilization camps. Yet by returning to duty all suffering from venereal disease but whom medical officers regarded as noninfectious, the Army greatly reduced the number at the debarkation camps whom it felt obliged to treat.<sup>15</sup>

From debarkation camps, officers and enlisted men went as promptly as possible to demobilization camps for the final thorough examination, managed as quickly as possible to separate the fit from those who were found not physically qualified for discharge. The unfit were moved either to base hospitals for treatment or to convalescent centers. From the hospital they could be either discharged from the Army on a surgeon's certificate of disability or returned to their organizations for discharge. The former approach was deemed preferable because by this means the procedure could be centralized, avoiding the need to have examining boards scattered throughout the entire command.<sup>16</sup>

For all but the smallest camps, medical boards named either by the camp surgeon or by the command's senior surgeon conducted demobilization examinations. The Surgeon General's Office issued a memorandum requiring that, where possible, the same medical boards previously used to examine recruits at the mobilization camps be utilized for conducting the demobilization exams. Every board was to have a representative of each of the major specialties. In some instances, a supplementary board of medical officers joined the regular examining boards to review questionable verdicts.<sup>17</sup>

Haste in conducting examinations was inevitable. Early in 1919, at a time when physicians were among those being demobilized, the War Department ordered that all men be discharged within forty-eight hours of their arrival at a demobilization camp. Because of the shortage of physicians, meeting this requirement necessitated appointing some members who lacked experience in this type of work and detailing members of the boards to meet routine camp medical and sanitary requirements, including delousing procedures. Further complications arose from the fact that men arrived at both demobilization and debarkation camps at an erratic rate, in large numbers after the arrival of a transport from Europe and then in small numbers until the arrival of another vessel. Under such circumstances, guaranteeing that no man stayed more than two days at a demobilization camp required that medical boards be 20 percent larger than would have otherwise been needed. Inevitably, under these circumstances examinations tended to be less thorough than was considered desirable.<sup>18</sup>

The work of the medical boards was directed principally at detecting any ailment or disability that might have either been missed in earlier examinations or

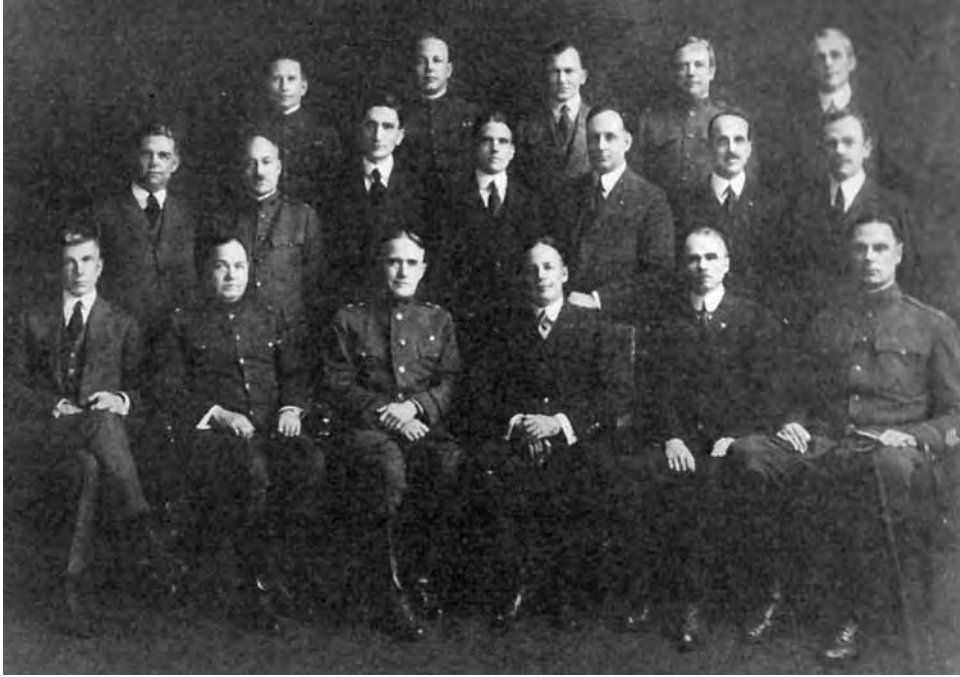
<sup>15</sup> WD, SGO, *Activities*, pp. 341, 402, 403–04; idem, *Military Hospitals in the United States*, pp. 453, 471.

<sup>16</sup> WD, SGO, *Sanitation*, p. 475; idem, *SGO*, pp. 619, 658, 672; idem, *Activities*, pp. 33–34; idem, *Military Hospitals*, p. 465.

<sup>17</sup> WD, SGO, *SGO*, p. 657; idem, *Sanitation*, pp. 475, 477, 483–84; idem, *Activities*, p. 33; AEF GO no. 230, 16 Dec 1918.

<sup>18</sup> WD, SGO, *Activities*, pp. 59, 145; idem, *Sanitation*, pp. 28, 482–83, 484, 492; WD, *ARofSW*, 1919, p. 228; "General Ireland Discusses Army Reorganization," p. 1225.





*War Department Claims Board*

concealed by soldiers too anxious to return to their families to admit to a condition that might delay that return. Through medical examinations, the Army intended to guarantee treatment for those who needed it and to build sufficient documentation against the possibility of fraudulent claims of alleged service-linked disability in the future. Men discharged while still suffering from communicable diseases were reported to the appropriate state boards of health. For those found to have venereal disease at an infectious stage, intensive treatment was started at once so as to reach the point of being noninfectious as soon as possible. Although the medical officer involved was not required to report VD cases to state health authorities, he was encouraged to do so in any instance where the soldier's condition appeared to be under control but not necessarily cured.<sup>19</sup>

Previously undetected tuberculosis and typhoid fever carriers among the returnees were also causes of concern for the Medical Department. In March 1919 the Surgeon General's Office required that all men who had had either disease or dysentery or cholera also be examined to determine whether they were carriers so that all in this category could be treated as appropriate to the disease involved and duly reported if they had been discharged or were about to be discharged. While the conflict still raged in Europe, care was taken to be sure that a possible victim of tuberculosis actually had the disease before sending him home, but after the war the policy was reversed to return these men as soon as possible to the United States,

<sup>19</sup> WD, *ARofSW*, 1919, p. 225; WD, SGO, *Sanitation*, p. 474; idem, *SGO*, pp. 648, 1008.

leaving a definite diagnosis to medical officers there. Those suspected of having tuberculosis were sent from the port as quickly as possible to one of the specialized facilities eventually created for patients returning from overseas, where those with the disease and those without it were separated. Although, again, many examining boards worked too hastily for great accuracy, the tuberculosis rate among the ostensibly healthy men they examined from 11 November 1918 to 30 June 1919 was apparently slightly more than 0.05 percent.<sup>20</sup>

Time was also found at demobilization camps to deal with matters particularly important to men about to rejoin the civilian community. Dental patients were educated about dental health in general. Medical officers gave a series of three brief sanitation and hygiene lectures to all men before discharge so that they could return home with an understanding of the importance of immunization; of preventive VD measures, especially the need for appropriate treatment; of the proper disposal of garbage; and of methods of dealing with mosquitoes and vermin.<sup>21</sup>

Men whose physical examinations demonstrated minor disabilities were often sent to the convalescent centers set up by many demobilization camps to relieve the burdens that might otherwise be placed on hospitals. Members of the AEF's convalescent detachments were also sent to these centers when in need of further care. Those whose health difficulties were deemed to result from their own misbehavior were likely, however, to be placed in development battalions, which were in some instances incorporated into convalescent centers as separate venereal detachments. Medical officers assigned to convalescent centers assisted in preparing men for discharge, both by guiding the programs to which they were subjected and by determining the type of regimen to which each man should be assigned.<sup>22</sup>

Initially any defects found by examining teams were reported to the Bureau of War Risk Insurance, which had been created as part of the Treasury Department to deal with the war-related health problems of discharged veterans. Later this step was taken only in those instances when a soldier had filed a request for compensation. The Bureau of War Risk Insurance provided a monthly pension for a soldier permanently disabled in the line of duty in return for the payment of a small premium taken from the soldier's pay. In October 1917 an amendment had added medical and hospital care to the aid the government was expected to provide sick and wounded veterans.<sup>23</sup>

For returning nurses and female civilians, demobilization stations at Hoboken and Newport News handled the demobilization procedure under the auspices of the port surgeons. Nurses arrived in such numbers from overseas that the port surgeons were permitted to discharge them from the military service without consulting

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<sup>20</sup> WD, SGO, *SGO*, pp. 375, 376, 1009; *idem*, *Activities*, p. 132; W. S. Thayer, "The Medical Aspects of Reconstruction," p. 771; G. E. Bushnell, "How the United States Is Meeting the Tuberculosis War Problem," pp. 132–33.

<sup>21</sup> WD, SGO, *Activities*, p. 57; *idem*, *SGO*, pp. 641–44, 982; AEF GO no. 230, 16 Dec 1918.

<sup>22</sup> WD, SGO, *SGO*, pp. 612, 613–15; *idem*, *Activities*, pp. 57, 115, 144, 613–14, 619; AEF GO no. 25, 6 Feb 1919.

<sup>23</sup> WD, SGO, *Sanitation*, pp. 474, 476, 481; Frank Billings, "Rehabilitation of the Disabled," pp. 1503–04; Charles M. Griffith, "The Medical and Hospital Service of the Veterans' Administration," pp. 253–54.

higher authorities. Those in need of a period of transition before returning home were sent for brief periods to rest facilities established for this purpose.<sup>24</sup>

In his effort to deal with the great number of men and women to be demobilized and the need to conduct the process expeditiously, Surgeon General Ireland found himself struggling in the months following the end of the war to retain in the Army the medical personnel whose services were needed to deal with demobilization. In February 1919 he pointed out that medical officers serving at general hospitals could be discharged only with permission from the Surgeon General's Office but that commanding officers of hospitals and others on their own without authority were doing so.<sup>25</sup>

Looking to the future, Surgeon General Ireland attempted to cull would-be retirees, encouraging those he considered to be "dead wood" to retire while attempting to retain those whose services he believed to be valuable. He also endeavored to preserve as large a pool of experienced physicians as possible by having all who had served in the medical officers section of the Officers' Reserve Corps moved from active to inactive status rather than relieved of all obligations. The War Department General Staff, however, undermined General Ireland's efforts, maintaining that men whose work had proved unsatisfactory would not be weeded out in the process. It also ordered that reserve medical officers who had served with the British were not to be promoted, but rather to be demobilized as first lieutenants.<sup>26</sup>

The delay in promotions and the casual attitude of War Department authorities toward improving the situation discouraged reservists from signing up again. Nevertheless, the Medical Department was able to fill vacancies by obtaining the consent of an appropriate number of reserve medical officers to being kept longer on active duty. The surgeon general appointed a board of highly ranked reserve medical officers, most of them on active duty, to design regulations for determining which former reserve officers should be offered reappointments to the Army Reserve.<sup>27</sup>

Members of the Army Nurse Corps were also eager to leave the military service. Having agreed to serve only for the duration of the so-called emergency, most nurses sought to leave the Army soon after the Armistice was signed. An attempt was made to keep the best of the wartime nurses in the military service, urging them to apply for an appointment to the permanent Army Nurse Corps. Unfortunately, many nurses with long experience with both the American Red Cross and the Army elected to not only leave the military service but also abandon nursing as a career, while many students in the nursing school opted for transfers to civilian institutions.<sup>28</sup>

Many Medical Department enlisted men were eager to be discharged at the end of the conflict. The National Defense Act of 1917 called for all wartime enlistments to terminate with the end of the emergency, and in December 1918 permis-

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<sup>24</sup> WD, SGO, *SGO*, p. 183; idem, *Army Nurse Corps*, p. 310.

<sup>25</sup> WD, SGO, *SGO*, pp. 804, 807.

<sup>26</sup> "Ireland Discusses Army Reorganization," p. 1225.

<sup>27</sup> WD, SGO, *SGO*, pp. 160, 801–02; WD, *ARofSG*, 1920, pp. 274–75; "Vacancies in Army and Navy Medical Corps," p. 1617.

<sup>28</sup> Susan C. Peterson and Beverly Jensen, "The Red Cross Call To Serve," pp. 338, 339; WD, SGO, *Army Nurse Corps*, p. 310; idem, *SGO*, pp. 181, 814, 816, 820.

sion was granted for the discharge of all enlisted men signed up in the Enlisted Reserve Corps who had not been called to active duty. Because of the large number of sick and wounded that needed care throughout 1919, the Army was slower to release men who were on active duty.<sup>29</sup>

### *Transporting the Disabled*

The disabled began returning to the United States early in the course of American participation in World War I, albeit until September 1918 in very small numbers. By 11 November 1918 only 13,000 men whose services could not be utilized within a few months had been sent home. Some of those boarding transports during these months were in such serious condition that they died before reaching home. After the Armistice was signed, however, policy called for all of the 265,000 disabled men who could withstand the journey without harm to be shipped back to the United States, even if complete recovery within a two-month period could have been anticipated. In the first six months after the end of the war 110,000 of them returned home.<sup>30</sup>

During the war the sick and wounded to be evacuated back to the United States were initially accumulated at the various base hospitals in France, whence they were moved, usually by hospital train, to the base hospitals serving the ports of Bordeaux and St. Nazaire. In these facilities disability boards, composed of three medical officers, reviewed their cases to determine whether they were totally and permanently disabled. Decisions about disabled nurses were apparently handled in the same way. Those selected for return to the United States were supposed to be held at the base hospitals until they were ready for the journey home, but many of the men who came to the ports proved not to be strong enough to withstand a sea voyage. As a result, crowding became the norm at port facilities in France.<sup>31</sup>

Crowding made prompt embarkation doubly important. To guarantee that the vessels were both quickly and completely filled, close cooperation between the U.S. Navy, which controlled the ships involved, and the Army was necessary. Naval medical liaison officers were detailed to all ports of embarkation to work with their Army counterparts, who were attached to the base surgeon's office as evacuation officers.<sup>32</sup>

As the disabled began to accumulate at the ports after the Armistice was signed, rest camps were set up where the sick and more than 50,000 wounded were collected before evacuation. After they were organized into casual companies, each

<sup>29</sup> WD, SGO, *SGO*, pp. 170, 175.

<sup>30</sup> WD, SGO, *SGO*, pp. 482–83; idem, *Administration, AEF*, pp. 465, 791, 792, 806; United States, Congress, Senate, Committee on Military Affairs, *Investigation of the War Department of the United States, December 1917–January 1918*, p. 2050 (hereinafter cited as *Investigation of the War Department* (65th Cong., 1st sess.)); Ashburn, *History of MD*, p. 375.

<sup>31</sup> WD, SGO, *Administration, AEF*, pp. 791, 792, 798; idem, *Army Nurse Corps*, p. 340; Autobiography, pp. 228, 240, Ms C14, Kean Papers, NLM; Noble Biography, Ms C44, Autobiographical Sketches of the U.S. Army Medical Officers, active c. 1870–1940, NLM; AEF GO no. 44, 3 Oct 1917; AEF GO no. 41, 14 Mar 1918; Address by Gorgas, 26 Oct 1918, p. 2, Gorgas Family Papers, W. S. Hoole Special Collections, University of Alabama (UA), Tuscaloosa, Ala.

<sup>32</sup> WD, SGO, *Administration, AEF*, pp. 463, 558, 792, 799; idem, *SGO*, p. 371.



*Embarking at Bordeaux (top) and St. Nazaire (bottom)*



company was checked for signs of transmissible diseases and deloused. Totally disabled patients were ordered moved to hospitals, but they, too, were transferred to “a properly numbered casual company, convalescent detachment, or sailing convoy” before embarkation.<sup>33</sup>

Because the few Army patients being sent back to the United States in 1917 could be carried on one of the Navy’s three hospital ships, Surgeon General Gorgas attempted to have this type of vessel made available specifically for Army use. However, even though Army estimates predicted that eventually the Army would be returning more than 5,000 men a month, Gorgas’ pleas were ignored. He argued in vain that carrying the sick and wounded on transports would expose relatively helpless men to all the hazards of submarine warfare, which a voyage on a hospital ship, plainly marked as such, would avoid. He also emphasized that while hospital space on troopships may have been adequate for the needs of presumably healthy men, it had to be increased when men in questionable condition were being transported.<sup>34</sup>

A lack of adequate communications within the Navy complicated attempts to resolve the question of how to evacuate Army patients. As early as November 1917, the Navy went on record as being willing to provide hospital ships for the Army, and in late December the chief of naval operations stated that the Navy’s policy was to make its hospital ships available for all the services. Until mid-January 1918, however, the Navy’s Bureau of Medicine and Surgery was apparently not informed of this offer of Navy hospital ships for Army use. It was, as a result, not ready to meet the need. The Navy required all of its hospital ships for its own casualties, including marines. The situation was apparently argued back and forth all through January 1918. Three months would be required to transform a regular ship into a hospital ship, but the decision concerning who would be responsible for the necessary changes was long in coming.<sup>35</sup>

Finally, in late March 1918, the secretary of War and the secretary of the Navy reached an agreement. The Army would assume responsibility for embarking and debarking the sick and wounded; the Navy would provide hospital ships and transports, slightly modified to meet requirements, as well as the requisite manpower for the vessels and on-board medical care for the patients. With the realization that the Germans did not always respect the markings of a hospital ship, convoys were to be used. Anyone expected to recover within six months would not be moved, and the Army would assist the Navy with personnel and supplies.<sup>36</sup>

Most of the sick and wounded returning to the United States traveled in the transports making the return trip to pick up more combat soldiers and their

<sup>33</sup> WD, SGO, *Administration*, AEF, pp. 463, 562, 793, 796 (quoted words); WD, *ARofSG*, 1920, p. 28.

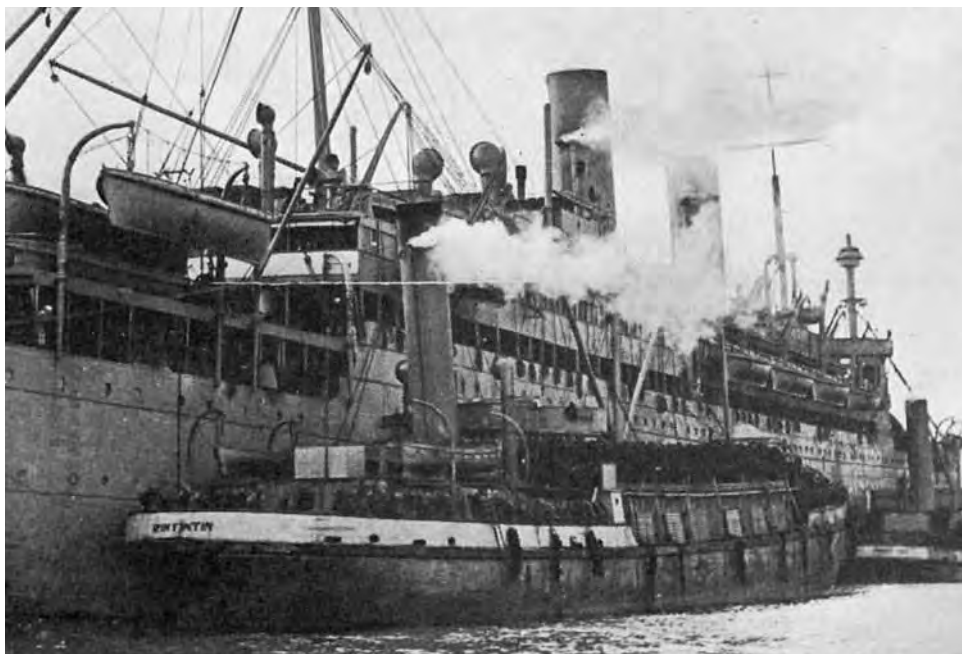
<sup>34</sup> WD, SGO, *Administration*, AEF, pp. 802, 803; idem, *SGO*, pp. 359, 365; idem, *Sanitation*, p. 424; *Investigation of the War Department* (65th Cong., 1st sess.), pp. 2047, 2049.

<sup>35</sup> WD, SGO, *SGO*, pp. 362, 363, 365; idem, *Administration*, AEF, p. 803; idem, *Military Hospitals*, p. 187; *Investigation of the War Department* (65th Cong., 1st sess.), pp. 2047, 2048, 2050, 2054.

<sup>36</sup> WD, SGO, *SGO*, pp. 357–58; idem, *Administration*, AEF, p. 804; United States, Congress, Senate, Committee on Military Affairs, *Hearings . . . on S. 3748*, 65th Cong., 2d sess., p. 20; S. J. Morris, “History of the Overseas Division, Surgeon General’s Office, During the War Period,” pp. 196–97.



*Casuals on transport after boarding from lighters at Brest*





*Camp Hospital No. 2, Bassens, France, 1919*

equipment. Realizing that space requirements for disabled versus healthy troops differed dramatically, the Army and the Navy agreed that the captain of the ship and the senior naval medical officer would determine the exact capacity of each ship when used to carry sick and wounded. A Navy officer was responsible for deciding where patients were placed within each vessel. Patients with tuberculosis were carried on open decks or in isolation.<sup>37</sup>

Particular care had to be taken in the management of mental patients, who could be quite calm at one moment and then, without warning, become violent. Orders issued in June 1918 required that such patients be accompanied by their records, a requirement that was often ignored. As a result, some men were moved unaccompanied by information that suggested the possibility of suicide attempts or other dangerous behavior. No more than thirty-five victims of mental illness usually boarded a transport, and an attendant was provided for every eight patients. The Navy, however, was reluctant to have more than a few in this category on a ship, and in some instances cases of mild mental illness were officially labeled as victims of war neuroses.<sup>38</sup>

As their patients left for the United States, base and camp hospitals followed, generally returning as units. When needed, however, some members of hospital staffs were reassigned to other facilities in France or Germany after their units left for home or continued where they were after the base hospital they served was downgraded and reclassified as a camp hospital. Disbanding hospital organizations proceeded with particular rapidity in the Advance Section. Units that had been awaiting immediate transportation from the United States to France at the

<sup>37</sup> WD, SGO, *SGO*, p. 366; idem, *Administration, AEF*, pp. 797, 803, 804.

<sup>38</sup> WD, SGO, *Administration, AEF*, pp. 797, 805; idem, *Neuropsychiatry*, pp. 45–46, 290.



time of the Armistice continued to come in, however, because they were for a time urgently needed. Hospital equipment that was no longer required tended to remain in Europe, being turned over to another unit, stored, or sent to the occupation forces in Germany. Hotels and similar buildings no longer being used as hospitals were returned to their owners.<sup>39</sup>

### *The Hospital System*

After the signing of the Armistice, the Medical Department planners developed estimates for hospitalizing patients returning from Europe. They assumed that the sick and wounded would be coming in at the rate of 10,000 a month, a figure reached only after careful consideration of the experience of the French and British armies. They also projected a complete turnover in patients every six months. After the war ended, however, the disabled returned to the United States at a far greater rate than anticipated. The fact that, once the fighting was over, men with slight wounds or convalescents who would earlier have been retained in Europe were now returning to the United States also frustrated initial planning. As many as 90 percent or more of the returnees were ambulatory, although only 80 percent had been anticipated when plans were initially formulated.<sup>40</sup>

Most of the sick and wounded coming from Europe to the United States passed through at least two types of Army hospitals before discharge from military service. Only immediately necessary care was rendered at port facilities. The presence of debarkation hospitals at or near the ports was vital because some embarkation beds were still needed for troops going overseas as part of the occupation force. At the port, the decision about each patient's next destination was made and the lists of assignments were cleared through the Hospital Division of the Surgeon General's Office to ensure that space was available before the patient was actually sent forward. Thereafter, Army patients were cared for at general or base hospitals until deemed ready to return to their homes, while Marine sick and wounded were stabilized at Army facilities until transferred to Navy hospitals as soon as this could be done safely.<sup>41</sup>

The healthier patients—especially officers—and their families, all of whom tended to resent what they clearly regarded as the red tape that stood between them and home, formed one of the most tedious challenges encountered by medical officers receiving patients at U.S. ports. Even though the condition of the first 1,000 patients from the American Expeditionary Forces to arrive in the United States varied widely, they all reportedly tended to be “disorderly, undisciplined, defiant, and . . . not willing to abide by military law.” Many had “a very exalted opinion of themselves.”<sup>42</sup>

Once large numbers of casualties reached the principal ports of Hoboken and Newport News, they were moved from the port areas as promptly as possible after

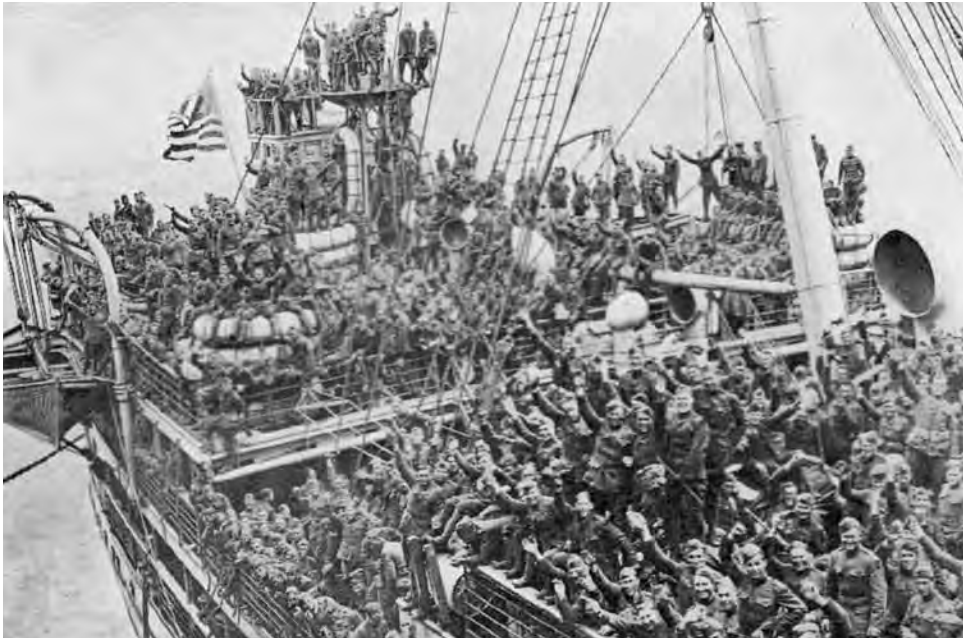
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<sup>39</sup> Morris, “Overseas Division,” p. 182; WD, SGO, *Administration, AEF*, pp. 451, 535, 547, 556, 622, 629, 632–34, 645, 689, 730, 743, 749, 763, 775, 785–89.

<sup>40</sup> WD, SGO, *SGO*, pp. 329–30; idem, *Military Hospitals*, pp. 37, 171.

<sup>41</sup> WD, SGO, *Military Hospitals*, pp. 254, 426, 433–34, 795; idem, *SGO*, pp. 335–36, 1043.

<sup>42</sup> WD, SGO, *Military Hospitals*, pp. 260 (quoted words), 433–34.



*Welcoming returning troops at Hoboken*



they had been checked for lice—a vital effort, lest facilities in the immediate vicinity of the ports be overwhelmed. The situation was further complicated by the fact that the flow of patients was uneven, reflecting the arrival of transports, each of which might carry as many as 2,000 or more patients. To deal with the problem, new debarkation hospitals proliferated in a wider circle around Hoboken and Newport News. With so many patients going through the ports and staying a short period of time, management of debarkation hospital facilities was at times a complex operation.<sup>43</sup>

The process of removing patients from debarkation hospitals to general facilities was also a challenging one. In the Newport News area, hospital trains were managed by the medical superintendent of the transport service and director of hospital trains at that port, “a dual function combined in one office,” which was initially created to support the movement of troops going overseas. The principal problem he encountered involved transporting neuropsychiatric patients. To serve on the train working out of Newport News as well as to assist in transferring such patients from ships to debarkation hospitals and thence to hospital trains, debarkation hospitals in the area were asked to provide additional neuropsychiatric attendants.<sup>44</sup>

A majority of patients arriving from Europe, however, debarked at Hoboken, where the maximum available hospital bed capacity was roughly 18,000—a small figure, given the number of patients that could arrive at one time on a large transport. As a result, patients had to be moved out to hospitals in the interior as promptly as possible. The thirteen hospitals serving the port were dispersed over an area 35 miles in diameter, and hospital boats and ambulances as well as hospital trains were needed to take patients inland. The use of hospital trains caused few difficulties until patients in serious condition were being moved. When officer patients, 90 percent of whom were able to travel without attendance, began complaining about being transported in the same trains with enlisted men, the Medical Department undertook to move officers by regular commercial transportation.<sup>45</sup>

Two somewhat conflicting principles guided decisions about the destination of the patients who were removed from debarkation hospitals. Apparently rather late in the planning stage, the Medical Department decided that patients should be hospitalized as near their homes as possible and that therefore one such facility should be built in each of the sixty-one draft districts. But the lack of an adequate number of specialists to staff every hospital adequately in every specialty favored a somewhat conflicting plan to set up specialized hospitals for concentrating patients with the same basic problems, thereby using personnel more efficiently.<sup>46</sup>

Patients were not to be released from the hospitals to which they were sent after leaving the port areas until they were deemed to have obtained as much benefit from treatment as could be expected. If transfer to another hospital could bring about still further improvement, this was arranged. Only those who could prove that they had the resources to provide ongoing needed treatment themselves to

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<sup>43</sup> *Ibid.*, p. 445; *idem*, *Activities*, p. 254.

<sup>44</sup> WD, SGO, *Activities*, pp. 425 (quoted words); 438; *idem*, *Neuropsychiatry*, pp. 47, 49.

<sup>45</sup> WD, SGO, *SGO*, p. 335; *idem*, *Activities*, pp. 295–96, 298–99, 312, 313.

<sup>46</sup> WD, SGO, *SGO*, pp. 329–30, 421; *idem*, *Neuropsychiatry*, p. 45.



*Troops entraining at Hoboken*

continue their progress were to be discharged from the Army. After six months in hospital, however, the option of discharge became available to all the disabled except regular officers and those in need of many operations or special surgery. Discharge became mandatory for most hospital patients who were not mentally ill after a year on sick report. If discharged, those who could not care for themselves were held until arrangements for their care could be made through the Soldiers' Home, the National Home for Disabled Volunteer Soldiers, or the hospitals run by the Public Health Service for the Bureau of War Risk Insurance.<sup>47</sup>

Both base and general hospitals were available for the sick and wounded who were under treatment. Before the signing of the Armistice, however, base hospitals in the United States were largely occupied with patients from units preparing to go overseas, while general hospitals received the initial influx of overseas patients. Until recruits had all left demobilization camps, the Medical Department did not want to risk their exposure to disease by mingling them with the sick from overseas. As patients in increasing numbers received their discharges from the Army, some base hospitals were downgraded to the status of camp hospitals without necessarily changing their function.<sup>48</sup>

The search for sites and buildings suitable for general hospitals, to be located near population centers but not near base hospitals, began early in the war. Although early in 1918 political pressure was brought to bear on the Medical Department to rely heavily on beds in civilian hospitals, turning Army patients over to civilian

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<sup>47</sup> AEF GO no. 25, 6 Feb 1919; WD, *ARofSW*, 1919, 227; WD, SGO, *SGO*, p. 1081; idem, *Military Hospitals*, p. 190.

<sup>48</sup> WD, SGO, *Military Hospitals*, pp. 175, 783n.

hospitals was deemed undesirable because control of care would be lost if the facility were shared between military and civilian authorities, and the civilian population would be deprived if the military took over the entire hospital.<sup>49</sup>

Little increase in the number of available general hospital beds proved necessary after the end of the war. The Medical Department wanted to close most general facilities as soon as possible and to operate the remainder with regular personnel plus any volunteers who elected to remain in the service. Some hospitals were returned to their owners, while others reverted to their former status as post hospitals. An effort was made to end leases as soon as possible, and by the end of May 1919 most facilities on leased property had been closed. After the spring of 1919, hospitals that were no longer needed might be turned over to the Public Health Service for the use of disabled veterans after their discharge from the Army. By July 1920 only nine general hospitals were still in operation, chief among them being Walter Reed General Hospital.<sup>50</sup>

Although the Quartermaster Corps oversaw hospital construction and maintenance, a medical officer at each hospital usually acted as a hospital quartermaster, in this capacity responsible for quartermaster, medical, ordnance, and Signal Corps operations; construction and repair of buildings and property; transportation; grounds maintenance; disinfecting and sterilizing equipment; heating; and similar operations. Trained noncommissioned officers from both the Quartermaster Corps and the Medical Department joined civilian employees of the Medical Department in assisting him.<sup>51</sup>

By the end of 1918 many types of patients were occupying Walter Reed's 2,500 beds. Among them were typhoid fever carriers, as well as those with mental problems, those in need of further reconstructive surgery, and those with chronic health problems. Because of its size as one of the largest of the general hospitals and because of the wide variety of cases at the facility, Walter Reed became a center of both informal and formal education for nurses, for physicians, and for other medical personnel during and after World War I. Nurses received their training at the Army Nursing School on the Walter Reed campus. Late in June 1919 a three-month course was set up to train medical officers in surgical techniques to build a new pool of surgeons. Many experienced surgeons had left the Army after the Armistice, and new regular officers lacked surgical experience.<sup>52</sup>

In the course of the war, Walter Reed's staff doubled and then doubled again in a not always successful attempt to keep up with a rapidly increasing patient load. Many of the men working at Walter Reed both during and after the war were so-called emergency men who had joined for the duration of the conflict. By the end of 1919, although men from other hospitals that had closed were often moved

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<sup>49</sup> *Investigation of the War Department* (65th Cong., 1st sess.), pp. 2057, 2058; WD, SGO, *SGO*, p. 330.

<sup>50</sup> WD, SGO, *SGO*, pp. 1020; 1049; idem, *Military Hospitals*, pp. 189, 190, 289, 492, 530, 537, 559, 571, 602–03; idem, *Physical Reconstruction*, p. 249; WD, *ARofSG*, 1920, p. 16; Ashburn, *History of MD*, pp. 375–76; Floyd Kramer, "The Year's Work in Military Hospitals and a Prospectus of the Future," pp. 687–88.

<sup>51</sup> WD, SGO, *Military Hospitals*, pp. 147, 148.

<sup>52</sup> *Ibid.*, pp. 283, 302–03, 307, 309, 311, 398; idem, *SGO*, pp. 430–31, 441, 442, 1128; Edgar Erskine Hume, *Victories of Army Medicine*, p. 86.



*Walter Reed General Hospital, March 1919*

to Walter Reed, all but ninety in this category had returned to civilian life, carrying with them what their experiences at this general hospital and its elaborately equipped laboratory had taught them.<sup>53</sup>

The length of time that overseas patients stayed in base and general hospitals before being transferred or discharged varied considerably from one facility to another, depending on the disease or condition in which the hospital specialized. Thus the average stay at General Hospital No. 7 in Roland Park, Maryland, which specialized in treating and instructing the blind and took in men from the Navy as well as the Army, was almost 300 days, while in many other hospitals patients typically stayed little more than a month.<sup>54</sup>

The Surgeon General's Office clearly tried to limit transfers from one hospital to another, requiring that no such transfers be made without its authority. With the passage of time, the shortage of medical personnel made maintaining specialized hospitals less feasible and some patients were moved from one general hospital to another in the interests of efficiency. Those in need of a particularly specialized form of surgery might have to be transferred to obtain it. In this last instance, however, a surgeon might be sent to the hospital just to perform the needed operation rather than move the patient. Transfers might also be dictated by environmental

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<sup>53</sup> WD, SGO, *Military Hospitals*, pp. 285, 302, 303–05, 309–10, 320.

<sup>54</sup> WD, SGO, *SGO*, pp. 441, 1041; H. C. Connor, "The American Red Cross Assistance to the United States Medical Department in the United States," p. 410; Frank Billings, "Modern Military Medical and Surgical Reconstruction and the Measures or Cooperation Practiced by the Medical Department of the Army and Federal Board of Vocational Education," pp. 11–12; WD, SGO, *Physical Reconstruction*, pp. 179, 180, 237.

factors; patients with respiratory problems, for example, might need a warmer climate than that characteristic of the area where the first hospital to which they were sent was located.<sup>55</sup>

Although a few base and post hospitals specialized (Jefferson Barracks, Missouri, for example, in maxillofacial injuries) unlike general hospitals, base hospitals were identified by reference to the camp they served to distinguish them from base hospitals serving overseas. They remained accountable to the commanders of the geographical departments in which they were located, and their use made it possible to hospitalize most patients relatively near their homes. They tended to handle simpler cases, sending on to general hospitals patients in need of major surgery or of more specialized types of treatment and those likely to need more than a month of treatment.<sup>56</sup>

In the late spring of 1919 the Medical Department began to phase out the use of base hospitals for patients from overseas, 90 percent of whom had already arrived in the United States. Thereafter the department relied on general hospitals to provide care for the AEF's sick and wounded, cutting back on the personnel assigned to base hospitals, which from that point forward took in only the sick and injured from the bases where they were located. In time they reverted to the status of camp or post hospitals, eventually in some instances being either closed or turned over to the Public Health Service.<sup>57</sup>

Beyond surgery and short-term care for illness, some patients obviously required physical reconstruction (known today as rehabilitation) services. Not long after the United States entered the war, therefore, the surgeon general arranged through the Red Cross to set up two reconstruction hospitals. Late in 1917 work began to establish a network of reconstruction facilities, each with 1,000 beds and capable of expansion to 2,000. A widespread effort was made to locate appropriate facilities, but the sudden end of the war frustrated plans both for completing projects already under way and for undertaking new construction. Thus the Medical Department was forced to continue its reliance on whatever buildings it could find on short notice. Base hospitals had to become more heavily involved in reconstruction than had initially been planned and to rely on the Red Cross to assist financially and to provide recreational facilities for patients undergoing reconstruction at this level. Eventually forty-eight general, post, and base hospitals offered reconstruction in some form, while base hospitals utilized convalescent centers to conduct the final steps of reconstruction for patients soon to be discharged. Special facilities apart from those designated for ground forces were set up for airmen, whose unique health problems, including the need for rest and distracting amusements, had been recognized during the course of the war.<sup>58</sup>

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<sup>55</sup> WD, SGO, *SGO*, pp. 336, 1095, 1098, 1127.

<sup>56</sup> WD, SGO, *Military Hospitals*, pp. 118, 119, 173–74, 175, 260; idem, *SGO*, pp. 336, 1049, 1094.

<sup>57</sup> WD, SGO, *SGO*, p. 1058; idem, *Military Hospitals*, pp. 175, 534, 655, 657, 686, 716, 722, 727; WD, *ARofSG*, 1921, p. 10.

<sup>58</sup> WD, SGO, *Neuropsychiatry*, pp. 114–15; idem, *SGO*, pp. 424, 425, 474, 476, 479, 499, 1271–72; idem, *Military Hospitals*, pp. 260, 404; idem, *Physical Reconstruction*, pp. 103, 104, 142, 231; Billings, "Medical and Surgical Reconstruction," pp. 2, 9; Circular Ltr no. 29, 14 Jan 1919, Ms C38, Glenworth Reeve Butler Papers, 1917–1919, NLM.

These convalescent centers or camps for patients not yet ready for discharge but in no need of hospital care were set up in conjunction with base hospitals. Presumably because of the fact that the war ended so much earlier than had been anticipated, precise plans for conducting such facilities had not been developed. Furthermore, the Army had not expected to have so large a proportion of ambulatory returnees for whom convalescent facilities would be needed. In January 1919 centers were opened and physical reconstruction programs established at nineteen training camps for those who had been organized into convalescent detachments in France, for any men remaining from the camp's development battalion, and for any others who could profit from what the centers could offer. Considerable emphasis was placed on the need to bring convalescents as far along the path to complete restoration as possible as rapidly as possible so that they could be discharged.<sup>59</sup>

Convalescent camps were located as near as possible to the base hospitals that had "welfare centers conducted by the Young Men's Christian Association, the American Red Cross and other civilian organizations." Line officers and physical education directors from the YMCA working under medical supervision conducted physical education that was graded according to the ability of the participants. Where available, such recreational activities as boating, swimming, and fishing were also offered recovering soldiers.<sup>60</sup>

The size of the various convalescent centers varied widely, although many averaged from 300 to 800 men, and the camp surgeon, who was responsible for the medical administration of the center located at his camp, apparently had considerable leeway in the way the camp's center was organized. Initial plans called for the occupants of these facilities to be sent to base hospitals for any needed treatment, but not all centers were located near enough to hospitals to use their physical reconstruction facilities. A center at some distance from a hospital was likely to have its own program, independent of the hospital. Some centers were actually divided into two components, one part at the base hospital for those still in need of treatment and the other part a demobilization camp, from which the men were discharged as promptly as their health permitted. A few convalescent centers never became much more than demobilization camps.<sup>61</sup>

In April 1919 the War Department authorized the closing of convalescent centers and ordered base and camp hospitals to assume their function. By the time convalescents were discharged, many were free of disability, although many others had a more than 10-percent disability. Upon leaving, each man was informed of his rights to have medical care in a military hospital for any war-related health issues at the expense of the Bureau of War Risk Insurance and also to have assistance in the form of training and obtaining a job through the Vocational Rehabilitation Act.<sup>62</sup>

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<sup>59</sup> WD, SGO, *Sanitation*, p. 494; idem, *Military Hospitals*, p. 37; idem, *Activities*, p. 34, 186; idem, SGO, p. 483; *Physical Reconstruction*, p. 217.

<sup>60</sup> AEF GO no. 25, 6 Feb 1919 (quoted words); WD, SGO, *Activities*, pp. 34–35; idem, *Military Hospitals*, pp. 314, 343.

<sup>61</sup> WD, SGO, *Activities*, pp. 34, 127, 130–31, 209; idem, *Physical Reconstruction*, pp. 217, 220–21; idem, SGO, p. 483; AEF GO no. 25, 6 Feb 1919.

<sup>62</sup> WD, SGO, *Sanitation*, p. 494; idem, *Physical Reconstruction*, p. 222; idem, SGO, pp. 1073, 1079, 1082; WD, *ARofSW*, 1919, p. 229.



### *Specialized Care and Reconstruction*

Patients returned from overseas for hospitalization in the United States often had already received a considerable amount of care in France. About a quarter of them were orthopedic patients, another quarter those classified under "general surgical and skin," and the remainder the victims of a variety of other disabilities. Because bringing these patients as quickly as possible to the point where they could be discharged dictated an effective and efficient organization of their care, they were grouped to the extent possible according to their injuries or ailments. Whether or not further surgery was required, teaching patients to live as productively as possible with the effects of their injuries was an important goal.<sup>63</sup>

As a group, orthopedic patients presented the Medical Department with a number of complex problems. Although they received care at many base and general hospitals throughout the country, including seven general hospitals specifically equipped and staffed to deal with amputees, too many were initially taken to hospitals that were unprepared to deal with them, thus making necessary a transfer with all the attendant upset. By January 1919 at least one hospital taking in orthopedic cases was almost inundated with patients, many of whom presented complex problems, injuries involving not only bone but also nerves and soft tissues. As a result, beginning 1 February 1919, men with wounds involving the bones were taken to General Hospital No. 3 in New Jersey after arrival at Hoboken, there to be studied to determine the best way in which to handle their injuries.<sup>64</sup>

The nature of conditions requiring further surgery for orthopedic patients varied. Many had fractures that had not completely healed or that had healed in a bad position. Some needed grafts to make up for extensive loss of bone in limbs caused by wounds or wound infections or to strengthen damaged shoulder joints or vertebrae. Bits of bone remained in some wounds, and many amputation stumps were infected when patients debarked; infection was so common that the Surgeon General's Office sent out special instructions on the management of osteomyelitis. Many of those seen at Walter Reed in the last half of 1918 represented "orthopedic conditions unsuccessfully treated at other general hospitals." Patients needing further surgery to correct difficulties resulting from amputations that had been poorly managed overseas made up at least 90 percent of the amputees arriving there in early 1919.<sup>65</sup>

Until October 1917 the Medical Department was responsible for providing permanent prostheses. Thereafter, the Army was expected to provide only temporary devices pending the patients' discharge, at which time the Bureau of War Risk Insurance became responsible for supplying permanent models. The orthopedic workshop at one of the two orthopedic centers eventually provided prostheses and braces at the rate of 1,000 a month. Patients were allowed to take their appliances with them when they were discharged from the hospital or when they were transferred from one facility to another.<sup>66</sup>

<sup>63</sup> WD, SGO, *Sanitation*, p. 503.

<sup>64</sup> WD, SGO, *Military Hospitals*, pp. 253, 308; idem, *SGO*, pp. 1097-98.

<sup>65</sup> WD, SGO, *SGO*, p. 421; idem, *Military Hospitals*, pp. 306, 308 (quoted words), 381; WD, *ARofSG*, 1920, pp. 439, 440.

<sup>66</sup> WD, SGO, *SGO*, pp. 429-30, 1127-28, 1139, 1140; idem, *Military Hospitals*, pp. 381, 382.



*The Prince of Wales (future King Edward VIII), with WRGH commander Col. James D. Glennan, MC, visiting disabled patients at Walter Reed*

Many orthopedic patients had injuries that called for the attention of neurosurgeons. Some had sustained injuries to the brain or spine, but others had suffered nerve injuries to arms or legs. Such patients were often hospitalized as general surgical patients, other aspects of their wounds being regarded as of more immediate importance. Although ideally they should have been treated by neurosurgeons and neurologists at the front, these specialists were relatively few in number. Thus by the time patients reached hospitals in the United States, even if their wounds had healed, damage to the nerves probably still needed to be addressed. As a result, the advice of neurologists concerning appropriate treatment was much needed. In late January 1919 the Peripheral Nerve Commission was appointed to bring together specialists in the fields of orthopedics, general surgery, neurosurgery, and neurology to collect and study data on such patients under the auspices of the brain surgery section of the Surgeon General's Office. The commission created a peripheral nerve register, in which each case in this category was recorded for study.<sup>67</sup>

Treating and caring for patients with injuries to the face and jaw proved to be a challenge. By placing these complex cases in a few select hospitals, the Medical

<sup>67</sup> WD, SGO, *Neuropsychiatry*, p. 53; idem, *SGO*, pp. 421, 442, 458.

Department was able to assign maxillofacial surgeons, dental surgeons, artists, photographers, and prosthetic experts to their care. A vital part of the work of these experts involved using drawings, photographs, and plaster and wax models in the effort to create a normal appearance for those whose faces had been shattered.<sup>68</sup>

Among the nonsurgical patients needing continued hospitalization in the United States during and after the war were those neuropsychiatric patients classified as either neurotic or psychotic. Although those with nerve and brain injuries or diseases were also classified as neuropsychiatric patients, 30 percent of those being sent home from overseas by February 1918 were men diagnosed as insane, mentally deficient, or psychopathic. As was done with the various categories of surgical patients, special facilities were set aside for the treatment of those with this type of problem, making possible, once again, the most efficient use of personnel with extensive training and experience.<sup>69</sup>

Relatively few neuropsychiatric patients were sent back from overseas until the final campaigns of the war. Once the need to retain men for possible further service in Europe no longer existed, the number sent home increased, in spite of the fact that after the Armistice the total suffering from psychoneuroses decreased by an estimated 90 percent and many of those already diagnosed recovered rapidly. In the weeks after the Armistice, psychiatrists were sent to both major debarkation ports to classify neuropsychiatry cases immediately upon arrival and to see that they were sent at once to appropriate facilities.<sup>70</sup>

Specialists accompanied by experienced enlisted men brought neuropsychiatric patients from their ships back to debarkation hospitals. Because the number of patients in this category and the number of attendants required to manage them were increasing rapidly by the time the influenza epidemic reached its height, in October, with many attendants ailing, special trains were provided to take mentally ill patients directly from the port to facilities further inland. During train trips the “very disturbed” were moved into a compartment sleeping car, where each had his own room and where “canvas camisoles, with long sleeves” were used to control “destructive tendencies and prevent assaults.”<sup>71</sup>

The Medical Department believed that separating neurotics and psychotics while they were under treatment and keeping these patients separate from others also classified as psychoneurotic patients was particularly important. It therefore set up special accommodations for the epileptic and mentally retarded as well as for drug addicts and alcoholics. Hospitalizing those afflicted with war neuroses separately from others was deemed advisable because they were likely to be “fault-finders and troublemakers” and cause disruption if held with other patients. In a further attempt to limit the government’s responsibility for discharged soldiers, the Medical Department made every effort to prevent the type of patient classified as neurotic from regarding himself as a career invalid entitled to a lifetime of benefits. If, however, after four months a patient had made little progress, the hospital discharged him on a certificate of disability to receive further care under the con-

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<sup>68</sup> WD, SGO, *SGO*, pp. 461–62; WD, *ARofSG*, 1920, p. 441.

<sup>69</sup> WD, SGO, *Neuropsychiatry*, pp. 51, 279; idem, *Activities*, p. 436.

<sup>70</sup> WD, SGO, *Neuropsychiatry*, pp. 45, 467, 288.

<sup>71</sup> *Ibid.*, pp. 47, 48, 50 (quoted words).

trol of the Bureau of War Risk Insurance. Studies of hospitalized neuropsychiatric patients were used in an attempt to determine what types of men were most likely to become psychoneurotic.<sup>72</sup>

As the number of cases still under Army care dwindled and hospitals devoted to the care of neuropsychiatric patients began closing, the process of consolidating those with mental problems at the Hampton debarkation hospital accelerated. Although only the mentally ill were retained there for any significant period of time, the facility was also used for other patients with neuropsychiatric problems until their conditions could be appraised and they could be sent on to the appropriate facilities. Hampton became an excellent place to conduct research into the more unusual types of mental illness, but this undertaking was significantly hindered by the inevitable and frequent changes in staff and by pressure exerted to move patients to facilities nearer their homes. The most interesting patients included those who had seemed quite well on their arrival in the United States but who broke down thereafter, often at the camps where they were being demobilized. Many in this group had gone through the worst of the fighting in France without showing any recognizable sign of mental problems. In spite of abstemious habits before joining the Army, they might have taken up heavy drinking while in France. Attempts were made at the hospital to find some underlying problem, perhaps alcoholism or a mental defect, that might have triggered the delayed breakdown, which was presumably what would later become known as the posttraumatic stress syndrome.<sup>73</sup>

For the most part, the insane were held at general hospitals and treated for four months. They were apparently treated as humanely as possible. Several hospitals kept them in open wards and attempted to do without the use of restraints. At Hampton only eight of twenty-two wards were closed wards, and on occasion even some of the occupants of the closed wards were allowed out by day in the effort to give patients as much freedom as possible. What were described as “frequent and continuous baths” were used for “excitable patients” to “control their psychotic episodes.” Like physical restraints, narcotics and sedatives were avoided as much as possible.<sup>74</sup>

St. Elizabeth’s Hospital in Washington D.C. was traditionally the destination of the Army’s incurably insane. Because the Army was reluctant to have veterans bear the stigma engendered by having been a patient at such a hospital whose nature was so well known, it did not immediately send the psychotics there. Those patients who were not deemed to be cured after four months of treatment, however, were discharged for physical disability and sent to St. Elizabeth’s. Despite the addition of 500 beds and the assistance of Army medical officers and enlisted men to care for Army patients, this hospital still could not handle the hundreds of incurably insane whose illness was assumed to have resulted from military service.

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<sup>72</sup> *Ibid.*, pp. 44, 46–47, 51, 117, 118; *idem*, *Physical Reconstruction*, 161 (quoted words), 163, 165, 167; A. E. Brownrigg, “Neuropsychiatric Work in the Army,” p. 460.

<sup>73</sup> WD, SGO, *Physical Reconstruction*, p. 165; *idem*, *Neuropsychiatry*, pp. 46–47, 128; *idem*, *Military Hospitals*, p. 823; WD, *ARofSG*, 1920, p. 475.

<sup>74</sup> WD, SGO, *Military Hospitals*, p. 342; *idem*, *Neuropsychiatry*, pp. 92, 126 (quoted words), 127.

Consequently, most in this category were eventually turned over to the Bureau of War Risk Insurance. The bureau then moved them to state institutions, where their discharges from the Army became final.<sup>75</sup>

Patients with tuberculosis (TB) were also among the Army's long-term care responsibilities. Because a survey revealed that few beds in civilian hospitals were available for military patients and because the Medical Department wanted to hospitalize those requiring long-term care in the vicinity of their homes, six new hospitals, each with 6,750 beds, were established for the victims of this disease and other facilities were put into service for brief periods. Many of the physicians needed to care for TB victims had to be trained at these facilities, for few were otherwise familiar with the disease and the care of those who had contracted it. Every effort was made to ensure that patients in this category received standardized treatment so that their care would not vary if they were moved from one institution to another. Not many of the Army's tuberculosis patients, however, came from the American Expeditionary Forces, few cases being diagnosed while serving in Europe. Furthermore, some of these diagnoses proved to be erroneous, made after the influenza epidemic when the symptoms of other lung infections mimicked those of tuberculosis. Nevertheless, because TB was an illness requiring lengthy treatment, those diagnosed with it were usually returned to the United States, where policy called for their being sent to the tuberculosis hospital nearest their homes if their health permitted the trip.<sup>76</sup>

Because TB patients tended not to appreciate the seriousness of their illness, physicians made every effort to keep them in the hospital at least long enough to learn about their disease and their prospects for healing. Red Cross workers were also sent to their families to enlighten them about the needs of this type of patient and about how the Army was meeting those needs. Study of TB cases revealed little evidence to suggest that a higher proportion than would otherwise have been expected had ever been the victims of poison gas or that having been gassed led to more severe cases of the disease. Some suggestion was found, however, that being gassed could activate cases that had become quiescent. In fact, although poison gas was blamed for many illnesses, it proved to be responsible for very few of them.<sup>77</sup>

Of the sick and wounded soldiers brought back to the United States, many returned to their homes after only a short period of medical care while others faced a difficult and long confinement in a hospital, an experience that destroyed their morale. Until the last campaign of the war, however, their numbers were not great

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<sup>75</sup> WD, SGO, *Physical Reconstruction*, p. 162; idem, *SGO*, pp. 1116–17; idem, *Neuropsychiatry*, pp. 146–47, 148.

<sup>76</sup> *Investigation of the War Department* (65th Cong., 1st sess.), p. 2058; WD, SGO, *SGO*, pp. 377, 1096, 1097; idem, *Communicable and Other Diseases*, pp. 185, 197; idem, *Military Hospitals*, p. 340; Bushnell, "War Problem," p. 137; WD, *ARofSG*, 1919, pp. 100, 102; *ibid.*, 1920, pp. 469, 470; Kramer, "Year's Work," p. 684.

<sup>77</sup> Bushnell, "War Problem," pp. 135–36; WD, SGO, *SGO*, pp. 377, 1070; idem, *Communicable Diseases*, pp. 195, 196; WD, *ARofSG*, 1920, p. 470; G. Basil Price, "After-results of Gassing and Gunshot Wounds of the Chest in Relation to Tuberculosis," pp. 97, 101; H. L. Gilchrist and Philip B. Matz, *The Residual Effects of Warfare Gases*, pp. 40–41; H. L. Gilchrist, "Chemical Warfare and Its Medical Significance," pp. 491, 492; idem, *A Comparative Study of War Casualties from Gas and Other Weapons*, pp. 105–06, 110.



*Physiotherapy on the wards of Walter Reed*

enough to distract the Medical Department from its principal wartime goal, restoring as many men as possible to duty. After the Armistice, all efforts could be concentrated on using surgery, physiotherapy, and educational and vocational therapy to bring “the injured to a point of useful citizenship” where they would not become “social parasites.” Nevertheless, many men were in a rush to leave the military service and return to their homes. In one instance, patients told newspaper reporters that the food they were receiving was so poor that they had to beg food from private homes, a false tale that was apparently spawned by the desires of some hospital occupants to return home. They and their families brought so much pressure on the Army that on 31 December 1918 the War Department granted discharges to those who could prove that they would continue the necessary physical reconstruction work after leaving the Army.<sup>78</sup>

Until World War I, surgery was the chief weapon available to improve the chances that the wounded had to function successfully as civilians. In the fall of 1917 the need to train reconstruction aides to work as physiotherapists and occupational therapists to assist in the process of reconstruction led to the appointment of a female supervisor of aides. In March 1918 Surgeon General Gorgas selected Medical Reserve Corps officer Col. Frank Billings as head of the Division

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<sup>78</sup> WD, SGO, *SGO*, pp. 482, 1279; idem, *Physical Reconstruction*, pp. 49, 79, 216; idem, *Sanitation*, p. 496; Kramer, “Year’s Work,” p. 684; Address by Gorgas, 3 Jan 1918, p. 1 (quoted words), Gorgas Papers, UA; Griffith, “Medical and Hospital Service,” p. 254. For a discussion of early plans for reconstruction, see Alexander Taylor Cooper Autobiography, p. 248, Ms B120, NLM.

of Special Hospitals and Physical Reconstruction to coordinate all work dedicated to rehabilitating the disabled of the American Expeditionary Forces. The responsibility for aides was transferred from the Division of Orthopedic Surgery to the Division of Special Hospitals and Physical Reconstruction, which then became the Division of Physical Reconstruction. In May the Secretary of War Newton D. Baker expanded the scope of the Army's physical reconstruction work by agreeing to open the Army's reconstruction facilities to the disabled of the Navy and the Marine Corps.<sup>79</sup>

The appointment of a medical officer to head a section of physiotherapy initiated preparations for a physiotherapy program. The size of the pool of physiotherapists available in the civilian world proved inadequate to meet the Army's need, frustrating preparations for a physiotherapy program and making obvious the need to train many more. The chief of the Orthopedic Division in the Surgeon General's Office consulted with the Red Cross, which was planning to set up some reconstruction centers, about how to obtain the requisite personnel. The Medical Department set up schools for reconstruction aides at Walter Reed and a handful of other hospitals, and civilian authorities agreed to take an active role in identifying and training candidates to meet the Army's needs. To make occupational therapy available to the Army's patients, schools of arts and crafts were encouraged to provide intensive courses in these fields for female teachers and college graduates who might be interested in serving as reconstruction aides.<sup>80</sup>

Until the summer of 1918, however, neither Surgeon General Gorgas nor the War Department evinced any sense of urgency on the matter of physical reconstruction. Gorgas maintained that he planned to build "slowly and securely" on the foundation laid by the experiences of others. In the spring he consulted on the matter with representatives of many organizations, including the U.S. Navy Medical Department, the Public Health Service, the Medical Section of the Council of National Defense, the American Red Cross, the U.S. Chamber of Commerce, and the American Federation of Labor, as well as with civilian physicians. He then decided that the Medical Department would work essentially alone to maximize the individual soldier's recovery from the medical point of view, leaving anything beyond that point to agencies created in June 1918 to help the soldier after he had left the service, principally the Federal Board for Vocational Education and the Bureau of War Risk Insurance. The Division of Physical Reconstruction of the Surgeon General's Office, meanwhile, studied the efforts of both allies and enemies in this field. By the end of July 1918 the reconstruction staff of each hospital offering physical reconstruction had been divided among the educational personnel and those trained in physiotherapy.<sup>81</sup>

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<sup>79</sup> WD, SGO, *Physical Reconstruction*, pp. 5, 39, 56; idem, SGO, pp. 476, 1330; Billings, "Medical and Surgical Reconstruction," p. 2.

<sup>80</sup> WD, SGO, *Physical Reconstruction*, pp. 57, 58, 59; idem, SGO, pp. 431, 474; idem, *Military Hospitals*, p. 313; Billings, "Medical and Surgical Reconstruction," p. 7.

<sup>81</sup> WD, SGO, SGO, pp. 424, 475, 478, 479, 485, 1094, 1272, 1278; idem, *Sanitation*, p. 495; idem, *Physical Reconstruction*, pp. 36–39, 251; idem, *Military Hospitals*, p. 162; Address by Gorgas, 3 Jan 1918, p. 2 (quoted words), Gorgas Papers, UA; Billings, "Medical and Surgical Reconstruction," pp. 2, 3; idem, "Rehabilitation," p. 1506; Ashburn, *History of MD*, pp. 315–16; Franklin Martin, "Council of National Defense, Committee on Medicine," p. 555; Bushnell, "War Problem," p. 133.



*Poster used in federal reemployment campaign; (below) disabled veterans taking federal training*





The Surgeon General's Office launched a publicity campaign concerning its work in physical reconstruction, believing that getting out this information was important not only to limiting the number of men who might have to be sent to homes for the disabled but also to maintaining both military and civilian morale. The Medical Department also sought the support of the medical profession, in the hope that when the need arose, civilian physicians could be counted on to help. It added a section of educational propaganda to the organizations dealing with physical reconstruction, and the entire 1918 meeting of the American Medical Association was devoted to rehabilitation.<sup>82</sup>

By August 1918 the basic policies and plans concerning physical reconstruction were finally in place, and by the time the war ended a team of reconstruction aides was being gathered to assist in rehabilitation. Physiotherapists and occupational therapists, among them educational therapists, were classified as a group as reconstruction aides, even though they served quite different functions. At each hospital the aides worked under the direction of the medical staff, with medical officers prescribing what they thought was needed and the aides executing their recommendations.<sup>83</sup>

The hiring of reconstruction aides complicated the management of hospital personnel. Physiotherapists were most often assigned to help orthopedic and neurosurgical patients, although they also had a role to play in calming psychotic patients. They initially functioned separately of occupational therapists. Aides involved in occupational and educational therapy, among them medical social workers, functioned as part of educational services organizations in hospitals where these organizations existed. In matters involving personal conduct, all female aides were subject to the same regulations as nurses and served under the supervision of the chief nurse. Friction between nurses and aides, who believed they should be paid as much as nurses, apparently led to ill will between the two groups of women so intense that even Surgeon General Gorgas' attempts to calm the situation failed.<sup>84</sup>

Although some medical officers were initially unfamiliar with what trained physiotherapists could accomplish, in time, working with the orthopedists who performed corrective and restorative surgery, these reconstruction aides demonstrated to all their ability to assist patients in learning to use their prostheses and to minimize loss of function from muscular atrophy, scarring, poor circulation, or the freezing of joints (ankylosis). In doing so, they used such approaches as electrotherapy to stimulate muscles, hydrotherapy, massage, and exercise; both massage and exercise proved especially valuable to amputees after their stumps had healed.<sup>85</sup>

Medical social workers proved valuable members of hospital staffs in many ways, serving as links between patients and the government in such matters as confusion over financial allotments and the forms to be filled out to set up payments.

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<sup>82</sup> Billings, "Rehabilitation," p. 1513; WD, SGO, *Physical Reconstruction*, p. 225.

<sup>83</sup> WD, SGO, *Physical Reconstruction*, pp. 41, 58; idem, SGO, pp. 432, 476.

<sup>84</sup> A. F. Mastellone, "Physical Medicine in the Army," p. 641; WD, SGO, *Physical Reconstruction*, pp. 53, 58, 60, 84, 86, 96, 104, 121, 345; idem, *Neuropsychiatry*, p. 127; Cooper Autobiography, p. 246, Ms B120, NLM; Billings, "Medical and Surgical Reconstruction," pp. 5, 7.

<sup>85</sup> WD, SGO, *Physical Reconstruction*, pp. 60, 124, 135, 136, 138-39, 151-53; idem, SGO, pp. 1071, 1139; idem, *Military Hospitals*, pp. 253-54, 306, 382; WD, *ARofSG*, 1920, p. 447.

Social workers with psychiatric experience also helped medical officers obtain such personal information from patients as might be needed in arriving at an accurate diagnosis. Many neuropsychiatric patients were regarded as either mentally or morally defective to some degree and therefore in need of “reeducational, personal talks” with someone who could change their attitudes, and medical social workers were able to fill such a need. When men about to be discharged from the military were involved, the Red Cross also helped with such efforts by providing information on jobs where medical supervision could be provided.<sup>86</sup>

Medical social workers were important, too, in the effort to limit the extent to which the government was financially obligated for a patient’s care after he was discharged from the Army. Many patients arrived without medical records other than the mere diagnosis. Early draftees, many officers, and most members of the National Guard and the Students’ Army Training Corps were not given examinations before entering military service, and thus information on conditions that existed before they joined the Army was scanty. Psychiatric social workers could prepare patient histories that included coverage of any problems the patient might have had before entering the Army that could prove helpful in determining the Army’s liability and the soldier’s entitlement to compensation. Patients occasionally provided inaccurate information, sometimes deliberately, but social workers were able to find much evidence, if not of preexisting illness, then at least of preexisting “nervous instability.”<sup>87</sup>

The work of occupational therapists, unlike that of medical social workers, was of direct value to war casualties. Patients with mental and emotional problems were among the first served by occupational therapists. These aides came from a variety of backgrounds; many were psychologists or teachers with expertise in myriad subjects. Even at the bedside they could teach courses in English, arithmetic, salesmanship, economics, history, and so-called Americanization courses, including English for foreigners, American government, and American history. In workshops they could offer courses in woodworking, automobile mechanics, and driver’s education, in lip reading and basket-weaving, and in writing left-handed and typewriting. Intensive efforts were also made to provide training in agricultural occupations.<sup>88</sup>

Initially patients decided for themselves whether to take part in the classes offered by the Medical Department, but eventually pressure was exerted in the form of granting passes to those who did and hospital duty to those who did not. In time, the department discovered that all but the most violent of neuropsychiatric patients could profit from this type of therapy. Curative workshops were also set up for the TB victims, whose mental attitudes were particularly threatened by the long-term restrictions that were necessarily placed on their activities because

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<sup>86</sup> WD, SGO, *Neuropsychiatry*, pp. 96, 99 (quoted words); idem, *Physical Reconstruction*, pp. 53, 233, 236; idem, *SGO*, pp. 838–39, 1071, 1072, 1074, 1324, 1325, 1326–27; idem, *Military Hospitals*, pp. 148, 265.

<sup>87</sup> WD, SGO, *Neuropsychiatry*, pp. 62, 96, 97, 98 (quoted words), 157.

<sup>88</sup> WD, SGO, *SGO*, pp. 479, 481, 1278, 1281, 1290; idem, *Physical Reconstruction*, pp. 43, 53, 197; idem, *Neuropsychiatry*, p. 96; idem, *Military Hospitals*, p. 312; Billings, “Medical and Surgical Reconstruction,” p. 12; Rpt, U.S. Army General Hospital No. 6, Fort McPherson, Ga., July 1919–April 1920, pp. 5–6, Ms B122, NLM.



*Workshops for the disabled patients at Walter Reed*





*Working the bountiful land of the Walter Reed campus*

of their disease. For these patients, morale building was particularly important. In May 1919 as many as 48 percent of hospitalized patients were taking some form of educational course, often guided by counselors who tested them to determine their skills and aptitudes and advised them about what courses would be most useful to them in civilian life. As a result of reconstruction training, many men left the Army better qualified for their peacetime jobs or brandishing new skills.<sup>89</sup>

Shortages of space and time, as well as of appropriately trained personnel limited reconstruction programs. By the end of 1918 Walter Reed General Hospital had acquired five “curative occupational buildings” for its combination demonstration project and experimental laboratory for occupational therapy—one of the Army’s first systematic efforts to use occupational therapy. After the war’s end, some patients in hospitals without workshops but who particularly needed occupational therapy were transferred to facilities with them entirely because of the benefits that could be derived from such activity. In many instances, however, the practical application of workshop training was limited by the short period of time the patient was able to participate before his discharge from the hospital. Furthermore, some surgeons even feared that the physical reconstruction activities might lead to higher rates of infection for their patients.<sup>90</sup>

<sup>89</sup> WD, SGO, *Physical Reconstruction*, pp. 87, 105, 166, 189, 190–91, 192, 202, 257; idem, *Neuropsychiatry*, p. 95; idem, *SGO*, pp. 479, 1280; idem, *Military Hospitals*, p. 262; Rpt, U.S. Army General Hospital No. 6, pp. 3, 13–14, Ms B122, NLM; Bushnell, “War Problem,” p. 136; Billings, “Medical and Surgical Reconstruction,” p. 12.

<sup>90</sup> WD, SGO, *Physical Reconstruction*, p. 44; idem, *Military Hospitals*, pp. 261, 314 (quoted words); idem, *SGO*, p. 484; Billings, “Medical and Surgical Reconstruction,” p. 8.

The personnel situation became acute with the end of the war, when the rate of demobilization in the Medical Department threatened to cripple the reconstruction program. The men scheduled to be commissioned in the Sanitary Corps to handle this type of work could not be signed on after the Armistice. Those already assigned as occupational therapists wanted to leave the Army and permission to hire them as civilians could not be obtained. Nevertheless, the number of hospitals involved in reconstruction continued to grow, and the need for occupational therapists outran the supply.<sup>91</sup>

After the spring of 1919, the need for reconstruction began to drop. At the end of May eighteen general hospitals, plus three general hospitals limited to TB victims, and two base hospitals, with a total capacity of 28,000 beds, continued to provide reconstruction services. Plans called for nine of the facilities, including the Letterman, Walter Reed, and Army and Navy General Hospitals, to remain open for an extended period. By June the need for reconstruction services had dwindled to the point where the Division of Reconstruction in the Surgeon General's Office was downgraded to a section in the Division of Hospitals. The closing of base hospitals in the summer of 1919 in theory created a pool of surplus personnel, but the War Department issued an order in July that all men signed on for the duration of the war emergency be discharged. The Surgeon General's Office urged that this opportunity be used to cull those involved in reconstruction, retaining only those who were well qualified as well as willing to continue serving the Army. Directives issued in September 1919 permitted the Medical Department to retain a sufficient number in service to meet its needs, but the Surgeon General's Office continued to find it necessary to look for more trained female occupational therapists.<sup>92</sup>

By the fall of 1919 almost all reconstruction cases were chronic, and many were urgently seeking discharge. Fewer than 3 percent of those wounded in battle remained hospitalized. As discharged disabled veterans, they would receive more as compensation than they did as pay before discharge. With few exceptions, they could be adequately treated in civilian hospitals. The War Department decided at this time that all the sick and injured from the American Expeditionary Forces should be discharged within a year except for the insane. Men who were unable to care for themselves were retained in Army hospitals until final arrangements could be made for them elsewhere, but thereafter they were supported by the Bureau of War Risk Insurance, generally in facilities managed by the Public Health Service. They could also receive permanent care at the Soldiers' Home in Washington D.C. or the National Home for Disabled Volunteer Soldiers in Hampton, Virginia. Only in 1921 was the Veterans Bureau created to handle relief for veterans. Future surgeon general Lt. Col. Robert U. Patterson, MC, was named as director of its medical services, but the Public Health Service continued to be responsible for hospital and dispensary service and physical examinations. The Bureau of War Risk Insurance retained respon-

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<sup>91</sup> WD, SGO, *Physical Reconstruction*, p. 54; idem, *SGO*, pp. 480, 839; Cooper, *Autobiography*, p. 247, Ms B120, NLM; Billings, "Medical and Surgical Reconstruction," p. 9.

<sup>92</sup> WD, SGO, *Physical Reconstruction*, pp. 50, 56; idem, *SGO*, pp. 841, 842; WD, *ARofSG*, 1920, pp. 259-61.

sibility for establishing the severity of disabilities and their relationship to war-time service.<sup>93</sup>

The unexpectedly abrupt end of the war found the Army and its Medical Department even less prepared for the demands of peace and demobilization than they had been for war and mobilization. Plans for handling the influx of several million soldiers who returned from Europe in mid- or late 1919 were still in their infancy when the American Expeditionary Forces came marching home again in the fall and winter of 1918–1919. Hospitals had to be found in haste. The men and women of the department who were needed to make the hospital system work effectively for returning sick and wounded and to conduct hundreds of thousands of physical examinations swiftly and efficiently were themselves scrambling to be discharged from the Army, leaving the department to rely on inadequate numbers of inexperienced personnel after the war's end just as it had when the conflict was at its height.

Obscured by the confusion of demobilization and the attendant welter of statistics that filled reports was the determination of both the Army and the Medical Department that something worthwhile should come of the war that was to have ended all wars. The department gathered information about wounds and disease for future study so that the medical profession could profit from the terrible experiences of the war, and at almost every opportunity it trained the men about to be demobilized so that they became a more informed citizenry for the nation in peacetime. The veterans received instruction about hygiene and sanitation specifically intended to guide them in their lives as civilians. They were offered instruction that went beyond enabling the disabled to make a living, courses that many men would never otherwise have been able to take. The illiterate became literate, foreigners became Americanized, and citizens became informed about their government and the way in which it worked. While Surgeon General Ireland struggled with the challenges of demobilization, he was also clearly beginning to contemplate how the Medical Department could guarantee that, if there should be another war, it would never again be caught as unprepared as it was in the spring of 1917.

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<sup>93</sup> WD, *ARofSG*, 1920, p. 27; *ibid.*, 1921, p. 11; Ashburn, *History of MD*, p. 377; WD, *SGO*, *SGO*, p. 1070; *idem*, *Physical Reconstruction*, pp. 51, 253–54; Billings, “Medical and Surgical Reconstruction,” p. 11; Hugh S. Cumming, “The Work of the Public Health Service in the Care of Disabled Veterans of the World War,” p. 1; James A. Tobey, *The Medical Department of the Army*, p. 44; Griffith, “Medical and Hospital Service,” pp. 254–55; James H. Cassedy, *Medicine in America*, p. 121.



## Chapter 14

# THE PEACETIME FORM



For the Medical Department, the end of World War I brought swift and drastic changes in size and organization. Until Surgeon General Merritte W. Ireland retired in the spring of 1931, the size of the Army generally dictated the size of the Medical Department, and the Army's peacetime needs suggested the department's organization. Thus changes in the Medical Department, like those in the Army as a whole, resulted from the demobilization and the resultant efforts to restructure the nation's defenses. They also reflected a growing apathy toward all things military.

Initially, however, with only 50,000 enlisted men remaining in the Army because so many had left after the end of the war, recruiting for the peacetime force proceeded "with a vigor heretofore unequalled." The new men, generally immature and of relatively low caliber, physically and mentally, imposed greater demands on the Medical Department than those they replaced, this at a time when reserve and temporary medical personnel were being discharged in large numbers. Surgeon General Ireland observed that demobilization progressed "more rapidly than the necessary work of the department warranted."<sup>1</sup>

### *Impact of New Legislation*

The new National Defense Act, passed on 4 June 1920, outlined the nature of the peacetime military establishment. It gave the United States its "first military policy" in the form of a provision that set the maximum number of regulars at 280,000, unless an emergency necessitated an increase. The law did not specify a minimum for the Army. In 1921 and again in 1922 Congress cut the size of the Regular Army. Finally, in 1927, the legislature reduced it to 118,750 men. In the 1930s Congress limited the funds voted to the Army so severely that the size initially envisioned in the 1920 National Defense Act became impossible to attain.<sup>2</sup>

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<sup>1</sup> War Department (WD), *[Annual] Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1920, pp. 19, 22–23 (first quoted words) (hereinafter cited as *ARofSG*, year); *ibid.*, 1921, pp. 9–10 (second quoted words), 99; WD, *[Annual] Report of the Secretary of War*, 1919, pp. 228–29 (hereinafter cited as *ARofSW*, year); Percy M. Ashburn, *History of the Medical Department of the United States Army*, p. 368 (hereinafter cited as *History of MD*).

<sup>2</sup> Ray S. Cline, *Washington Command Post*, pp. 19–20; United States, Congress, Senate, Committee on Military Affairs, *Hearings Before the Subcommittee of the Committee on Military*



Both mobilization plans and the suggestions that followed the passage of the National Defense Act were clearly based on lessons learned from the past conflict. Experts concluded that the strength of the medical contingent of a field force should be between 10 and 14 percent of that force and vary according to the immediate situation and policies. Such variations in the numbers of medical personnel, however, could occur only at a general headquarters and in a services of supply because tables of organization dictated the strength of the medical troops at the army, corps, and division levels.<sup>3</sup>

Medical Department leaders concluded that the chief surgeon of an expeditionary force should be stationed at a general headquarters and his deputy served at a services of supply. An investigating board led by Brig. Gen. Walter D. McCaw, however, admitted that, under some circumstances, the assignment of the chief surgeon to the services of supply or to an intermediate point between the services of supply and general headquarters might be advisable. The board emphasized the importance of having a Medical Department representative serve each section of the general headquarters of armies and groups of armies and, at a minimum, with the administrative and supply sections of corps and divisions. In any event, it now saw close communication between those responsible for the activities of a field force and the medical staff of that force as vital, both before and during battle. It also recognized the advisability of assigning fewer men to individual ambulance units and leaving more available for work as litterbearers and with field and evacuation hospitals.<sup>4</sup>



*Walter D. McCaw*

*Affairs*, p. 147 (hereinafter cited as *Hearings Before Subcommittee* (66th Cong., 1st sess.)); James G. Harbord, *The American Expeditionary Forces*, p. 44 (quoted words); Russell F. Weigley, *History of the United States Army*, pp. 400–401; Ashburn, *History of MD*, p. 368; WD, *ARofSG*, 1933, p. 1; Maurice Matloff, ed., *American Military History*, p. 411; Elias Huzar, *The Purse and the Sword*, p. 41; WD Bulletin no. 25, 9 Jun 1920, p. 1.

<sup>3</sup> M. A. Shockley, *Outline of the Medical Service of the Theatre of Operations*, pp. 6, 7, 9, 14; WD, Surgeon General's Office (SGO), *Training*, p. 1016; idem, *Administration, American Expeditionary Forces*, p. 841 (hereinafter cited as *Administration, AEF*).

<sup>4</sup> Gustavus M. Blech, "The Strategy of the Medical Service," p. 376; WD, SGO, *Administration, AEF*, pp. 839–40; A[lexander] N. Stark, "Medical Activities of the American Expeditionary Forces in the Zone of the Armies," p. 175; J. W. Grissinger, *Medical Field Service in France*, pp. 80–81; WD, *ARofSG*, 1919, pp. 1419–20.

In theory, the Army could make up for the small number of regulars in service by training large numbers of reservists and National Guardsmen. In practice, Regular Army personnel were still called upon to care for World War I patients who were so ill that they could not be dismissed from Army hospitals. As a result, their numbers were too few to permit the peacetime Army and its Medical Department to carry out what was envisioned as its main function—instruction and training for the National Guard and the Organized Reserves. Furthermore, because Congress had not voted any money to support the Enlisted Reserve Corps, the Organized Reserves consisted basically of the Officers' Reserve Corps. The formation of reserve units was impossible. Furthermore, because the number and capacity of the four-week training camps was limited, active-duty training was possible for reserve officers, whether medical or line officers, only every three to four years at best.<sup>5</sup>

Another change dictated by the new legislation called for the nation to be divided for administrative purposes into geographical corps areas, with a Regular Army division, two National Guard divisions, and three Organized Reserve divisions, plus their medical personnel, assigned to each. Within the corps areas in 1926 were sixty-six stations with 500 or more men. All administration except for that of technical schools was placed in the hands of the corps area commanders, who reported through the adjutant general to the chief of staff. Each corps area commander had a corps surgeon serving directly under him on his staff to handle all Medical Department activities that were part of the commander's responsibilities. The corps surgeon, however, was responsible to the surgeon general on technical matters and reported to him concerning the work of any subordinate medical officers and the health of the troops in the area. At each station within the corps area, the station surgeon was responsible for everything affecting the health of the command, including training of Medical Department enlisted personnel. Outside of the United States, for the occupation forces in Germany and for the military departments in Panama, Hawaii, and the Philippines, organized much like the corps within the United States, the respective chief surgeon and the department surgeon were responsible for Medical Department activities. Medical organizations such as general hospitals, Medical Department schools, and major medical supply depots remained under the direct control of the surgeon general.<sup>6</sup>

The 1920 law also created a General Staff Corps, a move that affected the Medical Department because medical officers were among those who could be detailed to the new organization. The General Staff Corps was composed of the chief of staff, the War Department General Staff, and the General Staff with the

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<sup>5</sup>WD, *ARofSG*, 1921, pp. 9, 111; Ashburn, *History of MD*, p. 368; WD, *ARofSW*, 1921, p. 21; *ibid.*, 1922, pp. 18–19; *ibid.*, 1930, p. 92; *ibid.*, 1932, p. 77; *ibid.*, 1934, p. 52; *ibid.*, 1935, pp. 12, 50; Weigley, *History*, p. 401; “General Policies and Regulations for the Organized Reserves,” pp. 223–24; Historical Evaluation and Research Organization, “Origins, History and Accomplishments of the US Army Reserve,” p. 61, copy in Library, U.S. Army Center of Military History (CMH), Washington D.C.; WD Bulletin no. 25, 9 Jun 1920, p. 1; *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 524; Matloff, *History*, pp. 411, 412.

<sup>6</sup>WD, *ARofSW*, 1921, p. 13; Otto L. Nelson, *National Security and the General Staff*, p. 7; James A. Tobey, *The Medical Department of the Army*, p. 98; Shockley, *Outline*, pp. 4–5; Blanche B. Armfield, *Organization and Administration in World War II*, pp. 12, 13; Julia C. Stimson, *History and Manual of the Army Nurse Corps*, pp. 23, 24 (hereinafter cited as *History of ANC*); WD, *ARofSG*, 1920, p. 302; *ibid.*, 1921, p. 121; *ibid.*, 1923, p. 125; *ibid.*, 1924, p. 272; *ibid.*, 1926, pp. 24–25.

troops. The War Department General Staff consisted of the chief of staff and four assistants chosen by the president from among general officers of the line plus eighty-eight other officers of the rank of captain or above; the General Staff with the troops consisted of as many officers of the rank of captain or above as proved necessary to handle General Staff duties at the headquarters of territorial departments, armies, corps, divisions, and brigades and to serve as military attaches abroad. In matters involving procurement, all branches of the Army responsible for obtaining supplies, including the Medical Department, were to report directly to the assistant secretary of war, whose position was created principally to handle industrial mobilization in the event of another war.<sup>7</sup>

### *The Surgeon General*

During the postwar period the surgeon general served in the rank of major general under the chief of staff for a four-year term, subject, however, to reappointment. His assistants were brigadier generals, also selected by the president for four-year terms. The surgeon general continued both to direct the efforts of the Medical Department and to serve, *ex officio*, as a member of such organizations as the Board of Commissioners of the Soldiers' Home, the Interdepartmental Social Hygiene Board, and the Board of Visitors of St. Elizabeth's, the mental hospital caring for patients from both the Army and the District of Columbia.<sup>8</sup>

Surgeon General Ireland, the first senior leader of the Medical Department in the postwar period, served longer than his three successors combined. A man of extraordinary vigor and both popular and influential in the War Department, Ireland left his mark on the entire interwar period. General John J. Pershing found him to be "abounding in vitality, mental and physical, quick and accurate in decision, and prompt in action once the decision is made," and he especially appreciated his administrative skills, his "attractive personality," and his "diplomatic turn of mind." Others who worked with Ireland noted also his "extraordinary memory for people and judgment of their characters" and both his loyalty to "subordinates who could deliver the goods and stay out of trouble" and his severity "bordering on ruthlessness to those who slipped." One of those subordinates notes that Ireland had "a keen sense of humor and . . . just enough wrath to make him perfectly delightful" and that he was "the embodiment of everything that has made one love the Army of the United States."<sup>9</sup>

Even as a young medical officer, Surgeon General Ireland distinguished himself. After his commissioning in 1891 and his initial assignment to various forts

<sup>7</sup> "The Interallied Surgical Conference," p. 481; *Hearings Before Subcommittee* (66th Cong., 1st sess.), pp. 599–600; Harbord, *American Expeditionary Forces*, pp. 67, 70–71; Mark S. Watson, *Chief of Staff*, p. 70; Cline, *Washington Command Post*, p. 20; WD Bulletin no. 25, 9 Jun 1920, pp. 6, 8–9; Russell F. Weigley, *The American Way of War*, p. 208.

<sup>8</sup> Shockley, *Outline*, p. 4; Stimson, *History of ANC*, p. 22; Tobey, *Medical Department*, pp. 79, 82; Armfield, *Organization and Administration*, p. 2.

<sup>9</sup> Ashburn, *History of MD*, pp. 379, 396 (Pershing quoted words); Autobiography, p. 152 (second quoted words), Ms C14, Jefferson R. Kean Papers, National Library of Medicine (NLM), Bethesda, Md.; Silas B. Hays Memorial Address, p. 2, folder 94, Ms C117, Merritte W. Ireland Papers, 1911–1931, NLM; Alexander Taylor Cooper Autobiography, p. 243 (third and fourth quoted words), Ms B120, NLM; Bailey K. Ashford, *A Soldier in Science*, pp. 314–15 (fifth and sixth quoted words).

in the West, he served in the Spanish-American War in 1898. At this time he drew attention because of his “unmistakable capacity for work,” his “skill and rare judgment in the operating room,” and his unfailingly vigorous health; he was the only one of the hospital staff at Siboney who never fell ill, this at a time when physicians serving in Cuba were succumbing to disease in significant numbers. Ireland’s subsequent experience in the Surgeon General’s Office as a young and promising assistant under both Surgeon General Robert M. O’Reilly and Surgeon General George H. Torney proved valuable, for he was often required to testify before congressional committees and also had the opportunity to see firsthand the need for cooperation between the Medical Department and the rest of the Army and, most especially, with the War Department General Staff. In the final years before joining the American



*Surgeon General Ireland*

Expeditionary Forces, Ireland served first in the Philippines and then in Texas, where as post surgeon for Fort Sam Houston he managed the principal hospital serving the troops involved in the Mexican border crisis in 1916–1917.<sup>10</sup>

Surgeon General Ireland worked comfortably with both the War Department General Staff and the military affairs committees of the Senate and the House of Representatives, which eagerly sought his opinions when designing those aspects of new peacetime legislation that affected the Medical Department. Ireland’s election as president of the American College of Surgeons in 1928 suggests that his medical colleagues, both civilian and military, shared the high opinion that the legislators held for him because this position was usually given to an operating surgeon. His performance as surgeon general and his “power and influence” made it possible for Ireland to gain reappointment twice, but age forced him to retire on 31 May 1931. His retirement came only a few months before Japan moved into Manchuria in the first step of what would become a campaign to take over much, if not all, of Asia, the start of an era of increased belligerence that would culminate in another world war.<sup>11</sup>

<sup>10</sup> Ashburn, *History of MD*, pp. 394, 395; WD, *ARofSG*, 1899, p. 217 (quoted words). See Mary C. Gillett, *The Army Medical Department, 1865–1917*, p. 315, for a discussion of the atmosphere in the Surgeon General’s Office under O’Reilly.

<sup>11</sup> Ashburn, *History of MD*, pp. 359, 379; *Hearings Before Subcommittee* (66th Cong., 1st sess.), pp. 598, 599, 613; Cooper Autobiography, p. 244 (quoted words), Ms B120, NLM; Tobey, *Medical Department*, p. 50; James M. Phalen, *Chiefs of the Medical Department, United States Army, 1775–1940*, p. 94.

### *The Surgeon General's Office*

While the Medical Department attempted to deal with the changes in the size, organization, and health needs of the peacetime Army, the Surgeon General's Office itself shrank in size and its components underwent innumerable changes of name and organization (*Chart 1*). In some instances these transformations reflected modifications of priorities. In others, once the initial adjustments dictated by the coming of peace had been made, the functions remained essentially the same during the entire period Surgeon General Ireland was in office. Some of the changes in the Surgeon General's Office in the first decade after the Armistice reflected internecine struggles for turf.<sup>12</sup>

Perhaps the most startling change in the organization of the Surgeon General's Office was the first to take place after the end of the war. As part of the general move to centralize the financial activities of all supply departments, the War Department moved Medical Department financial activities from the Surgeon General's Office to a medical and hospital section in the War Department General Staff's Office of the Director of Purchase, Storage, and Traffic. Legislation passed in July 1918 had already made the disposal of surplus supplies for the entire Army the responsibility of the director of purchase and storage, who reported to the director of purchase, storage, and traffic. The change represented not a response to peacetime needs but rather one to wartime requirements for shipping priorities and to the problems that would result from having various government agencies competing in the effort to buy supplies. The plan, on the brink of activation when the war ended so unexpectedly on 11 November 1918, continued forward essentially of its own momentum.<sup>13</sup>

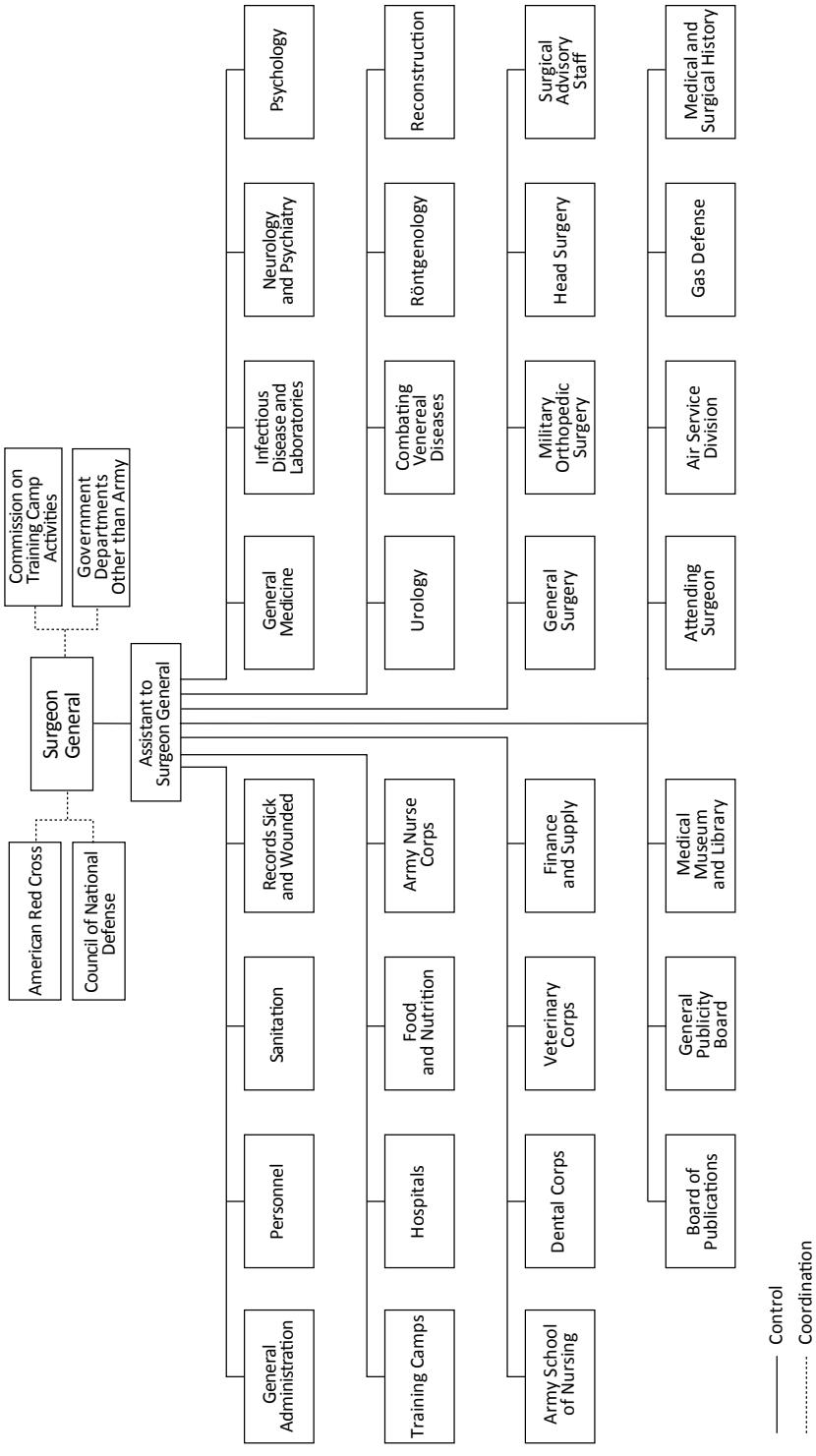
Unlike most of modifications of the office's structure, this change was beyond the control of the surgeon general. To a large degree, he actually opposed it on the grounds that it led to "tremendous delays, and the overhead is tremendous, and it is thoroughly, I think, inefficient." Ireland was not alone in his evaluation of this approach. Despite the surgeon general's opposition, the Finance and Supply Division of the Surgeon General's Office, "as regards its supplies," functioned only in a "purely advisory" role in the months immediately following the end of the war. The director of purchase and storage was responsible for the distribution of all medical, dental, and veterinary supplies other than those destined for the use of the remnant of the American Expeditionary Forces still serving in Europe. Because medical officers with temporary commissions were being relieved of duty, the Medical Department now detailed regulars, and especially all those who had been involved with medical supply, to work with the medical and hospital section of the Office of the Director of Purchase and Storage to modify wartime contracts. They had to consider the needs of the Army of Occupation in Germany, but otherwise they were to terminate contracts and to dispose of unneeded supplies that

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<sup>12</sup> Stanhope Bayne-Jones, *The Evolution of Preventive Medicine in the United States Army, 1607–1939*, p. 177; Tobey, *Medical Department*, p. 44; WD, SGO, *The Surgeon General's Office*, pp. 381, 539 (hereinafter cited as *SGO*); idem, *Neuropsychiatry*, pp. 11–12; S. J. Morris, "History of the Overseas Division, Surgeon General's Office, During the War Period," p. 182.

<sup>13</sup> WD, SGO, *Finance and Supply*, pp. 80, 81, 191; *Hearings Before Subcommittee* (66th Cong., 1st sess.), pp. 500–501, 604; Erna Risch, *Quartermaster Support of the Army*, p. 702.

Chart I—Organization of the Office of the Surgeon General, June 1918



Source: War Department, Surgeon General's Office, *The Surgeon General's Office, Medical Department of the United States Army in the World War* (Washington, D.C.: Government Printing Office, 1923), p. 130



*Main entrance of temporary quarters housing the Surgeon General's Office, occupied from 3 May 1918 to 30 August 1920*

were still on hand. Any requisitions necessary to restock medical supply depots went through the Office of the Director of Purchase and Storage and thence on to its medical section for advice concerning the action to be taken.<sup>14</sup>

Difficulties engendered by having procurement, storage, and issue handled by those who were not familiar with Medical Department needs soon began to mount.

<sup>14</sup> Phalen, *Chiefs*, 1920, p. 357 (quoted words); WD, SGO, *Finance and Supply*, pp. 79, 80, 191, 226, 227; idem, *SGO*, pp. 470, 471; WD, *ARofSG*, 1921, p. 9.

The paperwork and red tape involved in this approach proved to be formidable. In September 1919 the responsibility for supervising requisitions for “nonstandard medical supply items” and restocking depots was returned to the Surgeon General’s Office. The June 1920 legislation abolished the Purchase and Storage Service and placed its functions under the Quartermaster Corps. The Corps remained responsible for buying all items whose use was common to all supply bureaus, but the Medical Department remained responsible for its own peculiar needs. By the fall of 1920 the department resumed its responsibility for medical supply depots and supply distribution in the United States, experience having shown that “a single supply system is too complicated for general use in providing supplies for the Army.” Thereafter, all Medical Department personnel who had been assigned to the medical and hospital section of the Office of the Director of Purchase and Storage returned to the Surgeon General’s Office.<sup>15</sup>

Resuming control over its own supplies did not solve the Medical Department’s supply problems. Even after the return of peace the possibility of a national emergency played an important role in supply management. Although for many years after the end of World War I, the department continued its efforts to use up stores left over from the war, a shortage of funds for transportation occasionally complicated delivery, especially because field medical equipment was stored at widely separated depots in New York, St. Louis, Chicago, San Francisco, and San Antonio. Plans assumed that shipping to corps and department area depots would come only in the event of war, and thus distribution from the main depots could be delayed in the event of an internal emergency. Furthermore, changes both in supply and unit equipment tables and in mobilization plans, new information guiding maintenance schedules, and similar factors dictated frequent modifications in medical supply tables.<sup>16</sup>

The Army also expended much effort to standardize field equipment to the extent possible under the circumstances. It informed manufacturers about what would be expected of them in the event of hostilities and urged them to consider some degree of standardization. On its part, the Medical Department maintained lists of potential suppliers and modified specifications so as to keep them compatible with what these firms were providing commercially. By giving reserve commissions in the Sanitary Corps to some manufacturers, the Medical Department hoped to increase its ability to acquire additional supplies promptly and in quantity in the event of a national emergency. To increase the department’s ability to manage supplies, the department encouraged some medical officers to take business courses. By the time Surgeon General Ireland retired in May 1931, he had made good progress toward building up “a suitable reserve store of wartime equipment and supplies.”<sup>17</sup>

<sup>15</sup> WD, *ARofSG*, 1920, pp. 357, 358, 359 (first quoted words); *ibid.*, 1921, pp. 12, 161, 162; WD, SGO, *Activities Concerning Mobilization Camps and Ports of Embarkation*, p. 313; *idem*, *Finance and Supply*, p. 81 (second quoted words); Autobiography, pp. 242, 243, Ms C14, Kean Papers, NLM; Risch, *Quartermaster Support*, p. 708.

<sup>16</sup> WD, *ARofSG*, 1921, p. 163; *ibid.*, 1924, pp. 5, 225–27; 280–81; Tobey, *Medical Department*, p. 67.

<sup>17</sup> WD, *ARofSG*, 1924, p. 5; *ibid.*, 1925, p. 7; *ibid.*, 1927, p. 4; *ibid.*, 1929, p. 388; Hays Memorial Address, pp. 1, 3–4, folder 94, Ms C117, Ireland Papers, NLM; Tobey, *Medical Department*, p. 68; Ashburn, *History of MD*, pp. 379 (quoted words), 380, 384.



Mobilization planning to deal with the possibility that the United States would become involved in another major conflict was at the center of many of the Medical Department's concerns. The Coordination, Organization, and Equipment Division of the Surgeon General's Office was much like its counterpart in the American Expeditionary Force's G-4, which was given responsibility for outlining the Medical Department's role in the War Department's general mobilization plans. In the fall of 1922 this division was renamed the Organization Division. In the fall of 1923 the Training Division of the Surgeon General's Office became the War Plans and Training Division, assigned to deal with the medical aspects of what were termed "special war plans," to be revised as needed. The two divisions worked in close cooperation until they were combined to form the Planning and Training Division in July 1925. The new division was expected to coordinate the mobilization planning efforts of all the other divisions of the Surgeon General's Office and to serve as liaison with external organizations involved in related efforts.<sup>18</sup>

Vital and unchanging parts of the Surgeon General's Office, despite structural shifts, were the library and museum, often grouped together, but sometimes under separate organizations within the office. Their fates were closely linked, both because they were generally housed together and because Surgeon General Ireland regarded them as being two of the "greatest contribution[s] which the Medical Department of the Army has made . . . to American medicine." Nevertheless, strenuous attempts to obtain a better site than the overcrowded and deteriorating buildings in which they were housed were unsuccessful. As a result, when both organizations began to make valuable additions to their collections in the wake of World War I, their crowding became progressively more acute.<sup>19</sup>

Personnel shortages further complicated the work of the library, just as they did the rest of the Medical Department. As early as June 1920 one-third of the library's employees had left, and the situation continued to deteriorate. More problematic was the situation caused by the retirement of experienced older staffers, for trained understudies were not on hand to replace them. In an attempt to deal with the problems that resulted from the frequent turnover in the position of librarian, held by Col. Percy M. Ashburn, MC, from 1927 to 1932, Surgeon General Ireland managed to persuade Congress to create the permanent civil service position of principal librarian.<sup>20</sup>

The library for a time included the responsibility for the preparation of the history of the Medical Department in World War I, although the organization directly responsible for this mammoth effort underwent various transformations like those of other endeavors under the aegis of the Surgeon General's Office. Various sections and divisions and personnel of the Surgeon General's Office were called upon to provide the history of the efforts and contributions of their specialties dur-

<sup>18</sup> WD, *ARofSG*, 1920, pp. 255–57; *ibid.*, 1923, p. 111; *ibid.*, 1924, pp. 165, 238 (quoted words); *ibid.*, 1926, pp. 307, 308; Albert P. Clark, "Replacements and Hospitalization and Their Relation to Losses in War," p. 336.

<sup>19</sup> M. W. Ireland, "Contributions of the Medical Department of the United States Army to American Medicine," p. 746 (quoted words); WD, *ARofSG*, 1920, p. 247; *ibid.*, 1933, p. 195.

<sup>20</sup> Wyndham D. Miles, *A History of the National Library of Medicine*, pp. 234, 239, 242–43, 245, 246, 247 (hereinafter cited as *History of NLM*); WD, *ARofSG*, 1921, 170; Ashburn Biography, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, NLM.

ing the war. Almost from the outset, however, an unfortunate policy was adopted at the insistence of the War Department General Staff, that the proper names of participants should not be used except to indicate authorship of a report. In the opinion of at least one medical historian, this decision undermined the usefulness of the volumes.<sup>21</sup>

While the library for the most part maintained its independent status under the Surgeon General's Office, the museum tended to be a section under a division, most often under or in conjunction with a laboratory division or section. Surgeon General Ireland, determined that it should become a true institute of pathology, feared that it had become what he regarded as "a pickle factory." Space was woefully inadequate, and the effort to handle a flood of specimens, not only from the war but also from civilian sources as well, threatened to overwhelm a dwindling staff.<sup>22</sup>

The museum had a broad appeal. Many of those using the collections were civilians seeking to learn from the museum's varied displays—insects collected from areas in which the Army was serving, X-ray films, still photographs dating from the Spanish-American War, and specialty registers. These registers, which represented a relatively new concept, consisted of collections of specimens together with complete histories of the cases from which they came, designed for the instruction and enlightenment of interested or concerned scientists, wherever they might be. The museum also functioned as the "official bureau of exchange for the International Association of Medical Museums," in this capacity dealing with hundreds of specimens a year; as an autopsy service for the Army and for the District of Columbia, conducting several hundred postmortems a year; and, along with the laboratories of a few of the major hospitals, as an emergency diagnostic service. It also handled the photographic work needed for exhibits at the various medical association meetings to illustrate museum specimens and statistical charts. The teaching work of the museum laboratory, however, was transferred in 1921 to the Army Medical School.<sup>23</sup>

To be of real use to the scientists who wished to study the museum's treasures, the collections had to be properly housed and displayed. Staff cuts, both in numbers and in quality, made this exceedingly difficult. An adequate number of trained pathologists had never been available, even during the war. In 1922 the situation further deteriorated when a succession of enlisted men replaced the captain who had been in charge of museum displays, this despite the fact that the curator and his assistants had little time to devote to supervising them.<sup>24</sup>

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<sup>21</sup> Miles, *History of NLM*, p. 229; WD, SGO, *SGO*, pp. 12–13, 527, 539; Tobey, *Medical Department*, p. 44; WD, *ARofSG*, 1920, pp. 222–23; *ibid.*, 1924, p. 157; "Medical History of the War," p. 113; Edgar Erskine Hume, *Victories of Army Medicine*, p. 39; Ireland, "Contributions," p. 746.

<sup>22</sup> L. E. Zimmerman, "The Registry of Ophthalmic Pathology," p. 65 (quoted words); Robert S. Henry, *The Armed Forces Institute of Pathology*, p. 191 (hereinafter cited as *AFIP*); WD, *ARofSG*, 1920, p. 226.

<sup>23</sup> WD, *ARofSG*, 1920, pp. 244, 245, 246; *ibid.*, 1921, pp. 95, 96; *ibid.*, 1924, pp. 161 (quoted words), 162; *ibid.*, 1927, pp. 221–22, 223; Henry, *AFIP*, pp. 195, 197, 199, 202, 207, 209, 215–16, 220–21; C. F. Craig, "The Army Medical Museum," p. 683; WD, SGO, *SGO*, pp. 1152, 1154; Zimmerman, "Registry," pp. 62, 65, 69, 82; Tobey, *Medical Department*, p. 60.

<sup>24</sup> Henry, *AFIP*, pp. 189, 230; WD, *ARofSG*, 1921, p. 94.

Although many of the changes taking place in the organization of the Surgeon General's Office under Surgeon General Ireland represented change without a difference, those that involved the Air Service were significant. Fluctuations in the status of the medical organization serving the Army's aviators continued after the end of World War I and the following period of demobilization. For a time, the Air Service itself underwent the same process of demobilization and deterioration that afflicted the rest of the Army. Pilots returned to civilian life, and many planes were sold as surplus. But the Air Service (or, as it was known after 1926, the Air Corps) soon became the focus of much favorable attention, with the resultant increases in its size coming at the expense of the rest of the Army.<sup>25</sup>

The situation of the medical officers serving the Army's aviators, however, continued in a state of flux while Ireland was surgeon general. Col. (later Brig. Gen.) Theodore C. Lyster, MC, saw his organization within the Surgeon General's Office dwindle almost to the point of disappearance. The medical organization serving the Air Service remained part of the Medical Department until 1919, when Colonel Lyster's successor, Col. Albert E. Truby, MC, succeeded in gaining Surgeon General Ireland's approval to move the Air Service Division (known as Air Service Medical) of the Surgeon General's Office to the Office of the Chief of the Air Service. There it was known as the Medical Division of the Air Service. Colonel Truby became chief surgeon of the Air Service and head of its Medical Division.<sup>26</sup>

The Medical Department recognized that pilots might have unique problems. As a result, the physicians who cared for them were required to take flight training to enhance their understanding of the problems that pilots faced and to develop a closer relationship with them than would otherwise be possible. The challenge involved in providing a sufficient number of flight surgeons was considerable, because most of those who had served as flight surgeons during the war were returning to civilian life. Many of those who replied to an appeal issued in 1919 for men to apply to serve as flight surgeons could not meet the strict physical standards involved, but a sufficient number of wartime officers seeking regular commissions volunteered to meet immediate needs. All successful candidates were sent to the medical research laboratory at Mineola, Long Island, for two months of study. In 1922 a pilot's license became mandatory for flight surgeons.<sup>27</sup>

When the National Defense Act of 1920 made the Air Service independent of the Signal Corps, the desire for a completely separate medical organization for the Air Service grew still stronger. Formal recognition of the special health needs of

<sup>25</sup> Green Peyton, *Fifty Years of Aerospace Medicine*, p. 42; Watson, *Chief of Staff*, p. 26.

<sup>26</sup> Peyton, *Fifty Years*, p. 42; Maurer Maurer, *Aviation in the U.S. Army 1919–1930*, p. 191; Albert E. Truby and John Dibble, "Operation of the Medical Division of the Air Service Since the Signing of the Armistice," p. 67; Mae Mills Link and Hubert A. Coleman, *Medical Support of the Army Air Forces in World War II*, pp. 17, 20; Stephen C. Craig, "The Life of Brigadier General Theodore C. Lyster," p. 1051; WD, SGO, *SGO*, p. 500; Scrapbook, p. 6, History and Military Record, Ms C16, Albert E. Truby Papers, 1898–1953, NLM.

<sup>27</sup> Truby and Dibble, "Operation of the Medical Division," pp. 68, 69; Walter S. Jensen, "Why the Flight Surgeon," p. 369; Maurer, *Aviation*, p. 67; Merritte W. Ireland, "The Historical Aspects of Aviation Medicine," *The Army and Navy Courier* 6 (5 Jul 1930): 43, in Ireland Papers, NLM; Peyton, *Fifty Years*, pp. 43, 44; WD, *ARofSG*, 1930, p. 394.



*Theodore C. Lyster*



*Albert E. Truby*

aviators would contribute to the desired image of the organization in which they served as a thing apart, even from the Army itself. A strong argument in favor of an independent Air Service medical service lay in the fact that the special training necessary to provide adequate care for aviators would be wasted on assignments outside the Air Service.<sup>28</sup>

Like the divisions in the Surgeon General's Office, the Air Service's medical organization underwent name changes. In November 1921 it became the Medical Section and, in July 1929, the Medical Division once again. Unlike the Medical Department, it grew in size with time. Its responsibilities included the Medical Research Laboratory and the School for Flight Surgeons, as well as sanitation and hospitals at air stations. The Office of the Chief of the Air Service's medical organization continued throughout the time that Ireland was surgeon general to consist of two medical officers and, until 1923, a Medical Administrative Corps officer.<sup>29</sup>

Because the medical and dental officers caring for aviators in the Air Corps Medical Division had, ideally, served five years after finishing the Army Medical School before seeking assignment to the Medical Division, they tended to feel loyal both to the department and to the Air Corps. Air Corps officers, on the other hand, were not entirely comfortable with the need for flight surgeons. Congress was increasingly enthusiastic about the Air Corps, and thus money for aviation medicine was more easily obtained as part of the Air Corps' budget than as part

<sup>28</sup> Link and Coleman, *Medical Support*, p. 21; Peyton, *Fifty Years*, p. 45.

<sup>29</sup> Link and Coleman, *Medical Support*, p. 20; WD, *ARofSG*, 1928, p. 384

of that of the Army's Medical Department, a situation that further undermined the department's influence on the Air Corps medical service. Thus, as a result of the sometimes conflicting influences on the Medical Division, the situation of its officers was for a time uneasy and, to a degree, uncertain.<sup>30</sup>

As the Air Corps grew, however, the demand for flight surgeons grew. The Medical Department believed at least 1 flight surgeon should be available for every 30 student pilots so that their condition as they trained could be closely observed to prevent unnecessary accidents. Because plans called for 2,200 officers and 15,000 enlisted men to be serving in the Air Corps by 1931, and because estimates suggested that 1,200 flight surgeons would be needed were a major conflict to erupt and that at least 300 should be available for duty the day troops were mobilized, the shortage was serious. Nevertheless, the increase of medical personnel in the Air Service/Air Corps from 1925 to 1927 was totally inadequate. In the event of mobilization, great reliance would have to be placed on reserve officers and regular medical officers without flight surgeon's training, who were also in short supply.<sup>31</sup>

### *Personnel Shortages*

Personnel shortages extended well beyond the library and museum of the Surgeon General's Office to the Medical Department as a whole. The department's initial problems resulted from the effects of demobilization. Legislation passed after demobilization, particularly the National Defense Act of 1920, also had a great and generally adverse influence on the effectiveness with which the Medical Department was able to fulfill its peacetime responsibilities for the next twenty years. The ostensible goal of the 1920 act was to create an organization that, while small, would permit prompt expansion as required and that would also be well disciplined, well educated, and well equipped. In subsequent years, however, in its quest for economy, Congress reduced the department's size rather than expanding it in proportion to the Army's needs. The legislature did require promotion of Medical Department officers according to their length of service, a step that was regarded as a "wise" one.<sup>32</sup>

Congress approached the size of Medical Department's component organizations in varying ways. The legislation of 1920 did not change the number of nurses in the Army Nurse Corps. It fixed the number in the Veterinary Corps at 175, but otherwise it made the numbers of personnel dependent on the size of the Army as a whole. Reductions in the size of the Army thus led to reductions in the size of the Medical Department, an approach Surgeon General Ireland favored, but Congress gave no consideration to the number of posts that needed medical attendance. Leaders of the Medical Department had apparently assumed at the time of the pas-

<sup>30</sup> Armfield, *Organization and Administration*, pp. 8–9; WD, *ARofSG*, 1920, p. 302; Link and Coleman, *Medical Support*, pp. 22–23; Maurer, *Aviation*, p. 191; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1949)*, p. 58.

<sup>31</sup> WD, *ARofSG*, 1925, pp. 295, 298, 299; *ibid.*, 1926, p. 304; *ibid.*, 1927, pp. 1, 10–11; *ibid.*, 1928, p. 384; Tobey, *Medical Department*, p. 85.

<sup>32</sup> WD, *ARofSG*, 1920, p. 283; *idem*, 1930, p. 12 (quoted words); Ashburn, *History of MD*, pp. 370, 379; Cooper Autobiography, p. 243, Ms B120, NLM; Autobiography, p. 247, Ms C14, Kean Papers, NLM.

sage of National Defense Act of 1920 that the Army would be concentrated among a few posts. In the period after the end of hostilities, however, as many as 200 posts remained to be manned, and once again, as had been the case in peacetime ever since the department was created in 1818, medical personnel were too few to adequately meet the need. Nor did the problem disappear with time. A proportionate reduction in the number of posts did not necessarily accompany a reduction in the size of the Army and in the number of medical officers that followed.<sup>33</sup>

The ratios that Congress set included one requiring that the number of enlisted men serving the Medical Department be no more than 5 percent of the Army's total authorized enlisted strength. After 30 June 1921 this figure was to be 5 percent of actual, rather than authorized, strength. Congress established a ratio of 6.5 medical officers for every 1,000 enlisted, a reduction from the previously accepted 7 percent, even though the need for medical officers had grown since 1917 because of the growth in teaching responsibilities. The legislature apparently concluded that the newly created Medical Administrative Corps would handle many of the administrative duties that had previously been the responsibility of medical officers. The numbers in the new corps were to be 1 officer for every 2,000 enlisted.<sup>34</sup>

At the outset the members of the Medical Administrative Corps were mostly senior noncommissioned officers who had held temporary commissions in the Sanitary Corps during the war. Not all physicians favored the notion of having those without medical degrees handle most administrative duties. Furthermore, although the Medical Administrative Corps basically replaced the Sanitary Corps, it did not include sanitary engineers, psychologists, nutrition experts, and those in similar specialties who had been part of the Sanitary Corps during the war. The psychology section that had been part of the Hospital Division was closed down, although the Hospital Division remained responsible for giving psychological examinations to those entering West Point. Because the Sanitary Corps had no reserves, those in these latter categories who were interested in reserve status were commissioned in the sanitary section of the Quartermaster Reserve Corps for a few years until a Sanitary Corps Reserve was created for them within the Medical Department.<sup>35</sup>

The ratio for the Dental Corps was to be 1 officer for every 1,000 of total Army strength. Surgeon General Ireland considered this ratio to be "wholly [*sic*] inadequate to the present needs of the Army in securing dental service of modern type." The exact wording of the 1920 act was somewhat ambiguous on this point, however: "The number of officers of the Dental Corps shall be one for every thousand of the total strength of the Regular Army, authorized from time to time, and within the peace strength permitted by this Act." This allowed the Army to

<sup>33</sup> WD, *ARofSG*, 1922, pp. 12, 130; *ibid.*, 1923, p. 5; *ibid.*, 1926, pp. 15, 221; WD Bulletin no. 25, 9 Jun 1920, p. 11; Ashburn, *History of MD*, p. 365; *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 602; Tobey, *Medical Department*, pp. 82, 85; "Examinations for Appointment in the Medical Corps of the Regular Army," p. 216; Shockley, *Outline*, p. 2.

<sup>34</sup> WD Bulletin no. 25, 9 Jun 1920, p. 11; WD, *ARofSG*, 1921, p. 118; *ibid.*, 1922, p. 13; *ibid.*, 1926, pp. 218–19; Stimson, *History of ANC*, p. 23; "Examinations," p. 216; Shockley, *Outline*, p. 2.

<sup>35</sup> Stimson, *History of ANC*, p. 34; Gustavus M. Blech, "The Military Aspect of Base Hospitals," pp. 511–12; Ashburn, *History of MD*, p. 367; Tobey, *Medical Department*, p. 92; WD, *ARofSG*, 1920, p. 293; *ibid.*, 1921, p. 103; *ibid.*, 1922, p. 15; Bayne-Jones, *Evolution*, p. 172.

increase the number in the Dental Corps to as high a figure as was deemed necessary for current needs and thereafter for a brief period to ignore the fact that when the Army's size dropped drastically, the ratio of dentists to men became almost twice that prescribed by the law. Ireland was understandably quite happy with this situation. He considered the proportion "more nearly that of the ideal number required" and high enough to reduce the costs involved in sending Army patients to civilian dentists.<sup>36</sup>

The second influential act passed while Surgeon General Ireland was in office, the Army Appropriation Act of 1922, created so low a ceiling for the Dental Corps that almost a third of the Army's dentists had to be discharged. Although the new law partially abandoned complete reliance on ratios, the adoption of ceilings represented a change without a great difference. Numbers were still inadequate. The new legislation also placed an absolute ceiling on the Medical Corps, the Veterinary Corps, and the Medical Administrative Corps.<sup>37</sup>

As a result of Congress' drive for economy and the resultant reduction in the size of the Army following the passage of the acts of June 1920 and June 1922, increasing numbers of Medical Department personnel were discharged and resignations multiplied among those who remained. Low morale prevailed to the point where finding applicants for some of the corps became difficult. The Medical Department experienced problems in meeting many of its responsibilities and was unable to supply the requisite personnel mandated by regulations for the Army's regular divisions. By fiscal year 1923 the department was still experiencing difficulty in providing not only professors of military science and tactics to medical, dental, and veterinary schools but also those needed to train reserves and the National Guard and to care for the patients of the Veterans' Bureau and in the civilian government's Panama Canal Zone hospitals. These needs did not decrease with time. Both medical and dental officers sacrificed leave in the attempt to provide adequate care, and a limited number of reservists were called to active duty to assist.<sup>38</sup>

Although the need for their services decreased very little with the passage of time, veterinarians became few in number. Many had resigned because their prospects as civilians seemed brighter. Permission to maintain a private practice if it did not interfere with military responsibilities or exact a cost from the Army apparently failed to stop the trend. The personnel shortage partially stymied efforts to develop a permanent camp veterinary unit to remain in place after the division it served moved, and barely more than half of the units authorized by the tables of organization in 1919 could be formed. The personnel shortage also forced some veterinarians, like their counterparts in the Medical and Dental Corps, to travel from post to post to provide care for their patients. The possibility of activating some reserve veterinarians came under consideration, but the 1920 act made no

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<sup>36</sup> Tobey, *Medical Department*, p. 85; WD, *ARofSG*, 1920, p. 304 (first quoted words); *ibid.*, 1922, pp. 130 (second quoted words), 131; WD Bulletin no. 25, 9 Jun 1920, p. 11 (quotation); Address to Association of Military Dental Surgeons, Atlantic City, 26 Aug 1926, pp. 5-7, folder 91, Ireland Papers, NLM.

<sup>37</sup> WD, *ARofSG*, 1924, p. 181; Tobey, *Medical Department*, pp. 48, 82.

<sup>38</sup> WD, *ARofSG*, 1921, p. 113; *ibid.*, 1923, pp. 2, 3-4; *ibid.*, 1928, p. 5.

allowance for them. On 1 July 1921 the few reservists who had been on active duty left the service.<sup>39</sup>

The legacy of the National Defense Act of 1920 was long lasting. During the 1920s and early 1930s the personnel situation worsened, adversely affecting both enlisted men and officers in the Medical Department. The department was in theory expected to provide a medical regiment (the term now used for the sanitary train) for each of the seven infantry divisions in the United States and for the three additional divisions serving overseas when the National Defense Act was passed, as well as the medical personnel integral to each of the organizations that formed part of a division. This proved impossible. Most existing medical regiments and training units had to be demobilized. In fiscal year 1922, other than one composed entirely of Philippine Scouts overseas, only two medical regiments, both understrength, were in existence in the United States.<sup>40</sup>

The reductions in the number of officers serving the Medical Department discouraged reliance on specialists, primarily because the requirements for their services increased the number of physicians the department needed by 10 percent and the number of dental officers by 3 percent. The department turned to a system of traveling specialists in eye, ear, nose, and throat cases who went from post to post meeting demands for their services from patients who could not for practical reasons be moved to the large general hospitals where specialists were usually stationed. The shortage of dentists after 1922 meant that some lesser stations had to be covered by visiting dentists as well and that families and retired officers could receive only emergency dental care. Furthermore, the emphasis that the department, impressed with the number of ills that could be blamed on dental infection, wished to place on preventive dentistry was frustrated. Preventive care became available only at general hospitals. With some frequency, patients had to be sent to civilian dentists and dental care denied to military families and retired personnel.<sup>41</sup>

Difficulty in keeping even the allowed number of medical officers in the Medical Department exacerbated the effect of the restrictions placed upon the size of the Medical Corps. The better pay available in civilian life to the best of the young physicians led to ever-increasing numbers of resignations. Surgeon General Ireland fully appreciated what this situation implied for the Army's ability to meet wartime needs. In appealing to members of the Association of Military Surgeons to encourage recent graduates of medical schools to join the Medical Corps, he noted: "Our complement of officers must be maintained at the maximum authorized strength, if we are properly to assist in the training of the National Guard and Organized Reserve components of the Army." He despaired of his ability to do so

<sup>39</sup> Tobey, *Medical Department*, p. 56; Orville E. McKim, "The Service of the Veterinary Corps in the Motorized Combat Armies," p. 471; WD, *ARofSG*, 1920, pp. 308, 317–18; *ibid.*, 1921, pp. 131, 134–35; WD, SGO, *SGO*, p. 1267.

<sup>40</sup> WD, *ARofSG*, 1920, p. 309; *ibid.*, 1922, pp. 13, 14; Armfield, *Organization and Administration*, p. 18; Ashburn, *History of MD*, p. 280; Stimson, *History of ANC*, p. 25. The term *medical squadron* was used for the unit serving cavalry divisions.

<sup>41</sup> WD, *ARofSG*, 1920, p. 305; *ibid.*, 1921, pp. 123, 175; *ibid.*, 1923, pp. 4, 5, 124–25; *ibid.*, 1926, p. 345; *ibid.*, 1927, p. 350; Hume, *Victories*, p. 199–200; "Dental Service," p. 26.



because of the drastic nature of the cuts being made in regular Medical Department personnel.<sup>42</sup>

Other factors contributed to the Medical Corps' difficulties in attracting an adequate number of good officers. Civilian medical schools, having tightened their standards for admission, were turning out half the number of students that they had graduated before the war. Fortunately, civilian institutions had increasingly been providing instruction in public health so that those graduates who entered the Army were better prepared for military service than their predecessors had been. Competition from the Navy and the Public Health Service, which were experiencing similar personnel shortages, still further exacerbated the problem. Despite hopes that members of the various reserve components would take and pass the qualifying exams, efforts to have former volunteer officers fill these slots were not generally successful because those from among them who took the Medical Corps entrance examination tended to be physicians of inferior skills for whom prospects in civilian life were poor. In fiscal year 1920, as a result of the various difficulties the Medical Department was encountering, more than half of the number of authorized positions were vacant.<sup>43</sup>

As a result of this situation, Surgeon General Ireland decided to try a different approach to obtaining new medical officers. Each year for seventeen years thereafter, as many as twenty-four interns newly graduated from good medical schools, many apparently graduates from Reserve Officer Training Corps programs, served a year as civilians in one of the Medical Department's major hospitals. During this year they were observed for their "adaptability for the military service." If they seemed to meet the criteria, they were then offered commissions as regulars in the Medical Department. They had to serve a minimum of two years and, after 1930, three years—a requirement that was credited with filling vacancies that had been in existence in some instances for eight years. The competition from civilian hospitals was strong, however, and when the U.S. Navy also began offering commissions to its interns, the department changed its approach. It granted interns commissions in the Army Reserve, calling them up for active duty as interns and paying them with funds that Congress had voted to permit activation of reserve officers to help with Veterans' Administration patients. Those found qualified after the year of internship, provided they were between twenty-two and thirty-two years of age and passed a careful physical examination, were offered commissions as regular medical officers. Unlike other applicants for regular commissions, they were not required to take the written entrance examination.<sup>44</sup>

<sup>42</sup> WD, *ARofSG*, 1921, p. 174; *ibid.*, 1922, p. 11; *ibid.*, 1923, p. 184; Edgar Erskine Hume, *The Golden Jubilee of the Association of Military Surgeons of the United States*, p. 91 (Ireland quotation).

<sup>43</sup> *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 610; George Rosen, *The Structure of American Medical Practice, 1875–1941*, p. 66; Bayne-Jones, *Evolution*, pp. 172–73; Tobey, *Medical Department*, pp. 48, 68; WD, *ARofSG*, 1920, pp. 19, 287; Autobiography, pp. 247–48, Ms C14, Kean Papers, NLM; Ashburn, *History of MD*, pp. 377–78.

<sup>44</sup> Crawford F. Sams, "Medic," p. 10, copy in Library, CMH, Washington D.C.; WD, *ARofSG*, 1921, p. 109; *idem*, 1925, pp. 5, 6; *idem*, 1926, pp. 223, 312; *idem*, 1928, p. 265; *idem*, 1930, p. 8; "Internes in Army Hospitals," pp. 9 (quoted words), 10; T. J. Whelan, "Why Residency Programs in the Military," p. 266; Tobey, *Medical Department*, pp. 66, 84; Ashburn, *History of MD*, p. 383; WD Circular no. 177, 13 May 1920.

By 1928 Ireland, apparently somewhat resigned to the shortage of medical officers, commented in his annual report: "I see no further need of dwelling at length on this subject. The guiding minds of the War Department seem to be thoroughly acquainted with the fact that the Medical Department imperatively needs relief in the way of more personnel." Just when he had seemingly given up hope, however, the answer to the problem of filling vacancies appeared in the form of the deepening Depression. Resignations dropped sharply, and by 1931 maintaining the Medical Corps up to authorized strength was no longer regarded as a problem.<sup>45</sup>

The institution of the contract surgeon or, as he came to be called in an attempt to clarify his qualifications, the contract physician, was still alive. In an emergency, the surgeon general was permitted to appoint as many as he believed were needed from among U.S. citizens who were graduates of acceptable medical schools, licensed to practice, and had "satisfactory moral, professional and physical qualifications." If serving as a head of a hospital, a contract physician exercised the same authority as a commissioned medical officer.<sup>46</sup>

The number of enlisted men in the Medical Department also dropped significantly in the months after the war's end, by more than 86 percent from 1919 to 1921. The number of openings for enlisted men was inadequate, and the struggle to keep the slots allotted was seemingly eternal. Once again, finding enough good men to fill the available openings was difficult. Surgeon General Ireland began urging the commanding officers of general hospitals to name recruiting officers, to seek out potential candidates for department service among those being demobilized, and to search for physically qualified candidates even among patients being discharged from their facilities. By the end of 1919 all the department's temporary enlisted soldiers desirous of returning to civilian life had done so. The department had been so eager to fill its vacancies that some "undesirable candidates" were accepted, but most of them were discharged two years later when the enlisted force had to be cut once again.<sup>47</sup>

Shortages of enlisted men in the Medical Department adversely affected summer training programs. By 1928 the urgent needs of many stations for their services could not be met. Contributing to the urgency of the situation was the fact that the National Defense Act of 1920 did not create a specific enlisted force for the Veterinary Corps. As a result, the number of enlisted men that the War Department suggested as being adequate for Veterinary Corps needs late in 1919 had to come from those assigned to the Medical Department, a total based on Army strength. The number was never increased to reflect the Veterinary Corps' actual needs, which as late as 1923 were still increasing.<sup>48</sup>

Despite Surgeon General Ireland's strongest efforts, he was unable to eliminate shortages among both commissioned and enlisted personnel throughout the Medical Department and its reserve components. Even when the department was

<sup>45</sup> WD, *ARofSG*, 1928, p. 10 (quotation); *ibid.*, 1929, p. 7; *ibid.*, 1931, p. 323.

<sup>46</sup> WD, *ARofSG*, 1926, p. 223; Tobey, *Medical Department*, p. 91 (quoted words).

<sup>47</sup> WD, *ARofSG*, 1920, pp. 299, 300; *ibid.*, 1921, pp. 10, 175–78; Tobey, *Medical Department*, p. 91; WD, SGO, *SGO*, pp. 831–32; *Autobiography*, pp. 247–48 (quoted words), Ms C14, Kean Papers, NLM.

<sup>48</sup> WD, *ARofSG*, 1920, pp. 310–11; *ibid.*, 1921, p. 132; *ibid.*, 1922, p. 12; *ibid.*, 1923, pp. 6, 136; *ibid.*, 1926, p. 344; *ibid.*, 1927, p. 2; *ibid.*, 1928, p. 6; WD, SGO, *SGO*, pp. 1262–63, 1267.

unable to send out instructors to all the states, however, Ireland was optimistic about progress being made forming medical regiments in National Guard units, which he predicted would “be of great value in any future emergency.”<sup>49</sup>

The Army Nurse Corps, like other components of the Medical Department, also suffered from a shortage of personnel. From the start of fiscal year 1920 to July 1921 the number of nurses serving the Army fell by more than 91 percent. The Army’s nurses were usually reservists on active duty in one capacity or another, often on temporary contracts, supplementing the regulars by serving Veterans’ Bureau facilities and summer camps as well as overtaxed general hospitals. Nurse Corps reserve personnel still came from a pool maintained by the American Red Cross that provided nurses to the Navy as well as the Army. The Red Cross selected them with the assistance of the Army’s superintendent of nurses. Congress did not grant them retirement for disability until 1929. The Army’s nurses, whether regulars or reservists, were expected to care for military families as well as soldiers. In 1920 the department inaugurated a visiting nurse service at Camp Jackson, South Carolina, an approach soon adopted for the families at other camps.<sup>50</sup>

The situation in the nursing world in the period between wars made it possible for the Medical Department to be very selective in filling openings. Civilian nursing schools were numerous, more than 2,000 in the 1920s. The supply of nurses with some type of training, many of whom had served the Army during the war was increasingly plentiful. The pay granted to the Army’s nurses, especially after several years of service, was regarded as good, and such privileges as thirty days of paid vacation a year, sick leave, quarters, subsistence, and free medical treatment added to the attractions that the service could offer. In 1926 the top retirement pay rate for nurses—three quarters of active-duty pay—matched that for medical officers, although the pay scale while on duty did not match that given physicians. The department apparently had no difficulty filling the openings it had for nurses and was able from the outset to restrict its rolls to registered trained nurses and to require that they serve at least three years.<sup>51</sup>

The Medical Department also experienced difficulties in maintaining an adequate civilian staff. Because the budget appropriation for the Medical Department for the fiscal year 1920 was very small, Surgeon General Ireland decided that no existing vacancies among nonmilitary employees that had been authorized before 1 December 1919 were to be filled after 1 January 1920. The number of civilians working for the Medical Department dropped drastically. General Ireland required that his personal approval be obtained any time civilian lab technicians, dietitians, reconstruction aides, student nurses, and stenographers were hired anywhere within the Medical Department. Nevertheless, the need to hire civilians did not abate.<sup>52</sup>

<sup>49</sup> WD, *ARofSG*, 1929, p. 8; *ibid.*, 1930, pp. 8, 9 (quoted words), 11, 14–15.

<sup>50</sup> WD, *ARofSG*, 1920, pp. 294, 296; *ibid.*, 1921, p. 126; *ibid.*, 1922, p. 137; *ibid.*, 1923, pp. 131–32, 133; *ibid.*, 1926, pp. 221, 222.; *ibid.*, 1927, p. 248; *ibid.*, 1930, p. 9; “The Army Nurse Corps,” pp. 23, 24, 25.

<sup>51</sup> Susan M. Reverby, *Ordered To Care*, pp. 166, 170, 177; “The Army Nurse Corps,” p. 24; WD, *ARofSG*, 1920, p. 295; *ibid.*, 1926, p. 244; Tobey, *Medical Department*, pp. 88, 90.

<sup>52</sup> WD, *SGO*, pp. 847, 848, 852, 853; WD, *ARofSG*, 1921, p. 98; *ibid.*, 1924, p. 229; *ibid.*, 1927, p. 2; Tobey, *Medical Department*, pp. 99–100; Ashburn, *History of MD*, pp. 427–29.

*Promotion, Rank, and Status*

The complex issue of obtaining promotions contributed to the continuing shortage of personnel faced by the Medical Department under Surgeon General Ireland. As urged by Ireland, the 1920 act made no change in the overall approach to promotion for the department's officers, although credit was to be given for active service in any capacity in World War I. The surgeon general retained his rank as a major general and was given two assistants, both with the rank of brigadier general. With the cessation of hostilities, all promotions were temporarily forbidden until February 1919, and even after that time Ireland experienced great difficulty in obtaining increases in rank for his officers. His direct appeal to the secretary of war produced only 30 of the 225 promotions he sought. Ireland blamed the situation on the War Department General Staff, maintaining that it had assumed administrative functions rather than limiting itself to supervising and coordinating.<sup>53</sup>

The regulations guiding officer promotions varied from corps to corps. Medical and Dental Corps officers could reach the rank of colonel after a total of twenty-six years service. For dental officers, the possibility of promotion ended at this point. At each level up to the rank of colonel, an officer had to pass both physical and professional examinations. Should he fail the physical, he was retired at the grade to which he would otherwise have been promoted. The officer chosen for promotion to surgeon general tended to be among those commanding one of the major general hospitals. For the Dental Corps, the legislation of June 1920 brought "increased service pay, and retirement," giving it what Surgeon General Ireland termed "equal status as one of the integral corps of the Medical Department." In requiring two years of civilian practice for eligibility to enter the department, the law further enhanced the status of members of the Dental Corps.<sup>54</sup>

In spite of Surgeon General Ireland's opposition to a lowly start for professionals who were required to have such a high level of education, Veterinary Corps officers entered the Army as second lieutenants and could reach major only after fourteen years of service, two more years than for Medical and Dental Corps officers. Nevertheless, because of the 1920 act, "for the first time the Veterinary Corps is placed on a sound working basis and finds itself in a position to develop into a real organization," one that could be expanded to meet the demands of a future conflict and that made service in the corps attractive to young veterinarians. Except for those working at general supply depots, animal purchasing boards, four permanent remount depots, and independent stations, veterinarians functioned under department and corps area commanding officers, either directly or, most often, as assistants to the command surgeon. In addition, a veterinary officer and two enlisted men working with him were assigned to the transport service moving troops in the

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<sup>53</sup> Ashburn, *History of MD*, pp. 366–67; *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 603; *WD Bulletin* no. 25, 9 Jun 1920, pp. 11–12; Tobey, *Medical Department*, p. 46; "General Ireland Discusses Army Reorganization," p. 1224; *WD, SGO, SGO*, pp. 157, 848.

<sup>54</sup> Stimson, *History of ANC*, pp. 30–31; Malcolm C. Grow, *Surgeon Grow*, p. 313; *WD, ARofSG*, 1920, p. 304 (quoted words); Tobey, *Medical Department*, p. 113.

Pacific. Traveling veterinary inspectors also visited stations and reported directly to the Surgeon General's Office on what they found.<sup>55</sup>

Initial appointments to the Medical Administrative Corps represented promotions for deserving enlisted men with a minimum of five years of experience in the department, a figure later reduced to two years. Five years of service in the Medical Administrative Corps made an officer eligible for promotion to first lieutenant and after another ten years to captain, but the avenue of promotion stopped at this level. The new corps was seen as an incentive to enlisted men, but its chances for success were adversely affected by strong opposition from physicians who viewed its members as usurpers. In addition, it failed to satisfy those who were pushing aggressively against what was perceived as the Medical Department's opposition to some kind of status for pharmacists, who believed that their work should not be entrusted to those not trained to handle potentially dangerous drugs.<sup>56</sup>

As far as the rank of Army nurses was concerned, opinion both in and outside of Congress varied considerably. Surgeon General Ireland, while proclaiming himself a long-time fan of female nurses, strongly opposed granting them rank. He noted that Army regulations required recognition of their authority as second only to that of Medical Department officers. He denied any knowledge of claims that during the war the lack of rank had led to humiliation and frustration for Army nurses, particularly at the hands of orderlies who reputedly refused in many instances to take nurses seriously. American nurses who had served in Europe, however, noted that their British, Australian, and Canadian counterparts enjoyed a higher status than they did. In an attempt to deal with the problem, the 1920 act granted relative rank to Army nurses, a step that "greatly dignified" this position. The Army Nurse Corps superintendent was classified as a major, and those serving immediately under her were given the relative rank of captains. The authority of nurses in hospitals was to continue to be "next after the officers of the Medical Department."<sup>57</sup>

Surgeon General Ireland's concern about the status of the women serving in the Medical Department extended to the status of the Medical Department's other female employees, including dietitians, all of whom were civilians. Dietitians were required to be graduates of college programs related to nutrition or to hospital management and unmarried. They were regarded as having "socially the status of . . . nurses, and [were] in matters of conduct . . . under the authority of the chief nurse." Although their relationship with other members of the hospital staff had not been clearly defined, they worked under the mess officer and in cooperation with the chief nurse. Their duties included planning menus and seeing that the food going into the menus was selected with due consideration for the cost and prepared and served properly. Ireland was convinced that "the dietitian service has become

<sup>55</sup> *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 611; WD, *ARofSG*, 1920, pp. 309 (quoted words), 312–13, 317; *ibid.*, 1927, p. 252.

<sup>56</sup> Shockley, *Outline*, p. 2; *Hearings Before Subcommittee* (66th Cong., 1st sess.), p. 612; Murray Breese, "Will Pharmacy Again Be a Joke in the Next War," pp. 70, 72; Richard V. N. Ginn, *The History of the U.S. Army Medical Service Corps*, p. 99.

<sup>57</sup> *Hearings Before Subcommittee* (66th Cong., 1st sess.), pp. 605, 606, 613, 614, 615, 616; "Army Nurse Corps," p. 24 (first quoted words); Phalen, *Chiefs*, p. 12; Tobey, *Medical Department*, p. 47; WD, *ARofSG*, 1920, p. 295 (second quoted words).

firmly established in Army hospitals,” a fact that reflected “the interest in the subject of food and nutrition and the appreciation of the medical profession for this specialized and technically trained worker.” Four to ten dietitians routinely served in general hospitals, according to the number of patients, and as more became qualified, they were sent out to large station hospitals as well. Nevertheless, as early as fiscal year 1921, budgetary constraints made it necessary to deny requests for dietitians from some station hospitals.<sup>58</sup>

Unlike the dietitian, whose role as part of the Medical Department was well established as a result of the experiences of World War I, the psychologist, also a civilian, found himself essentially out in the cold. Psychological testing as conducted on men joining the Army during the conflict had not proved reliably indicative of problems men actually experienced while in service. When, with the end of the war, these specialists left the service, they were not replaced. The Army did not abandon hope that with refinement, their skills could prove valuable to the military; however, in the wake of the war, schools adopted psychological testing, just as had some business firms. The Army eventually realized that psychological testing would be valuable in the event of mobilization, despite the fact that only real life experiences could establish how a man, even a psychopath, would function in real life. The psychopath would always be hard to identify at the time of enlistment.<sup>59</sup>

In dealing with the Medical Department’s enlisted component, Congress permitted men to enlist specifically for service either in the Medical Department in general or in a specific corps of the department. Enlistment for either one or three years was permitted, with reenlistment to be for three years. Those who enlisted for one year, however, left just as they were becoming efficient at what they were expected to do. Ireland estimated that, in view of the possibility of one-year enlistment, 6,000 men would have to be signed on each year just to maintain strength. The legislation of June 1920 restored peacetime standards for promotion, ending the war-engendered permission that had been granted to commanding officers to make promotions without requiring the promotion examinations that had been customary for the Medical Department’s enlisted men since the 1880s. Warrants issued during the war were canceled, causing a marked deterioration in the morale of those who remained in the Army.<sup>60</sup>

Whereas many had a somewhat negative impression of service in the Medical Department during the period before the Depression, others found that the life offered a number of benefits. The advantages available to a medical officer, for example, included commissary privileges, stable and forage for his horse, transportation for his family, and a transportation allowance for his horse and household goods. He had thirty days of leave a year on full pay, additional leave available on half-pay, sick leave on full pay, the possibility of insurance at reduced rates, and,

<sup>58</sup> WD, SGO, *SGO*, pp. 836 (first quoted words), 837; WD, *ARofSG*, 1920, p. 297 (remaining quoted words); *ibid.*, 1921, p. 127; G. R. Mitchell, “The Army Dietitian,” pp. 77, 79.

<sup>59</sup> Ashburn, *History of MD*, p. 313; WD, *ARofSG*, 1920, pp. 279–80, 281; “Army Intelligence Tests,” pp. 43, 45.

<sup>60</sup> WD, *ARofSG*, 1920, pp. 300–301; *ibid.*, 1921, pp. 175–78; WD Circular no. 319, 25 Aug 1920; WD, SGO, *SGO*, p. 836; Gillett, *Army Medical Department, 1865–1917*, p. 20; WD Bulletin no. 25, 9 Jun 1920, p. 27.

if he served forty years or was retired for age at sixty-four, retirement at three-quarters pay. Furthermore, posts continued to have professional libraries, and the laboratory at each post hospital was also available for any kind of research related to the professional duties of medical officers that they might find interesting.<sup>61</sup>

From the point of view of medical historian Colonel Ashburn, the existence of the medical officer in 1929 was actually “pleasant, interesting, [and] varied.” The pay permitted him “to live decently and to rear and educate a family, if the life be simple, the family sensible, and the education reasonable.” He was able to “practice his profession without exacting money from the unfortunate, at all times keeping his self-respect.” Another medical officer noted that when not on maneuver, he “had a lot of fun” at Fort Benning, Georgia, and that the opportunities for recreation, including horse shows, fox hunts, and polo, were many. Maj. Alexander T. Cooper, MC, however, was not sanguine about the medical officer’s life unless he had independent means. Much entertaining was necessary to success in the Army, “as it brings you in contact with politicians and other influential persons.” The type of wife an officer had was also important, as she could “make or break him. A tactful, beautiful intelligent wife certainly has a value above rubies in any walk of life, the army not excluded, and for her to have some money and well to do, even rich parents . . . is a great help in making and keeping one’s capabilities and fine points before superiors.”<sup>62</sup>

### *Medical Reserve Corps*

Except for the Army Nurse Corps, each of the Medical Department corps required by the legislation of June 1920—the Medical, Dental, Veterinary, and Medical Administrative Corps—had a counterpart in the Officers’ Reserve Corps, as did the Sanitary Corps, despite the fact that the Sanitary Corps itself had ceased to exist. Members of all the reserves who had not moved to active status during the war or who had returned to inactive status before August 1918 were automatically transferred into the new Medical Reserve Corps.<sup>63</sup>

In rebuilding the Medical Corps after the war, Surgeon General Ireland was determined to profit from the experiences of the conflict. Because medical officers had frequently been assigned to perform duties for which they were not qualified, he required that the records concerning each reserve medical officer contain information about his specialty and ability as well as any relevant comments by former commanding officers and that this data be kept current. The work of base hospital units formed by the personnel of medical schools and hospitals had proved too valuable to be forgotten, so Col. Jefferson R. Kean, MC, obtained an agreement whereby base hospitals that consisted of personnel with military experience or training from medical schools and hospitals could be called up as a unit if needed

<sup>61</sup> Tobey, *Medical Department*, p. 90; WD, SGO, *Military Hospitals in the United States*, pp. 344, 345; “Some Problems Facing the T. B. Expert in France,” p. 217.

<sup>62</sup> Ashburn, *History of MD*, pp. 385 (first two quoted words), 386 (third quoted words); Sams, “Medic,” p. 34, copy in Library, CMH; Cooper Autobiography, pp. 392–93 (remaining quoted words), Ms B120, NLM.

<sup>63</sup> Tobey, *Medical Department*, p. 47; WD, *ARofSG*, 1920, p. 291.

without having to sign on in the reserves before activation. Only 135 of the 748 such organizations that Surgeon General Ireland believed would be needed for a general mobilization had been formed by 1927, a situation that emphasized the need for the Medical Department and the world of civilian medicine to maintain a close relationship. Although many medical officers served as part of established Army Reserve divisions, some also functioned as part of reserve medical units that were created by civilian medical organizations just as they had been during the war.<sup>64</sup>

Reservists played an important role, even in peacetime. With the numbers of regular medical officers limited, reservists were called to active duty to provide medical attendance in the areas where they lived. Because appointments to the Medical Reserve Corps were limited to former officers and to new men willing to accept the rank of first lieutenant, Surgeon General Ireland suggested that reserve officers be used as temporary replacements in vacancies in the lower ranks of the Medical Corps. This service would give them experience in military medical administration that they could acquire in no other way. Some reservists worked as part of Regular Army units in the winter months or worked in the Surgeon General's Office, thereby gaining experience with the challenges the Army could present.<sup>65</sup>

In Surgeon General Ireland's opinion, national defense required that all who were eligible for appointment to the medical side of the Officers' Reserve Corps and who could serve without depriving the civilian community of vital care sign up for assignment to military units according to their civilian specialties. The number in the Medical Reserve Corps proved disappointing to him, and he campaigned tirelessly in the attempt to attain his goal of 30,000, hoping to reach not only former reservists but also younger physicians. In speeches made as late as the last year of his service as surgeon general, Ireland continued to emphasize the importance to national defense of adequate reserves for the Medical Corps with these physicians assigned according to their abilities. Even so, a month after his retirement in May 1931 the strength of the Officers' Reserve Corps was still only 11,684.<sup>66</sup>

Other Medical Department elements in the Officers' Reserve Corps also encountered many of the problems experienced by reserve medical officers. For all parts of the reserves involving the department, an increase in size, even in those elements where the previous year had brought a loss in numbers, followed the changes made in 1930.<sup>67</sup>

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<sup>64</sup> WD, *ARofSG*, 1920, p. 291; *ibid.*, 1922, p. 124; *ibid.*, 1924, pp. 177–79; James L. Bevans, "The Function of Medical and Surgical Consulting Staffs Determined by the Experience of the Late War," p. 495; *Autobiography*, p. 244, Ms C14, Kean Papers, NLM; Tobey, *Medical Department*, p. 68; Grissinger, *Medical Field Service*, p. 63.

<sup>65</sup> WD, *ARofSG*, 1920, pp. 288–90; *ibid.*, 1921, p. 173; *ibid.*, 1926, pp. 223, 224, 312.

<sup>66</sup> "Memorial Meeting for Dr. Wesley Bovee," folder 95, "Memorandum for General Ireland," folder 107; "Medical Veterans of the World War, Detroit, June 1930," folder 113, and "The Public's Debt to Medicine," folder 119, Ms C117, Ireland Papers, NLM; Hume, *Golden Jubilee*, p. 91; WD, *ARofSG*, 1922, p. 14; *ibid.*, 1924, p. 1; *ibid.*, 1925, pp. 2–3; *ibid.*, 1926, pp. 2, 224; *ibid.*, 1927, p. 2; *ibid.*, 1932, p. 191; Tobey, *Medical Department*, pp. 93–94.

<sup>67</sup> Tobey, *Medical Department*, pp. 93–94; WD, *ARofSG*, 1920, pp. 290–91; *ibid.*, 1932, p. 191.



In the wake of the war to end all wars, a peacetime Congress had more enthusiasm for reducing expenses than for understanding the needs of a peacetime army, and even less enthusiasm for contemplating the possibility of another conflict. As a result, the legislature created a medical department that was unable either to meet the needs of peace or to prepare adequately for the eventuality of war. Even the efforts of a talented, hard-driving, and attractive surgeon general could not overcome the effects of the legislature's casual approach in the early 1920s. The number of regulars, eroded in many instances by the temptations of civilian life, remained small, and Ireland's efforts to increase the size of the Medical Department's reserve components went for naught. No amount of organizing and reorganizing made it possible simultaneously to provide medical care for an army scattered among many small posts, to give thorough training to those in the reserves and the National Guard, and to provide more advanced instruction for regulars. Ireland had to acknowledge the fact that, should a conflict should arise, the Medical Department would be unable to staff "a single surgical hospital, evacuation hospital, hospital train, or any of the other agencies necessary for conducting a proper evacuation service in the field" without abandoning "the larger part of its present and vitally essential fixed hospitalization." Ireland's comment in his annual report for fiscal year 1926 applied as equally well to the situation when he retired in 1931: "The Medical Department is less well prepared for field service than [it was] before the war with Germany."<sup>68</sup>

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<sup>68</sup> WD, *ARofSG*, 1926, p. 15.

## Chapter 15

# THE PEACETIME FUNCTION



Once the confusions and frustrations of demobilization were past, the Medical Department confronted the fact that neither Congress nor the public was much concerned about the possibility of another war, especially since the war just past had been the war to end all wars. Surgeon General Merritte W. Ireland, handicapped by personnel shortages and by a dwindling budget, found himself struggling to meet the Medical Department's responsibilities. The department had to train personnel, especially those new to military medicine. It had to prepare to care not only for the health of the Army but also for the health of as many as 80,000 or more civilians in various categories. It had to be ready for the challenges of mobilization and war, including the relatively new area of war in the air. Finally, it had to minimize the threat posed by disease and injury among Army personnel in peace and in war by every possible means, including research.<sup>1</sup>

### *Training*

The experiences of World War I had demonstrated clearly that all members of the Medical Department needed training both in those aspects of military-medical administration with which they were most closely concerned and in military medicine itself. Those remaining in the service after demobilization, as well as many in the Army Reserve and the National Guard, were eager for education and training to enhance their ability to handle their responsibilities. The increasing proportion of young and inexperienced men and women in the department, both officer and enlisted, and the rapid growth of aviation medicine, a specialty about which so many knew so little, made training more important than ever. But the special courses and schools set up during the war, like the personnel that ran them, left with demobilization. Nevertheless, shortages of the funds required to erect or modify buildings and of the personnel needed to carry on instruction did not prevent the development of new special training schools and programs. As a result, managing training and coordinating the

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<sup>1</sup> War Department [WD], *[Annual] Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1923, p. 2 (hereinafter cited as *ARofSG*, year); *ibid.*, 1929, p. 17; James A. Tobey, *The Medical Department of the Army*, pp. 60–61.

various aspects of training became an important part of the work of the Surgeon General's Office.<sup>2</sup>

The Medical Department required a young physician entering the department to have a sound basic medical education, including a year of hospital internship after receiving his medical degree. Once he had passed examinations to establish both his physical and his professional fitness to serve as a medical officer, he received a commission in the Medical Reserve Corps. After the 1924 elimination of a requirement that he pass a course at the Army Medical School before receiving a commission as a regular medical officer, he served in the Medical Reserve Corps until a vacancy arose in the Medical Corps. He then started his career as a regular with the rank of first lieutenant. The Medical Department assumed responsibility for his further education and training. It provided him with roughly five years of experience in all aspects of the duties he might be expected to perform before considering him for further training in some specific facet of military medicine.<sup>3</sup>

The oldest source of formal instruction in the Medical Department was the Army Medical School in Washington D.C., "the soul of the Medical Corps," an institution that had many responsibilities besides training. It continued to make vaccines, including those for other governmental agencies; conducted research and physical examinations for candidates for commissions, applicants to West Point, noncommissioned officers, and civilian military training camp attendees; and revised physical standards for the Army that became part of future regulations. In 1920 it also assumed the additional responsibility for the historical volumes concerning World War I. As the nature of its services expanded in the years following the end of the war, the organization of the Medical School became more complex and its need for additional space more acute.<sup>4</sup>

The size of the classes for medical officers waxed and waned, in large measure because of fluctuations in the number of new personnel entering the Medical Department. The quality of the training they received was regarded as excellent. The school also took in occasional foreign students. Courses offered included laboratory training, which entailed increased emphasis on the organisms causing respiratory diseases; problems of the eyes and ears; military surgery; Medical Department administration; clinical medicine; "sanitary chemistry"; roentgenology; and what was called sanitary tactics, which included field service regulations, map reading, and drill. Regular periods of calisthenics accompanied these classes. Among the new courses added as they seemed desirable were instruction in food and nutrition. A member of the Dental Corps was first assigned to the school in 1921, to the advanced course for training in bacteriology and pathology. Surgeon General Ireland's goal was to increase the involvement of dentists in the study of oral diseases.<sup>5</sup>

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<sup>2</sup> United States, Congress, Senate, Committee on Military Affairs, *Hearings Before the Subcommittee of the Committee on Military Affairs*, 66th Cong., 1st sess., pp. 150, 151; Edward M. Coffman, *The War To End All Wars*, pp. 361–62; WD, *ARofSG*, 1920, pp. 224–25, 483; *ibid.*, 1922, p. 3; *ibid.*, 1925, pp. 3, 329; WD, *[Annual] Report of the Secretary of War*, 1925, p. 14 (hereinafter cited as *ARofSW*, year).

<sup>3</sup> Julia C. Stimson, *History and Manual of the Army Nurse Corps*, p. 29; WD, *ARofSG*, 1921, p. 93.

<sup>4</sup> WD, *ARofSG*, 1921, pp. 99 (quoted words), 226–27; *ibid.*, 1925, pp. 312–14.

<sup>5</sup> Floyd Kramer, "The Year's Work in Military Hospitals and a Prospectus of the Future," pp. 688–89; Tobey, *Medical Department*, p. 84; WD, Surgeon General's Office (SGO), *The Surgeon*

In addition to the courses included in the group considered to be basic, advanced classes were offered in preventive medicine, more than three months of “intensive instruction in the latest methods,” and roentgenology. An advanced course in medicine and surgery was added in the late 1920s. Attendees at these courses were limited to those believed to have a specific aptitude for the type of work involved, and the number enrolled at any one time tended to be small, although foreign officers were eligible to take them.<sup>6</sup>

A laboratory division formed a vital part of the Army Medical School. Although it continued to be the center for classes in laboratory sciences and for research and the manufacture of vaccines and other biologicals, finding adequate personnel after demobilization proved difficult. Any officers with the necessary type of experience attended the medical school for a brief period of training before going on to the laboratory to work and conduct research. Among the laboratory’s responsibilities was meeting the considerable demand for pneumococcus vaccine, which the medical school could do at less cost to the Army than would be involved in obtaining it elsewhere. In fiscal year 1921 dental and veterinary laboratories, the latter being moved from its earlier location at the University of Pennsylvania, joined the medical laboratory.<sup>7</sup>

In the period following demobilization, a shortage of enlisted men qualified to be trained for laboratory work and similar types of responsibility accompanied the shortage of medical officers qualified to conduct this type of work. Enlisted men who had an adequate academic background took both basic and advanced classes at the medical school. The graduates of the latter were qualified as “expert laboratory technicians.” Training in the Army Medical Museum and instruction at departmental laboratories supplemented training at the medical school. Some general hospitals offered classes for hospital personnel and even for convalescent patients. Other courses were available for the Medical Department’s enlisted men. These included courses in roentgenology and dental hygiene and mechanics.<sup>8</sup>

When the Army Medical Center opened on 1 September 1923 in an effort to centralize much of the course work available for Medical Department personnel in the area of the Walter Reed General Hospital, the Army Medical School joined it. At the time of its opening the center included not only the medical school but also the Walter Reed General Hospital; the Army Dental School; the Army Veterinary School, which was moved from Chicago’s General Supply Depot; and the Army School of Nursing. A board composed of the commanding officers of the major components of the new center was responsible for coordinating their activities. Although each component had a separate internal administration, the center had

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*General’s Office*, pp. 636–37 (hereinafter cited as *SGO*); Percy M. Ashburn, *A History of the Medical Department of the United States Army*, pp. 370–71; *WD, ARofSG*, 1920, pp. 481–82 (quoted words); *ibid.*, 1921, pp. 14, 125; *ibid.*, 1922, p. 134; *ibid.*, 1924, pp. 167–68; *ibid.*, 1926, p. 318; Stimson, *History of ANC*, p. 31.

<sup>6</sup> *WD, ARofSG*, 1922, p. 113 (quoted words); *ibid.*, 1923, pp. 255–56; *ibid.*, 1926, p. 318; *ibid.*, 1929, p. 309; Tobey, *Medical Department*, pp. 69–70.

<sup>7</sup> *WD, ARofSG*, 1920, p. 226; *ibid.*, 1921, pp. 100, 222, 223; *ibid.*, 1926, p. 319; Tobey, *Medical Department*, p. 224.

<sup>8</sup> *WD, ARofSG*, 1920, pp. 221, 222 (quoted words), 224–25, 226–27, 483; *ibid.*, 1921, p. 222; *ibid.*, 1925, p. 308; Tobey, *Medical Department*, pp. 70, 95.

its own commanding officer, whose responsibilities included coordinating courses. The Medical Department acquired new buildings to house the schools and set aside another structure for the American Red Cross, which continued to work closely with the Army during peace much as it had during the war.<sup>9</sup>

Among the center's offerings, graduate courses for medical officers and practical courses for student nurses, hospital interns, and enlisted specialists were given at the Walter Reed General Hospital. Also included among the courses were instruction in the use of X-ray equipment; in dietetics; and in physiotherapy and occupational therapy. Nurses training was consolidated at Walter Reed. Dental research into such areas as the cause of tooth decay and improved methods of emergency care was undertaken under the aegis of the dental school. The first graduation from the center took place in June 1924 and included nurses who had finished their work at the Army School of Nursing.<sup>10</sup>

The Army Medical Center offered many advantages to Medical Department students. The center brought in prominent reserve officers to give lectures in their specialties. Noted scientists from the United States and abroad visited and occasionally studied there for a time. The dental and veterinary schools were of much more limited scope than the medical school and had fewer students, but these students, including those in the Army Reserve and the National Guard, were able to share basic courses with students at the medical school. Dental and veterinary instructors could also work on the staff of the hospital.<sup>11</sup>

Working in close connection with the Army Medical School in Washington D.C. was the Medical Field Service School, opened in June 1920 in the old barracks at Carlisle, Pennsylvania, after the closing of the general hospital there. Carlisle Barracks had a long history, having been established by the British army in 1758 and having housed a school for Native American children before World War I. Like the Army Medical School, the Medical Field Service School was exempt from the control of corps area commanders. The school at Carlisle taught "the military side" of the Medical Department officer's responsibilities, among them drill, administration, tactics, map-making, hygiene, field sanitation, evacuation, and equitation. An understanding of all the parts of the Army and of the way in which the work of one affected that of the others was one of the school's principal goals.<sup>12</sup>

<sup>9</sup> WD, *ARofSG*, 1924, pp. 3, 11, 247; *ibid.*, 1925, p. 308; *ibid.*, 1926, p. 317; *ibid.*, 1927, p. 313; Tobey, *Medical Department*, p. 49; WD Circular no. 271, 16 Jul 1920; James M. Phalen, *Chiefs of the Medical Department, United States Army, 1775–1940*, pp. 97–98; WD Bulletin no. 25, 9 Jun 1920, p. 1.

<sup>10</sup> WD, *ARofSG*, 1924, pp. 3, 308–09, 311; Tobey, *Medical Department*, p. 95; WD, SGO, *SGO*, p. 1156; G. R. Mitchell, "The Army Dietitian," p. 76; Stimson, *History of ANC*, p. 39–41; D. E. Cutright and J. L. Daniels, "The U.S. Army Institute of Dental Research," pp. 45, 46.

<sup>11</sup> WD, *ARofSG*, 1924, p. 247; *ibid.*, 1925, pp. 237, 309, 310, 316; *ibid.*, 1927, p. 3; Tobey, *Medical Department*, pp. 70, 75.

<sup>12</sup> Joseph A. Gelinias and John A. Kogut, "Carlisle Barracks Pennsylvania," pp. 388–89; Thomas G. Tousey, *Military History of Carlisle and Carlisle Barracks*, pp. 354–55, 359, 360, 363, 370, 399; Tobey, *Medical Department*, p. 47 (quotation); Crawford F. Sams, "Medic," pp. 21, 24, copy in Library, U.S. Army Center of Military History (CMH), Washington, D.C.; WD GO no. 7, 10 Feb 1921; WD, *ARofSG*, 1920, p. 486; *ibid.*, 1922, pp. 244–45; *ibid.*, 1925, p. 323; Ashburn, *History of MD*, p. 380; Phalen, *Chiefs*, p. 98; Edgar Erskine Hume, *The Golden Jubilee of the Association of Military Surgeons of the United States*, p. 87.



*Medical Field Service School, Carlisle, Pennsylvania*

In planning the training to be offered at the Medical Field Service School, the Medical Department emphasized tactical training, the lack of which during World War I had sometimes resulted in medical units being totally separated for hours from the combat units they supported. Whether new to the Medical Department or members of the Army Reserve, medical officers were impressed with “a great principle of war . . . that nothing shall interfere with the forward movement of men and munitions. The battle must be won at all costs. Among those called upon to pay part of these costs are the wounded.” Neither the movement of the wounded back toward hospitals nor the movement of medical troops and supplies forward could be allowed to interfere with the flow of troops to the front.<sup>13</sup>

Regular, Army Reserve, and National Guard Medical Department officers studied at the Medical Field Service School in Carlisle. Until 1924 neophyte Medical Corps members who began their service at the Carlisle school and/or the Washington medical school were required to serve four months as reservists before being given regular commissions. Dental and veterinary corps officers in all categories were eligible to attend, and Dental and Veterinary Corps officers were on the teaching staff. This type of training was highly regarded for dentists, because in wartime they might be expected to deal with first aid and evacuation in the field. For several years after the graduation of the first class in 1921, new department officers attended the Carlisle school before receiving training in “the technical side of preventive medicine” at one of the schools that made up the Army Medical Center. When the winter weather proved to interfere unduly with training at Carlisle, the cycle was turned around once again, with students attending basic courses at the Medical Center through the fall and winter and

<sup>13</sup> Tousey, *Military History of Carlisle*, pp. 370, 371 (quotation), 372.

then going on to the Medical Field Service School during the late winter and spring.<sup>14</sup>

Initially two basic field courses were set up at the Medical Field Service School, one for regulars, including on rare occasion an officer of the Medical Administrative Corps, and one for officers from the National Guard and the Army Reserve. Obtaining the necessary equipment for the basic courses proved difficult. As recalled by one of the officers on the teaching staff, “Money was then hard to get, and much improvisation was necessary.” Most of the first classes had to rely to a large extent on lectures and drills. With the passage of time, however, courses proliferated in number and some grew in length as well. The basic course for new regular medical officers eventually consumed five months. Among other courses that became available was a seventy-hour correspondence course for reserve medical officers and a similar course developed for reserve dental officers, through which literally thousands of Army Reserve and National Guard officers were trained in the basics of their responsibilities. The Medical Field Service School also offered an advanced course for all officers that provided an opportunity for research. More specialized courses were also established, among them brief courses for National Guard and reserve officers, a course in military sanitation for reserve officers, and another in administration for higher ranking department officers. Carlisle ran two summer camps for training reserve officers, one lasting two weeks and the other six weeks. Although summer camps became available to reserve officers and trainees at other locations, notably Fort Snelling, Minnesota, and Camp Lewis, Washington, all instruction followed the path outlined at Carlisle.<sup>15</sup>

Refinements in the Medical Field Service School program took place throughout the years following its opening. In 1924 a thirteen-week course for noncommissioned officers became part of the curriculum. The following year the length of the course was cut by more than half by extending the hours in the day devoted to it, and its quality was improved by enabling students to study without the distraction of other duties. Teaching was handled principally through conferences, demonstrations, and problem solving rather than lectures, the goal being to enhance the student’s leadership abilities and, in general, to make him better able to perform his duties as a noncommissioned officer for the Medical Department. Graduates were sent out from Carlisle to serve as instructors in their companies or detachments.<sup>16</sup>

A demonstration detachment initially provided demonstrations for the benefit of Carlisle students, officers and men alike. In the fall of 1921 the detachment became a part of the 1st Medical Regiment. Ordered to Carlisle, the regiment,

<sup>14</sup> WD, *ARofSG*, 1920, pp. 291, 315, 486 (quoted words); *ibid.*, 1921, pp. 124, 137, 221; *ibid.*, 1922, 243, 244, 245, 247; *ibid.*, 1924, pp. 167–68, 192; *ibid.*, 1925, pp. 310–11; Stimson, *History of ANC*, pp. 32–33; Tobey, *Medical Department*, p. 471; Tousey, *Military History of Carlisle*, p. 367; Kramer, “Year’s Work,” p. 690.

<sup>15</sup> WD, *ARofSG*, 1922, pp. 247–48; *ibid.*, 1923, pp. 129, 179; *ibid.*, 1924, pp. 240, 241, 242, 260, 263; *ibid.*, 1925, p. 323; *ibid.*, 1926, pp. 3, 312–13; *ibid.*, 1927, p. 3; *ibid.*, 1928, pp. 7, 320–22; Stimson, *History of ANC*, pp. 40–41; Tousey, *Military History of Carlisle*, pp. 369, 383, 389 (quotation), 399; Tobey, *Medical Department*, pp. 71, 85; Edgar Erskine Hume, “Training of Medical Officers for War Duty,” pp. 631–32; WD Circular no. 419, 23 Dec 1920.

<sup>16</sup> “The School for Non-Commissioned Officers,” pp. 1–3, 5, 6; WD, *ARofSG*, 1926, p. 309; Tobey, *Medical Department*, p. 71.

which replaced the 1st Division's sanitary train, assumed responsibility for demonstrations for camps serving the Reserve Officer Training Corps (ROTC) and reserve officers and also trained all recruits joining the Army at Carlisle. Its regimental organization consisted of a collecting company, an animal and a motor ambulance company, a hospital company, a service company, and a veterinary company. Unfortunately, however, with fewer than 250 men, the regiment was unable to carry out its mission the degree of success hoped for by the surgeon general.<sup>17</sup>

As the curriculum at the Medical Field Service School grew in size and scope, new teaching materials were developed and made widely available. Outstanding among them was the *Army Medical Bulletin*. Initiated in the early 1920s on a somewhat casual basis, the series grew to be widely used and respected "training texts" devoted to such topics as military sanitation, warfare gases, medical tactics, the medical regiment, and, finally, to subjects of broader interest. The success of this series encouraged the development of the *Army Dental Bulletin* and the *Army Veterinary Bulletin*, both of which were, like the *Army Medical Bulletin*, initially edited within the Surgeon General's Office and printed at Carlisle. Also written in response to the needs of the Medical Field Service School were training regulations published in the form of a series of pamphlets and books on such subjects as preventive medicine, field sanitation, and military hygiene.<sup>18</sup>

The functions of the Medical Field Service School went beyond its teaching responsibilities. A board composed of the commandant, the assistant commandant, and five to seven other officers from the school was assigned to develop recommendations on possible improvements to Medical Department field work and on any other topics suggested by the surgeon general. An equipment laboratory undertook to improve items used by medical personnel in the field, from ambulances and a field dental dispensary to first aid packets, attempting to develop models that were easily transported by motor vehicle. With the advent of paratroopers, the laboratory also worked to develop the means whereby medical equipment could be dropped from the air without damage. The laboratory cooperated with other agencies in testing items used by more than one organization and supervised testing done by other laboratories.<sup>19</sup>

Policy dictated that as many regular Medical Department officers as possible go through the department's special schools. Neither the Army Medical Center nor the Medical Field Service School, however, could provide all the training needed by the Medical Department's increasing numbers of reservists and would-be reservists. Other forms of training were severely limited by a lack of funds and

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<sup>17</sup> WD, *ARofSG*, 1922, p. 245; *ibid.*, 1925, pp. 323, 324; "School," p. 6; Tousey, *Military History of Carlisle*, pp. 378–79.

<sup>18</sup> Tousey, *Military History of Carlisle*, pp. 396–97 (quoted words); Hume, *Golden Jubilee*, p. 89; WD, *ARofSG*, 1921, p. 134; *ibid.*, 1922, p. 246; *ibid.*, 1923, p. 111; *ibid.*, 1924, pp. 163, 164–65, 263; *ibid.*, 1926, p. 309; *ibid.*, 1927, p. 251; Tobey, *Medical Department*, p. 96; Ashburn, *History of MD*, p. 381; Edgar Erskine Hume, *Victories of Army Medicine*, pp. 56, 154; Stanhope Bayne-Jones, *Evolution of Preventive Medicine in the United States Army, 1607–1939*, p. 173.

<sup>19</sup> Tobey, *Medical Department*, p. 96; Tousey, *Military History of Carlisle*, pp. 373, 374, 378; WD, *ARofSG*, 1919, p. 1524; *ibid.*, 1922, p. 246; *ibid.*, 1925, p. 325; *ibid.*, 1927, p. 241; Hume, *Victories*, pp. 150, 184; Ashburn, *History of MD*, p. 381.





*First aid packet,  
Carlisle pattern, with  
single improved dressing;  
(right) World War II  
medical private's kit, first  
adopted in 1924*

personnel. Because reservists could not be promoted if they did not undergo a specified amount of training each year, much of the necessary study had to be accomplished through correspondence courses.<sup>20</sup>

At least a minimum of active-duty training for reservists was desirable. Summer camps and some larger Army hospitals provided fifteen-day periods of such work for reservists, but personnel shortages limited instruction. Furthermore, reservists were not happy about doing the same work in a military hospital that they did as civilians. Other opportunities for active-duty training, however, were limited. The only medical regiment available other than the unit at Carlisle was one at Fort Sam Houston, Texas, and both regiments had been skeletonized to the point where their usefulness for training was severely limited. Reservists also received brief assignments as observers with regular units or as part of Organized Reserves units serving under corps area commanders, to whom a few regulars were assigned as instructors.<sup>21</sup>

Although many of the same institutions that trained officers offered training for enlisted men in various types of specialized work, basic military training for

<sup>20</sup> WD, *ARofSG*, 1926, p. 309; *ibid.*, 1928, p. 267; Tobey, *Medical Department*, p. 49; Historical Evaluation and Research Organization, "Origins, History, and Accomplishments of the US Army Reserve," pp. 63–64, 66, copy in Library, CMH.

<sup>21</sup> WD, *ARofSG*, 1923, p. 2; *ibid.*, 1924, pp. 4, 239, 240, 241, 271; *ibid.*, 1926, pp. 310, 312; *ibid.*, 1927, p. 351; *ibid.*, 1928, pp. 265, 267; Stimson, *History of ANC*, p. 25; W. Walters, "The Doctors Mayo and Their Military Medical Activities," pp. 331–32, 338; WD, *ARofSW*, 1921, p. 25.

enlisted men was difficult to provide, especially because the demands for their services were high. Each corps area commander was essentially on his own in this regard. In one instance, a recruit instruction detachment was set up at one post to which all new enlisted men were assigned for basic military training before being sent on to permanent stations.<sup>22</sup>

Most of the instruction available to regular Medical Department personnel came through basic and advanced courses at either the Army Medical School or the Medical Field Service School, but other avenues of training, both civilian and military, were available. Because the department could rarely spare its own personnel to provide specialist training, it asked civilian institutions, including the famous Mayo Clinic, to assist in this effort. A few dentists trained in orthodontics by this approach, for example, and nurses periodically took civilian postgraduate courses. Psychiatrists could be sent to study disciplinary problems at Fort Leavenworth, Kansas, while one Veterinary Corps officer each year studied at the Cavalry School at Fort Riley, Kansas. The Chemical Warfare Service did not offer a special course for medical officers, yet it did have positions through which they could undergo training and conduct research. Some Medical Department officers were sent to the Infantry School, the infantry being the Medical Department's "best customers," to learn about the organization and use of infantry to increase their ability to handle their evacuation and care.<sup>23</sup>

Going through a regular progression of nonmedical Army schools was regarded as necessary for real success for any Medical Department officer, regardless of specialty or assignment. Those who trained at the Medical Field Service School were eligible for study at the Fort Leavenworth command and general staff course. Some went on from there to the Army War College or to receive advanced training as supply officers at the Army Industrial College. Medical officers also taught at these schools and at the U.S. Military Academy at West Point as well.<sup>24</sup>

In 1920 the Medical Department secured permission to turn to the ROTC program in its efforts to obtain more physicians, dentists, and veterinarians for the reserves. The department hoped that by assisting young men interested in these specialties to obtain their professional degrees, it could augment the list of doctors to whom the Army could turn in time of especial need. Units were permitted at any of what were termed "class 'A' medical, dental, and veterinary colleges" that were large enough to make it possible to enroll at least fifty students in the program at the start of the school year. These students were to be given a minimum of thirty hours each year of the type of training provided regular Army medical officers. After the first two years of basic theoretical instruction and six weeks of drill and training in field duties at summer camp, those whose work had been satisfactory could take

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<sup>22</sup> WD, *ARofSG*, 1924, p. 240; *ibid.*, 1926, p. 311.

<sup>23</sup> *Ibid.*, 1920, pp. 273–74; *ibid.*, 1921, p. 125; *ibid.*, 1923, pp. 129, 132; *ibid.*, 1926, p. 310; *ibid.*, 1927, p. 1; *ibid.*, 1929, pp. 389–90; Tobey, *Medical Department*, pp. 72, 86; WD, SGO, *Neuropsychiatry*, pp. 132–33; Ashburn, *History of MD*, p. 381; Stimson, *History of ANC*, p. 30; Sams, "Medic," p. 30 (quoted words), copy in Library, CMH.

<sup>24</sup> Ashburn, *History of MD*, pp. 366, 380, 381–82; WD, *ARofSG*, 1920, p. 316; *ibid.*, 1924, p. 239; *ibid.*, 1926, p. 310; *ibid.*, 1929, p. 277; *ibid.*, 1930, p. 14; Chamberlain Biography, Ms C44, Autobiographical Sketches of U.S. Army Medical Officers, active c. 1870–1940, National Library of Medicine (NLM), Bethesda, Md.

two years of advanced instruction at another summer camp after the junior year. Satisfactory completion of the entire program brought a reserve commission.<sup>25</sup>

Establishing ROTC programs at various schools across the country progressed with relative rapidity. Difficulty experienced in obtaining a sufficient number of dental officers qualified to teach in the program was met by initially assigning medical officers to this duty, while five dental officers were sent through a short basic field course at Carlisle so that they could eventually assume this responsibility. Continuing difficulties with the veterinary ROTC program centered about the shortage of schools with enough students to qualify. College authorities generally cooperated with the program, and two years of ROTC work were made compulsory in fourteen schools. Summer camps were set up for ROTC students at Carlisle Barracks, Camp Lewis, Fort Sam Houston, and Fort Snelling. By the end of fiscal year 1928 approximately 2,400 medical students, 1,100 dental students, and 200 veterinarians had graduated from the Medical Department's ROTC program and entered the medical reserves.<sup>26</sup>

Army nurses received only undergraduate work at the Medical Center because, unlike the other schools that made up the center, the Army School of Nursing was not a graduate school. Its director reported to the commander of the Walter Reed General Hospital rather than to the head of the Army Medical School. At one time or another student nurses completed some training at the Walter Reed General Hospital, but they received much of their three years of training through various civilian institutions offering instruction in the care of obstetric, gynecology, pediatric, and mental patients and in public health nursing. In October 1921, after 508 of the young women who had signed up for the school during the war had graduated, the school was established on a peacetime basis to take no more than a total of 200 students at a time. Only 50 entered in the fall of 1921. In 1925, although interest in attending the school was apparently widespread, the number allowed to enter the school at one time was limited to 150. Only a minority of those graduating entered the Army Nurse Corps, while many others elected to serve in the Navy, the Public Health Service, or the Veterans' Bureau Nursing Service.<sup>27</sup>

### *Care of the Sick and Injured*

Once the great rush of patients coming home from service abroad had been dealt with, providing care for the Army's patients became relatively simple. Most hospitalized patients were those with acute illnesses, especially respiratory diseases, or injuries engendered by recreation-induced trauma—polo produced a particularly high rate of injury among officers—and mishaps involving automobiles, motorcycles, and planes. Many Medical Department patients were no longer in the Army, if, indeed, they ever had been. Beginning in 1921, the Medical Department

<sup>25</sup> WD, *ARofSG*, 1922, pp. 179 (quoted words), 181, 247; WD Bulletin no. 25, 9 Jun 1920, p. 23; James R. Church, "An Advance in Efficiency and Fraternity," pp. 612–13.

<sup>26</sup> WD, *ARofSG*, 1921, pp. 124–25, 137, 138; *ibid.*, 1922, p. 181; *ibid.*, 1923, p. 180, 181–82; *ibid.*, 1924, p. 242; *ibid.*, 1926, pp. 250–51; *ibid.*, 1927, p. 254; *ibid.*, 1928, pp. 7–8; Tobey, *Medical Department*, p. 72.

<sup>27</sup> WD, *ARofSG*, 1920, pp. 297–98, 299; *ibid.*, 1921, p. 128; *ibid.*, 1922, p. 137; *ibid.*, 1925, pp. 321, 322; "The Army Nurse Corps," p. 28; Tobey, *Medical Department*, pp. 70–71.

was responsible for the care of thousands of young civilians being provided with military training in summer at the civilian military training camps, a responsibility that did not end until the United States was drawn into World War II late in 1941.<sup>28</sup>

The war had provided Army medical officers with a lifetime of experience in only a few months, and they found that in caring for the injured, whether the damage involved broken bones, lacerations, or other forms of injury, the wounds acquired in peacetime could be cared for much as they had been during the war. The most commonly used anesthetics were locals, with ether the most popular general. Appendectomies, tonsillectomies, and herniotomies continued to be the most common types of nonwound surgery conducted, and the results of such operations tended to be good. For the period 1920–1923, only seventy-seven deaths marred the record of more than 6,000 appendectomies. Of 147 operations to remove both tonsils and adenoids and another 2,343 to remove tonsils alone, a large majority done with a local anesthesia, only four deaths occurred, one of which was blamed on tuberculosis, another on chronic nephritis, and two more on septicemia.<sup>29</sup>

The diseases that confronted the peacetime Army were the same ones it battled during the war, especially respiratory diseases; digestive diseases; and, most frustrating of all, venereal diseases. Insect-borne diseases, principally malaria and occasionally dengue, were still encountered in the Philippines, Puerto Rico, and Panama. As far as diseases were concerned, the leading causes of noneffectiveness—defined as “incapacitated for duty”—by 1928 were gonorrhea, influenza (more of a problem in some years than in others), and tuberculosis, a particular problem among native troops in the overseas empire. The highest disease and death from disease rates were reported to be found among Medical Department personnel.<sup>30</sup>

Few treatment options other than good nursing care were available for dealing with the sick, although syphilis patients continued to endure courses of treatment with mercury and arsphenamine by injection. Persisting difficulties involved in treating diseases encouraged continuing emphasis on attempts to prevent them. These efforts were to a degree successful, as suggested by the fact that 1921 was the first year in which deaths from what was referred to as “external causes” were more numerous than those resulting from disease. Tragically, the most common single cause of death in the 1920s was suicide.<sup>31</sup>

<sup>28</sup> Albert P. Clark, “Replacements and Hospitalization and Their Relation to Losses in War,” p. 336; WD, *ARofSG*, 1922, p. 16; *ibid.*, 1923, p. 8; *ibid.*, 1924, pp. 6, 13, 124; *ibid.*, 1926, p. 14; *ibid.*, 1927, p. 6; *ibid.*, 1928, pp. 144–45; *ibid.*, 1929, pp. 1, 2; *ibid.*, 1930, pp. 2–3, 161; *ibid.*, 1931, pp. 4, 5; John W. Killigrew, “The Impact of the Great Depression on the Army, 1929–1936,” Ph.D. dissertation, pp. IX-10, 11, 12, 15n; War Department, *Biennial Report of the Chief of Staff of the United States Army, July 1, 1939, to June 30, 1941, to the Secretary of War*, p. 32; Historical Evaluation and Research Organization, “Origins,” pp. 63, 64, copy in Library, CMH.

<sup>29</sup> WD, *ARofSG*, 1924, pp. 121, 122, 124, 153.

<sup>30</sup> J. Hill, *Silent Enemies*, p. 188; WD, *ARofSG*, 1920, p. 121; *ibid.*, 1923, p. 202; *ibid.*, 1924, p. 66; *ibid.*, 1925, p. 11; *ibid.*, 1928, 73 (quoted words); *ibid.*, 1929, pp. 3, 101.

<sup>31</sup> WD, SGO, *SGO*, pp. 1015, 1016; WD, *ARofSG*, 1923, pp. 8, 9; *ibid.*, 1924, p. 129; *ibid.*, 1925, p. 9 (quoted words); *ibid.*, 1926, pp. 13, 27; *ibid.*, 1927, pp. 7, 41; Ashburn, *History of MD*, p. 386.

Serious cases requiring major surgery or thorough study to determine the nature of future care were usually sent to one of the major hospitals that served the peacetime Army. This was true whether the patients involved were active-duty soldiers, members of Army families, retirees, or veterans for whom the Public Health Service or the Bureau of War Risk Insurance was ultimately responsible. Capable of taking in thousands of patients a year were the general hospitals—Letterman General Hospital in San Francisco, rebuilt at Ireland's direction; the Army and Navy General Hospital in Hot Springs, Arkansas; the largest, Fitzsimons General Hospital in Denver, Colorado, with more than 1,800 beds; the new William Beaumont General Hospital at El Paso, Texas; the Walter Reed General Hospital in Washington D.C.; and outside the continental United States, Tripler General Hospital in Hawaii, where health was very good, and the Sternberg General Hospital in the Philippines. General hospitals within the United States remained directly under the authority of the surgeon general, while Tripler and Sternberg came under that of the commander of the departments in which they were located. In addition, the station hospital at Fort Sam Houston continued to function almost as if it were a general hospital, caring for in the course of one year as many as 7,000 patients. Service and training in one of the many specialties represented at these major facilities became an important part of the career of the ambitious medical officer.<sup>32</sup>

Although the Army was no longer responsible for most veterans of World War I, a large proportion of the patients in Army hospitals—some 30 percent in fiscal year 1925—were men whose care was being paid for by the Veterans' Bureau. Throughout the period that General Ireland was surgeon general, civilians, most of them war veterans or retirees, formed a large part of the patient load of major Army hospitals, although the proportion fell with time. In addition, Fitzsimons General Hospital was responsible for the care of all Navy patients with tuberculosis.<sup>33</sup>

By 1926 the Army's hospitals held a total of almost 12,000 beds, most of them in its general hospitals, which as a rule also served as post hospitals for nearby posts. Including a handful of small hospitals in the overseas possessions and two inadequate facilities serving less than 1,000 Army troops still stationed in China, more than one hundred station hospitals were also available for the Army's peacetime patients. More than a third of the planned 700 reserve units of various types not attached to divisions, among them mobile hospitals, hospital trains, veterinary hospitals, and general hospitals, were available under the jurisdiction of corps area commanders should an emergency make their use necessary. The network of subdispensaries that had served the attending surgeon's office in Washington D.C. closed after the end of the war, but the attending surgeon's office itself remained, renamed a dispensary. Many existing hospitals were experiencing difficulties

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<sup>32</sup> WD, *ARofSG*, 1920, pp. 444, 448; *ibid.*, 1921, pp. 103, 196, 201, 204–06, 218–19; *ibid.*, 1922, pp. 5, 15, 207, 237; *ibid.*, 1923, p. 202; *ibid.*, 1924, pp. 6, 14, 326, 338; *ibid.*, 1927, p. 2; Kramer, "Year's Work," pp. 682; Tobey, *Medical Department*, pp. 63, 66, 97–99, 103; Silas B. Hays Memorial Address, p. 2, folder 94, Ms C117, Merritte W. Ireland Papers, 1911–1931, NLM; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1948)*, p. 30; Malcolm C. Grow, *Surgeon Grow*, p. 313.

<sup>33</sup> WD, *ARofSG*, 1922, p. 15; *ibid.*, 1923, pp. 6, 108; *ibid.*, 1924, pp. 14, 229, 330; *ibid.*, 1925, pp. 1, 2; *ibid.*, 1926, p. 1; *ibid.*, 1927, p. 2; *ibid.*, 1928, p. 346; Tobey, *Medical Department*, p. 66.



*Hospital train in the United States*

with inferior or deteriorating plants. As a result, general dispensaries, formerly known also as attending surgeon's offices and located at scattered sites in larger East Coast cities or at major posts and hospitals, became very valuable. Fixed and mobile dispensaries, of the type once known as infirmaries, also held sick call and provided both emergency treatment and routine work that did not require hospitalization, including immunizations and physical exams.<sup>34</sup>

Working with Army hospitals and often as part of them were laboratories. The burden placed on them by the rush of soldiers returning from Europe was great, but by the end of 1919 the case load was becoming smaller. The large number of female civilians hired to serve in them during the war were swiftly discharged. The replacement of the geographical departments within the United States by corps areas led to the transfer of department laboratories

and their equipment to the corps. The resultant reorganization reportedly led to an increased efficiency that made possible a significant reduction in laboratory personnel.<sup>35</sup>

In fiscal year 1927, however, a type of laboratory new to the Army was created in the form of the dental laboratory, where specialists could manufacture prosthetic appliances, thereby freeing dentists for other work. One such facility at Walter Reed General Hospital served the seven easternmost of the corps areas. Another dental lab was set up at the Letterman General Hospital, and the station hospital laboratory at Fort Sam Houston was reorganized so as to serve dentists in the VIII Corps area.<sup>36</sup>

The Medical Department's responsibility for the sick and injured extended beyond the United States. In 1923, after a major earthquake hit Japan, a 1,000-bed base hospital, twelve field hospitals, fifty-two camp infirmaries, and much

<sup>34</sup> Tobey, *Medical Department*, pp. 61–62, 66, 97; WD, *ARofSG*, 1921, p. 201; *ibid.*, 1922, pp. 115, 209, 235; *ibid.*, 1923, p. 1; *ibid.*, 1924, pp. 330–31, 334; *ibid.*, 1925, p. 3; *ibid.*, 1926, pp. 2–3, 347, 352; *ibid.*, 1927, pp. 5, 344, 353; *ibid.*, 1928, pp. 345, 382; WD, *SGO*, *SGO*, p. 534; Ashburn, *History of MD*, p. 380; Rpt, IG Eli A. Helmick to SG Merritte Ireland, 15 Apr 1923, Ms C16, Albert E. Truby Papers, NLM; M. A. Shockley, *Outline of the Medical Service of the Theatre of Operations*, p. 5; Stimson, *History of ANC*, p. 23.

<sup>35</sup> WD, *ARofSG*, 1920, pp. 225, 227, 228–29; *ibid.*, 1923, 103; Kramer, "Year's Work," p. 685; WD GO no. 63, 15 Oct 1920; WD, *SGO*, *SGO*, pp. 1014–15.

<sup>36</sup> WD, *ARofSG*, 1927, p. 241.

equipment, as well as the personnel needed to run these facilities, deployed on short notice to Yokohama to assist the stricken populace both in caring for the injured and in restoring the city's medical structure. The Americans transferred the large hospital and several smaller facilities over to the Japanese when they left. Among other disaster relief efforts in which Army medical personnel participated was that which followed the hurricanes in Puerto Rico in September 1928 and in Santo Domingo in the fall of 1930. Medical officers joined other Army officers and Red Cross personnel to render aid. In March 1931 an earthquake struck the city of Managua, Nicaragua. In response, the Army medical team (three medical officers and eighteen noncommissioned officers and enlisted men) in-country since the summer of 1929 joined Red Cross personnel and a team from the U.S. Navy to give medical care to the victims. Those injured in the catastrophe who were in need of more extensive treatment were evacuated to Granada, where an emergency hospital set up in a school building was kept in operation for two months.<sup>37</sup>

### *Aviation Medicine*

Although separate divisions were set up in the Office of the Chief of the Air Service's Medical Division just as they were in the Surgeon General's Office, the work of the various divisions was of necessity almost inseparable. Centuries of experience had taught generations of Army physicians what physical characteristics combined to make the successful foot soldier. They had learned how to improve the soldiers' equipment and clothing to further their ability to perform their duties. But exactly what the physical and emotional standards should be for aviators and how aircraft and clothing design should be modified in the interests of greater safety was still largely a mystery. Thus flight surgeons conducting physical examinations had to work closely with those engaged in research to determine what physical standards to use in selecting and caring for airmen. Moreover, determining what neophyte flight surgeons should be taught in the Air Corps school was dependent on what was learned in research.

The first concentrated effort of the Air Service's Medical Division was directed toward research and the medical research laboratory at Mineola, Long Island, where in 1918 the School for Flight Surgeons became part of the facility and in early 1919 Maj. Louis H. Bauer became commandant. In 1921, to reflect the new status as a special service school, the name was officially changed from the Medical Research Laboratory and School for Flight Surgeons to the School of Aviation Medicine. Sixteen officers, including officers from the Navy and the Army Reserve, were in training at the school in 1924. The courses differed little from those taught at the Army Medical School, except that they focused primarily on the problems of the flier.<sup>38</sup>

<sup>37</sup> *Ibid.*, 1924, pp. 300–01; *ibid.*, 1929, p. 388; *ibid.*, 1930, p. 391; *ibid.*, 1931, pp. 274, 425; Gaines M. Foster, *The Demands of Humanity*, pp. 100–104, 114.

<sup>38</sup> Mae Mills Link and Hubert A. Coleman, *Medical Support of the Army Air Forces in World War II*, pp. 13, 23, 144, 151, Robert J. Benford, *Doctors in the Sky*, p. 10; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 45, 46–47, 52, 53; Link and Coleman, *Origin of Air Force Medical Service*, pp. 45–46; Maurer Maurer, *Aviation in the U.S. Army, 1919–1930*, p. 66; Tobey, *Medical Department*, p. 47; *WD, ARofSG*, 1924, pp. 4, 264, 266.

Much of the information and many of the statistics used in the course of research were based on physical examinations and the relationship of what they revealed to the nature of the problems pilots experienced. Evidence suggested that some difficulties resulted from a failure to design planes with the needs of those who flew them in mind, but only time, experience, and study of statistics would reveal what could be blamed on aircraft design, what on pilot inexperience, and what on the physical or psychological condition of the pilot. Researchers also studied such matters as the ideal age for pilots, the dangers posed by various types of planes, how long pilots could safely fly, what pilots should be tested for, the best design for clothing and safety equipment, and the effects of exhaust fumes on pilots.<sup>39</sup>

In spite of uncertainties about exactly what the standards should be, a system of regular annual physical examinations for pilots was established not long after the end of the war, using data accumulated by researchers. This approach made it possible to deal promptly with correctable defects or to issue waivers for defects believed to be minor when detected in experienced and valuable pilots. The decision about how to handle defects was referred to a board of officers who could grant waivers. As many as 15–19 percent of those taking the annual physicals failed each year in the period 1920–1924, primarily because of eye problems that were more typical in older pilots. By 1931, 78 percent of the 1163 Regular Army officers rated as pilots were found to be devoid of physical defects and another 17 percent were allowed to fly through a waiver of standards. Although some of the tests used were both expensive and complicated, on the whole they did not fully attain their goal because 20 percent of cadets found acceptable later proved incapable of handling the demands faced by pilots. Actual flying appeared to be the only way in which the grain could be separated from the chaff. Interestingly, as one student of emotional problems noted in 1919, “Many erratic youngsters made good aviators when they could not adapt themselves to ordinary discipline.”<sup>40</sup>

As more was learned about the physical demands placed on pilots and the nature of physical problems that could interfere with their effectiveness, more strength was given to the argument that the assignment to care for aviators should not be given to ordinary medical officers for whom this responsibility represented but one assignment among others. The Air Service was sufficiently impressed with the work of flight surgeons to ask to have one for each active field and to order commanding officers to “take full advantage” of their skills. Even should a flight surgeon be junior in rank to the surgeon of the post where he was serving, he should be given complete freedom to make decisions where the fitness of pilots to fly was concerned. Thus the need for medical officers trained to deal with this type of duty

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<sup>39</sup> WD, *ARofSG*, 1925, p. 297; *ibid.*, 1928, pp. 325, 385; *ibid.*, 1932, p. 323; Link and Coleman, *Origin of Air Force Medical Service*, pp. 32, 50–51, 56; Albert E. Truby and John Dibble, “Operation of the Medical Division of the Air Service Since the Signing of the Armistice,” pp. 72, 75, 76; Verner T. Scott, “Why an Aviator Is Examined by the Rebreathing Method and How Often the Examination Should Be Made,” p. 409; G. I. Jones, “Physical Requirements for Flying Training,” pp. 57–58; Harry G. Armstrong, “The Loss of Tactical Efficiency of Flying Personnel in Open Cockpit Aircraft due to Cold Temperatures,” p. 135; Grow, *Surgeon Grow*, p. 315.

<sup>40</sup> Truby and Dibble, “Operation of the Medical Division,” pp. 72, 73; WD, *ARofSG*, 1925, pp. 295, 296, 298; *ibid.*, 1926, p. 332; *ibid.*, 1927, p. 306; *ibid.*, 1932, p. 323; K. M. Bowman, “The Relation of Defective Mental and Nervous States to Military Efficiency,” p. 653 (quotation).



continued to grow. By 1925, although strictly limited in the size of staff because of a dwindling budget, the School of Aviation Medicine under Bauer's leadership was able to offer a curriculum that included two regular basic courses lasting more than three months and a short six-week basic course specifically for officers from the National Guard and the Army Reserve. A six-week course qualified an officer to conduct physical examinations and an additional six weeks to serve as flight surgeon. By taking a correspondence course before taking the short basic course, Reserve and National Guard officers could qualify as flight surgeons.<sup>41</sup>

While aware of an encouraging interest in aviation medicine, authorities believed that locating the School of Aviation Medicine at a major training center for pilots would bring aspiring flight surgeons closer to the world of aviation of which they would be a part. Such a move might also make it easier to improve the approach to weeding out potential cadets who had limiting physical problems. Late in 1926, therefore, the school was moved from New York's Mitchel Field to Brooks Field in Texas. The proximity of the new location to the station hospital of Fort Sam Houston, the Texas State Hospital for Nervous Diseases, and the city hospital of San Antonio, all of which were willing to assist in the training of flight surgeons, was believed to compensate for losing the opportunities offered by clinical training at the various New York hospitals.<sup>42</sup>

Concern about their civilian counterparts echoed the concern for the health of military pilots. An attempt to forge a strong link between all those working in the new field of military aviation medicine led to creating the Air Service Medical Association of the United States in June 1919. This organization attracted so little support that in 1924 it became part of the Association of Military Surgeons of the United States. The link between military and civilian aviation medicine was significantly strengthened in 1926 when Bauer, who had written the first U.S. textbook on aviation medicine, became the director of a medical section in the newly established Aeronautics Branch of the Bureau of Air Commerce, Department of Commerce. Later, in 1929, he founded both the *Journal of Aviation Medicine*, serving as its editor for twenty-five years, and the Aero Medical Association, an organization concerned with identifying civilian pilots who were fit to fly and with the entire medical side of aviation.<sup>43</sup>

Beyond the health of pilots, one particular interest of Air Corps physicians was the development and use of an air ambulance, especially valuable because of the speed with which air evacuation could be managed and the comfort offered to the patient. Authorities recognized the fact that many sites could not be reached by plane and took due note of the success of experiments by the British and French

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<sup>41</sup> Truby and Dibble, "Operation of the Medical Division," p. 70 (quoted words); "The Historical Aspects of Aviation Medicine," *The Army and Navy Courier*, 6 (3 Jul 1930): 43, held as Doc no. 115, Ms C117, Ireland Papers, NLM; WD GO no.8, 15 Feb 1921; WD, SGO, *SGO*, p. 807; WD, *ARofSG*, 1924, p. 265; *ibid.*, 1925, p. 5; *ibid.*, 1926, pp. 311–12; Peyton, *Fifty Years*, p. 55; Maurer, *Aviation*, p. 67.

<sup>42</sup> WD, *ARofSG*, 1925, p. 329; *ibid.*, 1926, pp. 310, 311–12, 331, 332; *ibid.*, 1928, pp. 324–25; Peyton, *Fifty Years*, pp. 56, 57, 58, 66, 67, 71–72; Tobey, *Medical Department*, p. 72; Link and Coleman, *Origin of Air Force Medical Service*, p. 48; Maurer, *Aviation*, pp. 66–67.

<sup>43</sup> Benford, *Doctors in the Sky*, pp. 4, 6, 7, 11, 12; Peyton, *Fifty Years*, p. 59; Link and Coleman, *Origin of Air Force Medical Service*, pp. 49–50.

with the use of air ambulances during and after the war. Much effort went into developing a design for such a plane or for the means by which a plane could be adapted for this type of use on short notice. Without modification, the stability and handling of a regular plane loaded with a litter were adversely affected. The first ambulance planes were put into actual use in the Panama Canal Zone and at Kelly Field in Texas. They proved to be "highly satisfactory." Both helped evacuate accident victims. The plane based in Texas also participated in disaster relief operations; its counterpart in the Canal Zone crashed with an inexperienced pilot at the controls after only five trips, leaving the department with but one specially designed plane in service by 1930. A campaign promoting an ambulance squadron for each field army apparently failed to rouse widespread enthusiasm, and the air ambulance, though it was seen as having great promise, was little used. By the summer of 1929 only two specially designed planes were in service, both of a model no longer being made, although a converted transport was also being used for medical evacuation. Specifications for cargo planes required that they have some means by which metal litters could be attached should they be needed in an emergency.<sup>44</sup>

### *Preventive Medicine*

Wartime experiences and the low rate of disease, except for influenza, that characterized the American Expeditionary Forces during the war convinced the Medical Department of the value of preventive medicine in its broadest sense, including not only sanitation and immunization but also efforts to detect those with potential health problems before the Army accepted them as recruits. In the postwar Army the practice of preventive medicine began with efforts to ensure that only healthy men were accepted as recruits. The great number attempting to sign up after the demobilization represented both a challenge and an opportunity for the department because of their general lack of stamina and overall fitness even when they were not obviously diseased. As many as 60 percent of the recruits had never served in the military before and, as a result, had not in many instances had a chance in private life to acquire immunity to the childhood diseases. Some blamed the fact that the age limit had been lowered to eighteen and that parental consent was no longer required. As summed up in a report from Camp Grant (Illinois) in fiscal year 1921, "Never in the history of the Army has its ranks been filled with such poor physical specimens and such young lads so susceptible to disease."<sup>45</sup>

Except for dental standards, the physical guidelines for acceptance had been lowered after demobilization, but men with venereal disease (VD), accepted

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<sup>44</sup> WD, *ARofSG*, 1925, pp. 297 (quoted words), 298, 299; *ibid.*, 1926, pp. 303, 304; *ibid.*, 1927, p. 309; *ibid.*, 1929, p. 384; *ibid.*, 1930, p. 395; *ibid.*, 1934, p. 195; Tobey, *Medical Department*, p. 62; Robert F. Futrell, "Development of Aeromedical Evacuation in the USAF, 1901-1960," pp. 5-21, copy in Library, CMH; Truby and Dibble, "Operation of the Medical Division," pp. 76-77; Foster, *Demands of Humanity*, p. 108.

<sup>45</sup> WD, SGO, *Sanitation*, pp. 441, 442; James H. Cassedy, *Medicine in America*, p. 120; Ashburn, *History of MD*, p. 368; Tobey, *Medical Department*, p. 45; WD, *ARofSG*, 1920, p. 217; *ibid.*, 1921, pp. 9, 99, 179 (quotation); *ibid.*, 1924, p. 15; *ibid.*, 1925, p. 8; *ibid.*, 1928, p. 1.

during the war, were excluded from the peacetime Army. More refined tests to detect these diseases made for greater success in this effort. Men were accepted “with the most obvious disabilities, even though under the law at that time such acceptance made them eligible for pensions for those disabilities.” By 1922 the most immediate need for men had been met and greater selectivity could be exercised in the choice of recruits. Nevertheless, a large proportion of men discharged for disability—most often caused by tuberculosis, mental illness, mental deficiency, or syphilis—left because of disabilities that existed when they entered the Army. In 1928 this was true of more than half of the men discharged.<sup>46</sup>

Despite their inadequacies, physical examinations proved valuable for more than just screening recruits. As they had in the past, these exams continued to give researchers an understanding of the diseases afflicting population of various regions of the country. Routine physical exams for officers and warrant officers already in the service were also increasingly used not merely to determine who was fit enough to remain in the Army but to detect minor problems that could, when detected early, be corrected, thus making possible retention of valuable men in the service.<sup>47</sup>

For the men already in the Army, disease prevention centered about immunization and sanitation. The approach to preventing respiratory disease remained unchanged from that devised in the attempt to stem the inroads of influenza. Antimosquito efforts were hampered when the Quartermaster Department was denied the funds it had been using to eliminate conditions favoring these insects. In June 1920, however, the War Department assumed this responsibility, thereby relieving the Medical Department of a burden that it had assumed out of necessity when no other funds were available. The Medical Department continued, however, to handle research concerning improved methods of eliminating not only disease-bearing insects but also vermin and rodents, working with the Chemical Warfare Service to develop plans and an outline of the equipment and supplies needed.<sup>48</sup>

Other problems experienced by the Medical Department in its attempt to limit the inroads of disease included those related to the inexperience of many medical officers and their ignorance of how the many challenges presented by sanitation were best handled. In the overseas possessions, and particularly in China, diseases related to polluted water supplies and primitive means of sewage disposal were particularly common, requiring especial care with sanitation. The shortage of medical personnel made sending corps area surgeons on regular tours of inspection difficult and sometimes impossible, although the effort to move as much responsi-

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<sup>46</sup> WD, *ARofSG*, 1920, pp. 211, 213; *ibid.*, 1921, p. 14.; *ibid.*, 1922, p. 110; *ibid.*, 1924, pp. 47, 115; *ibid.*, 1927, p. 7; *ibid.*, 1929, p. 3; WD, SGO, *Sanitation*, pp. 438, 439; *idem*, SGO, pp. 1075–76; Ashburn, *History of MD*, p. 368; Autobiography, p. 250 (quoted words), Ms C14, Jefferson R. Kean Papers, NLM.

<sup>47</sup> Victor C. Vaughan, *Epidemiology and Public Health*, 2:103; WD, *ARofSG*, 1923, pp. 6–7, 103; *ibid.*, 1924, p. 158; *ibid.*, 1927, p. 4; Tobey, *Medical Department*, p. 50; Ashburn, *History of MD*, p. 382.

<sup>48</sup> Tobey, *Medical Department*, p. 54; WD, SGO, SGO, pp. 984, 986; WD, *ARofSG*, 1920, pp. 188–89, 190–91; *ibid.*, 1921, pp. 15, 102; WD GO no. 67, 11 Nov 1920.

bility as possible to corps areas removed the responsibility for sanitary inspections from the Surgeon General's Office.<sup>49</sup>

Enforcing regulations concerning immunization against typhoid fever and smallpox suffered in the confusion that accompanied and followed demobilization. Nevertheless, immunization had proved so successful in preventing these dangerous diseases that every effort was made to vaccinate recruits as soon as possible after the Army accepted them. By 1927 all military personnel, including civilian employees serving in the field and passengers on transports, were required to submit to immunization against typhoid fever. In 1927 the requirement for immunization against paratyphoid, however, was dropped because this milder disease was not common in peacetime and the vaccine tended to cause severe reactions. Renewed attempts were made to find ways in which to use immunization against other diseases. Efforts to develop an effective vaccine against respiratory diseases failed, but by 1926 experiments conducted by the surgeon at Fort Sill, Oklahoma, with a measles serum were showing promise.<sup>50</sup>

The diseases that continued to form the greatest threat to effectiveness as a result of days lost from duty were the venereal diseases, tuberculosis, and "mental alienation." In any given year bronchitis and influenza might also present a significant problem. Influenza, which affected the Army not only in Europe and the continental United States but also in the nation's overseas possessions during the 1918–1919 epidemic, remained the most significant unsolved puzzle in the years that followed as far as prevention was concerned and a particular threat to men crowded together on transports. Rates fluctuated markedly from year to year, but steps taken to prevent its spread apparently had little if any effect on them. Impressions that serum lessened severity remained merely impressions.<sup>51</sup>

Efforts to prevent venereal disease, the greatest cause of lost time from work, like efforts to treat it, changed little in the years immediately following the end of the war. Many of the agencies that had worked with the Army to prevent the spread of venereal disease in the camps were dismantled once the war had ended, although help from the Public Health Service and the American Social Hygiene Association was still available. Discipline continued to be the main weapon in the campaign against gonorrhea and syphilis. Prophylaxis was required after exposure, but a study conducted in 1919 and 1920 led to serious questions about the effectiveness of the methods traditionally used. As of 1924, post, camp, and

<sup>49</sup> WD, *ARofSG*, 1921, pp. 98, 179–82; *ibid.*, 1928, pp. 380–81; *ibid.*, 1927, p. 343; Tobey, *Medical Department*, p. 56; Edward M. Coffman, "The American 15th Infantry Regiment in China, 1912–1938," p. 66.

<sup>50</sup> WD, *ARofSG*, 1918, p. 18; *ibid.*, 1920, p. 185; *ibid.*, 1924, p. 157; *ibid.*, 1926, p. 211; WD, SGO, *SGO*, p. 630; Tobey, *Medical Department*, p. 57; United States, Army Medical School, *Immunization to Typhoid Fever*. . . , pp. 8–10.

<sup>51</sup> Alfred W. Crosby, *America's Forgotten Pandemic*, p. 230; Ashburn, *History of MD*, pp. 374, 382; Tobey, *Medical Department*, p. 45; F. D. Francis, M. W. Hall; and A. R. Gaines, "Early Use of Convalescent Serum in Influenza," pp. 177, 178–79; Thomas W. Jackson, "The Other Side of the Question of Indirect Contact Infection in Acute Respiratory Diseases," pp. 570–71; WD, *ARofSG*, 1919, pp. 74, 75, 76; *ibid.*, 1921, p. 197; *ibid.*, 1920, pp. 151, 192; *ibid.*, 1921, pp. 197, 209; *ibid.*, 1922, p. 17; *ibid.*, 1924, pp. 81, 82; *ibid.*, 1927, p. 6; *ibid.*, 1929, pp. 2, 4; *ibid.*, 1930, p. 139 (quoted words).

station commanders were held responsible for the rates and records of their commands.<sup>52</sup>

During demobilization and the period of intense recruitment when the age of the average soldier dropped, overall annual admission rates for officers and enlisted men in the Army varied considerably but remained below wartime levels. In the Philippines VD rates for enlisted men were notoriously high, but still below the 1917 rate. In China, where prostitutes charged very little for their services and alcohol and addicting drugs were cheap, the rate for enlisted men peaked in 1920. By 1926, two years after commanding officers became accountable for the number of cases in their commands, annual rates for the entire Army were lower than they had ever been in the Army's history, and continued thereafter to fall.<sup>53</sup>

Despite some decline, the traditionally high VD rates characteristic of the 10,000 troops in the Philippines and of the few still serving in China caused considerable concern in 1929. Efforts to encourage athletics, vocational training, and other safe ways of passing time seemed almost futile, and orders making commanding officers responsible for rates in the Philippines led only to a temporary drop. Close contact with Filipinos also brought the threat of cholera because of the many cholera cases found among them, especially in Manila.<sup>54</sup>

Attempts to limit the presence of two more significant threats to effectiveness in the Army, tuberculosis and mental problems, centered about keeping men afflicted with them from entering the service. The effort against tuberculosis, a disease that necessitated prolonged hospitalization, involved prospective enlistees undergoing such thorough physical examinations that the number accepted who already had the disease was kept to a minimum. Diseases classified as neuropsychiatric—epilepsy and neuralgia continued to be classified in this group—produced a high proportion of those rejected for service, yet preventing their appearance within the Army was not easy, such cases apparently being common in civilian life. As a result, neuropsychiatric disease was the cause of a high proportion of those discharged.<sup>55</sup>

The shortage of funds that afflicted all of the Medical Department's operations hampered preventing insect-borne disease. Eliminating conditions that favored the breeding of mosquitoes was costly. Rates in the United States were low in the wake of the war, as malaria continued its gradual and unexplained retreat from most of the United States. In the overseas possessions, however, and especially the Philippines, poor housing made screening against mosquitoes very difficult, causing malaria rates to climb and dengue—spread by the same mosquito that

<sup>52</sup> WD, *ARofSG*, 1920, pp. 248, 249, 251, 253, 254; *ibid.*, 1921, p. 211; WD, SGO, *SGO*, pp. 673–74; Milton W. Hall, "A Note on the Epidemiology of Influenza," p. 569; Jerome H. Greenberg, "Venereal Disease in the Armed Forces," pp. 179, 180; Tobey, *Medical Department*, pp. 57–58.

<sup>53</sup> WD, *ARofSG*, 1918, p. 207; *ibid.*, 1920, pp. 116, 179, 542–43; *ibid.*, 1921, pp. 12, 246–47; *ibid.*, 1922, pp. 16, 204, 270–71; *ibid.*, 1923, pp. 9, 200–201, 304–05; *ibid.*, 1924, pp. 157, 363; *ibid.*, 1925, p. 415; *ibid.*, 1926, pp. 10–11, 209, 210–11; *ibid.*, 1927, pp. 8, 135, 430; *ibid.*, 1929, p. 5; *ibid.*, 1930, p. 392; *ibid.*, 1931, p. 7; Coffman, "American 15th Infantry Regiment," pp. 71–72.

<sup>54</sup> WD, *ARofSG*, 1920, 432, 436–37; *ibid.*, 1921, pp. 12, 15; *ibid.*, 1930, p. 1; Greenberg, "Venereal Disease," pp. 179, 180; Ivy A. Pelzman, "Factors Making for a High Venereal Rate of the U.S. Army, in China," pp. 329, 330. See also Mary C. Gillett, *The Army Medical Department, 1865–1917*.

<sup>55</sup> WD, *ARofSG*, 1920, pp. 218, 271–72, 273; *ibid.*, 1921, pp. 209–10; *ibid.*, 1924, pp. 66, 104; *ibid.*, 1928, pp. 135, 136; Ashburn, *History of MD*, 378; WD, SGO, *Sanitation*, p. 441.

carries yellow fever and ominously known by the nickname breakbone fever—to occasionally afflict American troops. Because malaria, like tuberculosis, continued to be a significant problem among the Filipinos, U.S. medical personnel served, as they had since 1898, as advisers in the effort to improve their health.<sup>56</sup>

In the tropics, rampant dental decay had been a threat ever since U.S. troops arrived in the Philippines in 1898. In fiscal year 1920 the Medical Department conducted a survey of the dental health of all enlisted men not only to collect statistics but also to guarantee that no one in need of care failed to receive it. An Army Nurse Corps member was permanently assigned to the dental clinic of the department hospital not only to sterilize instruments but also to “give especial attention to women patients.” Providing adequate care to all Americans in the Philippines, however, proved difficult in view of the shortage of dental personnel.<sup>57</sup>

### *Research*

Medical officers serving the Air Corps were not the only Medical Department scientists involved in research during the era of peace that followed the end of World War I. The volumes of medical statistics kept during the war concerning the nation’s draftees and soldiers became the subject of research. As a result, more was revealed about the health of the nation’s young men than had ever been known before. Many problems encountered during the war also tempted investigators. Some riddles could not be definitively solved, among them the old one involving the cause of the problem variously known as the irritable heart syndrome or the effort syndrome. Examinations of the post-service life of men afflicted with various neuroses tended to demonstrate that this type of problem was long lasting but did not suggest how it could be either prevented or cured.<sup>58</sup>

Studies of the long-range effects of poison gas were popular. After thorough research, including an examination of the records of British, French, and German gas victims, U.S. Army medical scientists concluded that unfortunate consequences were few in number and that the purported tendency of gas victims to develop tuberculosis or even other diseases at a higher rate than those who had not been exposed was a myth. The only adverse relationship between poison gas and tuberculosis that could be found concerned the rapidly worsening condition of men who already had tuberculosis before being gassed. Tests run in collaboration with the Chemical Warfare Service actually suggested that chlorine

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<sup>56</sup> *Communicable Diseases: Malaria*, Vol. 6, Preventive Medicine in World War II, Medical Department, United States Army (Washington, D.C.: Office of the Surgeon General, Department of the Army, 1963), pp. 62–66; Hume, *Victories*, pp. 161–62; WD, *ARofSG*, 1920, pp. 117, 429, 437; *ibid.*, 1921, pp. 12, 15, 193, 194–95; *ibid.*, 1922, p. 18; *ibid.*, 1924, p. 291; *ibid.*, 1925, pp. 13–14, 15, 208–09; “Medical and Military Notes,” pp. 113–14, 265–66. For the role of American advisers in the Philippines before the outbreak of World War I, see Gillett, *Army Medical Department, 1865–1917*.

<sup>57</sup> Gillett, *Army Medical Department, 1865–1917*, p. 326; WD, *ARofSG*, 1920, pp. 430, 431 (quoted words).

<sup>58</sup> WD, *ARofSG*, 1920, pp. 196–97; Joseph T. Wearn and Cyrus C. Sturgis, “Studies on Epinephrin,” pt. 1, pp. 247, 248, 268; Edna H. Tompkins, Cyrus C. Sturgis, and Joseph T. Wearn, “Studies on Epinephrin,” pt. 2, p. 283; Harry D. Clough, “Studies on Epinephrin,” pt. 3, p. 294; WD, SGO, *Neuropsychiatry*, pp. 133, 137, 138, 379–97.

gas was helpful in dealing with cases of bronchitis and some other respiratory infections.<sup>59</sup>

Surgeon General Ireland set up what was the third of a series of tropical disease boards in Manila in 1922, where it delved into the mysteries of such diseases as beriberi, leprosy, tuberculosis, dengue, yaws, malaria, parasitic infections, and other ills most often found in the tropics, including those that afflicted animals. Establishing definitively that dengue was spread by a mosquito and that the vector was the same insect that in the Caribbean was responsible for spreading yellow fever was an important step in reducing the danger posed by this fever to American soldiers in the Philippines. Although board members were unable to identify the causative organisms, now known to be a virus, they took advantage of the willingness of soldiers serving in the Philippines to volunteer to serve as experimental subjects. They were thus able to establish that immunity to dengue, while initially high, dwindled with time and that the period of immunity was unpredictable. The board continued its investigation of the diseases that affected animals just as it had before the war. Among the vaccines developed there were a new rabies vaccine and a vaccine against rinderpest, a disease affecting cattle.<sup>60</sup>

### *In Retrospect*

In the years that followed the end of World War I, both individual physicians and the medical profession as a whole were able to assess the significance of the wartime experiences for medical science and to learn from them as they might from extensive research conducted in a peacetime laboratory. Moreover, many physicians returned to their civilian practices as they might from two years of rigorous post-graduate training, with new skills and new insights. In 1919, as one physician reflected, “What seems rather remarkable is that the war has failed to procure anything new or startling in medicine, but it is the aggregate of smaller refinements and perfections which mark the great progress in the past five years.” In 1923 former University of Michigan Medical School dean and Medical Corps officer/epidemiologist Victor C. Vaughan, who had served in both the Spanish-American War and World War I, noted that the accomplishments of medical officers in the latter conflict brought great credit to the medical profession as a whole.<sup>61</sup>

Some lessons learned during the war were of limited significance for physicians in their civilian practices. War wounds tended to be far worse than the injuries most

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<sup>59</sup> WD, *ARofSW*, 1921, p. 225; Harmon H. Cole, “A Clinical Study of the Gassed Ex-Soldier, with Special Reference to Pulmonary Tuberculosis,” pp. 55–56; Hume, *Victories*, pp. 171, 185; “Warfare Gases,” pp. 99–100, 102, 103, 105, 109, 110, 111; H. L. Gilchrist, *A Comparative Study of War Casualties from Gas and Other Weapons*, pp. 99, 100; idem, “Chlorine Gas in the Treatment of Respiratory Diseases,” pp. 608, 609, 610, 611, 613; WD, SGO, *Gas Warfare*, pp. 274, 277–89; Robert S. Berghoff, “The More Common Gases,” p. 678; W. G. Macpherson, *Medical Services*, 2:520; Tobey, *Medical Department*, p. 57.

<sup>60</sup> WD, *ARofSG*, 1923, p. 201; *ibid.*, 1924, p. 163; *ibid.*, 1925, pp. 208–09; *ibid.*, 1926, pp. 13, 214–15; *ibid.*, 1928, p. 10; Hays Memorial Address, p. 2, folder 94, Ms pp. C117, Ireland Papers, NLM; Tobey, *Medical Department*, pp. 50, 57; Hume, *Victories*, p. 190.

<sup>61</sup> Henry J. Walton, “Late Results of War Injuries to the Chest,” p. 568 (quotation); Paul Starr, *The Social Transformation of American Medicine*, p. 141.



*Vaughan in his laboratory at the  
University of Michigan*

surgeons were likely to see in peacetime, gas gangrene was not common in civilian life in the United States, and a splint that made it possible to move the victims of major fractures safely over long distances and rough roads was not as valuable for patients who were treated either in their homes or in nearby hospitals. Nevertheless, surgeons emerged from the war far more experienced and, certainly in most instances, far more effective as physicians than they had been when they entered. They gained the greater proficiency that might be expected from intense experience as surgeons. The importance of debriding dead tissue from around a wound, the value of blood transfusions (and the development of improved methods of administering them), improved techniques in plastic and thoracic and other specialized types of surgery, the neurological management of head wounds, and improved methods of handling traumatic shock—these were the lessons they were able to share

among their colleagues in the medical profession long after the guns fell silent.<sup>62</sup>

The war also brought many lessons to the nation's physicians concerning disease and its prevention. As one medical officer wrote, "The war has proved most useful as a teacher of the fundamental principles of disease control." Some of those returning to their peacetime lives had while in the Army become expert in dealing with the problems of public health, an opportunity that peacetime would have offered to very few. Although the dangers of anaphylactic reactions to tetanus toxoid were recognized, the value of vaccines and serums against such diseases as tetanus and typhoid fever was more appreciated than ever as a result of the war, and a vaccine against pneumococcus pneumonia was raising hopes. While medical officers had no effective approaches other than isolation to the prevention and treatment of influenza and most respiratory diseases to bring home, they had learned much about steps that were not worth trying.<sup>63</sup>

<sup>62</sup> A. MacPhail, *Official History of the Canadian Forces in the Great War, 1914–1919*, p. 108; Tobey, *Medical Department*, p. 43; John Smyth, "Lessons of the War Which May Be Applicable to Civil Practice," pp. 102, 103, 106, 107; Hume, *Victories*, pp. 86–87; Hill, *Silent Enemies*, p. 89; Cassedy, *Medicine in America*, p. 121; John M. T. Finney, *A Surgeon's Life*, p. 218; Owen H. Wangensteen and Sarah D. Wangensteen, *The Rise of Surgery from Empiric Craft to Scientific Discipline*, pp. 513, 516; Hussey, "Blood Transfusion," p. 520; Harris P. Mosher, "A Summary of the Activities of the Section of Otolaryngology," pp. 649–50; "The Infected Wound," p. 1364.

<sup>63</sup> George A. Soper, "The Efficacy of Existing Measures for the Prevention of Disease," pp. 1408 (quotation), 1409; Isaac W. Brewer, "The Control of Communicable Diseases in Camps,"



Great hope was held out in the earliest years after the war's end for the improvements to be expected in civilian facilities when military physicians, accustomed to the discipline and order of military hospitals and to relying on laboratory services to aid them in diagnosis and treatment, came home to resume their professional lives in their communities. For medical officers returning to civilian life, even the ability to communicate clearly had been improved. As one of them so aptly put it, "We have learned to write letters with the subject at the top so that those that receive them know at least what we started to write about. We have learned the value of words because we have been held responsible for them, and we have learned how to say 'yes' and 'no' without circumlocution."<sup>64</sup>

The situation that Surgeon General Ireland faced in the years immediately following the end of World War I formed a challenge that might have defeated a man of less energy and determination. He managed the massive problems involved in demobilization. He struggled without the encouragement that comes with success to convince Americans in general and their legislature in specific that the Medical Department should not be further reduced in size. And he worked both to enable those men and women who remained in the department to function effectively in peacetime and to prepare them as thoroughly as possible to meet the demands of a future conflict. Without handicapping the patients under the department's care, Ireland established a network of schools and training programs designed to train medical personnel, from the regulars, the National Guard, and the Army Reserve. He encouraged research into both present and potential future problems, both within the school system and through the tropical disease board in the Philippines. When he retired on 31 May 1931, ten years remained before the magnitude of the debt the department and the Army owed him would become fully apparent.

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p. 121; Mosher, "Otolaryngology," p. 651; WD, SGO, *SGO*, pp. 1128–29; Bertram F. Duckwall, "Psychological Light on Medical Department Administration," p. 593; Harry F. Dowling, *Fighting Infection*, p. 34.

<sup>64</sup> Clark W. Nelson and John M. Kutch Jr., "The Doctors Mayo and Military Medicine," p. 295; Alexander T. Bunts and George Crile Jr., comps., *To Act as A Unit*, p. 9; Mosher, "Otolaryngology," p. 650 (quotation).

## Chapter 16

# THE DISCOURAGING DOLDRUMS



When Surgeon General Merritte W. Ireland left office in 1931, the nation and its legislators were more concerned with the Depression that was afflicting the nation's economy than with the possibility of another war. In the period 1931–1939 severe budget restrictions produced, according to military historian Russell F. Weigley, an Army that “may have been less ready than at any time in its history” to handle combat. As a result, the leaders of the Medical Department faced almost constant frustration in their efforts to prepare their organization to meet promptly the challenges of a future conflict. They were unable either to train or to equip the number of medical personnel for treating the sick and wounded that would result from a full-scale conflict fought by a modern army.<sup>1</sup>

### *The Surgeons General*

The burden of leading the Medical Department in this frustrating period fell primarily on two men, Robert U. Patterson (1931–1935) and Charles R. Reynolds (1935–1939), both of whom had served in a variety of departmental assignments for more than three decades before being named as surgeon general. Although his parents were U.S. citizens, Patterson spent most of his childhood in Canada and received his medical training there. He joined the U.S. Army in 1901 after a short period spent in private practice and was an honors graduate of the Army Medical School. He served in the Philippines for three years after receiving his commission and, as a young lieutenant, in the spring of 1906 played an important role in the care of the victims of the San Francisco earthquake. He also served three years in Cuba. During World War I he initially served with the American Red Cross, and then, after U.S. entry into the conflict, he commanded a base hospital serving with the British Expeditionary Force. After his graduation in 1921 from the Command and General Staff College at Fort Leavenworth, Kansas, he served for three years as the director of the Medical Service of the Veterans' Bureau. From 1925 through 1930 he was commanding officer of the Army and Navy General Hospital at Hot Springs, Arkansas. Regarded by some as “a fearless and capable surgeon general,”

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<sup>1</sup> Russell F. Weigley, *History of the United States Army*, p. 402 (quoted words); Mark S. Watson, *Chief of Staff*, pp. 4, 18, 25, 37; Percy M. Ashburn, *A History of the Medical Department of the United States Army*, p. 366; Editorial, *Military Surgeon* 79 (1936): 399.



*Surgeon General Patterson*



*Surgeon General Reynolds*

Patterson also made enemies, but a new policy forbidding the reappointment of general officers eliminated the possibility of dissension about whether he should remain as surgeon general longer than four years.<sup>2</sup>

On 1 June 1935 Surgeon General Reynolds succeeded Patterson. Like Patterson, Reynolds spent many of his earliest years as a medical officer in the Philippines. He gained much experience with the problems involved in training through work with a hospital company of instruction and later in the postwar era taught administration and field work at the new Medical Field Service School in Carlisle, Pennsylvania, during his eight years as commanding officer. In the early months of World War I he provided instruction for new medical officers at Fort Riley, Kansas. In the spring of 1918 he was sent to France, where he served successively as division, corps, and army surgeon directing battlefield treatment and evacuation with a skill that attracted much favorable attention. After the war he became Surgeon General Ireland's personnel officer and then executive officer, serving with such success that Ireland reportedly wished to have Reynolds rather than Patterson succeed him as surgeon general.<sup>3</sup>

<sup>2</sup> James M. Phalen, *Chiefs of the Medical Department, United States Army, 1775–1940*, pp. 101–02, 103, 104; Edgar Erskine Hume, *Victories of Army Medicine*, p. 40; Mary C. Gillett, *Army Medical Department, 1865–1917*, pp. 324, 369; James A. Tobey, *The Medical Department of the Army*, p. 44; Malcolm C. Grow, *Surgeon Grow*, p. 313; Alexander Taylor Cooper Autobiography, pp. 327–28 (quoted words), Ms B120, National Library of Medicine (NLM), Bethesda, Md.

<sup>3</sup> Cooper Autobiography, pp. 302, 327–28, Ms B120, NLM; Phalen, *Chiefs*, pp. 101, 107–08, 109–10, 115; Hume, *Victories*, p. 41.

Succeeding Reynolds as surgeon general on 1 June 1939, James C. Magee served only three months before the occupation of Poland led to a partial mobilization in the United States. He represented a new generation for the Medical Department because, unlike his immediate predecessors, he had not served in the Spanish-American War. After joining the department as a contract surgeon in 1907, Magee was commissioned in the Medical Reserve Corps in the summer of 1908. After his graduation from the Army Medical School in 1909, he joined the Medical Corps as a first lieutenant. Magee served in France in World War I. During the postwar period he took full advantage of the increased emphasis on training and advanced education that became available under Surgeon General Ireland. Shortly after the end of his tour as executive officer at the Walter Reed General Hospital in Washington D.C., he completed the advanced graduate course at the Army Medical School in 1939.<sup>4</sup>



*Surgeon General Magee*

### *The Surgeon General's Office*

The many changes made in the organization of the Surgeon General's Office under Surgeon General Ireland had to a large extent reflected the diminishing size of the Medical Department and of the Army itself. Many of those made after Ireland's retirement, however, resulted not so much from changing needs on the part of the department as from the differing management styles of his two most immediate successors. The size of the Surgeon General's Office did not materially change during the years after Ireland's departure, but in August 1931, shortly after becoming surgeon general, Patterson attempted to centralize the management of the Surgeon General's Office by reducing the number of divisions in it from nine to five. Four years later, however, as the new departmental leader, Surgeon General Reynolds moved back toward decentralization by creating five new separate divisions, bringing the total to ten. In January 1938, in the course of making modest increases in the size of the Army, Congress added four assistant surgeon generals to the Surgeon General's Office, each to be given the rank of brigadier general. One of the new assistant surgeon generals became the head of the Dental Corps.<sup>5</sup>

<sup>4</sup> Phalen, *Chiefs*, pp. 118, 119–20.

<sup>5</sup> Blanche B. Armfield, *Organization and Administration in World War II*, p. 2; Tobey, *Medical Department*, pp. 80–81; James L. Abrahamson, *America Arms for a New Century*, pp. 180, 182–83;



*Partial view of reading room at the Army Medical Library*

Although changes in management style did not affect the status of two of the organizations with the broadest appeal to medical scientists the world over, the library and the museum, the budget restrictions of the Depression seriously threatened them. As a result of the lack of funding, “the largest medical library in the world,” which had become “the pride of the medical profession of the United States,” had to restrict its purchases to only current medical journals. In 1933 it also had to suspend the preparation of the fourth series of the *Index Medicus*. By fiscal year 1937, however, the library was again able to buy books in quantity. Congress even authorized Secretary of War Harry H. Woodring to have a new building erected to house the library and the museum, but it refrained from voting the money necessary to do so.<sup>6</sup>

The deterioration of the museum, which had started under Ireland, continued under his successors. In spite of an almost doubled workload and much demand for its services, the museum staff was cut by one-third in the period 1932–1934. In the summer of 1935 the curator reported that the museum was “no longer regarded as an important place for the dissemination of information concerning museum technique and display,” having become “a shambles of cobwebs and dirt, filled with antique

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War Department (WD), [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1938, p. 161 (hereinafter cited as WD, *ARofSG*, year).

<sup>6</sup> WD, *ARofSG*, 1933, pp. 193 (quoted words), 194; *ibid.*, 1936, pp. 196, 198, 199; *ibid.*, 1937, p. 224; *ibid.*, 1938, p. 167; Wyndham D. Miles, *A History of the National Library of Medicine*, pp. 261, 262.

furniture and the debris of worn out equipment and broken exhibits.” The lack of space available for exhibiting pathological specimens was acute, and although the museum opened two new registries in 1936, its reputation and standing continued to deteriorate. In 1937 Surgeon General Reynolds noted that the museum was “one of the show places of the Nation’s capital, but . . . about the shabbiest.”<sup>7</sup>

The work of the Planning and Training Division of the Surgeon General’s Office became more complex as well as more intense as a result of changes made in the late 1930s. The changes included transferring a subdivision for hospital construction and repair from the Professional Service Division. The newly absorbed subdivision was responsible for promoting the Medical Department’s needs before the War Department, before the Bureau of the Budget, and before Congress. The Planning and Training Division itself was already routinely responsible for developing the tables of organization dictated by changes in force structure. It also planned for new equipment and oversaw tactical training. When the expansion of the Air Corps and increases in the Panama Canal Zone garrison led to the need for more hospital space, it worked with the Quartermaster Corps to plan hospital repair and new hospital construction. Not surprisingly, from September 1940 to December 1941, the division almost doubled in size.<sup>8</sup>

### *Personnel*

Shortages of personnel, exacerbated by inappropriate organization, had plagued the Medical Department from its inception in 1818. For many years following demobilization at the end of World War I, the size of the Medical Department, like the size of the Army itself, remained more or less stable and inadequate to meet potential military challenges. In the immediate postwar period, when finding qualified candidates to keep all openings filled proved impossible, vacant department positions were swept up into the general pool of vacancies in the Army as a whole. The War Department could then assign the slot to some other part of the Army, where it would be filled, leaving the Medical Department without the right thereafter to reclaim the position without specific authorization. The personnel shortage also limited the number of medical officers who could be sent abroad as observers. In one instance, an Army physician serving as an observer for two months in Germany had to do so not as part of a regular assignment but while on two months’ leave of absence. Sufficient personnel were found, however, to permit medical officers to be assigned to serve as liaison with various other organizations, including the Red Cross, the General Staff, the assistant secretary of war, the Air Corps, and the National Guard Bureau.<sup>9</sup>

<sup>7</sup> Robert S. Henry, *The Armed Forces Institute of Pathology*, pp. 228 (first quoted words), 231 (second quoted words); WD, *ARofSG*, 1920, p. 241; *ibid.*, 1936, p. 145; *ibid.*, 1937, p. 171 (third quoted words); *ibid.*, 1938, p. 182.

<sup>8</sup> WD, *ARofSG*, 1925, pp. 231–33; *ibid.*, 1936, p. 140; *ibid.*, 1939, pp. 178, 185–90; *ibid.*, 1940, p. 185; Armfield, *Organization and Administration*, pp. 5–6, 22, 65, 221; Clarence McKittrick Smith, *The Medical Department*, pp. 9–10.

<sup>9</sup> WD, *ARofSG*, 1933, p. 1; *ibid.*, 1936, p. 2; “The Surgeon General’s Office,” p. 3; “Vacancies Among Commissioned Personnel,” p. 17; Watson, *Chief of Staff*, p. 146; G. L. McKinney, “Some Military Establishments in Germany,” p. 47.

Until the mid-1930s, the number of enlisted men serving in the Medical Department was still calculated as a percentage of the total number of enlisted in the Army. In the spring of 1938 an enlisted reserve offering a small yearly salary was set up for the Regular Army. This move was particularly fortunate for the Medical Department because a study of mobilization requirements had revealed that the number of enlisted the department would need in the event of mobilization was greater than had been anticipated earlier.<sup>10</sup>

Congress did not initially change the number of officers allowed for what Secretary of War Woodring described as “an overworked Medical Department.” Then, in the spring of 1936, it raised the ceiling on regular medical officers by fifty and that on the Dental Corps by twenty-five, later authorizing a repeat of these increases in both corps for 1938 and again for 1939. But the War Department suspended making further appointments to the Dental Corps in October 1938, having decided that the number of dentists in the corps was higher than called for by peacetime requirements. Nevertheless, Army dentists continued to be responsible for the families of soldiers, for retirees, for civilian employees of the Army, and for members of the Civilian Conservation Corps (CCC) since its founding in 1933. Despite the changes, the corps area commanders continued to complain about a shortage of medical personnel, especially of enlisted men with specialist ratings.<sup>11</sup>

The shortage of Medical Department enlisted men grew more serious with time, both because of the increasing need for specialists and because, once the ceiling on Medical Department officers was raised, greater numbers of enlisted men were needed to assist them. The shortage of enlisted men seriously handicapped training efforts. Most of these men were scattered so widely that forming units for training purposes was rarely possible, even though increases in the number of enlisted men in the department made it possible to gradually bring these units closer to the authorized peacetime strength. In April 1939 Congress voted to increase the total number of enlisted men from 6,500 to 8,000. But by June only two regular medical regiments existed within the continental United States, one serving as the demonstration unit at Carlisle and the second taking part in maneuvers with a new infantry division being tested in the vicinity of Fort Sam Houston in Texas. A third medical regiment served in Hawaii and a fourth, composed of Philippine Scouts, worked in the Philippines. A medical squadron, to be used with the cavalry, was being formed.<sup>12</sup>

Although in an era of increased mechanization the Veterinary Corps might have been expected to play a role of decreasing significance, its commitment to

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<sup>10</sup> Maurice Matloff, ed., *American Military History*, p. 416; WD, *ARofSG*, 1936, pp. 132, 136; *ibid.*, 1939, p. 26; Historical Evaluation and Research Organization, “Origins, History, and Accomplishments of the US Army Reserve,” p. 61, copy in Library, U.S. Army Center of Military History (CMH), Washington, D.C.; “The Regular Army Enlisted Reserve and the Medical Department,” p. 48.

<sup>11</sup> WD, *ARofSG*, 1932, pp. 9, 10; *ibid.*, 1936, pp. 130, 131, 132, 136, 165; *ibid.*, 1937, pp. 155-56; *ibid.*, 1938, pp. 161, 162, 166, 184; *ibid.*, 1939, pp. 174, 198, 253; *ibid.*, 1940, p. 166; WD, *ARofSW*, 1938, p. 3 (quoted words); “Recent Legislation for the Medical Department,” pp. 68-69; Hume, *Victories*, p. 42.

<sup>12</sup> WD, *ARofSG*, 1936, p. 138; *ibid.*, 1938, p. 163; Phalen, *Chiefs*, p. 111; Armfield, *Organization and Administration*, pp. 20, 21.

food inspection was vitally important to the Army. Army veterinarians were also tasked with this responsibility for the Soldiers' Home in Washington D.C., for the Navy at Cavite in the Philippines, for the National Guard, and for the Works Progress Administration (WPA), which provided work for the unemployed. Nor had the Army abandoned its animals. The average strength for 1939 was more than 23,000 horses and mules, and the post veterinarian at Fort Belvoir in Virginia also made regular visits to the Marine Barracks at Quantico to care for animals serving the Navy. Although most of the laboratory work done in veterinary laboratories related to testing food, the Army's veterinarians also made vaccine against equine encephalomyelitis, a disease affecting the brain and spinal cord.<sup>13</sup>

During the interwar period the Army tended to be rather casual in dealing with its female personnel. By the early 1930s the training of dietitians and physiotherapy aides had to be dropped because of the shortage of funds. The Army Nurse Corps was too small to provide nurses to the many posts desiring their services; the total number, including both regulars and reservists on active duty, did not rise above 900 until the late 1930s. Members of a garrison, however, were apparently free to meet the shortage of nurses on their own initiative. Personnel at Maxwell Field, Alabama, formed what they called a nurses association, which officers and married noncommissioned officers could join for a modest monthly fee, to hire a permanent nurse for the base and to provide for additional nurses should the need arise.<sup>14</sup>

The Army's continuing need for nurses was obvious, yet under the assumption that they could easily be obtained from among civilians and under pressure to reduce expenses, the Medical Department suspended the operations of the Army Nursing School in 1931 and formally discontinued it two years later. Mobilization plans called for the surgeon general to obtain names of eligible nurses in each corps area from the Red Cross and similar sources and provide them to each corps area commander. After mobilization, corps commanders would be expected to use the list to obtain additional nurses as needed. A reserve nurse corps was never created, for the Army believed that it would be extremely difficult to maintain because marriage would terminate "eligibility in too many instances."<sup>15</sup>

Of vital importance both to mobilization plans and to mobilization itself were the medical members of the Officers' Reserve Corps. Beginning in 1936, the Medical Department officially encouraged its members to participate in the activities of professional and scientific organizations outside the military, an approach that obviously served to familiarize many potential reservists with the work of the department. Nevertheless, in spite of some increases, the shortage of medical officers against which Surgeon General Ireland struggled continued under his successors. Although new men joined the Army Reserve, others left, often because of a failure to obtain the training needed to remain eligible for reappointment. This failure did not necessarily

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<sup>13</sup> WD, *ARofSG*, 1931, p. 14; *ibid.*, 1940, pp. 211, 216, 220, 221; Armfield, *Organization and Administration*, p. 15.

<sup>14</sup> WD, *ARofSG*, 1922, p. 14; *ibid.*, 1923, p. 7; *ibid.*, 1927, p. 248; *ibid.*, 1928, p. 1; *ibid.*, 1932, p. 9; Phalen, *Chiefs*, p. 111; Tobey, *Medical Department*, pp. 87–88; "Nursing Service—Emergency," pp. 11–12; "C.C.C. Activities," p. 35.

<sup>15</sup> Phalen, *Chiefs*, p. 104; J. A. Rogers, "Reserve Nurses," pp. 40 (quoted words), p. 42.



result from any lack of enthusiasm on their part. Unless the corps area commander or the chief of the branch with which the reserve officer was serving certified that his civilian practice was closely related to the work he was doing in the Army, only either active- or inactive-duty training could maintain his eligibility. By this point, however, active-duty training was possible only once every eight years because of the lack of funding, while reserve appointments had to be renewed every five years. Eventually new regulations permitted ineligible officers to serve a second five-year period, but did not allow them promotion or active-duty training. Some medical officers gave up reserve commissions for those available in the National Guard.<sup>16</sup>

By fiscal year 1934 the overall gain in the size of the Medical Corps Reserve for the preceding ten years was barely more than 5 percent, 57 percent short of the goal, partly because corps area commanders were not taking advantage of their right to name for reappointment some reserve officers who could be assigned to technical or professional positions rather than administrative. The shortage among reserve veterinarians was even greater. As late as fiscal year 1939, the reserve components of the Medical Department were still not, as a whole, increasing in size.<sup>17</sup>

To maximize their effectiveness, the various reserve groups that supported the Medical Department were organized according to either the corps areas or the service to which they had been assigned, with by far the larger number being assigned to the corps areas. The rapid expansion of the Air Corps and the need for physicians to care for the growing number of troops stationed in the Panama Canal Zone made the further step of extended duty for officers in the Medical Corps, Dental Corps, and Veterinary Corps reserves necessary in the spring of 1939. Although service on this basis was generally authorized for a year's time for those whose performance proved satisfactory, a longer period was possible. Officers who had served six months were allowed to opt for overseas service.<sup>18</sup>

The relationship between the Medical Administrative Corps and pharmacists remained unchanged until 1936, despite abortive attempts to gain commissions for these specialists. Appointments to the corps had been dropping, which was blamed on the fact that so few could qualify as administrative specialists without having served long years in the enlisted ranks of the Medical Department. Finally, in June 1936, an amendment to the National Defense Act called for commissioning graduates of recognized schools of pharmacy who passed an entrance examination as second lieutenants in the Medical Administrative Corps. Although those already in the Corps were allowed to remain, the law intended that eventually, because of attrition, the organization would consist only of pharmacists. In 1939 Congress limited the number who could be appointed to sixteen.<sup>19</sup>

<sup>16</sup> "Medical Department Contacts with Professional and Scientific Groups," p. 75; Phalen, *Chiefs*, p. 112; "Reserves—Medical Department," p. 14; "Alaska Flight," p. 10; WD, *ARofSG*, 1936, p. 132.

<sup>17</sup> "Medical Department Reserve," p. 18; WD, *ARofSG*, 1933, p. 4; *ibid.*, 1934, p. 145; *ibid.*, 1935, p. 139; *ibid.*, 1939, p. 174; Phalen, *Chiefs*, p. 112.

<sup>18</sup> WD, *ARofSG*, 1936, pp. 134, 135; *ibid.*, 1939, p. 27; *ibid.*, 1940, pp. 168, 209.

<sup>19</sup> WD, *ARofSG*, 1936, pp. 131, 134–36; *ibid.*, 1938, p. 162; Richard V. N. Ginn, *The History of the U.S. Army Medical Service Corps*, pp. 96–98; Julia C. Stimson, *History and Manual of the Army Nurse Corps*, p. 34 (hereinafter cited as *History of ANC*); "Legislation of Interest to the Medical Department," no. 32, p. 14, and no. 33, p. 69; "Expansion of the Civilian Conservation Corps," p. 15.

Training as part of a unit was basically not possible for medical reserve officers. For all practical purposes, no enlisted reserve existed for the Medical Department until 1938 and thus no reserve medical units could be formed. Reserve officers on active duty had to be fitted into slots where they were needed to supplement the work of regulars. Transferring to the National Guard was, therefore, an understandable temptation for many reservists because the Guard's medical personnel served as part of units and were organized into specialty corps.<sup>20</sup>

Although Red Cross personnel were not part of the Army, they continued to perform valuable services for the Army, principally at general hospitals where they managed records pertaining to the family backgrounds of patients, handled questions from anxious family members, and performed similar services. To guarantee the most effective use of Red Cross support if war should erupt, the Medical Department conferred with the Red Cross concerning the role it would play.<sup>21</sup>

### *Supply*

The requirement that the Medical Department meet the needs of the Civilian Conservation Corps, which was organized in 1933 to provide work in the field of conservation for young men unable to find other employment, only exacerbated the department's concern for supply, both on a current basis and as a problem for the future. As late as 1939, because the quantity of its reserve equipment was so small, it could not have created even one 1,000-bed general hospital had war erupted. Furthermore, this equipment, like much of the equipment in the Army as a whole, was either obsolete or well on its way to becoming so. Dictated by basic changes in the organization of the Army itself, the Medical Department finally began the process of updating tables of organization and the basic equipment needed in the field. Planning for future needs had to be adjusted to fit with the mobilization plans of the Army as a whole. It involved interaction with an even larger multitude of bureaus and agencies than did purchasing in peacetime, their efforts coordinated by the secretary of war. By fiscal year 1936 the department had become responsible for buying five of the eighteen strategic raw materials that would be needed in the event of war.<sup>22</sup>

Medical supply officers continued to require much training, mainly because the system through which supplies were obtained had not become simpler with time. One of the sources of complexity involved in the Medical Department's supply operations was the way in which medical supplies and equipment had to be obtained. Although the Finance and Supply Division of the Surgeon General's Office coordinated supply, the Quartermaster Corps in 1932 became responsible for

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<sup>20</sup> WD, *ARofSW*, 1930, p. 92; *ibid.*, 1937, pp. 8, 33; *ibid.*, 1938, pp. 3, 32, 70; *ibid.*, 1940, p. 61. Armfield, *Organization and Administration*, p. 1; WD, *ARofSG*, 1940, p. 273.

<sup>21</sup> "American Red Cross in Peacetime," p. 28; WD, *ARofSG*, 1936, p. 209; *ibid.*, 1939, pp. 178–79.

<sup>22</sup> Watson, *Chief of Staff*, p. 8; WD, *ARofSG*, 1931, p. 9; *ibid.*, 1936, p. 126; Smith, *Medical Department*, pp. 6, 39, 42; Mae Mills Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907–1949)*, p. 75; Harold J. Tobin and Percy W. Bidwell, *Mobilizing Civilian America*, pp. 39–40, 42–43, 50–51; "Finance and Supply Topics," no. 33, p. 91; "Medical Supply in Peacetime," pp. 32–33.

obtaining everything the department needed of a “non-technical” nature, including ambulances. The Surgeon General’s Office remained responsible for buying as well as storing and issuing “special and technical” items.<sup>23</sup>

Most purchasing in the field was handled through the supply section of the Finance and Supply Division. Four field purchasing depots handled major purchases being made to replenish stock, while individual station hospitals made their own for minor purchases locally. Depot replenishment was usually handled through the New York medical supply depot. In arranging to procure new items, the Medical Department first drew up its own specifications and tried to use them in purchasing before submitting those specifications for use at the Army level.<sup>24</sup>

Largely as a result of World War I experience, the Medical Department was aware of the need to involve industry in the effort to prepare for mobilization. The surgeon general’s contribution was to identify manufacturers that could produce the items the department needed. For this purpose he divided the country into procurement planning districts and established a central control office in his Finance and Supply Division. The districts then conducted surveys to identify the location of manufacturers by district and to determine their capacity. To have plants actually assigned to meet the Medical Department’s needs, the Finance and Supply Division worked through the planning branch of the Office of the Assistant Secretary of War, which was ultimately responsible for obtaining military supplies and for mobilizing industries to meet military needs. This planning branch drew up schedules to establish, without offering formal commitments, what each firm was willing to provide. Both requirements and the firms able to meet them changed with time, which necessitated further surveys. Unfortunately, for many years a shortage of funds made much of the travel required to set up this type of program impossible.<sup>25</sup>

The Medical Department took an optimistic view of the supplies and equipment that it provided for its medical officers, insisting that few physicians in civilian life had as much as medical officers did. It was aware that the “many little niceties and conveniences” that it could not offer them made it necessary on occasion for them to exercise a certain amount of ingenuity. Efforts to modernize equipment, furthermore, could be frustrating.<sup>26</sup>

### *Hospitals*

Supply, personnel, and fund shortages continued throughout the 1930s to interfere with the Medical Department’s ability to run its hospitals and laboratories. The funds available for hospital construction were increasingly inadequate to meet the

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<sup>23</sup> M. A. Reasoner, “The Development of the Medical Supply Service,” p. 2; WD, *ARofSG*, 1932, p. 5; *ibid.*, 1940, p. 179; *ibid.*, 1941, pp. 131–33, 135; “Medical Supply in Peacetime,” p. 33 (quoted words).

<sup>24</sup> “Medical Supply in Peacetime,” pp. 36, 38; WD, *ARofSG*, 1935, p. 132.

<sup>25</sup> WD, *ARofSG*, 1931, p. 10; *ibid.*, 1936, p. 126; *ibid.*, 1941, p. 130; Armfield, *Organization and Administration*, pp. 3–4; “Finance and Supply Topics,” no. 33, pp. 88, 90.

<sup>26</sup> “Finance and Supply Topics,” no. 31, pp. 79 (quoted words), 83, and no. 32, pp. 60–62; WD, *ARofSG*, 1932, pp. 9–10.

need for hospital beds. The department was responsible for the care of many civilians, among them veterans and sick or injured members of the Civilian Conservation Corps. Sums paid for civilian patients, who continued to fill a large proportion of the beds, were not sufficient to meet the additional expenses they imposed. The withdrawal of most of the beneficiaries of the Veterans' Administration from Army hospitals in 1933 eased this situation only slightly. The bulk of the veterans still hospitalized, victims of tuberculosis, were cared for at Fitzsimons General Hospital in Denver, as were Navy personnel suffering from this disease.<sup>27</sup>

Although in the early 1930s Surgeon General Patterson was able to obtain the funds to have the Army and Navy General Hospital rebuilt, two new wings added to the school building at the Army Medical Center in Washington, and various minor projects completed, he never had the resources to launch the long-range program he sought to expand the Army's hospital system and to modernize existing facilities. He used some of the money voted to meet the needs of the Civilian Conservation Corps to pay for construction. Funds were found in fiscal year 1936 to permit air conditioning to be installed in the operating and recovery rooms of sixteen hospitals and six new hospitals to be built over a period of six years for Air Corps posts, but corps area hospitals were widely considered to be inadequate both in size and condition. At the time the need for more and better hospitals became urgent in 1939, expansion to meet the need was difficult.<sup>28</sup>

Such construction as became possible with the relaxation of budget restrictions did not entirely solve the problem. The Medical Department, however, had worked in an advisory position with both the Quartermaster Corps and the Corps of Engineers to develop plans for mobilizing an appropriate system of hospitals both in the zone of the interior and in the theater of operations. The department was pleased that it had "for the first time in history . . . hospital plans ready for war in advance of mobilization." Nor were the plans restricted to hospitals, for the department had also devised an evacuation system.<sup>29</sup>

Of the facilities belonging to the Army, few met the needs of medicine as it was then practiced, and only twenty-five were modern and fire resistant. Of the remainder, only fifty were regarded as being worth an attempt to modernize them. In the effort to maintain the quality of station hospitals, the Medical Department occasionally requested that the American College of Surgeons conduct inspections. By 1934 thirty-eight of the larger station hospitals had met the organization's standards. The most frequent criticism made of some Army hospitals involved incomplete and inadequate record-keeping, problems that apparently would not have arisen had regulations been strictly followed.<sup>30</sup>

<sup>27</sup> WD, *ARofSG*, 1933, pp. 3, 152; *ibid.*, 1934, p. 160; *ibid.*, 1936, pp. 127, 128; *ibid.*, 1939, p. 253; *ibid.*, 1941, p. 255; Smith, *Medical Department*, p. 4.

<sup>28</sup> Phalen, *Chiefs*, pp. 104, 112, 113; WD, *ARofSG*, 1931, p. 10; *ibid.*, 1932, p. 9; *ibid.*, 1936, pp. 140–41, 143; *ibid.*, 1937, p. 233; Hume, *Victories*, pp. 40–41; Smith, *Medical Department*, p. 4.

<sup>29</sup> WD, *ARofSG*, 1935, p. 151; *ibid.*, 1938, pp. 160, 174, 245; Smith, *Medical Department*, p. 3; Floyd Kramer, "Mobilization Type Hospitals," p. 1 (quoted words); Robert P. Williams, "The New Regimental Medical Detachment," pp. 9–26.

<sup>30</sup> Smith, *Medical Department*, p. 4; WD, *ARofSG*, 1936, p. 143; "Standardization of Professional Service at Station Hospitals," p. 25; C. M. Walson, "Hospital Standardization Requirements of the American College of Surgeons and Their Attainment by Army Hospitals," p. 55.

### *Training*

The basic goals of the Medical Department's training efforts included developing medical officers who were prepared to serve in the theater of operations, creating a pool of physicians who were skilled "in the medico-military art," and having a sufficient number qualified to train reservists and National Guard members. Because of the shortage of experienced medical officers, training for new and reserve officers and for enlisted men was significantly handicapped throughout the Army as a whole as well as in the Medical Department. The department used extension and correspondence courses to instruct almost 11,000 students, including 9,005 reserve medical officers, 960 medical officers of the National Guard, and 780 regular enlisted men, in fiscal year 1939 alone. Potential reserve officers continued to be trained through the Reserve Officers Training Corps (ROTC), but enrollment in medical ROTC program was terminated in the spring of 1932 because of a lack of funding, even though other ROTC programs in the Army were allowed to continue to receive students. To compensate, regulations were changed to permit commissioning graduates of the best medical, dental, and veterinary schools directly after graduation, without requiring that they serve internship or that they first be licensed and go into practice as civilians. Four years later, however, the Medical Department was permitted to renew its ROTC program, and by the end of fiscal year 1939 more than 2,000 students were enrolled.<sup>31</sup>

The Medical Department's internship program, too, suffered from the lack of money, although by this point internship was regarded as part of the postgraduate education that was necessary to the proper training of a young physician. Veterans' Administration resources were the chief source of funds for the program through which these interns were trained. In 1933 Congress denied future admission to the Army's hospitals to most Veterans' Administration beneficiaries; however, veterans who were already in Army hospitals were not removed. For the next year no interns were appointed because the Medical Department was unsure if it would have the money to pay them. By fiscal year 1938 the Army had enough applicants for admission to the department to make internships unnecessary, and the department dropped the program for physicians. A program for young dentists to start training in Army hospitals beginning 1 July was, however, authorized at this time.<sup>32</sup>

During the period after Surgeon General Ireland's departure from office up until the mobilization of the fall of 1939, with one exception, training through the Army Medical Center in Washington D.C. and the Medical Field Service School at Carlisle continued much as it had before. In fiscal year 1939 plans were formed at the Center to lengthen courses for various types of technicians to fill a calendar year, thereby allowing more time for trainees to gain practical experience. At

<sup>31</sup> "Legislation of Interest to the Medical Department," no. 42, p. 74 (quoted words); WD, *ARofSW*, 1933, pp. 5, 25, 164n; *ibid.*, *ARofSG*, 1932, pp. 6–7; *ibid.*, 1934, p. 151; *ibid.*, 1935, p. 139; *ibid.*, 1936, pp. 136, 139, 140; *ibid.*, 1938, p. 171; *ibid.*, 1939, p. 184; "Reserves—Medical Department," pp. 13–14; Charles R. Reynolds, "Legislation Affecting the Medical Department," p. 7.

<sup>32</sup> "Internes in Army Hospitals," pp. 10–11; *ibid.*, 1934, p. 143; *ibid.*, 1935, pp. 133, 144; *ibid.*, 1936, p. 139; *ibid.*, 1938, p. 162; *ibid.*, 1939, p. 198; "No More Internes," p. 51; Walter A. Bloedorn, "The Mission of the Medical Department United States Army," p. 463.



*Army Medical School, 1932*

Carlisle the program gained a more coherent form with the passage of time. In addition, the creation of an outdoor amphitheater used for unit instruction during summer training camps, for picnics, for boxing matches, for fox hunts, and for polo matches all suggested a relatively relaxed atmosphere.<sup>33</sup>

The one significant change to take place in the training offered medical officers occurred when Surgeon General Patterson established a new path to be followed by regular medical officers who were needed for field service. Attendance at the Army Medical School was no longer mandatory; the basic course at Carlisle became a requirement, with study at the Army Medical Center indefinitely postponed. Increasing numbers of new medical officers were coming from medical schools that offered courses of the highest quality, and the Medical Department found these young physicians less than eager to spend more time in the classroom at the Army Medical Center, where the work might well be somewhat repetitive for them. From Carlisle, therefore, they would be sent to one of the larger posts where field experience was possible, becoming eligible three to five years later for study at one of the Army's professional service schools. Training in the specialties, whether at the Army Medical Center or at civilian schools, was limited to those who had already gained both professional and military experience with the Army and who had demonstrated both interest in and aptitude for a specialty. The Medical Department apparently took greater advantage of civilian schools than

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<sup>33</sup> WD, *ARofSG*, 1939, p. 174; Thomas G. Tousey, *Military History of Carlisle and Carlisle Barracks*, p. 400; Crawford F. Sams, "Medic," pp. 29, 40, copy in Library, CMH.

most other branches of the Army, sending thirty-six officers to civilian schools in 1938.<sup>34</sup>

The requirement to provide significant numbers of medical personnel for the CCC camps briefly drew down on the staff at Carlisle and curtailed its program until reservists could replace the regulars at the camps, but the tempo of training increased thereafter. The basic course was reinstated in 1935, and a year later training specifically for reserve officers was added. The advanced course grew from two to three months in length to prepare officers to become instructors with the Reserve Officers Training Corps, the National Guard, or the Organized Reserves. Special courses were also set up for regulars who were scheduled to take promotion examinations. Summer training camps at Carlisle offered instruction not only to medical college students undergoing military training but to reserve medical, dental, veterinary, and administrative officers. Unfortunately, however, physicians in the Army Reserve or the National Guard were not as eager for this type of training as had been hoped. Although those among them who were familiar with the courses believed that they were vitally important to the success of any medical officer, they apparently found the school's extension courses more convenient.<sup>35</sup>

Throughout the premobilization period until 1934, when a lack of funds curtailed research, the Equipment Laboratory at Carlisle continued to test equipment for the field. Among its concerns were field X-ray equipment, first aid packages, battalion aid station equipment, and the development of improved models of ambulances, especially light motorized ambulances that could be used in the field instead of the now-abandoned animal-drawn vehicles. The result of its efforts with ambulances was a four-wheel drive version that could apparently cover the same areas as its animal-drawn counterpart. In 1936 demonstrations of the ability of the autogiro (essentially a hybrid between a propeller airplane and a helicopter) to land and take off from a small space and to carry patients long distances close to the ground took place at Carlisle. Although spectators were impressed, the funds needed to develop a medical evacuation unit using this type of craft were not available.<sup>36</sup>

In spite of the vital nature of the work done at the historic Carlisle Barracks, the plant was in miserable condition during much of the pre-World War II period, thanks in part to a tornado in 1920 and a fire in 1924. Although Surgeon General Reynolds downplayed the problem in his annual report, at least one officer believed that Carlisle was "truly a step-child" and that the buildings "really should be condemned" as "fire traps, antiquated, and unfitted." Nevertheless, a major renovation program was under way by 1938, and new quarters were being built to house all officers and a large number of the noncommissioned officers serving there. Apparently,

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<sup>34</sup> Sams, "Medic," pp. 27–28, copy in Library, CMH; "Student Officers," pp. 15–17; WD, *ARofSW*, 1938, p. 81; "Legislation," no. 42, p. 74.

<sup>35</sup> Tousey, *Carlisle*, pp. 382, 383, 401; "Training Activities," p. 19; Phalen, *Chiefs*, p. 111; WD, *ARofSG*, 1935, pp. 144, 145; *ibid.*, 1936, p. 138; *ibid.*, 1939, p. 180; Edgar Erskine Hume, "The United States Army's Medical Field Service School, Carlisle Barracks, Pennsylvania," pp. 31, 32; William J. Bleckwenn, "Why Carlisle?" pp. 123, 125.

<sup>36</sup> Tousey, *Carlisle*, pp. 37, 376–78; "Equipment Laboratory, Medical Department," pp. 29–30; Bleckwenn, "Why Carlisle," p. 124; WD, *ARofSG*, 1934, p. 187; *ibid.*, 1937, p. 229; Peter Dorland and James Nanney, *Dustoff*, p. 8.



*Juan de la Cierva's Autogiro, Imperial War Museum Duxford,  
Cambridgeshire, England*

a much-needed new academic building to house classrooms was not given the highest construction priority. Although the old building was declared unsafe for use, money did not become available until Reynolds appeared personally before the House Military Affairs Committee to appeal for the necessary funding.<sup>37</sup>

Training for medical officers was not limited to Medical Department schools. Following the basic course at Carlisle, young medical officers rotated through a series of positions as training for handling almost any assignment, in peace or war. Thereafter they were directed toward further instruction either in administrative matters or in a professional specialty. Some still received advanced training at such special and prestigious schools as the Command and General Staff School at Fort Leavenworth, Kansas, where many of the teachers at Carlisle had studied; the Army War College; the Infantry School; and, for supply officers, the Army Industrial College. In addition, corps area commands were beginning to set up courses at area medical facilities where reserve officers could receive inactive-duty training. Few active-duty officers, however, had the time to benefit from this type of course.<sup>38</sup>

<sup>37</sup> Hume, "Medical Field Service School," p. 21; Tousey, *Carlisle*, pp. 384–85, 386, 387; WD, *ARofSG*, 1936, p. 200; Bleckwenn, "Why Carlisle?" pp. 123 (first two quoted words), 124 (third quoted words); Phalen, *Chiefs*, p. 113.

<sup>38</sup> "The Infantry Battalion and Its Medical Service," pp. 29–30; Charles R. Reynolds, "The Organization and Activities of the Medical Department of the Army," pp. 32, 33; "Assignments of



The shortage of enlisted men continued to complicate field training for officers. When Congress allowed sufficient funding to permit large-scale maneuvers involving about 36,000 troops in the summer of 1935, the deficiencies revealed by the exercises proved to be glaring. The organizations involved were basically “paper organizations,” and the maneuvers lasted only two weeks. Among the deficiencies mentioned by Army Chief of Staff General George C. Marshall was “a general lack of . . . medical regiments.” Only the few men assigned to the two existing regular medical regiments within the continental United States and to the skeletonized medical squadron had been subjected to anything resembling tactical training. Criticisms were both many and varied. The General Staff did not adequately consult with medical officers concerning the location of medical troops. Liaison between various medical units was not well managed. And the position of the division surgeon was badly handled. World War I experience had taught, in the opinion of one critic, that the division surgeon should not spend much of his time at division headquarters. Furthermore, he should be trained to turn over the management of details to his subordinates. Among the few positive comments to be made of these maneuvers was praise for the performance of motorized ambulances, which performed well, successfully accompanying infantry wherever it went.<sup>39</sup>

The organization and use of the Army’s single “complete medical regiment (peacetime) in existence,” the 102d Medical Regiment of the 27th Division of the New York National Guard, led to considerable discussion because it “still employ[ed] the so-called ‘vertical system’ in organization,” a form not authorized by tables of organization. Lt. Col. Henry P. Carter, MC, who analyzed the role of medical personnel and units in the 1935 maneuvers, commented adversely on the “dispersion of elements in the hospital battalion,” but apparently otherwise approved the way in which the regiment worked, with a collecting company and an ambulance company assigned to serve each brigade. He recommended that this organization, modified by grouping the hospital companies into a single hospital battalion, be tried again. The War Department found the maneuvers of 1935 so valuable that it decided to have maneuvers every year if it could obtain funding for them.<sup>40</sup>

The Medical Department was concerned, however, that despite the years of professional training and experience, a medical officer’s horizon might become too limited. Broader areas for self-improvement were suggested. As noted in *Army Medical Bulletin*, number 30, issued in January 1935, “Military medicine is but one of the useful arts. The opportunity to reflect the wider social and cultural background . . . is lost if we become so engrossed in our military administrative and

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Medical Department Commissioned Personnel,” p. 6; Sams, “Medic,” pp. 42–43, copy in Library, CMH; Roy E. Heflebower, “Military Medico-dental Training Course, Chicago, Illinois,” pp. 14, 17–18, 24; G. Philip Grabfield, “Course in Military Medicine for Medical Department Reserve Officers, U.S. Army (Courses for Graduates, Harvard Medical School), p. 93; WD, *ARofSG*, 1936, pp. 126, 137; *ibid.*, 1939, pp. 167, 181.

<sup>39</sup> WD, *ARofSG*, 1938, p. 169; *ibid.*, 1939, pp. 179, 181; *idem*, *ARofSW*, 1941, pp. 48 (first quoted words), 49 (second quoted words); Editorial, *Military Surgeon* 79 (1936): 400; Jay W. Grissinger, “Medical Aspects of First Army Maneuvers at Pine Camp, N.Y., August 1935,” pp. 274, 275, 276; Henry P. Carter, “Pine Camp Maneuvers,” p. 6.

<sup>40</sup> Carter, “Pine Camp Maneuvers,” pp. 5–6 (quoted words on both pages), 13.

professional duties as to allow the world beyond our official hearth to become blurred and indistinct.” The medical officer in search of success was urged not to “ignore the fields of good literature, poetry, art, or music” because “the influence of arts other than his own will enrich his life and, incidentally, his letters.” Good writing, albeit not good penmanship, was obviously considered to be of paramount importance. A medical officer “emerging from the chambers of the educational hopper, should . . . be able to write intelligently and coherently, if not always legibly.” The primary virtues for the writer, the bulletin maintained, were “clarity of thought and smoothness of style, tempered by good humor and understanding.” While emphasizing the ultimate goal was “to present complete ideas clearly and interestingly, and so arranged that they may be comprehended with the least mental effort,” the bulletin did not recommend a pedantic approach. Making the point with a touch of thought-provoking humor, it noted that “not so long ago the sentence ending with a preposition produced severe shock in at least one Medical Corps officer, although such sentence construction has been employed rather successfully by Shakespeare.”<sup>41</sup>

### *Air Corps Medical Service*

The medical officers serving in the Air Corps continued to be a group at once a part of the Medical Department and apart from it, much as the Air Corps itself was both a separate organization and part of the Army. After 1935, although the Air Corps remained part of the Army, the corps’ four air divisions no longer came under the control of the geographical corps areas. Like the Surgeon General’s Office and its divisions, the medical organization of the Air Service changed almost from year to year. In 1936 the Medical Division became a section and was placed under the Personnel Division of the Office of the Chief of the Air Corps. In the spring of 1939, to the tune of much debate as to whether the Air Corps medical service would serve its purpose better managed through the Surgeon General’s Office than under the complete control of the Air Corps, the commanding general of the Air Corps, Maj. Gen. Henry H. “Hap” Arnold, ordered that the medical section once again become the Medical Division and placed it under the training group of his office. None of these changes at the top changed the internal organization at lower levels. Although in theory, the commander of each corps area and territory had authority over all Army installations within the area or territory, he often delegated his authority to the commanding officer of the service most directly concerned with a given base. Thus for practical purposes hospitals at air bases often came under the control of the air arm, while Medical Department personnel at air bases served under the command of the chief of the Air Corps.<sup>42</sup>

The emphasis on research conducted especially by and for the Air Corps and the requirement that medical officers graduate from a special school before being

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<sup>41</sup> “Composition in Correspondence and Publications,” pp. 29, 30, 31 (quoted material from all pages).

<sup>42</sup> Mae Mills Link and Hubert A. Coleman, *Medical Support of the Army Air Forces in World War II*, pp. 20, 24–26; idem, *Origin of Air Force Medical Service*, pp. 70–71, 71n; WD, *ARofSG*, 1939, p. 259.

considered to be fully qualified to watch over the health of pilots guaranteed that the corps' medical organization under whatever name would continue to march to the beat of a different drummer. The 1931 move of the School of Aviation Medicine from Brooks Field, Texas, to the new and nearby Randolph Field apparently did not significantly interrupt the school's operations. Although regulars at the school, both Army and Navy, were expected to take a four-month intensive course, reservists and National Guard medical officers who had taken an extension course could thereafter take a six-week course given at one of the air bases to qualify as flight surgeons. Graduates from this school were future medical directors for the Federal Aviation Agency, for commercial airlines, and for the U.S. Department of Commerce, as well as examiners employed by other governments. A four-month course was also set up for enlisted specialists and a second for those wanting to qualify as flight surgeon's assistants.<sup>43</sup>

One of the principal demands placed on flight surgeons was conducting physical examinations for those seeking pilot training. Although more than 70 percent of those examined failed to pass, enthusiasm for flying was growing rapidly, and a sufficient number applied to make it possible to fill all openings in classes for flying cadets. In 1931 only 50 medical officers were available to handle physical examinations and to care for the men serving in the Air Corps; however, by 1935 new estimates suggested that in the event of mobilization at least 216 flight surgeons would be needed, to be divided up among eighteen medical examination units assigned two to a corps area, merely to conduct physicals. Another 108 flight surgeons would be needed thirty days after mobilization to set up more examination teams, while 300 would be needed to serve with tactical units and any expeditionary force that might be formed.<sup>44</sup>

The Medical Department apparently denigrated the notion that every medical officer serving the Air Corps needed "special professional training" to function well in "this highly specialized service." The surgeon general's annual report for 1939 maintained that most medical officers serving the Air Corps were handling responsibilities that were quite routine for any military physician. Furthermore, efforts to obtain flight pay for flight surgeons were to a large extent frustrated when Congress refused to grant official flight status to more than five medical officers at any one time, thus complicating, in Surgeon General Reynolds' opinion, efforts to use the Army's two air ambulances to evacuate the seriously ill and injured.<sup>45</sup>

Like its needs for flight surgeons, the Air Corps' need for medical research continued to grow until the mid-1930s, when through the efforts of the chief of the Air Corps' Medical Division, Maj. Malcolm C. Grow, MC, a separate laboratory was set up to deal with the problems that resulted from the fact that planes were being developed that could endure maneuvers and conditions that their pilots

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<sup>43</sup> Walter S. Jensen, "Why the Flight Surgeon," pp. 369, 372; Link and Coleman, *Medical Support*, p. 20; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 60, 73; WD, *ARofSG*, 1932, p. 323; *ibid.*, 1936, pp. 139–40; *ibid.*, 1938, p. 163; *ibid.*, 1939, pp. 260–61; Coleridge L. Beaven, *A Chronological History of Aviation Medicine*, pp. 61–62.

<sup>44</sup> WD, *ARofSG*, 1939, p. 260; G. S., "Legislation," no. 42, p. 73; "Aviation Medicine—Training," pp. 7–8.

<sup>45</sup> "Legislation," no. 42, p. 73 (quoted words); WD, *ARofSG*, 1935, pp. 192, 193; *ibid.*, 1939, p. 259.



*Surgeon General (USAF) Grow,  
1949*



*Surgeon General (USAF)  
Armstrong, 1950*

could not. The work of the new research organizations inevitably overlapped that of the School of Aviation Medicine. Researchers in the new facility, which was established at Wright Field, Dayton, Ohio, under the direction of Capt. Harry G. Armstrong, MC, concentrated their efforts on developing improved equipment to enable fliers to deal with high altitude flying and the effects of the cold and of rapid changes of altitude. They were able to function without the distractions involved in meeting teaching obligations. Scientists at the School of Aviation Medicine, meanwhile, continued to conduct research, but they made the pilot as an individual rather than equipment the center of their interest. Research aimed at developing aptitude tests for would-be fliers continued, apparently without great hope for success. From the staffs of these research organizations came the first publications exploring the challenges of aviation medicine, among them Armstrong's *Principles and Practice of Aviation Medicine*.<sup>46</sup>

Perhaps the greatest adventure for medical officers in the decade preceding Pearl Harbor involved a 1934 expedition by air from Washington D.C. via Dayton,

<sup>46</sup> Link and Coleman, *Origin of Air Force Medical Service*, pp. 54, 55, 56; Malcolm C. Grow, "Research in Aviation Medicine," p. 50; idem, *Surgeon Grow*, pp. 315, 316; Harry G. Armstrong, "The Loss of Tactical Efficiency of Flying Personnel in Open Cockpit Aircraft due to Cold," p. 135; Tom F. Wayne and Joseph M. McNinch, "Medicine as a Social Instrument," p. 60; David A. Myers, "A New Medical Research Laboratory," pp. 87, 88; Beaven, *Chronological History*, pp. 58, 60; Armfield, *Organization and Administration*, pp. 16–17; WD, *ARofSG*, 1937, pp. 236–37; Peyton, *Fifty Years*, pp. 78, 82, 84, 88–91, 92. The laboratory was also referred to as the Physiological Research Unit; see *ibid.*, pp. 86–87.

Ohio, over Canada to Fairbanks in Alaska, and then home via Juneau and Seattle, a flight designed to demonstrate the feasibility of long-range flight for tactical Air Corps units. This enterprise gave the Air Corps' Medical Division a chance not only to study the medical problems involved in this type of undertaking but also to conduct a survey of health and medical facilities and potential sanitary problems in Alaska for the benefit of those who might be stationed there in the future.<sup>47</sup>

The medical officer with the flight who was responsible both for the care of the men involved and for the studies was Major Grow, who would later become the first surgeon general of the U.S. Air Force. Grow's earlier experiences marked him as a man for adventure. He served as a surgeon in the Imperial Army before the Russian Revolution, where he gained valuable experience before resigning his commission to return to the United States to pursue an effort to obtain an air ambulance for the Russian Army. He soon returned to Russia with the Red Cross and found himself in Petrograd in the spring of 1917 when violent riots led to the tsar's abdication. He did not enter the School of Aviation Medicine until 1928, when he was forty. He became an aviation medical examiner upon his graduation three months later. His interest in physiological research was apparent from the outset of his career with the Air Corps, when test pilots sought his advice on managing the problems produced by extreme cold, carbon monoxide fumes, and bulky clothing.<sup>48</sup>

For such a long flight, medical supplies for the fourteen officers and sixteen enlisted who initially formed the crew, as well as for the ten additional officers and men who joined them along the way, had to be light and compact. The development of special equipment became necessary, one set for each of the three elements into which the flight was divided. Grow's plane had a wire basket litter, and all the drugs, instruments, and dressings he believed he might need were packed in a fishing tackle box. Little of the equipment proved to be necessary, however. The only injury suffered on the flight was a sprained ankle, sustained when a plane crashed landed in the water at Anchorage. The patient was evacuated by boat and ambulance rather than plane, first to Fairbanks and thence to his home by train and boat. Grow was able to take notes on possible sanitation problems, the presence of insects and their potential for carrying disease, and the nature of illnesses prevalent in the population and to make recommendations both on the clothing that should be worn by those based in the area and on potential food sources. Largely as a result of this trip, the Medical Department concluded that from the point of view of the climate and health conditions an air base at Fairbanks would be feasible.<sup>49</sup>

### *Administering the CCC*

As long as the United States was at peace, the Army's principal challenges involved not only preparing for the possibility of war when funding for it was

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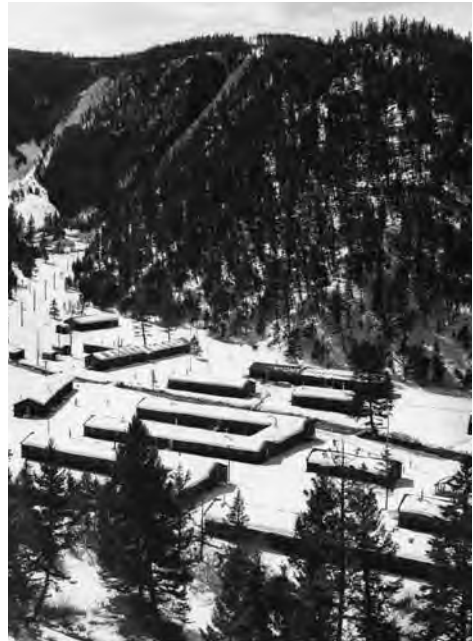
<sup>47</sup> Maurer Maurer, *Aviation in the U.S. Army 1919–1930*, p. 354; H. H. Arnold, *Global Mission*, p. 147; "Alaska Flight," pp. 7–8.

<sup>48</sup> Grow, *Surgeon Grow*, pp. 313, 314, 315–16; Maurer, *Aviation*, p. 352; "Alaska Flight," p. 3; Link and Coleman, *Origin of Air Force Medical Service*, pp. 26–27, 52; Peyton, *Fifty Years*, p. 85.

<sup>49</sup> "Alaska Flight," pp. 3–13.

inadequate but also dealing with the problems of peace—the prevention and treatment of disease and infection, both within the Army and within portions of the civilian population. While the Medical Department's first responsibility was the health of the Army, it also became involved, like the rest of the Army, in the administration of the Civilian Conservation Corps. When the Army became responsible in 1933 for setting up and supplying CCC camps and for feeding and caring for their inhabitants, the department and department personnel became responsible for the physical conditioning, the medical care, food inspection, and the hospitalization of some 274,000 civilians (a figure that Congress increased to 600,000 in April 1935) and for the sanitation of the camps in which they were gathered.<sup>50</sup>

Corps area commanders managed the funds allotted to the care of CCC members. These officers were authorized to hire physicians and nurses who were not regular members of the Medical Department. The department also hired civilian nurses for the Civilian Conservation Corps at the rate of 1 for every 10 CCC patients. As many as 500 in this category were working with the new organization. The CCC camps, which could be located in very primitive areas, were grouped into subdistricts, with each subdistrict having a medical supervisor drawn from either the Army or the Navy. Corps area commanders were required to hire either a physician or a dentist for every 30 CCC patients and a nurse for every 10 to serve at each station hospital. Corps area surgeons were permitted to hire additional civilian nurses for station hospitals should the situation warrant doing so. Army hospitals caring for CCC members were paid a per diem to cover the cost. Each camp was also to have a medical officer, who could be a regular, a reservist, or a contract surgeon, working under the corps area's surgeon. Three physicians were to be allotted for every 1,000 men.<sup>51</sup>



*CCC Camp in Granite County,  
Montana*

<sup>50</sup> WD, *ARofSG*, 1934, pp. 140–41; *ibid.*, 1937, p. 187; “Expansion,” p. 15; Historical Evaluation and Research Organization, “Origins,” p. 681, copy in Library, CMH; John W. Killigrew, “The Impact of the Great Depression on the Army, 1929–1936,” Ph.D. dissertation, pp. VI-16, 17 and XII-1, 7, 16, 18, 19; Hume, *Victories*, pp. 192–93; John A. Porter, “The Enchanted Forest,” *Quartermaster Review*, March–April 1934, [www.qmmuseum.lee.army.mil/ccc\\_forest.htm](http://www.qmmuseum.lee.army.mil/ccc_forest.htm) (accessed 8 August 2008) and copy at Quartermaster (QM) Museum Library and at Office of QM Historian, Fort Lee, Va.

<sup>51</sup> Stimson, *History of ANC*, p. 84; “C.C.C. Personnel—Care and Treatment,” pp. 18, 19; “Reimbursement of the Medical Department for C.C.C. Activities,” pp. 59–60, 61; “Expansion,” pp. 17, 18.

The burden created by the medical needs of the Civilian Conservation Corps was great. As early as 31 May 1935, 1,880 medical officers were involved. Only 17 were regulars in the Army, 57 were regulars in the Navy, 1,334 were members of the Army Reserve, and 6 were members of the Navy Reserve; the remaining 466 were contract physicians. With the passage of time the number of contract surgeons increased. In the same time period, no regulars and only 702 reserve medical officers were assigned to the Civilian Conservation Corps. Regular dentists being too few in number to provide more than emergency care for the CCC members, Dental Corps reservists, organized by corps area, were divided up into teams that rotated from camp to camp to provide routine care. As needed, contract dentists were also hired. Some 189 contract nurses were on duty at CCC camps, and the need to hire more was anticipated. The Surgeon General's Office had to assign four medical officers and more than twenty-seven clerks in the Finance and Supply Division to deal exclusively with CCC matters.<sup>52</sup>

The drain on medical personnel caused by the Civilian Conservation Corps led the War Department to look for ways to supplement Medical Department personnel. In June 1939 the War Department ordered that all military medical officers serving the Civilian Conservation Corps be replaced by civilians before the end of the year. Reserve officers working as civilians were preferred. When a sufficient number of Veterinary Corps officers could not be located to inspect food for CCC camps, representatives of the Department of Agriculture were called in. Nevertheless, by the end of 1937, 102 Veterinary Corps reservists were handling this duty.<sup>53</sup>

Despite the strain involved in meeting Civilian Conservation Corps needs, the Medical Department derived a number of advantages from bearing the responsibility for the health of CCC members. Service with the Civilian Conservation Corps was transformed into a training program for reserve officers, who served up to two years with the corps and, while doing so, completed twelve and a half hours of inactive-duty training. Even though reservists did not gain additional experience with military matters while serving with the corps, they did become familiar with sanitation and preventive medicine. They also learned about the problems involved in evacuation, for many CCC camps were in isolated areas and patients often had to be moved to the nearest Army facility. Station hospitals also benefitted from providing CCC support. When meeting the needs of CCC patients dictated buying new equipment, CCC funds paid for the resultant modernization. And because of their time spent in the CCC camps, many future Army recruits gained significant immunity to the diseases that normally afflicted those new to military service. This spared the Medical Department some of the difficulties it might have otherwise have faced when hordes of draftees came pouring into World War II military training camps.<sup>54</sup>

<sup>52</sup> "Expansion," pp. 17, 18; WD, *ARofSG*, 1934, p. 165; *ibid.*, 1935, pp. 139, 144; *ibid.*, 1937, pp. 179, 187; *ibid.*, 1938, p. 167; John M. Welch, "Dental Teams for the C.C.C.," pp. 74–75.

<sup>53</sup> "Training Activities," p. 21; WD, *ARofSG*, 1937, p. 187; *ibid.*, 1940, p. 174; "Medical Supply in Peacetime," p. 34.

<sup>54</sup> WD, *ARofSG*, 1934, p. 148; *ibid.*, 1936, p. 139; *ibid.*, 1940, p. 279; *ibid.*, *ARofSW*, 1934, p. 8; "Construction and Repairs of Hospitals," p. 19; Phalen, *Chiefs*, p. 105; Hume, *Victories*, pp. 192–93.



*CCC enrollee field cap and  
handbook, c. 1940*



Yet another important benefit derived from CCC responsibilities was the opportunity to test new vaccines. Many cases of typhoid fever developed among men who in theory should have been immune, and thus work to test new types of vaccine continued. Having concluded that paratyphoid vaccine was not needed for the corps, the department decided to try a stronger vaccine against typhoid. Although later experience suggested otherwise, its work with the corps implied that a stronger vaccine did not cause a more severe reaction than weaker material. A new vaccine that Army Medical School researchers had made from a different bacillus was successfully tried with the corps in 1937 and adopted as the standard thereafter. Pneumonia vaccine was also administered to corps members; however, since this effort did not start until 1937, scientists could not be sure of its effectiveness, although some benefit seemed to be derived from it.<sup>55</sup>

Not all experience with the Civilian Conservation Corps was of equal value to the Army. The Medical Department did not gain extensive experience in dealing with venereal disease (VD). Even though syphilis rates were apparently high among the nation's civilians, rates for syphilis and gonorrhea were relatively low within the corps—as a rule, no more than a third of that characteristic of the Army, and this at a time when Army VD rates were at an all-time low. For those who did contract it, reenrollment was recommended so that the department could continue treatment. If this was not possible, then health officials in the state

<sup>55</sup> Stanhope Bayne-Jones, *Evolution of Preventive Medicine in the United States Army, 1607–1939*, p. 176; United States, Army Medical School, *Immunization to Typhoid Fever*, pp. 8–9, 9n, 10, 23; “Typhoid Vaccine, New,” pp. 32–33; Harry F. Dowling, *Fighting Infection*, pp. 26–27; Rufus L. Holt and Arthur P. Hitchens, “Typhoid Vaccine,” pp. 1–2; WD, *ARofSG*, 1939, pp. 265–66; *ibid.*, 1941, p. 263; Hume, *Victories*, p. 188.



where a victim lived were contacted so that they could manage the procedure involved.<sup>56</sup>

Even though disease was not a great problem in the Civilian Conservation Corps, physicians serving with the corps sometimes gained greater familiarity with health problems less common than venereal disease. An epidemic of trichinosis among corps members working in Vermont in the fall of 1937 gave medical officers a chance to study this disease, which usually results from eating inadequately cooked pork that is infested with a nematode capable of invading many parts of the body. It can cause gastrointestinal symptoms, muscle pain, weakness, meningitis, and even death. Whether experience with the black widow spider might have wider application for the average medical officer could be questioned, but caring for men who were working in forests and fields made it necessary to familiarize physicians with her disposition and habits, and, above all, with the effects of her bite. Apparently those who tried injections of calcium gluconate found them to be worthwhile. The Medical Department probably derived little benefit, however, from assisting the Department of Genetics of the State of Connecticut in its attempt to discover through CCC records whether a relationship existed between handedness and the location of “supernumerary nipples.”<sup>57</sup>

The strain placed on the Medical Department by its work with the Civilian Conservation Corps went beyond personnel. Although, except for supplies and equipment used for hospital care, the department was reimbursed directly for items used for the care of CCC members, the demand was heavy, especially in the years when the department was attempting to deal with mobilization as well. To handle the supplies to meet CCC needs, additional employees had to be hired for medical supply depots. Furthermore, a large proportion of the department’s hospital beds was occupied by CCC members, an average of 680 beds being set aside for their use in fiscal year 1934. Corps area station hospitals in that time period averaged more than 550,000 patient days for CCC members.<sup>58</sup>

### *The Overseas Possessions*

The medical service in the Panama Canal Zone, in the Philippines, in Puerto Rico, and in the Hawaiian Islands resembled a smaller version of that found on the mainland. The organization was like that of the corps areas, with a simple headquarters organization. Through medical officers serving as his assistants, the department surgeon was responsible for directing dental, medical, and veterinary services. He reported to the surgeon general on both the health of the command and disease rates.<sup>59</sup>

The medical service in Panama played a particularly complex role. In the process of keeping the Canal Zone safe, the Army, which was responsible for the

<sup>56</sup> WD, *ARofSG*, 1932, p. 3; *ibid.*, 1933, p. 2; *ibid.*, 1934, p. 1; *ibid.*, 1939, p. 267; *ibid.*, 1940, pp. 278–79; *ibid.*, 1941, p. 264; Dowling, *Fighting Infection*, pp. 100–101.

<sup>57</sup> Thomas L. Ferenbaugh, “A Trichinosis Epidemic in the Civilian Conservation Corps,” pp. 62–67; Elias E. Cooley, “The Black Widow Spider,” pp. 19–22; “Genetics,” p. 25 (quoted words).

<sup>58</sup> “Subsistence and Quarters Furnished Civilians Employed in C.C.C. Activities,” pp. 60–61; WD, *ARofSG*, 1934, p. 141; *ibid.*, 1936, p. 125; *ibid.*, 1941, p. 130.

<sup>59</sup> Armfield, *Organization and Administration*, pp. 17–18.

Canal and the Canal Zone, extended its jurisdiction and sent Air Corps and engineer troops into South and Central America. By 1936 as many as 14,000 troops were serving as part of the Panama Department, where rates of malaria and respiratory and venereal disease were relatively high. In 1939 the Medical Department had 260 dispensary and station hospital beds available to these men, but their numbers were inadequate for the size of the command and most of them were in administrative buildings. Furthermore, as late as fiscal year 1939, no plans existed for evacuating the sick and wounded during maneuvers. Fortunately, 400 beds in two hospitals run by the Panama Canal Health Department were available to Army patients with the payment of a fee. These facilities came under the supervision of the Canal Zone's chief health officer, who reported directly to the governor and was responsible for sanitation and disease prevention in the zone and in the cities of Panama and Colon. Although the department surgeon and the chief medical officer worked well together on such matters as malaria control, some conflict existed between them when advice to the commanding officer in Panama was involved.<sup>60</sup>

Hospital accommodations for Army troops stationed in Puerto Rico, managed initially as part of the II Corps area, were extremely poor in the mid-1930s. No money was available to make repairs, whether to the old buildings or even to the sea walls. In 1938 money became available, but it was restricted to repair at a time when in fact a new hospital was needed. On 1 July 1939, when fewer than 1,000 officers and men were stationed in Puerto Rico, the Puerto Rican Department, which included both Puerto Rico and the Virgin Islands, was created and the station hospital at San Juan became the official department hospital.<sup>61</sup>

Troops serving in Hawaii were fortunate, for the disease rates were unusually low, and the Medical Department's difficulties there were few. In the Philippines, however, venereal disease, malaria, and dengue were common, typhoid fever was endemic, and the struggle to maintain the health of the troops was constant. By June 1939 roughly 11,000 men were serving in the Philippines, where almost 700 beds were available for the sick and wounded.<sup>62</sup>

### *The State of Medicine*

During the ten years before the United States entered World War II, health problems faced by the medical service were little changed from what they had been during the ten years that immediately followed the end of World War I. The mere awareness of how insect-borne diseases were transmitted was a weapon in the unending struggle against malaria and dengue, which continued to produce occasional epidemics in the Philippines. The islands became something of a testing ground in the struggle against malaria. The use of quinine and Plasmochin

<sup>60</sup> Killigrew, "Impact," Ph.D. dissertation, p. I-7; Charles M. Wiltse, *The Medical Department*, pp. 35, 37; Armfield, *Organization and Administration*, pp. 18-19, 20; WD, *ARofSG*, 1920, p. 436; *ibid.*, 1939, pp. 254-55, 256; Smith, *Medical Department*, pp. 3-4.

<sup>61</sup> Cooper Autobiography, pp. 337, 338, Ms B120, NLM; Armfield, *Organization and Administration*, p. 20.

<sup>62</sup> Smith, *Medical Department*, p. 3; Armfield, *Organization and Administration*, pp. 18-19; WD, *ARofSG*, 1939, pp. 49-51, 256; H. Clay Michie, "The Philippines and the 'New-Comer,'" p. 483.

(pamaquine) as prophylactics suggested that the protection they offered was “only relative.” Indeed, experience in the Philippines at Camp Stotsenburg, where the prevalent form was tertian malaria, indicated that quinine was not effective for this purpose. Tests of Atabrine (quinacrine) both as a prophylactic and as treatment in the mid-1930s, particularly during maneuvers in 1934 on Bataan, suggested that it, too, while valuable, was not invariably successful. Army scientists discovered that, to have any effect on malaria prevention, all of these drugs had to be administered over a long period of time because of the incubation period of the various types of parasite and concluded that, in fact, “no drug will prevent the occurrence of malaria.” They also discovered that these drugs were more effective against the falciparum form of malaria than against the vivax and that inadequate treatment led to the appearance of drug-resistant forms of the plasmodium. The diseases most often transmitted by poor sanitation continued to be held in check by concentrated efforts both within the military and in the civilian worlds to improve sanitation and, for the Army, by required immunization against typhoid fever. The development of sulfa and related drugs to prevent and treat infection was in its infancy during this period, but experience gained in the process proved invaluable in the war that was to come.<sup>63</sup>

Refinements in the approach to diagnosis, including an experiment in using X-ray to check recruits for tuberculosis, and greater understanding of some forms of disease assisted the fight against disease, but in peacetime sports injuries caused a high proportion of disability, and automobile, plane, and other accidents, along with homicide and suicide, for the first time led disease as a cause of death. Although for white enlisted men the average admission rate had fallen 76 percent in eighty years, that for respiratory disease had gone down by only 37 percent, making it still a real threat when an increase in the size of the Army resulted in overcrowding in barracks. Communicable diseases of all kinds continued to form a particularly great danger to new recruits who, unlike veterans, had not had a chance to build up immunity, and heart and coronary artery disease caused a relatively high number of deaths and disability. Mental illness and tuberculosis, both of particular concern with troops in the Philippines, tended to cause the highest rates of discharge from the Army and venereal disease, especially gonorrhea, the greatest loss of time from duty on an Army-wide basis. Nevertheless, sulfanilamide was proving effective against gonorrhea, making the customary irrigations with silver compounds unnecessary.<sup>64</sup>

Syphilis also remained a significant problem for the Army. Treatment had not changed since the end of World War I. Injections of arsphenamine and bismuth continued to be the most common treatment. It was also a disease in which few medical officers expressed any great interest. Early diagnosis and prompt,

<sup>63</sup> WD, *ARofSG*, 1935, p. 38; *ibid.*, 1937, p. 233 (first quoted words); Albro L. Parsons, “Malaria Control at Camp Stotsenburg, P. I.,” pp. 821, 822; S. D. Avery, “Prophylaxis of Malaria,” pp. 22, 23–25, 26 (second quoted words), 27; Bayne-Jones, *Evolution*, pp. 175–76; Horace P. Marvin; Aubrey L. Bradford; and Walter H. Ketchum, “Sulfapyridine Therapy in Pneumonia,” p. 554.

<sup>64</sup> WD, *ARofSG*, 1932, p. 1; *ibid.*, 1933, pp. 1, 2–3, 19; *ibid.*, 1934, p. 59; *ibid.*, 1935, pp. 13, 20, 24; *ibid.*, 1936, pp. 6, 10, 17, 21, 26, 144; *ibid.*, 1937, p. 232; *ibid.*, 1939, p. 257; *ibid.*, 1941, p. 74; Bayne-Jones, *Evolution*, p. 176; Charles E. Morse and Frederic G. Hirsch, “The Treatment of Acute Gonorrhoeal Urethritis,” p. 57.

uninterrupted treatment were very important to the chances of success. Follow up after apparently successful treatment was also important for at least a year. Increased emphasis was, therefore, placed on enabling the Medical Department to keep track of each soldier who had been diagnosed with syphilis. A man who left the service before his treatment had been completed and then reenlisted at another station where Army representatives had no record of his condition might develop the symptoms of advanced disease and have to be discharged with severe neurological problems that could not be cured. When a soldier with the disease was sent overseas, his records were often slow to follow him. Furthermore, wherever he went, the soldier with untreated or inadequately treated syphilis might spread the disease to others. The Medical Department did not want to return to the civilian community anyone with venereal disease until he had reached the stage in his treatment where he could be regarded as noninfectious. Keeping accurate and up-to-date records of every soldier with syphilis as part of a syphilitic register offered the added benefit of enabling the department to maintain accurate statistics concerning the nature and extent of the Army's problems with venereal disease.<sup>65</sup>

The Army's surgical patients benefited from progress in the choice and use of anesthetics, but that same progress made the administration of anesthesia by those whose training in this area was limited no longer desirable or safe. Inhalant anesthetic agents other than the traditional ether and chloroform were coming into use, although many possessed ether's explosive potentials. Among the newer agents were ethylene, used for light anesthesia, and cyclopropane, valued for the fact that it was followed by a rapid recovery period with few complications. Local and rectal anesthetics were also becoming relatively popular, as were derivatives of cocaine used as nerve blocks. A technique whereby the excess carbon dioxide was removed from the gas a patient had already breathed in and oxygen was added made it possible to reuse expensive anesthetic agents safely.<sup>66</sup>

Army scientists continued throughout the 1930s to make their share of contributions to science. An Army veterinarian established that the mosquito spread encephalitis. Veterinary officers stationed at the Quartermaster Remount Depot at Front Royal, Virginia, studied animal diseases, including influenza in horses. A medical officer aided by a noncommissioned officer proved that a high velocity missile could cause damage well beyond the track of the bullet, thereby emphasizing the importance of wide debridement to reduce the chances of gangrene, infection, and hemorrhage. At the urging of Surgeon General Reynolds, the chief of the medical research division at the Edgewood Arsenal, Maryland, where two to three medical officers trained each year at the Chemical Warfare School, began to devote more and more intensive effort to research into gas warfare and possible forms of treatment for its victims.<sup>67</sup>

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<sup>65</sup> Elias E. Cooley, "Notes on the Diagnosis and Treatment of Early Syphilis," pp. 22, 23, 44, 45, 47, 48, 49, 50; Grissinger, "Medical Aspects," p. 275.

<sup>66</sup> George E. Donaghy, "Modern Anesthesia for War Surgery," pp. 577-79; Hertel P. Makel, "Anesthetics," pp. 41, 42, 44.

<sup>67</sup> Edgar Erskine Hume, *The Golden Jubilee of the Association of Military Surgeons of the United States*, p. 168; WD, *ARofSG*, 1933, p. 215; *ibid.*, 1938, p. 210; Armfield, *Organization and Administration*, pp. 12, 15.

In 1934 the disease board initially established in Manila in the wake of the Spanish-American War to study tropical diseases was moved to the Panama Canal Zone, where it worked in the board of health laboratory in the Gorgas Hospital. It functioned under the command of the commanding general of the Panama Department, although some of its work was for the governor of the Canal Zone. Among the diseases these Army scientists studied were malaria; Chagas' disease, a type of insect-borne trypanomiasis suspected of producing long-lasting effect on the heart and found mostly in Central and South America; and several problems threatening the health of horses in the tropics. One that affected the joints proved to be a degenerative form of arthritis, while another was an itch caused by a minute form of parasite. Tropical board members also conducted research concerning the effects on blood glucose levels caused by the emotional and physical stress of flying, the ways in which *Entamoeba histolytica* might be obtained in pure culture, and the identity of the organism causing annual outbreaks of diarrhea and dysentery during the dry season in part of Panama.<sup>68</sup>

For the Army Medical Department, the period from 1931 to the fall of 1939 was to a large extent a period of discouragement and apprehension. The lack of adequate funding severely handicapped efforts to create the substantial nucleus of officers and enlisted men that would have to assume responsibility for training the men who would be called up in the event of war. Years were going by without significant response to pleas for more resources, although, using what they had, department scientists continued to take every opportunity to investigate disease, its prevention and its treatment, and to study ways in which equipment could be improved. Characteristic, too, of the period was the increasing gulf that separated those who cared for men who were destined to fight in the air from those whose professional responsibilities would be both literally and figuratively pedestrian. Congress showed greater generosity with the Medical Division of the Air Corps than with the Medical Department itself.

The period of uneasy prewar calm did not end with a declaration of war, as had happened in 1917. In 1939 a limited mobilization ended the prewar calm, and the Army and its Medical Department were able to start preparing for war before being called upon to fight it.

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<sup>68</sup> Phalen, *Chiefs*, p. 105; WD, *ARofSG*, 1934, pp 154, 167; *ibid.*, 1935, pp. 147, 156, 161; *ibid.*, 1936, 144-45, 155; *ibid.*, 1937, pp. 169, 181; *ibid.*, 1938, p. 178; *ibid.*, 1939, pp. 192-93; Reynolds, "Organization and Activities," p. 8.

## Chapter 17

# THE DRIFT TOWARD WAR



The lull in military activity in Europe that followed the fall of Poland in the autumn of 1939 encouraged skepticism in the United States about the inevitability of war. The nation itself displayed what Army Chief of Staff General George C. Marshall described as “an increasing interest in national defense, but an interest still insufficient to prevent reductions in military appropriations which the War Department had requested.” As the military situation abroad evolved in the months that followed, the Army made changes in size, organization, and planning that, in turn, dictated major changes in the size and organization of the Medical Department. Confusion was the inevitable result.<sup>1</sup>

### *The Army Mobilizes*

The story of the mobilization of the U.S. Army in the years leading up to World War II is a story of confusion, of a series of assumptions proved wrong, of multiple changes following one after the other at the top levels that could not always be accommodated at the lower levels. For some time mobilization planners assumed, as they had in the years before World War I, that any American involvement in a European war would be purely defensive. The protective mobilization plan that served as the initial guide to mobilization envisioned collecting no more than 400,000 men within thirty days until a larger force of draftees could be assembled. The fall of Poland led to a proclamation of a limited emergency that produced a call for an increase in the size of the Regular Army from 210,000 to 227,000; a drive to provide the necessary modern equipment for the newly enlarged force; and renewed emphasis on training in all its aspects. Congress and President Franklin D. Roosevelt began thinking in terms of a callup of a million or so men for what would essentially be a year of training, after which they would be transferred to the Organized Reserves and thus be ready for mobilization in the event of a national emergency.<sup>2</sup>

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<sup>1</sup> Mark S. Watson, *Chief of Staff*, pp. 17, 104–05; War Department (WD), [Annual] *Report of Secretary of War*, 1941, p. 47 (quoted words) (hereafter cited as WD, *ARofSW*, year).

<sup>2</sup> Clarence McKittrick Smith, *The Medical Department*, pp. 6–7, 38; WD, [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*, 1940, pp. 175–76 (hereafter cited as WD, *ARofSG*, year); *ibid.*, 1941, p. 152; John W. Killigrew, “The Impact of the Great Depression on

The German occupation of Denmark, Norway, Belgium, and the Netherlands in the early spring of 1940 and the shock of the fall of France in June served to make both Congress and the nation realize the extent of the danger. Congress responded by voting to increase the size of the Army first to 280,000 and then to 375,000; to open a large training camp; and to take steps to mobilize industry.<sup>3</sup>

In August 1940 Congress approved federalizing the National Guard and calling up the Organized Reserves. The following September it produced the nation's first peacetime draft law and authorized an army of 1.4 million men. In early 1941 the effort to play a positive role in the war without actually entering it produced a lend-lease program through which the United States agreed to assist Great Britain with its military needs in exchange for bases in the Atlantic Ocean and the Caribbean. By 1 July 1941, however, although the Army had reached the 1.4-million goal, these men were only partially equipped and partially trained. To deal with the geographical organization of the new forces, the Army restricted the corps areas created in 1920 to functioning solely as service commands within the continental United States and centered its new organization about four regional armies, one in each of four defense commands.<sup>4</sup>

Following the German move against Russia in 1941, supports for the British expanded to include sending increasing numbers of Air Corps personnel to Greenland and Iceland. Aggressive moves by Japan in the Pacific at this time led to increases in the number of U.S. troops serving in the Philippines, retention of regulars in service there beyond their normal two-year tour of duty, and evacuating dependents there. President Roosevelt ordered mobilizing the Philippine National Army shortly thereafter. By the time the Japanese launched their surprise attack on Pearl Harbor on 7 December 1941, the Medical Department was providing support to more than 1.6 million soldiers. At this point, neither the department nor the Army was prepared for another world war, but both organizations were far better prepared for the struggle than they had been for any previous conflict in the nation's history.<sup>5</sup>

### *The SGO Reorganizes*

In 1939 existing mobilization plans called for enlarging medical facilities within the United States and for increasing their personnel and supply without

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the Army, 1929–1936,” Ph.D. dissertation, pp. XV-23, 30, 31; James C. Magee, “Activities of the Medical Department in Augmentation of the Army,” p. 3.

<sup>3</sup> WD, *Biennial Report of the Chief of Staff of the United States Army, July 1, 1939, to June 30, 1941, to the Secretary of War*, pp. 1, 3; Smith, *Medical Department*, p. 7.

<sup>4</sup> Smith, *Medical Department*, pp. 7, 11; WD, *Biennial Report, 1939 to 1941*, pp. 1, 2, 3, 4, 7, 8, 9; Maurice Matloff, ed., *American Military History*, pp. 419, 420; Blanche B. Armfield, *Organization and Administration in World War II*, pp. ix, 27; Historical Evaluation and Research Organization, “Origins, History and Accomplishments of the US Army Reserve,” p. 70, copy in Library, U.S. Army Center of Military History (CMH), Washington D.C.; Charles M. Wiltse, *The Medical Department*, pp. 7–8; James S. Simmons, “The Army’s New Frontiers in Tropical Medicine,” p. 981.

<sup>5</sup> Armfield, *Organization and Administration*, p. 62; WD, *Biennial Report, 1939 to 1941*, pp. 9; *ibid.*, *July 1, 1941, to June 30, 1943*, p. 4; WD, *ARofSG*, 1933, p. 11; *ibid.*, 1940, p. 175; Wiltse, *Medical Department*, p. 8. For a detailed discussion of Medical Department preparations for World War II, see Graham A. Cosmas and Albert E. Cowdrey, *The Medical Department*, Mary Ellen Condon-Rall and Albert E. Cowdrey, *The Medical Department*, and Albert E. Cowdrey, *Fighting for Life*.

requiring major increases in the size of the Surgeon General's Office itself. In response to these plans, the Surgeon General's Office initiated the first significant modifications in its structure since 1935. Changes initiated thereafter included setting up or enlarging subdivisions within the Professional Service Division to deal with claims involving the civilians of the Civilian Conservation Corps, the Reserve Officers Training Corps, and Citizens Military Training Camps; with growing numbers of physical and professional examinations; and with the need to revise physical standards. The creation of a preventive medicine division during a reorganization in fiscal year 1940 recognized the vital importance of preventive medicine not only to a wartime Army but also to a peacetime Army when large numbers of recruits were being gathered at training camps. When the Office of the Chief of Staff prepared a manual dealing with military government, which was issued in July 1940, a team of three Sanitary Corps reserve officers contributed a section dealing with sanitation and health.<sup>6</sup>

By the spring of 1941 further modifications in the organization of the Surgeon General's Office seemed advisable (*see Chart 2*). Although until this point, the divisions remained twelve in number, the personnel serving in them had more than doubled. At this point, the growing importance of preventive medicine and hospitalization suggested the wisdom of creating two new independent divisions. With the cooperation of other divisions, the new Hospitalization Division planned evacuation and hospitalization policies. The new Preventive Medicine Division worked with the Quartermaster Corps and maintained close relationships with many outside organizations, including the Navy's Bureau of Medicine and Surgery, the Public Health Service, the American Medical Association, the International Health Division of the Rockefeller Foundation, and the public health organizations of various other nations. The emphasis given to coordination as the U.S. entry into war became ever more likely led to creating a Medical Department Research Coordinating Board under the Professional Service Division to deal with a wide variety of organizations and areas of broad concern.<sup>7</sup>

During the mobilization period the surgeon general, like the other chiefs of arms and services, continued to serve as an adviser to the chief of staff, being directly responsible to him for hospital planning and oversight. He was under the supervision of the War Department General Staff, which, although it could not exercise command, could approve or disapprove his suggestions. The Surgeon General's Office was required to work closely with the War Plans Division of the General Staff, with G-1 (Personnel) in personnel matters and also with G-4 (Supply) in developing requirements for hospital beds and construction, medical supplies, and storage space. Recommendations for disease prevention as they concerned troops going overseas to man new bases had to be cleared not only with G-1 and G-4 but with the War Plans Division as well.<sup>8</sup>

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<sup>6</sup> Armfield, *Organization and Administration*, pp. 2, 5-6, 22, 28, 30, 34; Matloff, ed., *Military History*, p. 412; Smith, *Medical Department*, p. 9; WD, *ARofSG*, 1940, p. 193; *ibid.*, 1941, pp. 168-69, 170, 252.

<sup>7</sup> Armfield, *Organization and Administration*, pp. 27, 28; WD, *ARofSG*, 1941, pp. 126, 169, 173, 252; Smith, *Medical Department*, p. 10.

<sup>8</sup> Ray S. Cline, *Washington Command Post*, p. 22; Smith, *Medical Department*, pp. 8-9; Armfield, *Organization and Administration*, p. 55.





Intensified mobilization efforts in 1940 increased the pressure on the top echelons of both the Army and the Medical Department. With resources necessarily limited at the outset and each branch of the Army concentrating on maximizing its own contributions to the whole, disagreements inevitably arose. The same type of split between the leaders of the Medical Department and the members of the General Staff had characterized the American Expeditionary Forces under General John J. Pershing. The General Staff and the surgeon general were able to agree on staffing hospital units with fewer personnel than called for in tables of organization, but the G-4 and the Surgeon General's Office were soon in conflict over hospital requirements. Surgeon General James C. Magee obviously did not consider his request for 17,500 beds unreasonable in view of the fact that this figure represented less than half of those called for in the protective mobilization plans, but the G-4, concerned that mobilization might lead to the construction of facilities that might not actually be used, believed that the department could and should utilize civilian hospitals and even public buildings before resorting to building new hospitals. The surgeon general, on the other hand, did not believe that this approach was a sensible one. He was skeptical even about how much he could rely on existing Army hospitals, because the plans and the construction of those designed in the 1930s left much to be desired.<sup>9</sup>

Another source of disagreement between the surgeon general and the General Staff was the equipment of units destined for overseas service. The G-4 wanted to have equipment issued to the men during their training period, whereas Surgeon General Magee believed that such an approach would lead to the deterioration of valuable equipment because of inadequate storage and mishandling at the training stations. In addition, sufficient transportation to move the equipment was lacking, and, in Magee's opinion, these units had enough equipment with them for training purposes. General Marshall, much concerned about the Army's management of supply at this critical juncture and not convinced that either Magee or G-4 was correct, turned to the inspector general to investigate the situation. In October 1940 he appointed a high-ranking medical officer as assistant to the inspector general to deal with this and similar questions.<sup>10</sup>

The medical adviser to the inspector general was but one of many medical officers receiving special assignments with other branches of the Army. Not long after his appointment, the medical officer detailed to the Inspector General's Office was reassigned to G-4. He soon concluded that part of the difficulty between the General Staff and the Surgeon General's Office resulted from the inexperience of some of the officers working in the Surgeon General's Office. Late in 1941 several more medical officers were detailed to work with him to provide G-4 with more direct information on medical problems than it could obtain from the Surgeon General's Office. The fact that those advising G-4 and the Surgeon General's Office would inevitably disagree at times, however, led to additional tensions between the two groups.<sup>11</sup>

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<sup>9</sup> Smith, *Medical Department*, pp. 12, 14, 37, 49; Armfield, *Organization and Administration*, p. 49.

<sup>10</sup> Armfield, *Organization and Administration*, pp. 48-49, 51; Smith, *Medical Department*, p. 44; Forrest C. Pogue, *George C. Marshall*, p. 63.

<sup>11</sup> Smith, *Medical Department*, p. 9; Armfield, *Organization and Administration*, pp. 46-47, 49-50.

In August 1940, in anticipation of the passage of a selective service law, Lt. Col. Charles B. Spruit, MC, who had been assigned to the G-1 of the General Staff, was detailed for a few months to serve as medical adviser to the Joint Army and Navy Selective Service Committee at the Army War College. Although the Medical Department was not directly involved in giving physical examinations to draftees, it was obviously very much concerned with how they were handled. Because medical officers would have to deal with the health problems of those who were accepted, draft boards were required to use the same standards that the Army itself did to determine fitness to serve.<sup>12</sup>



*Charles B. Spruit*

### *Departmental Expansion*

In preparing to care for the sudden influx of large numbers of men into training camps, the Medical Department had to both expand and modify its organization in the corps areas and make adjustments in its overall form to accommodate changes in the structure of the Army as a whole. The increasing size of the medical staff in each corps area made it impossible for corps area surgeons to continue dealing with their subordinates on an informal basis. The resulting adjustments made in corps area surgeon's offices varied from office to office. Not all of the positions allotted to these offices were actually filled. The corps areas also had to provide small numbers of personnel to care for the garrisons sent to the new bases in the North Atlantic and Caribbean and to serve as observers and liaison in the European Theater of Operations.<sup>13</sup>

Additional medical personnel were required at the camps and stations in each corps, outside the corps surgeon's office. Once draftees began pouring in, the myriad responsibilities of the surgeons at these posts became too much for one individual to handle. Managing a rapidly expanding hospital became a full-time job, separate from that of the camp surgeon, whose burdens now included the health of recruits. Laboratories to deal with disease and sanitation problems rather than diagnosis were also needed, but a slow start was made on setting up the system of corps and department area laboratories that had long existed in plan but had never

<sup>12</sup> Charles B. Spruit, "The Early Development of the Medical Division National Headquarters, Selective Service," pp. 49, 51, 52-60.

<sup>13</sup> WD, *ARofSG*, 1939, p. 178; *ibid.*, 1941, p. 152; Armfield, *Organization and Administration*, pp. 58-59.

before been activated. By midyear 1941 only two had actually been formed, both located at Fort Sam Houston in Texas and serving the Third Army.<sup>14</sup>

In the spring of 1941 the commanders of the four field armies involved took charge of the Northeastern, Central, Southern, and Western Defense Commands. The respective army surgeon also served as the defense command surgeon. Medical facilities within the area of a defense command usually remained under the control of the corps area, although some located in Alaska or the new Atlantic bases served under the control of the defense commands. The offices of the army surgeons were initially quite small, each consisting of one or two officers and a few enlisted men, but their size grew as the months went by. Using corps area personnel to handle dental and veterinary needs usually enabled the armies to avoid actually assigning officers to these slots on their staffs. Surgeon General Magee attempted to insist that all of these officers, and in particular those responsible for planning and training, be regulars.<sup>15</sup>

The division of responsibilities between the medical personnel under the corps area surgeon and those under the army surgeon within the corps area was confused in the first year of full mobilization. Both the army surgeon and the corps area surgeon were responsible for training, but neither was responsible for training all of the medical personnel under him. Corps area hospitals trained tactical medical personnel, while the army surgeon provided tactical training to corps area personnel. The corps area was to a large extent responsible for sanitation, although sanitation for troops in the field was the responsibility of the army surgeon. The corps area provided supplies and hospitalization for troops at their base, but army medical personnel were responsible for hospitalization through the evacuation stage for soldiers in the field.<sup>16</sup>

The extent to which members of the Medical Administrative Corps were to assume responsibilities formerly handled by medical officers was not clear, nor was the doctrine guiding the employment of civilian and enlisted clerical personnel. Apparently plans outlined earlier were not always found feasible when the time came to put them into practice. War Department policy, however, required that civilians be hired at the corps area level to the extent possible, to provide stability, to train newly arrived military personnel, and to free military personnel from the lowest level of responsibility. Civilians were not easily found. Housing was lacking at some more isolated bases, transportation to these hospitals was sometimes nonexistent, and other government agencies were also drawing on the same pool of qualified civilians. The overall shortage of medical personnel further complicated the entire situation, which continued to compel adjustments, including having the army surgeon's office rely entirely on corps personnel to provide dental and veterinary care except during maneuvers. The Army's change to the so-called triangular division (composed of three infantry regiments rather than four) forced

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<sup>14</sup> Armfield, *Organization and Administration*, pp. 32, 59; Smith, *Medical Department*, pp. 38–39; F. B. Wakeman, "Medical Department Training," p. 58.

<sup>15</sup> Armfield, *Organization and Administration*, pp. 57, 59, 60–61, 62; Smith, *Medical Department*, p. 43.

<sup>16</sup> Armfield, *Organization and Administration*, pp. 58–59, 61–62, 64–65; Thomas B. Nicholls, *Organization, Strategy and Tactics of the Army Medical Services in War*, p. 19.

a reorganization of the Medical Department's units at that level. Medical battalions with division surgeons serving as battalion commanders slowly replaced the medical regiments serving the square division. Activating the new organizations proved to be a difficult process, especially because General Staff insistence on reductions in personnel and equipment negated revisions of tables of organization calling for increases in personnel. The transformation was still incomplete when the Japanese bombed Pearl Harbor in December 1941.<sup>17</sup>

Mobilization did not change the work of the Medical Department in the overseas possessions as fundamentally as it did within the United States. Even so, the number of troops stationed in Panama, Puerto Rico, and the Philippines increased greatly during the mobilization. The Caribbean Defense Command was set up in the spring of 1941 to coordinate the efforts of the Panama and Puerto Rico Departments with those of the troops stationed at the new bases obtained from Great Britain in the Caribbean in September 1940. Because initially no staff medical section was established, the medical personnel of the new command continued to report directly to Washington. The structure of the medical service for the Caribbean Defense Command rapidly became quite complex. The Engineers had their own medical team caring for civilian workers. The Air Force had its own medical personnel, as did the ground troops. Thus, by the time of the first Japanese attack, three almost separate medical services were responsible for the health of the men serving in the Caribbean.<sup>18</sup>

The Panama Canal Zone governor insisted that civilian hospitals could continue to serve the needs of the military there and that he did not need Army hospitals in the Canal Zone. During the rainy season the roads turned to mire, which would retard the delivery of the necessary supplies and thus complicate the erection of any new facilities. The number of troops in the Canal Zone had doubled by July 1941, but no Army hospital was available for their sick and injured. Disease did not wait, however. Malaria rates among troops in the Canal Zone more than doubled from 1939 to 1940, reaching an annual rate of 57.2 per 1,000.<sup>19</sup>

In July 1941 the Army established a new tactical command for Hawaii and the Philippines, the U.S. Army Forces in the Far East, with headquarters in Manila, but the department's head surgeon remained head of the medical services. Little change took place in the medical organization except for the increase in personnel necessary to care for the growing number of troops sent there. The senior medical officer in Hawaii worked during the spring and summer of 1941 with the local medical society to create plans for the care of casualties, both military and civilian, creating teams that could set to work immediately should an enemy attack Hawaii. Ample supplies of plasma and sulfa drugs were on hand at the time the Japanese attacked Pearl Harbor.<sup>20</sup>

<sup>17</sup> Armfield, *Organization and Administration*, pp. 57, 61, 62-63; WD, *ARofSG*, 1941, pp. 137-38; Smith, *Medical Department*, pp. 33, 49; Robert P. Williams, "The New Regimental Medical Detachment," p. 11.

<sup>18</sup> *Biennial Report, 1941 to 1943*, p. 5; *ibid.*, 1939 to 1941, p. 9; Armfield, *Organization and Administration*, p. 60; Wiltse, *Medical Department*, p. 559.

<sup>19</sup> Wiltse, *Medical Department*, pp. 37, 39; WD, *ARofSG*, 1941, p. 49.

<sup>20</sup> Armfield, *Organization and Administration*, p. 60; Edgar Erskine Hume, *Victories of Army Medicine*, pp. 194-95.

During the mobilization period, medical personnel also began serving in slowly increasing numbers outside the United States and its possessions. Most were involved in the care of garrisons sent to posts in the North Atlantic area, but the Medical Department was also responsible for health surveys of the new areas, where its personnel became involved in improving sanitation. In January 1941 medical units began arriving at posts from St. Johns, Newfoundland, south to the Caribbean, ready to care for the men at the new bases.<sup>21</sup>

Garrisons arriving at the other new posts in the northern Atlantic initially set up provisional hospitals staffed by hospital detachments wherever space could be found, the goal being to accommodate 5 percent of the command. By November 1941 hospital facilities at the North Atlantic bases had 920 beds, a majority of them in Iceland, where 6,000 officers and men of the 5th Division arrived in mid-September 1941 to set up the Iceland Base Command.<sup>22</sup>

Medical officers dispatched to England to serve as observers and later to take the initial steps toward establishing medical facilities for the U.S. troops that the United States government clearly expected were coming had to avoid being too conspicuous, because the nation was not yet actually at war. An observer was sent to London in late 1940, and the following spring an eighteen-man team of experts, including Maj. Arthur B. Welsh, MC, as the Medical Department representative, established an office in the U.S. Embassy in London. Because President Roosevelt apparently believed that the United States would inevitably be at war by the spring of 1942, their work involved preparing to set up what would become the European Theater of Operations. Their activities were not strictly neutral, so they were required to wear civilian clothes and carry British ration cards. The principal function of the medical officer with the team was planning for the medical care of troops that might well be sent to Great Britain when the United States became directly involved in the war. In the process, although he was junior in rank, he established a close working relationship with the head of the British medical service, visited field commands outside London, and attended classified conferences.<sup>23</sup>



*Arthur B. Welsh in 1953*

<sup>21</sup> Armfield, *Organization and Administration*, pp. 30–31; Wiltse, *Medical Department*, pp. 12, 18, 19, 22–23, 26–27.

<sup>22</sup> Wiltse, *Medical Department*, pp. 9, 12, 559, 572, 577.

<sup>23</sup> Cosmas and Cowdrey, *Medical Department*, pp. 5, 8, 9, 11–12; Crawford F. Sams, “Medic,” p. 142, copy in Library, CMH.

A somewhat similar mission composed of nine military officers, including a representative of the Medical Department, was dispatched in great secrecy to the Middle East in the fall of 1941. Its goals included assisting the British in the area, setting up military bases, and preparing medical support for the theater. Since until that point, U.S. defense concerns had been directed entirely at the Western Hemisphere, little was known about the challenges that the Middle East presented, but the medical officer was able to obtain information about potential health problems in Egypt through the Rockefeller Foundation. Another civilian organization, the National Research Council, provided a committee of experts to evaluate the available cholera and typhus vaccines and further assisted preparations to deal with the medical aspects of the mission. The members of the mission arrived in Egypt on 22 November 1941 with little time to settle in before the United States found itself at war.<sup>24</sup>

### *Personnel*

Personnel shortages complicated all aspects of the Medical Department's work during the period of mobilization, forcing the department to spread the services of its officers as widely as possible by whatever means were available. Congress allowed for no increases in commissioned officers during the course of fiscal year 1940, but the legislators did allow the department to assign extended active duty to reserve officers to keep pace with increases in the size of the Army. The legislators also decreed that completing a dental internship of a year or more in a hospital or dispensary was an acceptable substitute for the two years of practice that had been a prerequisite for entering the Dental Corps. On 29 November 1940 the department suspended promotion examinations, whether in the Medical Corps, the Dental Corps, or the Veterinary Corps, until 1945, thus freeing for other assignments those medical officers who would otherwise have had to serve on examining boards. On 10 July 1941, in a further effort to make the most effective use of its medical officers, the Army ended the mandatory annual physicals that had up until that time been required of all Army officers. From this point on, except for Air Corps officers, for whom a semiannual examination remained mandatory, an officer's ability to perform his duties was to be taken as proof of his fitness. The small and gradual increase in the spaces for officers in the Medical Department that Congress permitted up through June 1941 allowed the number in the Medical Corps to reach 1,230. By this point, however, the shortage of experienced regular dental officers was such that some had to be called back from assignments overseas before their tours were up to deal with the needs of the large numbers of draftees.<sup>25</sup>

The Medical Department also had to deal with a shortage of enlisted personnel. In May 1940 it was finally able to persuade Congress to change the proportion authorized for the Medical Department from 5 to 7 percent of the total number of enlisted, bringing the number of openings to more than 13,000 by the end of the fiscal year. Shortages made it necessary to activate all hospitals that were to serve

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<sup>24</sup> Sams, "Medic," pp. 126, 127, 129, 130, 131, 135, 154, copy in Library, CMH.

<sup>25</sup> WD, *ARofSG*, 1940, p. 172; *ibid.*, 1941, pp. 150, 183; Smith, *Medical Department*, p. 31; "Physical Examinations of Officers of the Regular Army Discontinued," pp. 154-55.

with the field forces at half enlisted strength and with many fewer officers than called for in tables of organization. The increase made possible plans to expand hospital staffs, to form field units for training, and to use some enlisted men to form a “training nucleus” that could be used to activate affiliated hospitals—units formed by the staffs of individual civilian hospitals and medical schools. The department set up three medical replacement centers, essentially a new type of field installation and under the direct command of corps area commanders, to handle the training of three thousand new medical enlisted personnel every three months as X-ray, dental, and laboratory technicians, specialists in orthopedic appliances, and motor mechanics, among many other fields. Training plans devised by the Surgeon General’s Office guided the effort, but upper noncommissioned officer echelons lost strength as experienced men received commissions, sometimes within the Medical Administrative Corps but often outside the department.<sup>26</sup>

The number of medical personnel in the Army Reserve continued to be a vital concern, especially because the Medical Department remained responsible for the health of the Civilian Conservation Corps. Nevertheless, in December 1939 the War Department called for an end to appointments to the Officers’ Reserve Corps except for graduates of Reserve Officers Training Corps programs, applicants to the Air Corps Reserve, and recent medical school graduates needed for extended duty who were willing to serve on this basis. The department predicted that this move would cause a gradual decline in the number of reserve medical officers, especially when combined with a continued loss of younger officers from the Reserve through resignations, failure to undergo the required instruction, or inability to pass the required physical examination. Because few young physicians proved willing to join the Reserve and the number of students in the advanced course of the Medical Reserve Officers Training Corps was limited, the problems involved with the size of the Reserve pool could not be entirely blamed on the War Department’s decision. Predictably, in fiscal year 1941, the number of medical officers in the Army Reserve dropped.<sup>27</sup>

Although vacancies in the regular Medical Corps were readily filled, the Medical Department had to modify its approach to fulfill its reserve obligations during fiscal year 1940. It lowered requirements so as to allow senior medical students recommended by a medical school dean to join the Army Reserve before completing the required year of internship. The department also found it necessary to authorize extended duty for roughly 8 percent of the physicians in the Medical Corps reserve and for almost 5 percent each of the Dental Corps reserve and the Veterinary Corps reserve. The actual order for extended duty, however, had to come from the commanding general of the corps area in which the reservist lived. The War Department authorized waiving age and rank restrictions for reservists serving in affiliated hospitals; however, if the physician left the organization to which he had been appointed under this waiver, the waiver no longer applied. The number of reservists for the Medical Administrative Corps and the Sanitary Corps

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<sup>26</sup> Armfield, *Organization and Administration*, pp. 21, 27, 56; WD, *ARofSG*, 1940, pp. 170–73; *ibid.*, 1941, pp. 100, 148–49, 153, 154 (quoted words), 155, 159; Smith, *Medical Department*, pp. 42–42; WD, *ARofSW*, pp. 101, 102.

<sup>27</sup> WD, *ARofSG*, 1940, pp. 167, 169, 210; *ibid.*, 1941, pp. 143, 146, 147.



that could be called up was unlimited, but the number that could be called to active duty had to be deducted from the total permitted for the Medical Corps reserve. Thus only four in the former and eight in the latter had been called up or were on duty by the end of fiscal year 1940.<sup>28</sup>

In the summer of 1940, in an effort to both allow medical, dental, and veterinary students already in the Officers' Reserve Corps to complete work on their degrees while at the same time obligating them to service in the Medical Department after graduation, Congress authorized their transfer into the Medical Administrative Reserve Corps. This move made them ineligible for extended active duty while they were attending school. A year later, when the number of reservists both willing and eligible to be called to active duty proved to be limited, Congress made it possible to call some in without their consent. Within a few months thereafter, protests were arising, not only from the officers who were being compelled to serve against their wishes but also from the medical schools, hospitals, and communities being deprived of their services. Surgeon General Magee's reaction to this development was to note that physicians who were indispensable in their civilian positions should have terminated their reserve status before matters reached such a point.<sup>29</sup>

The question of the ability of the nation's medical profession to meet war-time needs also caused much concern. Because of the possibility of seriously undermining the capability of the nation's doctors to meet the needs of civilian communities, the Medical Department requested the assistance of the American Medical Association (AMA) and the Division of Medical Sciences of the National Research Council. Beginning in late 1940 and continuing through 1941, a committee formed by the AMA conducted a survey of the civilian doctors practicing in each corps area, keeping the Surgeon General's Office informed of the situation it encountered, while the National Research Council created committees of civilian physicians to provide professional advice and plan research projects.<sup>30</sup>

In December 1940 the numbers serving in the Dental, Veterinary, and Sanitary Corps reserves met or exceeded the peacetime procurement goals. As a result, with a few exceptions, no further appointments could be made. But the need for more officers in all categories remained. During fiscal year 1941 all medical sections of the Officers' Reserve Corps actually lost numbers, but placing on extended active duty a large majority of those who remained prevented serious effects on medical care and training. Surgeon General Magee's plans to learn the special skills of all reservists and then to train them for specific assignments with this knowledge in mind, however, had not come to complete fruition.<sup>31</sup>

The Medical Department did not have complete flexibility in its use of reservists. Because it could not require them to serve longer than a year at a time, the supply of reservists could run out by 1942. If the crisis increased or was prolonged, the

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<sup>28</sup> WD, *ARofSG*, 1939, p. 197; *ibid.*, 1940, pp. 41, 167, 168–69; *ibid.*, 1941, pp. 140–41; Magee, "Activities of the Medical Department," pp. 3, 4, 6.

<sup>29</sup> WD, *ARofSG*, 1941, pp. 141, 142, 144.

<sup>30</sup> Armfield, *Organization and Administration*, pp. 1–2, 42; WD, *ARofSG*, 1941, pp. 144–45; Magee, "Activities of the Medical Department," pp. 7, 9–10.

<sup>31</sup> WD, *ARofSG*, 1941, pp. 143, 144; DeHaven Hinkson, "The Role of the Negro Physician in the Military Services from World War I Through World War II," p. 76.

department's flexibility in its use of reservists was also hampered by the inability to call up reservists serving as part of affiliated units except as part of their units. Other difficulties arose when some reserve medical and dental officers reportedly tried to keep up their civilian practices or to set up new civilian practices near the posts where they were stationed, a practice that had long been unacceptable.<sup>32</sup>

Because the draft required a year of service for inductees during 1941, restrictions on joining the Army Reserve were put into effect that made avoiding the draft by joining the reserves very difficult. Beginning in March, no one was permitted to qualify to enter the Officers' Reserve Corps on the basis of extension courses. Appointments to the Dental and Veterinary reserves were restricted to inductees who had already qualified to join the reserves. No further appointments were made to the Sanitary Corps reserve. Only inductees who had completed six months of service and three months of the Officers Candidate School for the Medical Administrative Corps could qualify for entry into that corps' reserve, after which they were required to serve a year as commissioned officers. Recognizing the importance of considering Medical Department needs in the course of planning, in the immediate prewar period, the Army began to give medical officers a broader variety of assignments. For many years after the end of World War I, the shortage of funds prevented the department from sending even one medical officer to such important meetings as those of the International Congress of Military Medicine and Pharmacy, but as the possibility of U.S. involvement in war increased, participation by American military physicians in these gatherings became more frequent.<sup>33</sup>

Medical officers were appointed to serve with other branches of the Army. During the course of 1940 two were assigned to the Armored Force, specifically to study any special problems that might develop in this new organization. Other medical officers went to the Corps of Engineers, with the chief medical officer and his organization responsible to the chief of Engineers rather than the surgeon general. The latter's principal duties involved health care for the civilian employees of firms with contracts with the Engineers to build air bases at myriad sites acquired through the destroyers-for-bases agreements; these employees conducted sanitary surveys of base sites from Newfoundland in the north to many islands in the Caribbean south to British Guiana in South America, obtained information on the health services and diseases of these areas, and as necessary established and ran small hospitals. To deal with medical units involved in field force training, one of the medical officers serving in the Surgeon General's Office was detailed to the newly activated General Headquarters that controlled all ground forces in the continental United States. He became part of the team planning for the Iceland Task Force and other expeditionary organizations. Added responsibilities came his way when the Caribbean Defense Command and the Greenland, Bermuda, and Newfoundland base commanders were placed under General Headquarters.<sup>34</sup>

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<sup>32</sup> Magee, "Activities of the Medical Department," pp. 1-2, 5, 9.

<sup>33</sup> Edgar Erskine Hume, "International Congress of Military Medicine and Pharmacy," pp. 34-37; Hume, *Victories*, p. 43; WD, *ARofSG*, 1940, p. 166; Armfield, *Organization and Administration*, p. 56; Green Peyton, *Fifty Years of Aerospace Medicine*, pp. 104-05; M. C. Grow, *Surgeon Grow*, p. 317.

<sup>34</sup> Armfield, *Organization and Administration*, pp. 46-47, 52-54; Matloff, ed., *Military History*, p. 419; Wiltse, *Medical Department*, p. 10.

A Medical Department officer also served as adviser to the War Department's National Guard Bureau, whence he could offer assistance during the changes necessitated by the initiation of limited mobilization in the fall of 1939. The number of officers in the Guard's medical personnel changed little in the following two years, but the number of medical enlisted men in the Guard grew from 12,500 to more than 15,000 by June 1941. Plans called for cadres of enlisted men from the Medical Department similar to those used to train affiliated hospital units to be used to train Guard medical personnel. When the Guard was federalized in 1940, its medical personnel joined their regular counterparts in training new men. The Guard's medical equipment was regarded as modern and relatively complete for peacetime service, and during the mobilization it was provided with the most modern equipment as it became available.<sup>35</sup>

The likelihood that war would lead to a shortage of nurses concerned the Medical Department. The secretary of war had long had the authority to increase the size of the Army Nurse Corps to keep pace with increases in the size of the Army itself, and in peacetime the department had no significant problems filling the corps' vacancies. In fiscal year 1940, to make more nurses eligible for Army service, the department reversed changes made five years earlier that had lowered the maximum age limit from thirty to twenty-eight and raised the minimum height from sixty to sixty-two inches. Other modifications of policy designed to attract more women to serve in the Nurse Corps included opening overseas service to nurses in April 1941. Another change extended the contract for reserve nurses to serve with the Army from one year to three in the belief that disrupting the normal course of their civilian lives for the shorter period had been discouraging qualified women from signing on. Black nurses who could meet the American Red Cross nursing service requirements were also hired. Such changes produced the desired result. The quota for career nurses was met, although that for reserve nurses, increased by Congress from 4,000 to 5,000 in January 1941, could not be reached by the end of the fiscal year.<sup>36</sup>

The American Red Cross, which had requested the assignment of a role in the mobilization, in January 1940 undertook to continue its screening of reserve nurses for both the Army and the Navy, extending this work to include dietitians and medical technicians. It offered to provide, in addition, personnel and equipment for occupational therapy as well as nonstandard medical equipment. By mid-1940 the Red Cross nurse reserve held more than 15,000 women, all physically qualified for the work, under forty years of age, and unmarried. The Red Cross classified them and grouped them according to corps area. In spite of the confusion engendered by the great expansion of personnel both in the Army and in the Medical Department, relations between the Red Cross and the department remained cordial.<sup>37</sup>

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<sup>35</sup> Armfield, *Organization and Administration*, p. 10; WD, *ARofSW*, 1936, p. 208; *ibid.*, 1941, pp. 50, 98, 101; WD, *ARofSG*, 1939, pp. 263, 264; *ibid.*, 1941, pp. 153-54; *Biennial Report, 1939 to 1941*, p. 6.

<sup>36</sup> WD, *ARofSG*, 1935, p. 176; *ibid.*, 1940, pp. 172, 176, 256; *ibid.*, 1941, pp. 103, 244, 245.

<sup>37</sup> Armfield, *Organization and Administration*, p. 2, 24; WD, *ARofSG*, 1940, p. 275; *ibid.*, pp. 261-62.

As the number of men and training camps expanded and the need for nurses increased, the structure of the Army Nurse Corps of necessity became more complex. In the fall of 1940 the War Department granted the surgeon general permission to assign an assistant superintendent of nurses to each corps area to assist in handling the respective nurse procurement programs. These nurses also served in overseas departments, in general hospitals, at the Fort Sam Houston Station Hospital, and in the Surgeon General's Office. Chief nurses were also appointed, chosen from among those with a reputation for strong leadership who could pass an examination before being assigned to serve at station hospitals, where, as a rule, only those with minor ills or injuries were retained for treatment. Nurses also continued to be trained in the administration of anesthesia at various hospitals, both military and civilian, and with troop movements on the rise both within the United States and overseas, they were increasingly found on transports or temporarily assigned to troops on maneuvers.<sup>38</sup>

Civilians continued to be needed at all levels to assist in preparations for possible war. To meet the demands placed upon it, the Medical Department had to hire many civilians. This approach, while encouraged by the General Staff, brought with it a number of complications. Because civilians could not be required to work more than eight hours a day, the department concluded that it would have to hire two civilians to fill every position initially occupied by an enlisted man. Sometimes as much as half a hospital staff was civilian, but obtaining enough to fill all needs proved difficult. The department turned to the Civil Service Commission and the Red Cross for help in obtaining civilian employees and received from the commission authorization, when necessary, to look outside the Civil Service. The civilians hired included a small number of contract surgeons, but the Army had apparently slowly forgotten the value of qualified occupational and physical therapists in the drive for economy. By the time the nation stood on the brink of another war, only nine remained on duty. Of these nine, only three were regarded as adequately trained.<sup>39</sup>

### *Training*

The need to train growing numbers of Medical Department personnel conflicted with the need to provide health care and medical attendance for the growing number of personnel flooding into the Army as a whole. Men in training or involved in training others were to at least some degree unavailable for other duties. To deal with the problem, the department created an extensive system that moved large numbers of men, both officers and enlisted, through training as rapidly as possible. It enlarged training programs established at the various schools and created new programs in camp and general hospitals. It then assigned many officers and men who had just finished training to train others, formally or informally. And all the

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<sup>38</sup> WD, *ARofSG*, 1936, p. 195; *ibid.*, 1937, p. 223; *ibid.*, 1939, p. 244; *ibid.*, 1940, p. 257; *ibid.*, 1941, pp. 245–46; Smith, *Medical Department*, p. 3.

<sup>39</sup> WD, *ARofSG*, 1938, p. 161; *ibid.*, 1940, p. 158; *ibid.*, 1941, pp. 137, 138, 141; Smith, *Medical Department*, pp. 32, 33; WD, *ARofSW*, 1941, p. 103; A. F. Mastellone, "Physical Medicine in the Army," p. 642.

while, units were activated with many fewer men than called for by tables of organization, which through their many revisions tended to call for more men rather than fewer.<sup>40</sup>

As envisioned at the time the Selective Service Act was passed, the Medical Department would receive about 50,000 of the draftees, but planners envisioned that the department would eventually need a total of 100,000 enlisted men and civilians. Authorization was received to hire 30,000 civilians to make it possible to free as many draftees as possible for training. After basic training, these men would either be organized into medical detachments and units for the four field armies, for the Armored Force, for the Air Corps, and for the General Headquarters reserve or provided with specialist instruction of one type or another. More than 10,000 medical officers would be required to accomplish this mammoth task. Planners also concluded that should the army be expanded to 4 million men, more than 32,000 medical officers would be needed. Adding further to the challenge the department faced was the fact that medical personnel had to be trained and in place before training camps filled with draftees.<sup>41</sup>

Officers new to the Medical Department continued training in the military and administrative aspects of their responsibilities at the Medical Field Service School at Carlisle Barracks. Although Carlisle's extension courses came under fire from those who believed that they emphasized administration at the expense of such vital topics as sanitation and preventive medicine, areas about which the average civilian physician knew little, plans also called for the development of more such courses. Aimed at preparing reserve officers to serve in mobile field medical units in the combat zone, each course served as a stepping stone to the next, and all were supplemented by periods of practical active-duty training.<sup>42</sup>

The Medical Department significantly modified the curriculum at Carlisle to handle the challenges of mobilization. In the attempt to meet the need for instructors the Medical Field Service School now had to turn out 500 officers and 100 enlisted every month, whereas before the mobilization it turned out 100 officers and 100 enlisted a year. A refresher course for 500 medical officers a month was among the newly created courses. Other changes included an officers candidate school set up for men who, having finished six months of basic military training, were preparing to join the Medical Administrative Corps. A new course for 100 men began in the school every three months, with most of the graduates receiving assignments to work as instructors for enlisted men assembling at Medical Department replacement training centers. A new department dealt with both the treatment of wounded on the battlefield and the military aspects of industrial medicine. In fiscal year 1940, because of the desperate need for more physicians, two three-month courses replaced the six-month basic course. The faculty and students

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<sup>40</sup> Wakeman, "Medical Department Training," pp. 46, 50, 52; WD, *ARofSG*, 1940, pp. 171, 175, 176, 182; Smith, *Medical Department*, pp. 32–33, 40, 42.

<sup>41</sup> Magee, "Activities of the Medical Department," pp. 3–4, 7; Wakeman, "Medical Department Training," p. 48.

<sup>42</sup> WD, *ARofSG*, 1940, p. 184; *ibid.*, 1941, pp. 158–59; T. W. Darby and Paul E. Zuver. "The Medical Service with the Stream-lined Division," pp. 1–8



*Four-mule ambulances used in prewar training of Medical Department personnel on campus of the Medical Field Service School; (below) members of the 1st Medical Regiment at the Medical Field Service School loading simulated patients on an ambulance during a field problem exercise*



for the second course moved to Fort Benning, Georgia, so that they could take part in maneuvers there.<sup>43</sup>

Training and instruction for Medical Department officers continued to be available outside of the Medical Field Service School. More specialized professional training was still available at the Army Medical Center in Washington D.C., as was basic training for reserve officers at summer camps across the nation. The number enrolled in Medical Reserve Officers Training Corps programs increased by about 12 percent, but the lack of funds had prevented opening programs in all of the top-ranked medical schools. Reserve medical and dental officers also benefited from training through internships at general hospitals. Month-long courses in hospital administration were set up at the largest general hospitals in the hope that as many as 300 medical officers could complete these courses each month. A few medical officers, including reservists, continued to train at the Mayo Clinic, where the results were so successful that similar programs were set up in other corps areas. Medical officers, both reservists and regulars, were still sent on to other service schools, among them the Command and General Staff School and the War College.<sup>44</sup>

Training courses, which grew in size, shrank in length, and generally proliferated in number to develop the capacity of Medical Department draftees, produced 20,000 technicians and 30,000 other specialists—cooks, chauffeurs, automobile mechanics, and the like. By 1 April new buildings had been put up, equipment and supplies acquired, teachers trained and assigned, and schools put into operation at six general hospitals—Walter Reed, William Beaumont, Fitzsimons, Letterman, and Army and Navy, as well as the station hospital at Fort Sam Houston. On-the-job training programs could be found at almost every hospital, each differing from the other, but they interfered with the performance of duties by the experienced men who had to conduct the training. Many hospital commanding officers understandably preferred to take men, when available, who had already been trained at the Medical Department's replacement centers.<sup>45</sup>

By late 1941 three replacement centers, each of which could hold several thousand men and all of which eventually came under the surgeon general's direct control, were providing the enlisted men who had been assigned to the Medical Department with both basic training and instruction in the various specialties. The trend to specialization had grown to the point where at least three quarters of the enlisted needed some type of technical training. The various schools of the Army Medical Center and the Medical Field Service School also produced relatively small numbers of technicians.<sup>46</sup>

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<sup>43</sup> Wakeman, "Medical Department Training," pp. 50, 52, 55; WD, *ARofSG*, 1940, pp. 180–81; *ibid.*, 1941, p. 157; "Establishment of a Department of Field Medicine and Surgery at the Medical Field Service School, Carlisle Barracks, Pa.," p. 148; "Hoff Hall, Medical Field Service School, Carlisle Barracks, Pa.," p. 158.

<sup>44</sup> Armfield, *Organization and Administration*, p. 15; WD, *ARofSG*, 1940, pp. 181, 183, 184, 185; *ibid.*, 1941, pp. 158, 159, 161–62; Wakeman, "Medical Department Training," p. 50; Smith, *Medical Department*, p. 32.

<sup>45</sup> Wakeman, "Medical Department Training," p. 52; WD, *ARofSG*, 1941, pp. 155, 157, 158; Smith, *Medical Department*, pp. 32–33.

<sup>46</sup> Armfield, *Organization and Administration*, p. 56; WD, *ARofSG*, 1940, p. 182; *ibid.*, 1941, p.



*Trainees at the Medical Replacement Training Center, Camp Pickett, Virginia, illustrating the size of the Medical Department training effort; (below) tent housing used for trainees at Camp Pickett*





For medical personnel attached to tactical units, training in the field was vitally important. In the winter and spring of 1940, therefore, the medical detachments of four divisions—four medical battalions and an additional medical regiment—worked together in the field in what was the largest such training effort the Medical Department had achieved in peacetime. Even so, the experience was a disappointing one. Most of the enlisted men involved were recruits, and many of the medical officers had little knowledge of field operations, their experience having previously been limited to hospitals. Moreover, no clear lines had been set to delineate the training responsibilities of the various officers involved. In theory, but apparently not necessarily in practice during this period of training, post surgeons had no training responsibility, with regimental surgeons being responsible for the medical detachment serving the regiment and the regimental commander having overall command responsibility for training the regiment's medical detachment.<sup>47</sup>

As a result of experience with maneuvers in early 1940, when the medical units involved were at almost full strength, the Army abandoned plans to have the corps medical regiment handle the clearing responsibilities for divisions. Instead, it reorganized the division medical battalion and the corps medical regiment to return to them their original functions and missions; transforming the corps medical regiment into a medical battalion like that of the division. Experience using evacuation hospitals also demonstrated that these facilities tended to fill up and then to become stationary, making it necessary to rely on mobile hospitals extemporized by medical regiments or to use corps area facilities. Attaching the various types of mobile units to named hospitals in corps area and integrating their staffs made it possible to provide wider experience for them but resulted in depriving them of the experience of working together as units.<sup>48</sup>

In an effort to assist the relatively few experienced men who bore the responsibility for training the horde of inexperienced officers and men, the Medical Department, like other branches of the Army, relied heavily on training manuals supplemented by training films. In fiscal year 1940 the department concentrated principally on revising existing manuals, publishing only one new manual, which concerned the medical service in joint operations. The Division of Medical Sciences of the National Research Council made up a field manual with chapters on the treatment of venereal and tropical diseases, on surgical and medical emergencies, and on the management of infections at a time when the sulfa drugs were becoming popular. The *Army Medical Bulletin* also covered topics of concern to guide those new to the Medical Department. In 1941 the department issued a complete collection of circular letters containing regulations applying to medical personnel, realizing even as it did so that it would have to be completely redone the next year.<sup>49</sup>

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160; Wakeman, "Medical Department Training," p. 55.

<sup>47</sup> WD, *ARofSG*, 1940, p. 179.

<sup>48</sup> *Biennial Report, 1941 to 1943*, p. 2; WD, *ARofSG* 1940, pp. 171, 175–76; Paul H. Martin, "Divisional Hospitalization," pp. 370–71, 375; Smith, *Medical Department*, pp. 47–48.

<sup>49</sup> WD, *ARofSG*, 1940, pp. 179, 180; *ibid.*, 1941, pp. 139, 156, 159; "Medical Technical and Field Manuals," pp. 70–71; Simmons, "Army's New Frontiers," p. 983.

### *Supply*

With mobilization also came accelerated efforts to develop new sources of supply, more sophisticated systems to guide purchasing, new equipment of modern design, and training programs for the medical officers detailed to deal with supply. Both the Army and the Medical Department followed precedents set in World War I, establishing priorities and working to eliminate competition between agencies. Once again, a network of organizations became involved in Medical Department purchasing. The Army-Navy Munitions Board established priorities and worked with a priorities compliance section created in the Surgeon General's Office. In 1940 the board took over a series of advisory committees composed of industry representatives in the major areas of medical supply that had been created a year earlier by the surgeon generals of the Navy and the Army. The Commissioner of Industrial Materials of the Advisory Commission to the Council of National Defense and the Defense Plant Corporation of the Reconstruction Finance Corporation were also among those with whom the Medical Department's purchasing authorities had to work.<sup>50</sup>

By March 1941 the supply situation in the United States became even more strained as medical supplies were shipped to England and France. The export of surgical instruments necessitated a strenuous effort to increase production. By the time the War Department had established a Defense Aid Medical Requirements Subcommittee to assist the Medical Department in meeting lend-lease demands, the surgeon general had set up a defense aid subsection in the Finance and Supply Division of his office. The department had to obtain many items through negotiated contracts because it could no longer afford the time needed to advertise for bids to meet its needs. Physicians themselves sometimes supplied other items, bringing with them their own equipment from their home offices, borrowing what was needed from civilian institutions, or sending patients whose treatment called for unavailable equipment to a civilian institution where it was available. By December 1941 the efforts of all concerned only partially alleviated the supply situation. To deal with the more elaborate supply system that was evolving, the department made its approach to accounting more efficient by adopting a new method developed by the International Business Machines Corporation, the punched card system.<sup>51</sup>

Training became ever more important for medical supply officers. For more than a decade before the United States entered World War II, they were required to spend two years at the New York General Depot to learn their work through practical experience. They usually took a course in textiles at New York University and visited manufacturing plants, making reports on what they learned there. They then spent a year in the Surgeon General's Office, learning about finance, storage, and issue. Thereafter a promising supply officer might study at the Army Industrial College. The department also set up a course in supply for reserve officers. Beginning in August 1940, it assigned an officer from the Medical Administrative

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<sup>50</sup> Armfield, *Organization and Administration*, pp. 24, 36, 37–38; WD, *ARofSG*, 1941, p. 130.

<sup>51</sup> Armfield, *Organization and Administration*, pp. 14–16, 27, 37, 38, 56; Watson, *Chief of Staff*, pp. 10–11; WD, *ARofSG*, 1941, p. 129; Smith, *Medical Department*, p. 34; Magee, "Activities of the Medical Department," p. 7.

Corps familiar with the legal problems involved in procurement to decide claims for medical services against the government from both government and civilian agencies and to deal with contracts with research agencies and medical supply businesses.<sup>52</sup>

Once war broke out in Europe, the money necessary for travel from one manufacturing plant to another was easily obtained, and work to develop improved equipment was facilitated. Because the only equipment lists for the wartime needs available in 1939 were those used for World War I, the Medical Field Service School, the Walter Reed General Hospital, the Finance and Supply Division and the Planning and Training Division of the Surgeon General's Office were all involved in developing new equipment lists as rapidly as possible, and the Medical Department set to work developing equipment appropriate for a World War II Army. The Surgeon General's Office set up a research and development section in the Finance and Supply Division to direct and coordinate projects at such sites as the Army Medical Center in Washington D.C., the medical equipment laboratory at Carlisle, the quartermaster remount depot at Front Royal, Virginia, and the Edgewood Arsenal, Maryland. Among the new items developed at this time were those that could be safely delivered by parachute.<sup>53</sup>

Although handicapped by restrictions on critical materials, the department worked to obtain up-to-date equipment for new dental clinics—plans called for a dental clinic for each troop concentration of 10,000 or more men—mobile surgical hospitals, induction stations, and new tactical units. By working through the Army-Navy Munitions Board, the department sought to help its suppliers obtain the necessary materials. Nevertheless, the process of actually providing the new equipment in the quantity called for by equipment lists went very slowly, and only a basic minimum of supplies was available for newly activated hospitals. Ironically, however, in view of the emphasis on modern equipment, the War Department authorized buying thirty-six horse-drawn ambulances of a new model under the assumption that it would prove valuable where motor vehicles could not be used.<sup>54</sup>

### *Hospitals*

Initially the Army feared both not having enough hospital space in the event of an emergency and spending money unnecessarily to create it. The sums voted in 1939 provided “replacements for existing dilapidated wartime buildings” but made little provision for an overall increase in beds. That which was needed for repair and maintenance came from a general fund, but Congress had to specifically

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<sup>52</sup> “Finance and Supply Topics,” no. 31, pp. 76–77; Julia C. Stimson, *History and Manual of the Army Nurse Corps*, p. 30; WD, *ARofSG*, 1940, p. 162; *ibid.*, 1941, p. 131; Armfield, *Organization and Administration*, p. 36.

<sup>53</sup> WD, *ARofSG*, 1939, p. 168; *ibid.*, 1940, p. 161; *ibid.*, 1941, p. 151; Smith, *Medical Department*, p. 41; Magee, “Activities of the Medical Department,” p. 8; Armfield, *Organization and Administration*, p. 37.

<sup>54</sup> Armfield, *Organization and Administration*, p. 37; Magee, “Activities of the Medical Department,” p. 8; WD, *ARofSG*, 1940, p. 179; *ibid.*, 1941, p. 129; Wakeman, “Medical Department Training,” p. 46; Smith, *Medical Department*, p. 40.

authorize financing for permanent construction. The Medical Department could not start building the hospitals needed for cantonments where National Guard troops would be trained until after 2 August 1940, when President Roosevelt freed money from an emergency fund for the purpose. Although the legislature officially authorized the callup of the Guard on 27 August, it did not vote construction money until 9 September.<sup>55</sup>

Under the pressures engendered by mobilization and with more funds available, the Medical Department was able to improve the maintenance of existing facilities, but an array of problems remained. The department had to decide about the types of hospitals to be used and the number of beds to be provided, about how to staff and supply hospitals, both fixed and mobile, and about how to administer them. Surgeon General Magee and the General Staff disagreed about how to calculate the number of beds the department should be able to provide. Magee wished to use a figure calculated as 5 percent of the men in the Army, while G-4 overruled him in favor of 4 percent.<sup>56</sup>

Once construction for new hospitals and additions to old ones was under way, Magee and the Quartermaster Corps worked together to develop new plans for fireproof hospital buildings as well as designs for hospital facilities for transports and a modern hospital ship. Thanks to their almost frenzied efforts, the number of general hospitals serving the Army by June 1941 had grown to 27, 9 of which were serving cantonments and held from 750 to 2,000 beds, while the number of station hospitals stood at 284. A total of almost 79,000 beds was available in the department's facilities, 75,000 of them in the continental United States. Ironically, however, even at this late date and despite partially successful efforts to reduce their numbers, more than half of the patients in the Army's hospitals on any average day were likely to be civilian, generally members of the Civilian Conservation Corps and of military families.<sup>57</sup>

With every type of facility, from dispensary to supply depot, multiplying in number and capacity, the potential for confusion was great and growing. Inspectors moved from one hospital to another to determine through staff interviews how construction could be more effectively planned and handled. To bring order at a time of much rapid change, the Medical Department abandoned the casual policy of allowing hospital commanding officers and corps area surgeons to determine what cases were transferred to general hospitals. The department set up a system of bed credits in the spring and summer of 1941. It allotted larger station hospitals a specific amount of space in specific general hospitals to which they could, without involving corps area headquarters, transfer patients in need of more than sixty days of hospitalization. It continued to require small station hospitals to work through corps area surgeons. With the coming of draftees to training camps, it separated the positions of camp surgeon and hospital commanding officer so that the latter could concentrate on the complexities of hospital administration, while

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<sup>55</sup> Smith, *Medical Department*, pp. 3, 13, 14; WD, *ARofSG*, 1939, pp. 187 (quoted words), 250; *ibid.*, 1940, p. 187; *ibid.*, 1941, p. 163; *Biennial Report, 1939-1941*, p. 6; Mae M. Link and Hubert A. Coleman, *A History of the Origin of the U.S. Air Force Medical Service (1907-1949)*, p. 72.

<sup>56</sup> WD, *ARofSG*, 1940, p. 188; Smith, *Medical Department*, pp. 7, 13, 14.

<sup>57</sup> WD, *ARofSG*, 1940, pp. 163, 164, 186-87; *ibid.*, 1941, pp. 136, 164, 165, 166, 168, 254.

the former dealt with sanitation, physical examinations for new recruits, and similar responsibilities.<sup>58</sup>

Facilities at bases located in the overseas possessions changed more in size than they did in type and organization, and diseases and their rates remained much as they had been. By December 1939 the number of soldiers in Puerto Rico had more than doubled, and a year later 13,000 officers and men served in the Puerto Rican Department, necessitating a significant increase in medical personnel. Personnel for medical teams going with troops being sent to occupy French bases in the West Indies or the Atlantic and Caribbean bases leased from Great Britain were taken from major hospitals in the United States, their numbers based on a peacetime assumption that beds would be needed for no more than 5 percent of the troops. Soldiers often arrived before arrangements for their medical care was complete, forcing a brief resort to such expedients as setting up a hospital on shipboard, in a temporary building, or in a hotel or relying either on British hospitals or on facilities set up by the Engineers to meet the medical needs of their civilian employees. The first numbered facilities to be sent overseas arrived in Iceland in the fall of 1941.<sup>59</sup>

The effort to provide expanded and more efficient hospitalization within the United States and its territories received greater emphasis at this time than did planning for the hospitalization that would be required in foreign lands during and after battle. The doctrine that guided efforts to meet this need was little changed in principle from that followed in previous conflicts. The wounded would receive initial care at stations on or near the battlefield, where each separate unit would have a medical detachment and each division a medical regiment or similar organization to deal with evacuation. Mobile hospitals—surgical, evacuation, and convalescent hospitals—were to be assigned to field armies to provide treatment as near the front as possible. In recognition of the dwindling role played by animals, veterinary hospitals were placed in the General Headquarters reserve. Hospitals in the theater of operations would be identified by number and, unlike named hospitals, have standardized capacity, personnel, and equipment. Returning as many trained and experienced men to their units as soon as possible remained the cardinal rule of military medicine. Only patients who could not be restored relatively promptly to their units would be evacuated as far back as general hospitals. As they had been in World War I, general hospitals might be grouped into a hospital center complete with a convalescent camp. Authorities gave promptness in rendering care to the wounded a high priority; having concluded that a patient had to remain an additional week in the hospital for every two hours of delay in rendering care.<sup>60</sup>

The department had lost track of hospitals affiliated with medical schools or hospitals after the initial 1922 decision to rely on them in the event of mobilization, mainly because decentralization had placed them under corps area control. In much

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<sup>58</sup> *Ibid.*, pp. 154, 165, 253; Smith, *Medical Department*, pp. 34, 35; Armfield, *Organization and Administration*, pp. 35, 59.

<sup>59</sup> WD, *ARofSG*, 1941, p. 39; Wiltse, *Medical Department*, pp. 9, 42; Smith, *Medical Department*, pp. 45, 48, 49.

<sup>60</sup> Smith, *Medical Department*, pp. 4–5, 6; Paul R. Hawley, “The Medical Service in the United States Army,” p. 448; WD, *ARofSG*, 1940, p. 175; Nicholls, *Organization*, p. 3.

the same way as done in World War I, using them to provide general, evacuation, and surgical facilities was authorized shortly before the fall of Poland in September 1939. By mid-1941 more than the desired number of general hospitals had been organized, although the goal for the other two types had not yet been reached.<sup>61</sup>

### *Air Corps Medical Service*

The growth in the size and prominence of the Air Corps in the period of mobilization increased the controversy over the status of its medical service, both within the Air Corps itself and with the Medical Department. As a part of the Air Corps, a branch of the Army much favored by Congress, the Medical Division could more easily obtain money for the 537 additional officers needed in fiscal year 1940 to alleviate the shortage of flight surgeons than could the Medical Department. On the other hand, the principle that each supply service, the Medical Department being one of them, have only one head, was important. Surgeon General Magee agreed with his predecessor that with the coming of mobilization, the corps medical service should be returned to the direct control of the surgeon general, where it had been in World War I. The specialized training that was necessary for physicians caring for pilots could then be provided on the same basis and in the same way that other types of specialized training were provided. Magee wished, therefore, to have the Air Corps Medical Division terminated and a division of aviation medicine set up in the Surgeon General's Office. This move would also bring the School of Aviation Medicine under Magee's control.<sup>62</sup>

When a flight surgeon grounded the pilots assigned to take Maj. Gen. Henry H. "Hap" Arnold, commanding general of the Air Corps, home from Hawaii in October 1939 after a particularly lively evening, a resentful Arnold insisted on an investigation into the status of the Medical Division. Although the flight surgeon was obeying regulations approved by General Arnold himself, the general overruled him. Upon Arnold's arrival in Washington, D.C., he appointed a board of Air Corps medical officers to study whether flight surgeons and a separate Air Corps Medical Division were needed. General Arnold's reaction was not unusual. Line officers did not take kindly to having flight surgeons attempt to overrule their plans. The members of the new board disagreed on the question of the control of the corps' medical service, but a majority favored continuing the Air Corps Medical Division as a separate organization under corps control. Although the question was not resolved during the period of mobilization, the formation of Headquarters, Army Air Forces, in June 1941 tended to reinforce the split.<sup>63</sup>

The question of control of the medical service became entangled in the meshes of reorganization within the air service. The chief of the Air Force Plans Division joined

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<sup>61</sup> WD, *ARofSG*, 1939, p. 179; *ibid.*, 1941, pp. 145–46; Smith, *Medical Department*, pp. 5, 6, 42; Armfield, *Organization and Administration*, pp. 22, 42–43; Link and Coleman, *Origin of Air Force Medical Service*, p. 74.

<sup>62</sup> WD, *ARofSG* 1940, p. 266; Armfield, *Organization and Administration*, pp. 8, 9; Link and Coleman, *Origin of Air Force Medical Service*, pp. 59, 63.

<sup>63</sup> Link and Coleman, *Origin of Air Force Medical Service*, pp. 60, 62, 68; *idem*, *Medical Support of the Army Air Forces in World War II*, pp. 26–27, 29, 31; Armfield, *Organization and Administration*, pp. 8, 9–10, 47–48.



*Henry H. "Hap" Arnold*



*Air Surgeon Grant, 1941*

General Arnold in urging that no changes as far as the medical service was concerned be made until after June 1941 to avoid complicating the corps' expansion. The creation of the Army Air Forces, however, divided authority over the medical service. The new Air Force Combat Command, with authority over tactical installations, and the Air Corps chief, with authority over fixed installations, split between them the command and control over medical personnel. But both Surgeon General Magee and Col. David N. W. Grant, head of the Medical Division, "one of the most dynamic officers" in the Army and "the match in aggressiveness for his Chief, Arnold," favored having the division moved to the newly established Headquarters, Army Air Forces, to restore centralized control. From this position, the air surgeon could serve as special staff officer to the commanding general and administrator of the medical service.<sup>64</sup>

In October 1941, without relinquishing his position as the Medical Division chief, Colonel Grant became the air surgeon—his new position being roughly analogous to that of Surgeon General Magee—over the objections of the Air Corps chief who believed that this change undermined his authority. The War Department also ordered that Air Corps stations be formally removed from corps area control, a move that was followed in practice by the gradual assumption of control over hospitals by the Air Corps medical service at the rapidly growing number of air stations.<sup>65</sup>

<sup>64</sup> Link and Coleman, *Medical Support*, pp. 32–33, 34–35; idem, *Origin of Air Force Medical Service*, pp. 61 (quoted words), 62–63.

<sup>65</sup> Link and Coleman, *Medical Support*, pp. 21, 35; idem, *Origin of Air Force Medical Service*, p. 63; Armfield, *Organization and Administration*, p. 47; Smith, *Medical Department*, p. 11; Wiltse, *Medical Department*, p. 42.

The need for medical officers to handle physical examinations for would-be pilots and those who would be supporting their efforts as well as to maintain the health of all in the Air Corps was acute. The anticipated need for conducting 50,000 physical examinations in fiscal year 1941 (more than twice the number done in fiscal year 1939) led to rapidly expanding the training programs for medical personnel, still handled under the Air Corps training center. More space for Army students at the School of Aviation Medicine became available after November 1939, when the last Navy medical officer to study at the school graduated. The Navy set up its own school using the Army's school as a model and Army flight surgeons as instructors. Starting 1 December 1940, the basic course was shortened to three months, with a second course of equal length starting the following March, both being given at Randolph Field, Texas. As a result, the number graduating from the school more than tripled from 1939 to 1940. In fiscal year 1940 more than three times the number studying at the school took extension courses. Branches of the School of Aviation Medicine at ten airfields provided medical officers with practical training. Six-week courses trained enlisted specialists, some of them as medical corpsmen to function as flight surgeon assistants, dealing with routine examinations under a flight surgeon's supervision. For fiscal year 1941 the War Department permitted shortening the aviation medicine course to six weeks and increasing their number to six. According to the surgeon general's annual report for fiscal year 1940, graduates of these shortened courses as well as those who received instruction by means of extension courses who then served six weeks of active duty were given the title of medical examiners, becoming flight surgeons only after they had served a year of active duty with the Air Corps.<sup>66</sup>

For the most part, the medical officers of the Air Corps continued to serve as either examiners or flight surgeons. During the period of mobilization the former were called upon to conduct rapidly increasing numbers of physical examinations. Those examined to determine fitness for flight training numbered 163.8 percent more in 1941 than the previous year, and eye defects continued to cause most of the rejections.<sup>67</sup>

The position of flight surgeons was more difficult than that of medical examiners. Denying flight status to a pilot was regarded as punishment, and, as General Arnold himself demonstrated, the responsible physician could be the object of considerable resentment. Furthermore, although the option of being on flight status and receiving higher pay as a result, was available, in actual fact Congress in fiscal year 1940 limited flying status to eighty-six flight surgeons at any one time, regardless of how many actually spent time in the air. As a group they averaged 100 hours per man per year. In fiscal year 1940 Congress made no provision for increasing this number in spite of the rapidly growing number of men qualified for it. The additional pay was limited to \$720 a year, and even though few officers could be on flying status for more than a

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<sup>66</sup> Link and Coleman, *Medical Support*, p. 27; WD, *ARofSG*, 1940, pp. 182, 185, 267, 269–70; Armfield, *Organization and Administration*, p. 15; Peyton, *Fifty Years*, pp. 81, 82, 99, 100; Coleridge L. Beaven, *A Chronological History of Aviation Medicine*, p. 61.

<sup>67</sup> Armfield, *Organization and Administration*, p. 65; WD, *ARofSG*, 1941, p. 258.



few months at a time, they had to pay the premiums for higher insurance for the entire year.<sup>68</sup>

All pilot training was managed through Randolph Field, Texas, until the summer of 1940. In July Moffett Field, California, and Maxwell Field, Alabama, also became training commands. Here the staff included a medical officer and his small office, from which he managed the physical examinations required to determine who was fit for service as part of an aircrew and who was qualified for training as a combat pilot. In the summer of 1941 the Medical Department no longer being responsible for psychological testing, now handled by the adjutant general, the Air Corps Medical Division introduced psychological testing at the training commands as part of a research project, using civilian specialists in an attempt to discover factors that might predict the future health of a prospective pilot. Air Corps medical officers also participated in the selection of sites for flying schools and arranged for medical coverage for each, sometimes having to resort to contracting with a civilian physician for this type of service.<sup>69</sup>

The need for research concerning the demands of flying, especially in combat, continued. A small handful of medical officers at the School of Aviation Medicine and at the laboratory at Wright Field in Ohio continued to conduct research for the Air Corps throughout the mobilization period, as did flight surgeons on their own, although they had little time in which to do it. From January to March 1941 medical officers conducted classes at the research laboratory to share information learned about high altitude physiology. They also provided assistance for attempts to create similar courses for medical officers in the Hawaiian and Philippine Departments. In June 1941 the School of Aviation Medicine set up a research laboratory that operated independently of teaching activities and created a department of physiology to supervise its operations. Although the need for research grew rapidly, many projects for a time had to be turned over to other agencies to be completed because of the shortage of personnel. Early in 1941, however, specialists selected by the National Research Council began to arrive to assist in these efforts.<sup>70</sup>

Throughout the mobilization period, as commands and organizations shifted and mutated in the Air Corps and the Army Air Forces, so too did the structure of the medical service. A medical officer served on the staff of each commanding officer in the air service, and the offices of the medical officers serving the various air bases grew slowly with time. The air service determined its own medical needs. In dealing with the industries that supplied it, the Air Corps even developed a program similar to that managed by the occupational hygiene branch of the Surgeon General's Office. By the end of 1941 the rapidly growing Air Corps medical service was to a large extent independent of the Medical Department except for supply and personnel procurement.<sup>71</sup>

<sup>68</sup> Link and Coleman, *Medical Support*, p. 28; WD, *ARofSG*, 1940, pp. 266–67; *ibid.*, 1941, pp. 256–57.

<sup>69</sup> Armfield, *Organization and Administration*, pp. 65, 66; Peyton, *Fifty Years*, pp. 103, 104; Donald S. Napoli, "The Mobilization of American Psychologists, 1938–1941," p. 33.

<sup>70</sup> Link and Coleman, *Medical Support*, p. 28; Armfield, *Organization and Administration*, pp. 15–16, 66; WD, *ARofSG*, 1941, p. 259; Peyton, *Fifty Years*, pp. 101–02.

<sup>71</sup> Armfield, *Organization and Administration*, pp. 48, 65, 67–68.

### *Preventive Medicine Surge*

By 1939 the rate of hospitalization was the lowest in the history of the Army. This rate could not be sustained when training intensified and camps grew in number, and, especially, when multitudes of unseasoned young men began pouring into the military service. The digestive diseases, particularly typhoid fever and dysentery, were kept at bay with improved sanitation and, in the case of typhoid fever, by vaccination as well. Research into developing improved vaccines for typhoid continued. The use of a triple typhoid vaccine that immunized against paratyphoid as well as typhoid was reinstated in July 1940. Vaccination against smallpox had long been mandatory for all in the Army. Careful instructions were issued concerning immunization and reimmunization against tetanus; in April 1941 tetanus shots were required throughout the Army, although for a time tetanus antitoxin was still also required for every man who was wounded. Conferences were held to consider the feasibility of immunizations against yellow fever, cholera, typhus, and plague. The typhus vaccine in particular proved, in practice, highly effective in reducing morbidity to a minimum and in virtually eliminating mortality.<sup>72</sup>

Not knowing where troops might be sent rendered recommendations concerning certain immunizations difficult. The General Staff and Chief of Staff Marshall, of necessity, became more involved in the work of the Medical Department than would otherwise have been the case. Immunization against yellow fever became mandatory for all serving in the tropics or about to be sent to the tropics. Surgeon General Magee activated an intensive program to control those types of mosquitoes known to carry malaria or yellow fever and dengue in areas occupied by U.S. troops. Ironically, however, the start of mobilization and a lack of funding led in November 1939 to closing the board in Panama that had for years been studying tropical diseases.<sup>73</sup>

Surgeon General Magee pushed for greater attention to sanitation and specifically for adequate ventilation in barracks and hospitals as a means of keeping down the rate of respiratory diseases. Nevertheless, waves of respiratory disease, from severe colds to influenza, against which no effective vaccines existed, made significant inroads. The rate of admissions for 1940 was 44 percent higher than it had been the previous year, although disease deaths remained low. The number of patient days of treatment skyrocketed from more than 1.7 million in 1939 to three million in 1940. In March 1941, in an attempt to reduce

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<sup>72</sup> WD, *ARofSG*, 1940, p. 6; *ibid.*, 1941, p. 175; James S. Simmons, "The Division of Preventive Medicine, Office of the Surgeon General, United States Army," pp. 63, 66–67; *idem*, "Immunization Against Infectious Diseases in the United States Army," pp. 74, 76–77, 78–80; Hume, *Victories*, pp. 105, 197; *Biennial Report, 1941 to 1943*, p. 50; J. Hill, *Silent Enemies*, p. 94; Armfield, *Organization and Administration*, p. 33; Sams, "Medic," p. 132, copy in Library, CMH; Albert E. Cowdrey, *War and Healing*, p. 153; Roger Cooter, Mark Harrison, and Steve Sturdy, eds., *Medicine and Modern Warfare*, p. 92.

<sup>73</sup> Simmons, "Division of Preventive Medicine," p. 64; *idem*, "Army's New Frontiers," p. 981; *idem*, "Immunization," p. 79; Hume, *Victories*, pp. 196–97; Armfield, *Organization and Administration*, pp. 16, 55; *Biennial Report, 1941 to 1943*, p. 50; WD, *ARofSG*, 1940, p. 211; *ibid.*, 1941, p. 175.

these figures at least marginally, the War Department accepted a recommendation from the Surgeon General's Office that all enlisted men with tuberculosis be discharged to the care of the Veterans' Administration as soon as they had been diagnosed and formally determined to be unfit for further service.<sup>74</sup>

Mental illness continued to be a concern. Every effort was made to keep patients of uncertain mental or emotional health out of the Army, but the effort was not particularly successful. During the period of mobilization many patients were identified whose conditions preceded their entry into the Army and who, therefore, could not be turned over to the Veterans Administration. Wards at the Walter Reed General Hospital and at St. Elizabeth's Hospital in Washington D.C., where excess patients from Walter Reed were sent, were crowded. Accommodations for this type of patient were part of new construction plans, but a new facility for mental patients in Kentucky had not been completed by the time of the U.S. entry into World War II. With the experiences of World War I still in mind, much thought was given to preventing what was then known as shell shock, not only through eliminating from the Army those who seemed likely to have such a problem but also through improving the morale and maintaining to the extent possible the physical fitness of the troops. The lessons of World War I concerning treatment had been largely forgotten, however.<sup>75</sup>

Probably the most widespread concern as far as the health of the Army, and especially of the troops when not in combat, was, as always, venereal disease, more often gonorrhea than syphilis. The fact that the Army accepted draftees with venereal disease undoubtedly contributed to the soaring rate. Draft board examinations revealed it to be more prevalent in the population than had been previously suspected. Campaigns intended to popularize continence had no more success than they had in World War I.<sup>76</sup>

In trying to deal with prostitution and the threat of venereal disease outside bases and camps, the Army once again turned to the Public Health Service, which it assumed would carry the major burden of dealing with health and sanitation in areas surrounding Army bases. The Public Health Service assigned one of its officers to serve as liaison to work with each corps area surgeon. The War Department also gained the support of state and territorial authorities and various volunteer agencies in an effort to create a unified front in the struggle against venereal disease and to guarantee that cases of these diseases were promptly reported. Surgeon General Magee served as part of the Health and Medical Committee of the Office of Defense Health and Welfare Services, which was created in the fall of 1941 to coordinate the work of state and local organizations involved in dealing with medical problems that affected national defense, among them venereal disease.<sup>77</sup>

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<sup>74</sup> Simmons, "Division of Preventive Medicine," pp. 66–67; WD, *ARofSG*, 1941, pp. 2, 3, 5, 8, 60, 253; Hume, *Victories*, p. 193.

<sup>75</sup> P. S. Madigan, "Military Psychiatry," pp. 61, 69; Edward G. Billings, "The Recognition, Prevention, and Treatment of Personality Disorders in Soldiers," pp. 20, 32, 34–35, 36–37; Cooter, Harrison, and Sturdy, eds., *Medicine*, p. 255; Hume, *Victories*, p. 140; Smith, *Medical Department*, p. 37.

<sup>76</sup> WD, *ARofSG*, 1941, p. 42; Hume, *Victories*, p. 125; Jerome H. Greenberg, "Venereal Disease in the Armed Forces," p. 181.

<sup>77</sup> Armfield, *Organization and Administration*, pp. 23–24, 39–40, 44; Simmons, "Division of Preventive Medicine," p. 63; WD, *ARofSG*, 1940, p. 176; Greenberg, "Venereal Disease," p. 181.

In the summer of 1941 Congress made prostitution a federal offense in those areas where the Army chose to invoke this measure, thus making the effectiveness of the law dependent on the Army. Commanding officers were apparently reluctant, however, to become involved with enforcing the law in the civilian community, preferring to rely on civilian enforcement of the regulations of local governments concerning prostitution. The number of cases of venereal disease increased rapidly in spite of these efforts. The Army came under harsh attack from civilian agencies, especially when in some instances medical officers examined prostitutes, thereby giving credence to stories that the military condoned prostitution. Concerned that punishment for those who developed syphilis or gonorrhea without being able to prove that they had undergone prophylaxis might cause cases to be concealed, the Army adopted a new policy. Soldiers who became infected without undergoing prophylaxis were no longer to be disciplined; punishment was rather to be meted out to those who had one of these diseases and failed to report the fact.<sup>78</sup>

Recognizing the seriousness of the problem, Surgeon General Magee assigned a control officer to serve as assistant to the surgeon of every division, army, and communications zone headquarters, as well as to General Headquarters, corps area, and department surgeons and to stations serving 20,000 or more men. Once a case was reported, the Medical Department exerted every effort to see that treatment was promptly instituted and continued throughout a standardized course. Careful records were maintained so that the Army would be kept informed of the progress of all men who had been labeled as cured as well as of all active cases of syphilis. Just at the time that the United States became involved in the war, both a congressional committee and a commission of the National Research Council were beginning investigations of the venereal disease problem in the Army. They eventually came to view the Medical Department's approach favorably.<sup>79</sup>

By this point, the victims of gonorrhea were among those beginning to benefit from the use of the various sulfa drugs. The Medical Department had found both sulfathiazole and sulfapyridine to be particularly effective against types of gonorrheal infection. Apparently, however, they had not been tried against syphilis. The Medical Department was obviously intensely interested in the sulfas and was gathering much information about the organisms against which they were effective, about the ways in which to use these drugs, and about possible side effects. Among the problems against which one or another sulfa drug was proving effective at the time the United States entered World War II were various staphylococcal and streptococcal infections, pneumococcal pneumonia, and meningococcal meningitis.<sup>80</sup>

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<sup>78</sup> Armfield, *Organization and Administration*, pp. 40, 41; Gregg S. Meyer, "Criminal Punishment for the Transmission of Sexually Transmitted Diseases," pp. 561–62, 563; WD, *ARofSG*, 1941, pp. 41–42.

<sup>79</sup> Armfield, *Organization and Administration*, p. 41; WD, *ARofSG*, 1940, pp. 196; *ibid.*, 1941, p. 179.

<sup>80</sup> Carl W. Tempel, "The Clinical Use of the Sulfamide Compounds," pp. 19–33; SGO Circular Ltr no. 81, 5 Dec 1940, pp. 34–48; Harry F. Dowling, *Fighting Infection*, pp. 117–18; Theodore E. Woodward, *Armed Forces Epidemiological Board*, pp. 26, 63 (hereinafter cited as *AFE Board*).

Preventive medicine became a subject of particularly great concern in the period of the mobilization as the possibility of U.S. involvement in the war loomed ever larger. Representatives of the Preventive Medicine Division of the Surgeon General's Office took part in the meetings of several civilian organizations as part of the effort to protect the nation's soldiers from disease and worked with many organizations, both military and civilian, among them the Department of the Navy, the American Red Cross, the National Research Council, the American Social Hygiene Association, and the Public Health Service. Perhaps the closest relationship with a civilian organization, however, was that with the Board for the Investigation of Influenza and Other Epidemic Diseases (after the war known as the Army Forces Epidemiological Board). Although members of the board, initially set up in January 1941, were civilian consultants, some of them served for a brief period in uniform. They worked with their military counterparts to study communicable diseases in the armed forces and to provide advice about sanitation and preventive measures, with such diseases as measles, meningitis, pneumonia, and streptococcal infections being among their principal concerns.<sup>81</sup>

The board began its work with the influenza epidemic of 1918–19 very much in mind. When the board first met in February 1941 under the leadership of Stanhope Bayne-Jones, the consultants were concerned that an epidemic might erupt in 1942. Ironically, a plan to use Army troops as part of a study of vaccines developed for two different types of influenza had to be abandoned with the entry of the United States into the war.<sup>82</sup>

The board was also very much aware of the real possibility of “disastrous epidemics” of diseases other than influenza. To study the various illnesses that Army troops might encounter either in the United States or in its overseas possessions, the board formed a number of commissions to serve under it and to study various types of infection. Included in the studies were not only influenza but also meningitis, hemolytic streptococcal infections, and a fungal lung infection known as coccidioidomycosis, the incidence of which was unusually high around military bases in southern California. The commission on epidemiological surveys visited bases as directed by the surgeon general to study samples of the organisms found there, using mobile and stationary laboratories at various posts as well as those at corps headquarters.<sup>83</sup>

Not all attempts to prepare for the coming conflict were officially orchestrated. Individual medical officers also searched for ways to predict and prevent injuries in whatever situation they found themselves. The responsibilities of one such officer, Maj. Crawford F. Sams, MC, while stationed at Fort Benning, Georgia, included “a nucleus of the parachute troops which had received, by that time, so much notoriety.” Initially no plans were developed to provide these troops with medical service when they jumped, the prevailing opinion being that they were

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<sup>81</sup> WD, *ARofSG*, 1940, p. 197; *ibid.*, 1941, p. 139; Woodward, *AFE Board*, pp. 5, 6, 87, 144, 145, 213; Simmons, “Division of Preventive Medicine,” p. 65; Paul E. Howe, “Food, Nutrition, and the Army,” p. 87; Stanhope Bayne-Jones, *Evolution of Preventive Medicine in the United States Army, 1607–1939*, pp. 145, 152–53.

<sup>82</sup> Woodward, *AFE Board*, pp. 5, 6, 143, 152–53, 213; Cowdrey, *War and Healing*, pp. 139–40.

<sup>83</sup> Woodward, *AFE Board*, pp. 5, 128, 145 (quoted words), 214, 264.

too tough to need it. But the argument that “one of the greatest factors in the morale of troops in combat is to know that if they are wounded they will receive adequate care” won out. At this point, the design of medical equipment that could be dropped with them and the training of medical officers in the art of parachute jumping became important. Major Sams became, according to his memoirs, the third officer in the Army to qualify in parachuting and the first medical officer to do so.<sup>84</sup>

As part of his responsibilities, Major Sams undertook to develop a physical conditioning program for parachute troops and to study their equipment, and particularly their shoes and helmets, so that injuries could be prevented to the extent possible. Once he



*Crawford F. Sams in 1948*



*Aerial view of the hospital complex at Fort Benning, Georgia*

joined the parachutists, he became involved in dealing with the all factors involved in the accidents that afflicted them as well as in the selection of the men most likely to succeed in this specialty.<sup>85</sup>

<sup>84</sup> Sams, “Medic,” pp. 111 (first quoted words), 112 (second quoted words), 113, copy in Library, CMH.

<sup>85</sup> *Ibid.*, pp. 114, 115–17, 119–21, copy in Library, CMH.

The Medical Department continued to be involved in guarding the health of civilians working in industries supplying the Army. In December 1940 Surgeon General Magee suggested that the department and the Public Health Service cooperate in this type of work and that their endeavors be extended beyond plants to depots. Surveys initiated the following May were the beginning of a wide-ranging effort that eventually covered a million workers. As part of an effort to reduce absenteeism resulting from illness or injury, the department investigated the fitness of workers about to be employed for the type of work they would be doing. It also concerned itself with maintaining the health of those already on the job through education about personal hygiene and protection from hazardous working conditions.<sup>86</sup>

The last *Army Medical Bulletin* to be issued before the Japanese attacked Pearl Harbor devoted one article to educating medical officers about the care of the wounded. Shock, a dangerous problem that was much studied both during and after World War I, greatly concerned the Medical Department, because it was responsible for the deaths of many of the wounded in 1918. The author urged that anesthesiologists be trained both to prevent and treat shock. The anesthesia to be used was also of concern. Nitrous oxide became popular during World War I, but it required the use of tanks and tended to reduce the level of oxygen. Without carefully monitoring the administration of supplementary oxygen, its use could prove fatal for the patient. He favored using sodium pentobarbital before the administration of ether as the best approach to the problem of shock and anesthesia. He reminded his readers of many precautions deemed desirable in reducing the chances of shock, including providing heat for its victims and using transfusions of blood rather than saline. In May 1941, although the metal identification tag worn by all soldiers was stamped with their blood type (as well as with the fact that they had received their tetanus shots), research had suggested that plasma was "a very excellent blood substitute." When used at the front, it was vastly superior to blood because it did not have to be typed and could be stored for a month at room temperature.<sup>87</sup>

Those responsible for the nation's defense were also concerned about the possibility of gas or biological warfare. Late in 1941, to deal with the first threat, corps area surgeons were tasked with serving as medical consultants to local officers of the Office of Civilian Defense. The Public Health Service officers assigned to corps area surgeons' offices joined in this effort. A medical officer served on the Committee on Medical Research of the Office of Scientific Research and Development, which was created in June 1941 to conduct research into medical problems affecting national defense. This organization, together with the National Research Council, was involved in wartime medical research that included studies of how to care for gas casualties. Studies concerning defense against bacteriological attack involved many organizations and many specialties, and in November 1941 Medical Department veterinarians were drawn into the

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<sup>86</sup> Armfield, *Organization and Administration*, p. 32; Simmons, "Division of Preventive Medicine," p. 67; WD, *ARofSG*, 1941, pp. 175-76.

<sup>87</sup> Douglas B. Kendrick Jr., "Prevention and Treatment of Shock in the Combat Zone," pp. 38, 46, 49, 51 (quoted words), 54, 55; Hume, *Victories*, pp. 197, 198.

effort because one aspect of biological warfare might involve spreading disease among the nation's cattle.<sup>88</sup>

Never before had the Medical Department been given such a long period of peace in which to prepare to meet the challenges of war. The experiences of World War I had served it well, and even though the department was to a large extent preparing for the conflict that had been rather than for the one that was to come, its leaders were well aware in general terms of the problems that would be encountered. They had developed doctrine to guide hospitalization and evacuation so as to avoid to the extent possible the desperate improvisation that had characterized the battlefields of 1918. Under their direction, the department was familiarizing its personnel as rapidly as the system would allow with the rules, regulations, and customs that guided the medical service as well as with the special demands that would be made on them both as individuals and as members of a team. Nevertheless, the Medical Department could not avoid being swept up in the confusion that affected the entire Army as it prepared, once more, for a massive conflict.

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<sup>88</sup> Armfield, *Organization and Administration*, pp. 44–46.





## Epilogue

# THE DEPARTMENT IN RETROSPECT



Both the medical personnel who stood ready to care for the casualties of World War II and the U.S. Army Medical Department in which they served represented the culmination of more than sixteen decades of evolution in military medicine in the United States. During the period from 1775 to 1941 the physicians responsible for the care of American soldiers were transformed from amateurs to professionals, from civilians to military officers. As the result of the revolution in medicine that immediately preceded and then flowered in the wake of the Spanish-American War, they were also transformed from doctors who worked in almost total ignorance of the causes of disease and infection to scientists able to prevent many of the problems that had traditionally devastated the health of armies. The contributions of the Army's physicians in the years after the acknowledgment of bacteria as a cause of disease were not limited to the military world; the names of Walter Reed and William C. Gorgas became widely recognized in the civilian world as well. By the time the United States entered World War II, Army doctors were able to use the new sulfa drugs to cure some of the infections against which they had, until then, been essentially helpless.

The Medical Department of 1941, like the Army itself, also represented the culmination of many decades of organizational evolution. The department of 1818 had little centralized control over its members other than those involved in providing supplies. The changes dictated by the Civil War increased the department's size but without significantly modifying its basic structure. The first decades of the twentieth century, however, saw the development of a department specifically designed to meet the complex needs of huge armies destined for combat on distant battlefields. The new organization had to be prepared to control and guide the activities of a vast network of officers, enlisted men, and nurses staffing hospitals, laboratories, schools, and field units of many types, all trained in the use of the progressively more sophisticated equipment and techniques dictated by the demands of military medicine.<sup>1</sup>

Although some themes were constant—Congress, in its perennial determination to cut the budget, rarely voted the Medical Department sufficient funds for

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<sup>1</sup> For additional details and discussion, see Mary C. Gillett, "The Organizational Revolution," in *The Army Medical Department, 1865–1917*, pp. 314–46.

personnel requirements during peacetime, much less for war—change was the outstanding characteristic of the department's history from 1775 to 1941. Many new developments resulted from the ever-growing size of the Army itself, but many more resulted from the department's much-improved capability to care for the sick and wounded and to prevent the appearance and spread of disease. A scientific approach to sanitation and prevention called for regular inspections and a system of laboratories equipped specifically for this type of work and staffed by trained technicians and physicians. Still other laboratories were required not only to produce and improve sera and vaccines but also, through research, to develop immunizing agents for more diseases. Increasingly complex surgery necessitated increasingly elaborate and extensive equipment and specialized rooms, not only for operations but also for patient preparation and recovery. Furthermore, no amount of training in civilian institutions could prepare the Army's medical personnel to deal with the demands of hospitalization and evacuation at the front. Still more laboratories, still more research, and still more specialized training were required to meet the challenges imposed by war in the air. In the course of meeting the needs of the men of the American Expeditionary Forces (AEF), those who served in the World War I Medical Department gained in a relatively short time experience and skills that they could never have found elsewhere.<sup>2</sup>

Many changes for the Medical Department and its personnel came during and after World War I. The very small and relatively simple Surgeon General's Office of April 1917 disappeared in a few weeks, never to return. The size and complexity of the wartime department placed a greater emphasis on administration than ever before. The brief period when a thoroughly justified reputation as an outstanding scientist was alone a major qualification for selection as the surgeon general was gone forever. Surgeon General Gorgas' unenthusiastic reaction to the preoccupations imposed by a huge and intricate organization in crisis suggested the department's need to have a skilled and dedicated administrator at its head. No longer tenable was the notion that a Medical Department unable to prepare for the eventuality of war before it was declared could adequately care for an army at war. A depression of historic proportions, however, made almost understandable the perennial reluctance of Congress to vote money in peacetime to prepare for a war that might never materialize.

Gone, too, in the course of World War I were the last vestiges of the ready access that high-ranking medical officers once had to their commanding officers. Brig. Gen. Alfred E. Bradley's reassignment from the AEF headquarters to a subordinate Services of Supply command represented a significant change in the influence of the AEF medical service. General Pershing's preference for the vigorously healthy Col. Merritte W. Ireland over the ailing Bradley may have inclined him to take this step, but he made no apparent effort to undo it when Ireland succeeded Bradley as the AEF chief surgeon. Thus was sealed a fate already foreshadowed in the wake of the post-Spanish-American War reforms by the demise of the powerful War Department bureaus that had once guaranteed the head of the Medical Department personal access to influence at the highest levels. From a more positive viewpoint, however, military medicine, once "an auxiliary and largely unsupported part of

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<sup>2</sup> M. A. Reasoner, "The Development of the Medical Supply Service," p. 4.

the military service,” was now “a technically and militarily competent service and staff component of the Armed Forces.”<sup>3</sup>

Ironically, even as the influence and stature of the Medical Department itself as an organization were falling, the influence and stature of the department’s medical officers as individuals were rising. By 1917, although they were once often scorned as the purveyors of noxious remedies whose benefits seemed illusory, the officers were now respected and, in a few instances, almost lionized, for their ability to prevent diseases that had traditionally devastated armies, and especially for their success in dealing with the plagues of the tropics. By the time World War I began, commanding officers could no longer afford casually to ignore the recommendations of their command surgeons. The low toll taken by typhoid fever and similar diseases associated with inadequate sanitation in the course of World War I served further to emphasize the value of the scientific expertise offered by medical officers. Low rates of wound infection and the complex surgery that the skillful use of anesthesia and antisepsis had made possible through the decades preceding World War I further enhanced the image of the physicians serving the Army.<sup>4</sup>

Although the Medical Department’s efforts to prepare itself to meet the challenges of the future were frustrated repeatedly in the 1920s and 1930s, the story of 1916–1917 was not repeated. President Franklin D. Roosevelt became increasingly alarmed by the situation in Europe and by 1938 was publicly assuring Americans that if the situation in Europe did not improve, the conflict that would inevitably erupt would be followed by an attack on the Western Hemisphere. Although the nation’s leaders spoke as if they again assumed that any involvement would be limited to a defense of the Americas and of U.S. overseas possessions, they did not emulate Woodrow Wilson by attempting to convince the nation that resisting the temptation to prepare for war might prevent involvement. Thus on 7 December 1941 the department was better prepared and better armed for its mission—“the conservation of manpower”—than it had ever been in the history of the nation.<sup>5</sup>

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<sup>3</sup> Tom F. Whayne and Joseph M. McNinch, “Medicine as a Social Instrument,” p. 600.

<sup>4</sup> Victor Cox Pedersen, “The American Physician in the Draft and in the Service of the World War,” p. 296; James H. Cassedy, *Medicine in America*, p. 120.

<sup>5</sup> Walter A. Bloedorn, “Mission of the Medical Department United States Army,” p. 464 (quoted words); Samuel Eliot Morison and Henry Steele Commager, *The Growth of the American Republic*, 2:762.



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The historian attempting to research the history of the Army Medical Department for the period 1917–1941 may feel swamped by the plethora of material, both published and unpublished, for World War I and discouraged by the paucity of records for the years that followed the war's end. The National Archives and Records Administration–College Park (NARA–CP), College Park, Maryland, has various collections dealing with World War I. Unfortunately, the finding aids were not as helpful as those for my three previous volumes covering 1775 to 1917. Thus the publication of many Medical Department documents in the Medical Department's multivolume history of World War I enhances the already great worth of the series. Written by medical officers who served during the war, these volumes have particular value as primary sources. Historians using them, however, are handicapped by the deliberate omission of the names of Medical Department participants in the events described.

The researcher can partially make up for the depersonalization that characterizes the Medical Department series by turning to personal papers, with diaries and letters, as well as published memoirs. Papers held at the National Library of Medicine (NLM), Bethesda, Maryland, include those of medical officers, such as Merritte W. Ireland, Jefferson R. Kean, and Harry L. Gilchrist, as well as those of less prominent officers. Also valuable are the memoirs published by physicians, among them Hugh Young and John M. T. Finney who wrote a most delightful account. These memoirs also contribute significantly to information available concerning the activities of Medical Department personnel with U.S. troops sent to various parts of the collapsing Russian empire after the fall of the czar and of those who were pioneers in the field of aviation medicine.

For this volume, I also relied heavily on articles published during and after World War I in various medical journals, particularly in *Military Surgeon*, as well as on the respective [Annual] *Report of the Surgeon General, U.S. Army, to the Secretary of War*. As the Medical Department increased its concentration on training during the interwar years, the issuance of the *Army Medical Bulletin* became more systematic, and the articles, both signed and unsigned, contained therein provide additional insight into the problems the department faced.

Army historians assigned later to examine the work of the Medical Department in World War II inevitably devoted considerable attention to the period immediately preceding the war. As a result, the researcher concerned with Medical Department history in the late 1930s up to 7 December 1941 can also turn to the official histories by Graham A. Cosmas and Albert E. Cowdrey, by Mary Ellen Condon-Rall

and Albert E. Cowdrey, by Charles M. Wiltse, by Blanche B. Armfield, and by Clarence McKittrick Smith.

In form, the bibliography that follows resembles that of the preceding volume. It is divided into six sections, each alphabetically arranged. With few exceptions, the entries given are those that I used in writing this volume. No attempt has been made to list every book, article, and archival collection that might provide information concerning the Medical Department in the period 1917–1941; such a bibliography would almost require a separate volume of its own.

Footnotes citing published works that are included in the bibliography do not repeat all the details found in the bibliographical entry, but are limited in the initial citation in each chapter to the full name of the author; the complete main title of the book, article, and dissertation/thesis, with the latter identified as such to avoid any confusion; and the relevant page numbers. Works not listed in the bibliography are cited in full at first mention and thereafter shortened in each chapter. All abbreviations used in the footnotes and narrative are explained in the list that follows the bibliography.

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# LIST OF ABBREVIATIONS



AEF	American Expeditionary Forces
AFIG	American Forces in Germany
AFIP	Armed Forces Institute of Pathology
ANC	Army Nurse Corps
AR	Annual Report
Asst	Assistant
AWC	Army War College
bk.	book
Bn	Battalion
Brig	Brigadier
Capt	Captain
CCC	Civilian Conservation Corps
CG	Commanding General
CMH	U.S. Army Center of Military History, Washington, D.C.
CO	Commanding officer
Col	Colonel
Cong.	Congress
CofS	Chief of Staff
Div	Division
Doc	Document
ed(s).	editor(s), edition
encl	enclosure
Gen	General
GHQ	General Headquarters
GO	General Order
IG	Inspector General
Inf	Infantry

LOC	Line of Communications
Lt	Lieutenant
Ltr	Letter
Maj	Major
MC	Medical Corps
Memo	Memorandum
MD	Medical Department
MHI	U.S. Army Military History Institute, Carlisle, Pa.
Ms	Manuscript
NARA–CP	National Archives and Records Administration–College Park, Md.
NLM	National Library of Medicine, Bethesda, Md.
no.	number
PMG	Provost Marshal General
pt.	part
QM	Quartermaster
RG	Record Group
Rpt	Report
SC	Sanitary Corps
sess.	session
SG	Surgeon General
SGO	Surgeon General's Office
SOS	Services of Supply
SW	Secretary of War
UA	University of Alabama, Tuscaloosa, Ala.
USA	U.S. Army
VD	venereal disease
vol.	volume
WD	War Department

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