

Fontaine with the pacifist movement and their relationship with collaborators and adversaries. Their main rival in establishing institutions and publishing records of international associations was the Dutch physician Peter Eijkman, who aspired to make internationalism a science in its own right, speaking of “scientific internationalism” in a similar manner as Alfred Fried, the Austrian collaborator to the publication of *Annuaire*, who articulated the notion of “scientific pacifism,” a pacifism based on scientific reasoning (Daniel Laqua).

As seen in some essays, a close connection existed between the internationalist and pacifist movements and the enthusiasts of the auxiliary languages, which were supposed to facilitate transnational communication and encourage international cooperation. The efforts and rhetoric of scholars such as the German chemist Wilhelm Ostwald and the French logician Louis Couturat are emphasized, illuminating how scientific communication was involved in the initiatives for the construction and popularization of Esperanto and Ido. These artificial languages were presented as being created on the basis of science and logic with positivist values (objectivity, simplicity, precision, neutrality; Fabian de Kloe), and they became a tool for political and cultural domination under the guise of pacifism and internationalism (Markus Krajewski). Scientific communication is also examined in the light of the dilemma on the use of national or international languages among Slavic scholars in the academic institutions of Central Europe (Jan Surman).

A crucial point that the book explores only partially is a global picture of internationalism. Two essays concern Australia as a colony of Britain (Heather Gaunt) and as an emerging nation (Mary Carroll and Sue Reynolds), and four essays involve some issues with respect to the United States (Volker Barth, Alistair Black, Dave Muddiman, Verbruggen and Carlier). Latin America and Africa are completely absent, however, while Asia is witnessed only through the lenses of European orientalism (Paul Servais). As expected, Europe is the main terrain of interest, since internationalism was mostly developed there and understood through the prism of the so-called superiority of Western civilization. Nevertheless, even Europe is not covered sufficiently. There is an emphasis on central Europe and Britain, whereas none of the contributions address the northern or southern European countries, except in the context of the orientalist network (Servais). Taking into consideration that “states on the periphery of power,” such as Belgium, “used strategies of internationalization to develop their profile in the international arena” (p. 185), it would have been helpful to see how internationalism was pursued in the Mediterranean countries, where the rhetoric of *peripherism* was powerful at the turn of the century, as well as in Scandinavia, which was the birthplace of a significant international institution, as Elisabeth Crawford has shown in her book *Nationalism and Internationalism in Science, 1880–1939: Four Studies of the Nobel Population* (Cambridge, 1992).

Overall, *Information beyond Borders* is an intriguing volume for the history of science, since it examines aspects of the scientific endeavor in the cultural milieu of the belle époque, while focusing on the founding of international institutions and organizations and the establishment of information systems and infrastructures. The book could excite the interest of historians of science in internationalism and perhaps lead to further essays on internationalist practices and the ideology of science.

Eirini Mergoupis-Savidou

Ab Flipse. *Christelijke wetenschap: Nederlandse rooms-katholieken en gereformeerden over de natuurwetenschap, 1880–1940.* 327 pp., illus., bibl., index. Hilversum: Uitgeverij Verloren, 2014. €29 (paper).

Christian Scholarship explores the rise and fall of the ideal of Christian science among Dutch neo-Calvinists and neo-Thomists between 1880 and 1940. Troubled by the naturalistic and progressivistic tendencies in the liberal Protestant ideal of scholarship of around 1900, they aimed to incorporate two

manifestations of divine providence—purpose and organic unity—in science. Further, they took calls for holism to replace mechanicism in biology as well as the development of relativity and quantum physics as a new openness of science toward religion.

Ab Flipse interprets neo-Calvinist and neo-Thomist opposition to liberal Protestantism as part of a range of responses to the modernization of Dutch society around the turn of the nineteenth century. This included science. Abraham Kuyper (1837–1920), a leading theologian and politician, unified these responses. His vision originated in a conversion from the theological modernism in which he was educated at the University of Leiden. Following the religiously inspired critique of the revolutionary spirit by Guillaume Groen van Prinsterer (1801–1876), a prominent Dutch politician, Kuyper and followers outlined a unified Christian worldview opposed to the rationalism and naturalism of the Enlightenment that he perceived in theological modernism. Nuance characterized their response to all aspects of modernization, including science. For instance, Kuyperians acknowledged the contributions to science by non-Christians as God-given truths. Biological evolution as a God-guided process was acceptable, but evolutionism as an ideology was rejected as a manifestation of Enlightenment naturalism.

Further, neo-Thomists and neo-Calvinists shared the notion of organic unity. It existed in the universe, among the books of scripture, among the scientific disciplines, and between faith and science. Organic unity explains their rejection of conflict as characteristic of science and religion, of the abuse of science in support of ideologies such as materialism and mechanicism, of deistic forms of mechanicism as a philosophy of organism, and of Darwinism because of its perceived rejection of goal-directed phenomena, which they saw as a rejection of divine providence in nature.

In the end the ideal failed. As Flipse observes, it made no difference in the practice of science for three reasons. First, neo-Calvinists and neo-Thomists failed to articulate how Christian beliefs relate to science. Second, the neo-Calvinists disagreed on a philosophy that could mediate between faith and science. Third, both failed to articulate how the scriptures relate to science. Following an ecclesiastical trial of a pastor over the historicity of the Genesis narrative in 1926, neo-Calvinist scientists and theologians parted ways. Here questions remain. Why were these theologians stricter in their interpretation of scripture than their teachers, Kuyper and Herman Bavinck (1854–1921)? The theologians and a couple of scientists adopted the flood geology of George McCready Price. Was this a convenient move to give scientific credence to a preexisting literalism?

Flipse concludes that both neo-Thomists and neo-Calvinists misinterpreted the reorientation in the European scholarly community toward holism as a new openness toward religion. One might add that a recognition of the difference between organic and inorganic phenomena and the ensuing opposition to reductionism and mechanicism are not uniquely Christian positions. This rejection of mechanicism in favor of teleology seems puzzling at first. Centuries earlier scholars had adopted the machine view of the universe because it incorporated the purposes of the divine Creator. But, Flipse explains, before and during the eighteenth century the machine metaphor came to signify distance between creation and Creator. This associated mechanicism with deism and its criticism of the teachings of Christianity, such as limited atonement. Thus the objection was against both the distancing of God from the world and the criticism of traditional Christian teaching.

Strengths include the period treated (1880–1940), the broad range of topics supported by a systematic review of many articles in journals and yearbooks, the comparison of neo-Calvinist, neo-Thomist, and liberal Protestant ideals of scholarship, and the analysis of how these ideals were received and applied by practicing scientists and students. Archives of student societies allowed a unique view of their stances toward faith and science. In an epilogue, Flipse observes that in the Netherlands after 1926 the ideal of Christian scholarship continued—much diminished—in smaller Calvinist denominations. Preceding that, however, Dutch immigrants imported the ideal to North America. There it shaped the history of Christian liberal arts colleges and today contributes to the revival of neo-Calvinism with its ideal of Christian scholarship. A translation would allow those interested to avoid the mistakes of the past. Flipse

has written a fascinating and well-rounded study of the uniquely Dutch circumstances that shaped the history of science and religion in ways that differ from other European countries between 1880 and 1940.

Jitse van der Meer

Jing Tsu; Benjamin A. Elman (Editors). *Science and Technology in Modern China, 1880s–1940s*. (China Studies, 27.) xii + 347 pp., illus., bibl., index. Leiden: Brill, 2014. \$148 (cloth).

One might expect a book with this title to address such topics as how science and technology (S&T) began to transform China during the “Self-Strengthening” movement (1861–1895), the role S&T played in China’s defeat in the Sino-Japanese War (1894–1895), or the impact of Japanese colonial science, particularly in the northeast. But this isn’t that book. Instead, what this edited volume offers is a collection of essays focused on language, translation, scientism, national empires of knowledge, lexical changes, and epistemological shifts, among other topics.

The genesis of the project was a two-day symposium held in New Haven, Connecticut, in January 2010 whose purpose was to move the S&T history of China beyond the late-development thesis and the dominant Western frame of comparison championed by Joseph Needham and, thereby, to chart “new directions in the study of science and technology in relation to culture” (p. 1). The international and interdisciplinary (two are language and literature scholars) assemblage of contributors, self-described as “the leading lights in the modern field,” present the work as “an important first step in readdressing the place of the Republic of China in the history of modern science, medicine, and technology before 1949” (p. 2). It is also posited as a first step in displacing the Needham paradigm.

Beyond the introduction, the eleven chapters of the book are grouped into two rubrics: “critical historical frameworks” and “new research directions” (p. 8). The first two essays may be the most useful and informative to the nonspecialist for their broad historiographical overviews. Benjamin Elman’s essay, “Toward a History of Modern Science in Republican China,” frames the objective of the project by examining China’s modernization on its own terms but also employs useful comparisons to Meiji Japan. The essay by Iwo Amelung, “Historiography of Science and Technology in China: The First Phase,” examines how the history of S&T became part of the discourse of Chinese intellectuals in the early twentieth century and argues that this became intertwined with the development of national identity. The next two essays, “Disciplining the National Essence: Liu Shiwei and the Reinvention of Ancient China’s Intellectual History,” by Joachim Kurtz, and “Science in Translation: Yan Fu’s Role,” by Shen Guowei, examine how two Chinese scholars attempted to reconcile the varying terrains, taxonomies, and translations of modern Western and ancient Chinese intellectual and scientific traditions.

Many of the essays focus on language, translation, technologies of communication, or the impact of popular print culture on S&T in Republican China. Jing Tsu’s essay, “Chinese Scripts, Codes, and Typewriting Machines,” examines proposals to alphabetize (i.e., romanize) Chinese, which resulted in the invention of a Chinese-language typewriter in the 1940s. “Semiotic Sovereignty: The 1871 Chinese Telegraph Code in Historical Perspective,” by Thomas S. Mullaney, illustrates the complexity experienced in adapting Chinese characters to Morse code telegraphy. (Of the 7,000 characters in common use, each was assigned a series of nonrepeating four-digit numerical values.) Eugenia Lean’s “Proofreading Science: Editing and Experimentation in Manuals by a 1930s Industrialist” examines “the role of commerce, maverick entrepreneurs, and popular print culture in endowing science with cultural authority and value in the Republican period” (p. 185).

Three essays, Fa-ti Fan’s “The Controversy over Spontaneous Generation in Republican China: Science, Authority, and the Public,” Danian Hu’s “Bridging East and West through Physics: William Band at Yenching University,” and Grace Shen’s “Periodical Space: Language and the Creation of