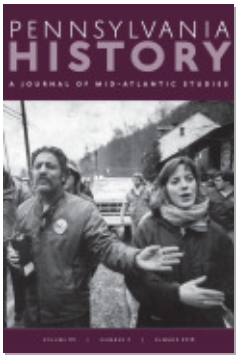
Seeing Underground: Maps, Models, and Mining Engineering in America by Eric C. Nystrom (review)



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While outside of the chronological expanse of the essays a piece on the experience of military veterans would constitute a valuable addition. Maietta observes that once units deployed they "virtually disappeared from public discourse" (42). It would be instructive, about both then and now, and in spirit with the collection, to follow this up with another essay about Central Pennsylvania's returning doughboys.

The nation did not embrace those returning from war as it did the same ones who left. The stated aim of these essays is to "uncover new historical insights that would deepen our collective understanding of the changes wrought on American society" (vi). While this continues to cite the scope of study as ending on November 11, 1918, Armistice Day, it neglects to cite the date's transformation into Veterans Day (1954) or to acknowledge the legacy of the Great War's veterans for our own time.

That said, this volume belongs on the shelf of every student of World War I. Central Pennsylvania offers a "fascinating microcosm for examining the experience of the World War I home front" (vi). These essays reveal the connections between over here and over there, the ones between then and now.

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Eric C. Nystrom. *Seeing Underground: Maps, Models, and Mining Engineering in America*. Reno: University of Nevada Press, 2014. Pp. xii + 301. Illustrations, maps, notes, bibliography, index. Hardcover, $39.95.

Eric Nystrom's engaging book, *Seeing Underground: Maps, Models, and Mining Engineering in America* describes the evolution of mining, not so much as a development of better technology, but as a better way of visualizing the underground terrain. By way of two-dimensional maps, mining engineers first began the process of professionalizing the industry shortly after the Civil War. As industrial mining's ability to draw capital investment became more prevalent in the latter years of the nineteenth century, mining engineers moved toward three-dimensional modeling to depict the not easily conceptualized underground world. Associated with the move toward depicting the underground world of mines came the need to inform lawyers engaged in the process of litigating current and future mining endeavors.

Engineers provided the expertise that dominated testimony with that expertise determining the life or death of mining companies.

Nystrom's discussion of mining engineering begins with an admission: he had never intended to study mining history but found himself fascinated with an underground map, filled with an array of colors and design more art than science. He brings us forward into the topic discussing first mining in the anthracite area of Pennsylvania where father-and-son pit mines had given way to capital and labor-intensive business ventures with competing claims and no good way to understand which company owned what reserve of coal. Two-dimensional maps met the initial needs of the industry as well as formed the basis for regulations designed to make mining safer.

From Pennsylvania, the author takes us west to Butte, Montana, where mining engineers became much more skilled in depicting the underground culture. Two-dimensional maps became less than satisfactory in describing property rights. Elaborate if sometimes competing three-dimensional models capable of depicting not simply the manmade world beneath the surface but the geological one as well became the norm. Nystrom gives us a taste of how mining engineers played the key role in determining property rights and establishing precedent in *Jim Butler v. West End* case in Tonopah, Nevada. Mapping, modeling, and increasingly a knowledge of geology began to form the basis for mining engineering schools across the country as mining provided the foundation of twentieth-century industrial America. Not only did the visual culture of the engineer form the basis for educating new students, but it also served the same function in educating the American public by way of museum exhibits and industrial displays.

Nystrom's narrative is complete as far as it goes. The detailed discussion of the *Butler v. West End* case takes the reader deep into the nuances of depicting the underground world of mines and drives home his argument. Where more might be done is in the area of connecting the reader to the social and economic history of mining. Certainly, the development of accurate subterranean landscapes was important to the process of mining but in addition it served to sell the idea that mining, scientifically done, was in the best interests of industrial America. Miners did benefit from better mapping viewed from a safety perspective, but much of the industrial animosity between capital and labor remains outside the scope of the book. Assuming that how one depicts the subsurface world shapes the way it is mined and the challenges involved, some discussion of workers seems reasonable. Also of note is the abundant use of illustrations to make the author's point. These provide

a narrative of their own that reinforces Nystrom's explanations. Sadly, one wishes that these models were in the colors the authors describes rather than the black and white the publisher provides.

Living on the edge of the anthracite coal country in Pennsylvania, one cannot avoid the scarred landscape and dead streams left behind by industrial mining but Nystrom reminds us that this is only part of the picture. The world below as seen by men is a construct of a professional class of engineers largely in service to the owners of capital. It is this construct that drove industrial mining. There is no other book quite like this and it is a must for historians of mining as what happened in American mining came to be exported to the rest of the world.

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Alan Taylor. *American Revolutions: A Continental History, 1750–1804*. New York: W. W. Norton, 2016. 681 pp. Maps, illustrations, chronology, notes, bibliography, index. Cloth, $37.50.

Alan Taylor, distinguished historian of colonial North America, the American Revolution, and the Early Republic, whose books have won the Bancroft Prize, two Pulitzer Prizes, and best book prizes from the AHA, OAH, and SHEAR, has now given us *American Revolutions*. Members of the PHA will find Taylor's analysis of Pennsylvania and the Mid-Atlantic region intelligent and balanced, albeit spotty (as one might expect from a book that provides a "continental" perspective). More broadly, Taylor places Pennsylvania and the Mid-Atlantic region within the larger contexts of the eighteenth century, North America, and the empires of Britain, France, and Spain. This wide-ranging synthesis draws upon a vast number of secondary sources (both recent and time-honored), mixes in plenty of primary sources, and explains cogently and engagingly how the United States attained its independence and struggled during its initial decades. Any PHA member—public historians, researchers, writers, teachers, and students—will gain much from reading this book.

Taylor uses the plural "Revolutions" in his title because his book "emphasizes the multiple and clashing visions of revolution pursued by the diverse American peoples of the continent," in contrast with other books that "suggest a singular purpose and vision to the conflict and its legacy" (8).