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It is not always easy to review a volume of collected essays. Even when the subject around which the essays are organized is well focused, individual papers may deal with quite diverse topics. Moreover, as space is limited in a review like this, it is often hard to do justice to each author. The variety and elasticity in the form of a collected volume, however, also make it possible for readers to approach a coherent subject from multiple perspectives—to take a snap shot of the state of a complex field in the space of a single book. This is exactly what has been achieved by this volume under review.

This volume is the result of the conference “History of Mathematical Sciences: Portugal and East Asia III” held in Tokyo in 2005. It mainly deals with Jesuit scientific endeavors in East Asia from the sixteenth to eighteenth centuries under Portuguese patronage. The papers in this volume can roughly be classified into three categories, namely, bibliographical studies, the scientific engagement of individual Jesuits, and local responses to the scientific knowledge transmitted from Europe.

Historical studies of the Jesuits require the use of multi-lingual materials of various genres scattered around the world. Even after many years of accumulated scholarship, bibliographical studies continue to occupy a significant place in the field. Scholars scour libraries and archives around the world, attempting to uncover new materials related to an organization that has left its traces in many different countries in a variety of languages. Because of the linguistic variety, specialists in the Jesuits also often try to compare a text in different languages, whether in translation or adaption, or compare different editions of the same text. All this labor is out of necessity because the editions in question may have been dramatically transformed due to editorial efforts. It is quite common for a text to have been abridged, particularly the paratext. Sometimes a text may undergo modifications when it is appended to another text or included in a collection. Therefore, thorough research often has to be based on an ex-
haustive search for available editions and time-consuming comparison of different editions. This is what has been done in this collection regarding the Japanese and Chinese renderings of what may be called the *De Spharea* literature. Hiraoka Ryuji discusses the textual genealogy of the Japanese adaption of *De Sphera* in great detail. Though he mentions the title *Tenmon biyō 天文備要* in his abstract, he does not discuss it further, however. It would also have been useful for Henrique Leitao and Rui Magone to examine the bibliographies compiled by Ming-Qing scholars and publishers to see how the *Tianwenlüe 天問略* spread in the seventeenth and eighteenth centuries. We are looking forward to a critical edition or translation with comprehensive annotations.

Among the papers in this group of bibliographical studies, Ugo Baldini’s on the current state of research into the scientific endeavors carried out in the Jesuit College in Macao is especially interesting. Although scholarly intuition may suggest that the materials related to the Jesuit College in Macao might have long since disappeared, Baldini’s paper points out the possibility of a future cooperative international search for these materials. Moreover, Baldini’s meticulous discussion demonstrates that the Jesuit College as an institution varied from place to place. This paper also calls for the investigation of Jesuit colleges as a network of communication to supplement the more common approach of studying individual Jesuit scientists.

Alexei Volkov and Catherine Jami deal with Jesuits in Vietnam and at the Kangxi Court respectively. They describe the biographies of the Jesuits involved in these scientific exchanges, portray their scientific activities, and account for the significance of these involvements in local religio-political contexts. Integrating a wide range of research results, Volkov reveals what Jesuit accounts can tell us about the ceremonies related to lunar and solar eclipses, otherwise invisible in Vietnamese sources. The Vietnamese kingdom imported not only astronomical techniques from China, but also the astronomical institution and regulations that restricted the circulation of astronomical/astrological learning. Given these institutional considerations, open competition between the astronomers/astrologers of kings and princes seems unlikely. Nevertheless, the complicated astronomical situation needs more investigation and comparison with Vietnamese materials.

Jami’s study of Tomé Pereira (1645-1708) vividly depicts the internal discord among the Jesuits, and thereby warns us of the danger of treating the missionaries as a coherent group. Pereira served the Kangxi emperor as clock maker and musician. Relying on Kangxi’s trust and favor, he became the gatekeeper for other Jesuits wishing to access the Qing court. He particularly defended Portuguese interests against the French missionaries, whom he saw as encroaching on the Padroado. He sometime even placed
Portuguese national interests before his religious order. And while Kangxi may not have been fully aware of Pereira’s use of his position in service to Portugal, he nonetheless appreciated Pereira’s loyal service to the Qing. Pereira, for his part, was repeatedly moved to tears of gratitude for Kangxi’s patronage. Pereira is an interesting case within which a Jesuit performed his religious service indirectly via securing imperial patronage to sustain and protect the foothold of the China mission. He probably did not advance scientific knowledge, but without historical agents like him, the Jesuit mission probably would have crumbled, even without the Rites Controversy. Jami’s paper illuminates the complications that the Jesuits faced in local contexts, and redirects our research attention towards judging the Jesuits’ scientific engagement in China not simply on the basis of the progress of scientific knowledge, but also in the social and political context within which they worked.

Lim Jongtae and Shi Yunli study how Chinese and Korean literati responded to Western astronomy imported by the Jesuits. Lim uses the case of the intellectual circle centering around Fang Yizhi 方以智 (1611-1671), and argues against modern historiography, which asserts that Chinese literati had separated Western Learning into scientific and Christian-Aristotelian parts and dealt with them separately. He finds instead that scholars like Fang Yizhi probed the logical limits implied in Western natural philosophy to expose its insufficiencies as a framework of knowledge. Since the Western framework of knowledge was not reliable, the so-called scientific part was also fallible. They thus reformulated a new cosmology in order to reclaim the unity of knowledge.

Shi Yunli’s paper serves as a good contrast to Lim’s argument. Shi describes how the important revisions of Western calendrical techniques in the Yuzhi lixiang kaocheng houbian 御制曆象考成後編 (Sequel to the Compendium of Observational and Computational Astronomy, YKH) were accepted in Korea. For literati like Ch’oe Han-gi 崔漢綺 (1803-1874), the so-called scientific part of Western learning was insufficient. He creatively exploited the technical information from Kepler and Newton embedded within Tyconic cosmology, which he considered to be a logical result of the new technical information. Equally competent in calendrical techniques, Nam Pyŏng-chŏl 南秉哲 (1817-1863) and his brother Nam Pyŏng-gil 南秉吉 (1820-1869), who both served in the Astronomical Bureau, did not think it imperative to reconcile the discrepancies between cosmology and technical details, however. This reminds us of the case of Copernicus, whose book was first read as an addition to astronomical calculations by professional astronomers in Europe, even though he consciously insinuated a new cosmology. It seems, then, that scientific elements in Western learning were
indeed at times separable from its metaphysical and theological aspects. Indeed, the Jesuits and their Chinese converts presented their knowledge in a holistic yet hierarchical order, as shown in the *Tianxue chuhan* (First Collectanea of Heavenly Studies), within which the Chinese division of *li* 理 (“principles”) and *qi* 器 (“objects”) were used to group Western books. The Korean case also demonstrates that scholars in various positions adopted different approaches to cope with the challenge of Western learning.

However, this seemingly obvious contrast may obscure the different nature of the information that Fang Yizhi and his colleagues in the seventeenth century and Korean scholars, who composed their works in the nineteenth century, had received. It is not clear to what extent Fang Yizhi’s group was involved in technical computations. Nevertheless, scholars engaging in Western learning in the early Qing, despite their different capabilities in technical matters, were in general concerned about its metaphysical implications. Many of them went to great lengths to reformulate the relationship between *li* 理 (“pattern”, “principles”) and *shu* 數 (“numbers”) in order to account for the phenomenal world that Christians, despite all their philosophical sophistication, attributed to God’s creation.

There was one group in Qing China, the Manchu emperors, who often fashioned themselves as Han Chinese scholars, and yet did not care so much about philosophical unity. They were the ones who took an instrumental stand regarding Western learning, and imposed a segregation of useful Western knowledge from its underpinning Christian-Aristotelian theology. Such an imperial sanction certainly did not go unnoticed by the Han Chinese officials who served in the *Siku Quanshu* (The Compendium of the Four Treasures) project. It is their comments in this famous collection that inform the impression of modern scholars’ that Chinese literati had separated scientific and Christian-Aristotelian aspects of Western learning, and considered the technical parts to be what was useful.

Luis Saraiva’s paper does not fit into the aforementioned categories. Though he names two Jesuits of the China mission in passing, they bear little significance in his paper, which deals with the narrative of decline of Portuguese mathematics from 1819 to 1940. Portuguese historians of mathematics blamed the Jesuits for the decline of mathematics in Portugal, for they had monopolized the public educational system and placed their interests ahead of the progress of mathematics. This situation starts to change only after 1940. Vindication of the Jesuits, or any institution, or individual, for the decline of Portuguese science certainly opens new possibilities of research, but, readers may wonder, what is the significance of this historiographical transformation?
Decline is a common theme in modern historiography of non-Western science, particularly for those ancient civilizations that used to possess some sort of science and technology according to modern scientific standards. The Jesuits have served as a scapegoat in Portugal, just as Confucianism or the feudal bureaucratic system did in the Chinese case. For certain, there is a teleological assumption that judges scientific progress based solely upon the model of modern Western science. Examining the contents of Jesuit mathematicians in Portugal and concluding that they did not go beyond an elemental level does not help us much to understand mathematical practices in Portugal in general. Moreover, the popular theme of decline in the historiography of non-Western science is often tinged with nationalist overtones and linked to capitalist economic development. Precisely because modern science is tied so strongly to state power, world prestige, and the self-image of a given people, historians and state functionaries are far more concerned with science and its decline than the humanities and social sciences. Not only does the Jesuit order need to be scrutinized within its historical contexts, but science and technology should also be free from the reign of the teleology of modernization and the vain notions of state and economic domination.