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Rodney Carlisle, *Powder and Propellants: Energetic materials at Indian Head, Maryland 1890-2001* Second Edition (Denton: University of North Texas Press, 2002). Pp. 339, \$19.95

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The title *Powder and Propellants* is slightly misleading. Rodney Carlisle has written an engaging business history of a little-noticed naval establishment, the Indian Head Division of the Naval Surface Warfare Center. This volume describes, not just the chemical formulations of gun and rocket propellants (which do appear in some detail throughout the book, helpfully defined in the extensive glossary), but also the strategic requirements, bureaucratic obligations, personal ambitions and community needs that shaped the establishment from its earliest days. Its anonymity was assured right from the start, when the Navy's Bureau of Ordnance established in 1890 its Proving Ground in Cornwallis Neck, a "quiet backwater" where guns could be test-fired without interfering with river traffic, but close enough to the factories at the Washington Navy Yard that "gun barrels could be loaded... in the morning, and arrive at the Indian Head dock by the evening of the same day" (pp. 8-9). Yet the roads and railways were so scarce that a telegram would take two days to reach headquarters, and the establishment was regarded as "so remote as to deserve hardship pay, like the Philippines" (p. 33). The earliest managers, junior officers like Robert Dashiell and Joseph Strauss, not only had to test the hundreds of guns, shells and powder lots required by the rapidly expanding U.S. fleet, they did so while literally carving a proving ground out of marsh and forest, recruiting a workforce from the farming communities nearby, creating a town where none existed (complete with post office and school), and along the way developing a series of improvements in breech loading mechanisms and smokeless gunpowder.

Within a decade of its inception, Indian Head had added to testing and research activities, the manufacture of gunpowder. This was to become a mainstay of its business through two world wars, and would subsequently expand to include rocket propellants. Powder and propellant manufacture was indeed a “business”, in the sense that Indian Head introduced a strong civilian management system, complete with cost accounting, quality control and even marketing. The establishment was not intended to compete with private industry, but rather to provide a quality “yardstick” and to supplement production in times of need; nonetheless, during some periods its production outstripped any of the large chemical companies.

Indeed, the question of whether such industrial production should be in the hands of private enterprises, naval facilities or a mix of the two is a central theme that runs throughout *Powders and Propellants*. Dr. Carlisle, who has written several histories of naval and industrial establishments, adroitly balances various perspectives in portraying the complex relationships between naval officers, government functionaries and corporate managers in creating and maintaining an industrial capability in an inherently military institution. He describes how Indian Head adapted to social and technological change during world wars and the Cold War, and continued (as it does today) to redefine its roles in order to remain relevant to the Navy’s missions.

The second edition comes 14 years after it was first written for Indian Head’s centennial, in order to capture the dramatic changes occurring in the post-Cold War period. Its publication was timely, as many original records are disappearing or falling to pieces. As a commissioned work, it does pass up some potentially interesting comparisons with, for example, the Army’s use of government-owned contractor-operated facilities for powder production. There are also some minor lapses, such as the caption to Robert Goddard’s photo, alluding to his initiating rocket research at Indian Head, but with no further mention in the text. But full credit must be given for Dr. Carlisle for detailing a subject that was (to paraphrase John Hattendorf of the U. S. Naval War College on the book jacket) long neglected by naval historians who concentrated on battle and fleet operations: the fundamental matters of science, technology and logistics that underpin them.

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