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Shauna Devine, *Learning from the Wounded: The Civil War and the Rise of American Medical Science*. Chapel Hill: Univ. of North Carolina Press, 2014. Pp. x, 372. ISBN 978-1-4696-1155-6.

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Although roughly two-thirds of the deaths in the Civil War resulted from disease rather than combat, few scholars have attempted a comprehensive reassessment or interpretive synthesis of Civil War medicine since George Worthington Adams published his essentially descriptive *Doctors in Blue* in 1952.¹ Adams painted a grim picture of pre-modern physicians forced to struggle without much success against forces they did not understand, including bacteria, contagion, and infection. A few monographs about individual doctors involved in the war appeared during subsequent decades, along with occasional articles about specific medical subjects. But Adams's account remained the standard overview.

Only in the last fifteen years have scholars begun to reassess Civil War medical history holistically. Michael Flannery,² for example, surveyed the supply and use of medicinal drugs during the war, and Ira Rutkow³ reevaluated Civil War surgical practices. Frank Freeman⁴ and Alfred Bollet⁵ both concluded that many doctors performed reasonably well under extraordinarily difficult circumstances and eagerly embraced any techniques that seemed effective. Even so, the dominant narrative of Civil War medical history remained a bleak story of desperately fumbling physicians unable to do much to alleviate a level of suffering unique in American history. Consequently, the nearly simultaneous appearance of two excellent new books that offer fresh perspectives on the overall medical history of the Civil War merits both attention and celebration.

One of the new studies is Margaret Humphreys's *Marrow of Tragedy*,⁶ which for the first time places the medical history of the Civil War into the larger context of public health. This allows Humphreys to go beyond the conventional focus on regimental surgeons and combat operations to understand the medical history of the war as a vast, loosely organized series of interactions among several health-related agencies, both within and outside the armed forces. She argues that the forms of health care that mattered most—like clean beds and fresh food—were often provided by noncombatant personnel, especially women. The tragically helpless army doctors who dominated the old narrative thus become characters in a larger story about the way American society as a whole responded to the greatest public health catastrophe in the history of the United States.

The second of the two new books is the subject of this review. In *Learning from the Wounded*, Shauna Devine (Univ. of Western Ontario Schulich School of Medicine and Dentistry) retains the traditional focus on physicians in the field. She does not attempt to argue that those doctors were somehow more effective than Adams and others made them out to be, though she correctly notes that Union army doctors achieved better outcomes during the Civil War than their European counterparts achieved during the Franco-Prussian War a few years later. Instead, Devine argues that the medical experiences of the Civil War had profoundly important and long-lasting effects on the subsequent practice of American medicine. The horrific conditions and lack of effective therapeutic interventions, she contends, forced the Union army's

1. Subtitle: *The Medical History of the Union Army in the Civil War* (1952; rpt. Baton Rouge: LSU Pr, 1996).

2. *Civil War Pharmacy: A History of Drugs, Drug Supply and Provision, and Therapeutics for the Union and Confederacy* (NY: Pharmaceutical Products Pr, 2004).

3. *Bleeding Blue and Gray: Civil War Surgery and the Evolution of American Medicine* (NY: Random House, 2005).

4. *Gangrene and Glory: Medical Care during the American Civil War* (1998; rpt. Urbana: U Illinois Pr, 2001).

5. *Civil War Medicine: Challenges and Triumphs* (Tucson, AZ: Galen Pr, 2002).

6. Subtitle: *The Health Crisis of the American Civil War* (Baltimore: Johns Hopkins U Pr, 2013), with review at *MiWSR* 2014-016.

twelve thousand doctors—many of whom became influential leaders of their profession after the war—to abandon their inherited preconceptions about the nature of diseases and how to deal with them. In the author's view, wartime experiences thus prepared the ground for the later triumph of science-based medicine in the United States—and hence for the eventual triumph of the science-oriented Regulars (allopaths) associated with the American Medical Association.

Devine sees that war-driven shift toward scientific medicine resulting partly from the intentional designs of medical leaders during the war and partly from the practical realities that faced ordinary physicians, especially those working in the nation's newly created military hospitals. Chief among the self-consciously scientific leaders, according to Devine, were Surgeon General William Hammond and the two co-directors of a new research-oriented medical museum that Hammond created during the war, Joseph Woodward and John Brinton. Hammond deliberately inculcated scientific observation and systematic knowledge throughout the army by such measures as mandating standardized case studies and issuing high quality microscopes to army physicians. Woodward and Brinton, in turn, organized the Army Medical Museum not as a traditional cabinet of medical curiosities but as a sort of national medical research institute, which prefigured and to some extent substituted for the more formal institutes created later in Europe. Thousands of specimens were collected for analysis, investigations took place at the cellular level, and intriguing observations were published and disseminated—all this in a nation where virtually no serious pathological research had been done before the war.

While these purposeful leaders at the top were able for the first time to use substantial federal funding to push coordinated medical investigations in a scientific direction, ordinary army doctors faced situations that forced them to discard conventional medical theories and consider innovations. If, for example, thousands of soldiers ended up in a military hospital with the same affliction impacting all of them in the same way, then the idiosyncratic characteristics and physiological differences among those soldiers suddenly seemed less important than prewar medical theory had made them out to be. If gangrene spread in wards where new cases were introduced, but not in wards where no gangrene cases existed, then some sort of contagion was probably involved, so the isolation of new cases and the application of prophylactic antiseptics seemed logical. In Devine's words, "one of the most important aspects of Civil War medicine was its support for new epistemological standards in medicine. The medical experience of the war contributed to new ideas about the way in which disease was understood, diagnosed, investigated, and prevented" (270).

Wartime experiences also changed civilian ideas about medicine, especially regarding death and dead bodies. Cadavers for anatomical study had been difficult to obtain prior to the war, and bodies of the deceased were regarded as sacrosanct.⁷ But during the war, the sheer numbers of corpses overwhelmed individual scruples and the army medical department claimed ownership of military bodies. Thousands of those soldier bodies were dissected and analyzed in an effort to gain new medical knowledge. Significantly, this caused no public outcry on the home front; Americans came to accept dissections as part of the war effort.

At great human cost, the medical profession benefited from the connection between disease, war, and the body. They doctored in the war to preserve the health of the republic, but it was also an important period of training and professionalization for orthodox physicians. The diseases that ravaged soldiers' bodies shaped the projects and directed the specific aspects of scientific medicine; but often the individual soldier had to relinquish ownership and control of his body for this knowledge to be developed. Soldiers were asked to give up their "bones for the good of the country" and for other soldiers who would benefit from the knowledge generated from the individual body. All this developed in relation to the changing attitudes about death and dissections during the war. (212–13)

Devine sees it as no coincidence that shortly after the war many state legislatures passed anatomical acts that reflected the new attitudes.

7. Cf. Drew Gilpin Faust, with quotations from an 1854 essay by Henry Raymond: "Redemption and resurrection of the body were understood as physical, not just metaphysical, realities, and therefore the body, even in death and dissolution, preserved 'a surviving identity.' Thus the body required 'sacred reverence and care'; the absence of such solicitude would indicate 'a demoralized and rapidly demoralizing community'"—*This Republic of Suffering: Death and the American Civil War* (NY: Knopf, 2008) 62.

Another key aspect of war-induced medical science was the de facto conduct of experimental investigations involving living patients: “Having live patients for certain experiments (such as the clinical trials with bromine) was seen as both unproblematic and a rare research opportunity—as long as physicians emphasized that the goal was to produce medical knowledge that would preserve the health of the troops or to return men to service” (153). Further, as various hospital doctors began to conduct experiments designed to address specific problems, they gained an expertise that enabled them to help other physicians deal with those same problems. In this manner, the Civil War also transformed preexisting attitudes toward medical specialization. Once associated with itinerant quacks who hyped a particular skill or an exclusive secret, specialization “now had a new intellectual dimension: becoming an expert could save lives” (132). Devine again sees it as no coincidence that distinguished specialists emerged in several fields after the war, notably in neurology and cardiology, both of which were direct beneficiaries of Civil War investigations.

Learning from the Wounded does have a few subtle weaknesses. At times, its author asserts rather than demonstrates a given point. This is especially the case when she attributes a wide array of postwar developments to wartime experiences. Wartime experiences surely helped pave the way for watershed changes, as Devine rightly observes. But the transition to scientific medicine in the United States during the last third of the nineteenth century and the first decades of the twentieth century proved to be remarkably slow, uneven, and politically fraught, Civil War experiences notwithstanding. Devine also lets the words of a few physicians speak for unknown thousands of others, who might or might not have interpreted their experiences in the same way. That may be unavoidable in a synthetic history of this nature, and Devine’s book rests on admirably thorough research in previously unexplored materials. Still, readers should exercise caution in accepting the reach of any given observation. Both for scholars and for students, however, *Learning from the Wounded* offers strong new arguments that significantly advance our overall appreciation and understanding of Civil War medical history. Even George Worthington Adams would be mightily impressed.