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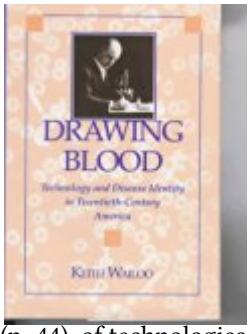
Keith Wailoo. *Drawing Blood: Technology and Disease in Twentieth-Century America.* Baltimore: Johns Hopkins University Press, 1997. xii + 288 pp. $39.95 (cloth), ISBN 978-0-8018-5474-3.



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Shaped, *produced*, *constructed*: curiously, the burden of articulating the relationship between technology and disease often falls to the unfortunate little verb caught between the two. Condensing a whole series of associations in an instant, the chosen word often reveals the writer's conception of cause and effect, subject and object. In a word, the tiny verb expresses a larger story.

Consider Keith Wailoo's intriguing new book, *Drawing Blood*, which explores the place of technology in "what makes a disease 'real' in any period" (p. 16). To understand how technologies (here defined "broadly as 'knowledge-producing tools' ") are involved in the construction of disease, Wailoo must first dismantle the "classic" idea that "disease and technology stand essentially apart from the doctor" (p. 13; p. 10). Disease is not, Wailoo explains, simply an eternal enemy which physicians attack with an ever-improving array of technologies. Rather, disease resides in a complicated system of mutual influences and effects–society shapes technology, which shapes disease, which, in turn, shapes society. Focusing on several diseases of the blood prominent in the United States in the nineteenth and twentieth centuries, Wailoo asserts that "technologies have been one of the many factors constituting, creating, *and* complicating_ diseases in our time" (p. 2, Wailoo's emphasis).

Constituting, *creating*, and *complicating*: as these opening words imply, the relationship between specific tools (hemacytometers, iron pills, electrophoresis, antibiotics) and particular diseases (material chlorosis, splenic anemia, aplastic anemia, pernicious anemia, sickle cell anemia) cannot be reduced to a single word. Indeed, even this trio of verbs does not adequately characterize the situation. Elsewhere in the study, we read of chlorotic bodies "produced" by social relations (p. 44), of technologies used "to create meaning, to shape identity, and to construct disease" (p. ix), and of anemias "*given coherence*" by blood analysis technology (p. 10, Wailoo's emphasis again). In short, Wailoo describes an extremely complex relationship between technology and disease. As he ably demonstrates, the links between technology and disease identity vary not only from practitioner to practitioner, from patient to patient, and from community to community, but are also all changing over time in relation to broader cultural transformations.

Blood, so laden with symbolic and material power, provides a fine medium for Wailoo's illustration of these complicated links. Like skin and hair, blood has long served as a crucial boundary-making object, a marker of numerous cultural and social distinctions. Wailoo resists reducing these distinctions to simple caricatures, not only pointing to the controversies found among and between physicians and patients, but also to the discord evident in Lucky Strike cigarette advertisements, labor reform movements, Victorian parlors, the rubber and tire industries, and the American physical anthropologists' Committee on Race Relations. These heterogeneous actors and locations are further situated within changing notions of race and gender, the emergence of consumer culture, the professionalization and specialization of medicine, the rise of federal patronage, the institutionalization of academic research, and a new fascination with the "gene."

In one of the book's strongest chapters, for instance, Wailoo discusses the radical shift in perceptions of sickle cell anemia over the period 1910 to 1950. The former conception of sickle cell anemia, as a disease of "blood cells,"

entailed a set of beliefs about heredity and the transmission of disease. Wailoo shows how this early twentieth-century idea of disease "confirmed and highlighted existing racial concerns–about black mobility, Negro disease, and the economic implications of disease in the Negro workforce" (p. 141). As Wailoo argues, the reconstitution of sickle cell anemia as a molecular pathology after World War II was made possible by–but not determined by–the advent of electrophoresis. A new focus on hemoglobin molecules not only reshaped notions of the transmission of sickle cell anemia, but also of the alleviation of suffering associated with the crippling and chronic disease. In an uncommonly subtle analysis of the relationships between technology, race, and disease, Wailoo draws attention to regional variations in pathological interpretations, the competing interests of geneticists, molecular hematologists, pathologists, chemists, and other professionals in the constructions of disease, and the pressure for increased attention to therapeutic measures exerted on these medical professionals by African American activists.

The book's treatment of the rise and fall of chlorosis, a disease characterized largely by the greenish-yellow pallor of the sufferer, might have benefited from a similarly subtle inquiry into changing ideas of race. Although Wailoo, following his sources' voices, acknowledges that chlorosis was bound to anxieties over the work habits of " 'the Irish race' " (p. 31), he narrows his focus to changing gender relations and the development of new "hematological technologies." Particularly after reading the chapter on sickle cell anemias, several further questions about chlorosis might be raised: how did changing patterns of immigration and ideas of racial difference inform which women and girls were regarded as "constitutionally delicate" (p. 19)? What assumptions about whiteness, class mobility, and immigration were contained in the category of "gender" so central to this analysis?

If there is a noteworthy shortcoming in this otherwise rigorous, engaging, and thoughtful book, however, it does not lie in the chapter on chlorosis. Ironically, it lies with Wailoo's fulfillment of his stated aim: the illumination of "the complex cultural role of technologies in our lives" (p. ix). As Wailoo's manifold verbs attest, no single, deterministic narrative of the relationship between "technology" and "disease" can be distilled from these analyses of blood. Readers learn instead that technology and disease must be evaluated in their "broader cultural context" (p. 188), and that this context is astonishingly layered and complex. These conclusions are, of course, both reasonable and well-evidenced. Yet this reviewer was led to wonder if the demonstrated inadequacy of deterministic narratives means the time is now ripe to also move beyond what might be called the "complex negotiation" approach to the study of technology and society. Wailoo has brought this approach to fruition in the historiography of technology and disease, and *Drawing Blood* highlights the need for new steps toward ever more generative and critical interpretations.

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