

Companions in Geography: East–West Collaboration in the Mapping of Qing China (c. 1685–1735)

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After the Manchus conquered the Chinese provinces and resolved border conflicts with the Mongols and Russians, Emperor Kangxi launched a national land survey project. From 1708 to 1718, the imperial surveyors examined and measured all the major areas in Kangxi's territory under heaven, including Korea and Tibet, and produced the *Overview Maps of Imperial Territories*. In 1735, based upon different editions of the atlas, French cartographers would produce the most authoritative maps of East Asia before the nineteenth century. Historians have long portrayed Kangxi's project as a triumph of modern science in China, as Jesuit missionaries executed the land survey and employed European cartographic techniques to make the atlas. For the first time, a book-length study of the land-surveying and map-making project has come out, and by placing material goods at the center of the story, Mario Cams, a historian of late imperial China, challenges the Euro- and Jesuit-centric narrative.

The three chapters of the book faithfully fulfill the author's promise to present the surveying project as intermezzos of Chinese and European techniques. Focusing on preliminary mapping projects in the last decade of the seventeenth century, the first chapter examines how Emperor Kangxi selected European cartographic techniques and instruments to enhance the pre-existing land-surveying practices in China. An avid student of Western Learning, Kangxi constantly sought European instruments from Jesuit missionaries, such as his tutor Ferdinand Verbiest and the newly arrived French Jesuits, so Parisian instruments invented and designed by the *Academie royale des sciences* eventually became an integral part of Kangxi's land-surveying projects. In the meantime, Kangxi also appropriated both inherited Chinese practice (measuring routes by rope and calculating distances with geometric theory, *gougu*) and Western cartographic technique (determining latitudes by the height of the pole star and calculating road distances via trigonometry) to map his territory. By integrating both techniques, French Jesuits assisted the emperor to reestablish the ratio of latitude and *li* (the Chinese unit of length) and to re-standardize *yingzaochi*, the most basic unit of length making up the *li*, thus laying the foundation for a grander scale of land survey.

The second chapter focuses on the progress and logistics of the national land-surveying project during 1708–1718. After combing through palace memorials and complementary Chinese-Manchu documents to reconstruct the composition of the land-surveying team, Cams discovers that the Imperial Workshops in Emperor Kangxi's inner palace, rather than the two or three Jesuit members or their Parisian instruments, were the most crucial but often overlooked link in the mapping project. Most of the land-surveying personnel were attached to the emperor's personal workshop, including the Jesuits, because they tutored Kangxi in the inner palace and worked directly under the Imperial Household Department. Having direct access to the emperor, the *booi* officials from the Workshops symbolically represented the emperor's patronage of the land-survey project and functionally oversaw its progress. The Imperial Workshops also produced and stored the surveying instruments as well as all the drafts and completed maps. Therefore, the Imperial Workshops served as the information center and the main logistical pivot to materialize ideas into organized cartographic projects.

Tracing the circulation of the information produced by the projects between Beijing, Paris, and Saint Petersburg, the third chapter further decentralizes the Jesuit-centric narrative. Indeed, Jesuit missionaries played a critical role in producing and transmitting cartographic knowledge, even after Kangxi's mapping project was finished. During the reign of Emperor Yongzheng, Kangxi's

successor, court Jesuits revised the Kangxi-era atlas by adding Central Asia and Russian Northeast Asia into the maps. They also brought different editions of the Qing atlas back to Europe and transmitted additional cartographic data through their journals and correspondence, with which Jean-Baptiste du Halde and Jean-Baptiste Bourguignon d'Anville in France produced forty-one maps of the Chinese provinces, Tartary, Tibet, and Korea in the *Description de géographique, historique, chronologique, politique et physique de l'empire de la Chine et de la Tartarie chinoise* in 1735. These remained the most authoritative cartography on East Asia up until the nineteenth century. However, the Jesuits were by no means the sole producer of cartographic knowledge. After all, these mapmakers only surveyed the main roads in Northern China, Korea and Tibet; they had to rely on travelers' accounts, locally made maps, and other second-hand data to fill in the blanks in the original maps. D'Anville's maps involved more international actors. The French astronomer Joseph-Nicolas Delisle, Head of the School of Astronomy in Saint Petersburg, transferred information on the newly discovered Bering Strait to du Halde, while the king of Poland delivered the actual chart of the Bering Strait to Paris. A Dutch maritime chart of Japan's coastline in 1643 provided additional information enabling d'Anville to insert Japan into the regional maps. Thus, in Cams's portrayal, the production and transmission of cartographic knowledge becomes a story of multilateral collaboration.

This short summary does no justice to the scale and complexity of the history presented by Cams. By retrieving various strings of information from repositories in Beijing, Taipei, Paris, and Rome the author weaves the complicated technical details into a meticulous account of the mapping project. For example, in addition to the specific steps to determine the latitude and longitude and the detailed mapping progress at each phase, Cams takes pains to compare the languages, places, and even the blank spaces in the three editions of the Qing atlas so as to pinpoint which edition d'Anville employed to reproduce the regional maps in France. The structure of the book also adds intricacy to the narrative scope. In addition to the three chapters on the cartographic projects, two intermissions cover the discrepant variables that fail to fit well into the overall project, such as the reluctant mapmaker Joachim Bouvet, and the *Société des Missions étrangères de Paris* (MEP) missionary Philibert le Blanc, without disrupting the flow of the main story.

However, the strengths of the work easily transform themselves into weaknesses. The emphasis on technicalities fulfills Cams's goal to create a descriptive study "strictly bound by the circulation of material objects," thus avoiding the pitfalls of preexisting conceptual frameworks (p. 244). However, the approach also prevents the author from placing the instruments and individual mapmakers within a broader cultural context. Without overarching ideas regarding preexisting Chinese cartography and philosophy that allowed the travel of material objects, the details in the book sometimes fragment, rather than complement, the main argument.

The pre-eminent cultural context is China's pre-existing cartographic tradition, which Cams keeps emphasizing but remains vague about. If the pre-existing practice was the technique of measuring roads with rope and calculating distances with the *gougu* theory, as the author describes in the first chapter and clarifies in the conclusion, it would seem that this practice appeared inconsequential in the 1708–1718 land-surveying project, thus undermining the author's emphasis on integration, instead of substitution (p. 246). Did other inherited cartographic techniques play a more crucial part in the land survey? How did the Chinese produce their own maps before the arrival of the Jesuits? Providing an overview of China's cartographic tradition, as Benjamin Elman does, may enable the author to clarify the integration process and help general readers to understand this cultural exchange.¹

The pre-existing tradition could also have been the conceptual framework that the Manchu rulers inherited from Han Chinese teachings, ideas that enabled Emperor Kangxi, intentionally or not, to create "a situation whereby the court could more easily appropriate [Western] teachings in the interest

¹Benjamin Elman, "Ming–Qing Border Defence: The Inward Turn of Chinese Cartography, and Qing Expansion in Central Asia in the Eighteenth Century," in Diana Lary ed., *The Chinese State at the Borders* (Vancouver: University of British Columbia Press, 2007), esp. pp. 30–32.

of Qing statecraft” (p. 81). The two direct quotes from Emperor Kangxi on pages 99 and 177, which Cams does not incorporate into the main text, explicitly articulate this strategy. When the emperor reviewed the completed atlas, he was concerned about its consistency with the “Tribute of Yu,” a chapter in the ancient Chinese historical text *Shang shu* that contains the cartographic information of the alleged first Chinese dynasty, the Xia. Cams mentions only in passing that, by doing this, the emperor “reverted to cartographic precedents in support of new techniques” (p. 246). The other quote shows that the emperor regarded latitudes as “the degrees of the skies [or heaven],” while *chi* was “the size of the earth.” By posing the European and Chinese terms as an antithesis between the measurements in heaven and on earth, Kangxi had conceptualized European cartographic practice within a pre-existing cosmological framework. Cams again only mentions the terms of “heavenly degrees” and “earthly distances” in the main text without any analysis (p. 81).

An in-depth analysis of the cultural context would have helped the author incorporate not only the quotes but also the intermissions into the body text. After all, the Chinese Rites Controversy was a product of clashes between two philosophical–theological frameworks. Moreover, if sources are available, providing more cultural analyses of Bouvet’s passion about Chinese Daoism (Intermission 1), Jesuits’ communications with local Christians in China, as well as commoners’ comprehension of the presence of Christian churches and Jesuit mapmakers (Intermission 2) would enhance the sophistication of the depictions of material goods and cartographic techniques.

In general, this nuanced study is a must-read for anyone who wants to deeply rethink the interactions between China and Europe. Refusing to use European standards to gauge whether, when, or how China modernized, the author offers a more complete picture of the cross-cultural communication.

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