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Jian Zhang. *Ke xue she tuan zai jin dai Zhongguo de ming yun: yi Zhongguo ke xue she wei zhong xin* [The Science Association and the Change of Society in Modern China: A Study on the Science Society of China].

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the emerging scientific establishment to muster political support. The financial interests at stake were significant. Owing to differences in the buying power of French and German currency, the sums offered by the Berlin museum were substantial in the context of the lives of these inhabitants of prewar rural France. As a final twist in the plot, the jury of local citizens forced the state to pay a very high price for the rock shelter, despite the protests of the archaeologists that it was overvalued!

This book is a significant contribution to the history of archaeology and will be of value to readers interested in the professionalization of science in France in the early twentieth century. The writing is lively, and the volume is well illustrated. The archival records, including letters and bureaucratic notices, are quoted in full, allowing the reader to gather a comprehensive understanding of this fascinating but little-known event in the history of archaeology.

MICHAEL CHAZAN

Jian Zhang. *Ke xue she tuan zai jin dai Zhongguo de ming yun: yi Zhongguo ke xue she wei zhong xin* [*The Science Association and the Change of Society in Modern China: A Study on the Science Society of China*]. (Zhongguo jin xian dai ke xue ji shu shi yan jiu cong shu.) 460 pp., tables, bibl., index. Jinan: Shandong jiao yu chu ban she [Shandong Education Press], 2005. ¥49 (paper).

Arguably the most influential Chinese scientific association during the first half of the twentieth century, the Science Society of China (SSC) not only marked a major step in the professionalization of Chinese scientists but also profoundly shaped modern Chinese science, education, and society in many ways. In this meticulously researched book, Zhang Jian, a historian at the Shanghai Academy of Social Sciences, carefully reconstructs the society's history from its founding, in 1914, by a group of Chinese science students at Cornell University to its dissolution, in the early 1950s, when centralizing Communist science policy left little room for an independent institution of civil society like the SSC. In the end, Zhang argues that despite its many successes, the Science Society of China failed to establish the independent authority of the scientific community in the face of the all-powerful state.

From the very beginning, the young founders of the society had harbored the nationalist dream of using the science and learning that they were acquiring in the West to modernize China both

materially and culturally—a dream, as Zhang usefully points out, that was widespread among the thousands of Chinese students studying various subjects in the United States during the early twentieth century. As the centerpiece of their early activities, the society published *Kexue* [Science], which became not only one of the earliest and most prestigious scientific journals in China but also a vehicle to popularize science and a forum to critique government policy. Starting in the 1920s, the society also founded and operated a successful biological laboratory in Nanjing, which trained many of the first generation of modern Chinese biologists.

Yet, as Zhang so richly details, the society met with considerable challenges in maintaining *Kexue* as a part of the public sphere and in carrying out scientific research. The two objectives sometimes came into conflict: in order to maintain its growing scientific institutions, the society, though technically a private association, came to depend on the largesse of the government, whose goodwill its leaders carefully cultivated through close personal ties with officials. Any criticism of the government in *Kexue* might jeopardize this precarious partnership. Thus, in 1935, the society's board retracted an editorial critical of Nationalist science policy that had been published in the journal, much to the dismay of some of its members. Bing Zhi, director of the society's biological laboratory, protested in a private letter to the editorial writer that "there is no freedom of speech even in the scientific circle" (p. 248). Thus, Zhang contends that the marginalization of civil society institutions such as the SSC did not start with the Communists; they only took the Nationalist practice to a much higher level.

In short, Zhang Jian has produced a well-documented, contextualized, and thoughtful historical study on an important scientific institution in modern China. Both this and other volumes in the series on the history of science and technology in modern China sponsored by the Chinese Academy of Sciences Institute for the History of Natural Science in Beijing show the great promise of a younger generation of historians of science in China. Written in lively prose that is not common in academic writing in China (or elsewhere), the book also uses the SSC to explore a wide range of other topics such as the demographics of Chinese scientists. One may not agree with all Zhang's arguments—for example, I believe that nationalism played as much a role as financial need in attracting SSC leaders to enter into a partnership with the Nationalist government, and I wish that the book

could have engaged more with the scholarship on the Nationalists as a developmental state—but that does not lessen its value as a major contribution to the history of science in modern China.

ZUOYUE WANG

■ Recent (1950–)

Keith R. Benson; Helen M. Rozwadowski (Editors). *Extremes: Oceanography's Adventures at the Poles*. xiv + 393 pp., illus., bibl., index. Sagamore Beach, Mass.: Science History Publications/USA, 2007. \$54.95 (cloth).

Extremes collects eleven articles on the polar oceans in the nineteenth and twentieth centuries, the fruits of Maury IV, a workshop on the history of oceanography held in Barrow, Alaska, in late 2004. Like many such volumes, its contents are of mixed quality, and the shifts in focus and voice from essay to essay can create a bumpy reading experience. It also desperately needs more maps. The endpaper maps are decorative but don't have nearly enough detail to support the discussions: readers will have to prop the relevant pages of their biggest world atlas open beside them as they proceed. But the volume convincingly justifies itself in all the right ways. First, it lays out fresh areas of research: the race to the poles or the Cold War–era collaboration of the International Geophysical Year might be well enough known, but the wider history of oceanographic science in which Scott, Nansen, or the IGY were embedded has been shadowy. It is not the role of this volume to chart this history comprehensively, but it certainly reveals its dimensions and promise. In this respect, Deborah Day's bibliography on Arctic (but not Antarctic) marine science will for some readers redeem the price of admission all by itself. Second, the book's premise—that the polar oceans, at opposite ends of the globe, can and should be studied by historians as parallel regions—is more provocative than it sounds; and it has the interesting virtue of becoming less and less obvious as the essays accumulate. *Extremes* prompts reflection about the theme of place in the history of science, especially as applied to something as fluid and unfixed as oceans (or ice) and as internationalist as twentieth-century oceanography. Third, the essays themselves become more than the sum of their parts, bringing together overlapping and interrelated stories about people, expeditions, and conceptual developments in the polar regions.

The essays are organized chronologically.

Michael Robinson analyzes the myth of the open Arctic sea in the mid-nineteenth century, arguing that its genuine scientific rationale was suppressed in order to distance polar science from fantasy explorations and occult literature. Vera Schwach's case study of the Norwegian *Vøringen-expedition* of Georg Sars and Henrik Mohn in 1876–1878 shows a shift away from the nationally funded wide-ranging expedition and toward international collaborative work, engaged in more intensive study of particular regions of the sea. Essays by Eric Mills and Cornelia Lüdecke take up the development of circulation theories in the early decades of the twentieth century. Both deal, in different ways, with the style of scientific theories. Mills analyzes the relationship of the global, synthetic approach of George Deacon in *Hydrology of the Southern Ocean* (1937) to earlier German work and to the ocean conveyor models of the 1980s. Lüdecke assesses the German scientific literature on ocean currents, using visual representation of currents in particular to indicate the variety of scientific traditions that flourished in the nascent discipline of oceanography. The essay by Walter Lenz on 1980s work on Marginal Ice Zones (MIZ) is a nice complement to these earlier cases, discussing the meaning of “internationalism” more explicitly than many other essays and showing by its own language (“expeditions” have become “experiments” by the 1980s) a shift in the way research was conceived. A trio of essays on Cold War Arctic research concentrates on American scientists and sources. Ronald Rainger gives a fascinating profile of Edward “Iceberg” Smith, U.S. Coast Guard officer and protégé of Henry Bigelow. Smith's career reveals how multifaceted oceanographic science was, in terms of both its research questions (ice, currents, winds, marine biology) and its practical responsibilities to the interests of fisheries, the military, shipping, and weather services. Fae Korsmo continues in this vein by showing the intricate layers of coordination (or lack thereof) in military Arctic research in the early Cold War, while Jacob Hamblin analyzes the encounter between the territorial and internationalist agendas of the nations participating in the IGY. Zuoyue Wang's essay on post-Tianamen Square Chinese research tells us that the political dimensions of polar science remain alive and well. The two essays at the end of the volume are well placed. Peter Neushul's piece on marine botany simultaneously offers a tidy lineage from early twentieth-century Scandinavian to 1950s and 1960s American science and makes the picture messier by reminding the reader of the expan-