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Book Review of *Science at the American Frontier: A Biography of DeWitt Bristol Brace* by David Cahan and M. Eugene Rudd

Robinson Yost

Kirkwood Community College, Cedar Rapids, Iowa

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Yost, Robinson, "Book Review of *Science at the American Frontier: A Biography of DeWitt Bristol Brace* by David Cahan and M. Eugene Rudd" (2003). *Great Plains Research: A Journal of Natural and Social Sciences*. 648.

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Science at the American Frontier: A Biography of DeWitt Bristol Brace. David Cahan and M. Eugene Rudd. Lincoln: University of Nebraska Press, 2000. xiv+209 pp. Illustrations, appendices, notes, bibliography, index. \$60.00 cloth.

Though not among the most influential American physicists of the late 19th century, DeWitt Bristol Brace (1859-1905) played significant roles in creating the Department of Physics at the University of Nebraska, Lincoln, and in developing extremely sensitive instrumentation attempting to measure the motion of the hypothetical ether relative to the Earth (more commonly called “ether drift”). As the book’s title suggests, another of its major themes is the transmission of scientific knowledge, physics in particular, from German and East Coast American universities to the remoteness of the Great Plains. It is within this contextual framework that *Science at the American Frontier* traces the story of Brace’s life, education, research, and contributions to American physics.

With a booming population and economic growth, Lincoln, Nebraska, from the late 1860s onward, became the natural site for a Morrill Land Grant state university and agricultural college. Economic recessions aside, both city and state continued growing through the 1880s and 1890s. Accordingly, the University of Nebraska went through growing pains trying to define itself. Within this picture of rapid change, the fledgling university’s faculty and administration struggled to meet the growing demands placed upon them, including teaching greater numbers of undergraduates, offering more specialized scientific curricula, and becoming a research institution training graduate students.

In 1887, DeWitt Bristol Brace arrived in Lincoln as an instructor of physics to meet the immediate need to train competent engineers for the growing city and motivated by a desire to create an up-to-date physics curriculum at a frontier land grant university. Between 1887 and 1895 he established an independent department offering a wide range of undergraduate physics courses. From 1895 until his early death in 1905, he also built a graduate program in physics while encouraging research and publication from the expanding department’s faculty.

Brace’s education at universities on the East Coast (Boston University and MIT as an undergraduate, Johns Hopkins as a graduate student) and at the University of Berlin, where he studied with leading German physicists including Hermann

von Helmholtz and Gustav Robert Kirchhoff, strongly influenced his approach to teaching and researching physics. Upon completing his Ph.D. in 1885, Brace had earned the most prestigious scientific education currently available for an experimental physicist; he then transplanted a German emphasis on precision instrumentation guided by theoretical concerns to Lincoln.

Concerning Brace's scholarly contributions to physics, the general reader should be aware that roughly the last third of the book contains technical discussions of his experimental research on light and the ether drift as well as numerous schematic diagrams of his instrumentation. These technical sections will be of greater interest to physicists and historians of physics. Aside from this minor caveat, *Science at the American Frontier* does an excellent job in telling the story of Brace's life while explaining the significance of his local achievements at the University of Nebraska, Lincoln, and his broader importance within the late 19th-century American physics community. **Robinson M. Yost**, *Social Sciences*, Kirkwood Community College, Cedar Rapids, Iowa.