

Kim Yung Sik 김영식, *Han'guk Jeontong Gwahagui Baegyeong*
한국 전통 과학의 배경 (The Background of the Traditional Korean
Science), Paju: Dulnyouk. 2021, 379 pp.

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As the latest volume in a book series of Jeonbuk National University, *Han'guk-ui Gwahak-gwa Munmyeong* (Science and Civilization in Korea), Kim Yung Sik published a new book, *Han'guk Jeontong Gwahak-ui Baegyeong* (The Background of the Traditional Korean Science). Over the past two decades, Kim Yung Sik has researched and educated Korean history of science at Seoul National University. His remarkable contributions have been made better to understand Zhu Xi's natural philosophy and intellectual accomplishments. Kim Yung Sik has examined medieval Chinese metaphysics and methodology and wrote many books about the Korean intellectual history of the seventeenth and eighteenth century when Zhu Xi's philosophy dominated the Korean elite mentality. In this new monograph, Kim Yung Sik once again presents a comprehensive overview of the philosophical and social characteristics and historical contexts in which Korean intellectuals conducted scientific research and activities in the Joseon dynasty (1392-1910). Kim maintains a central narrative that explains how and why Koreans defined pre-modern science in the Sino-centric academic tradition. By analyzing the intellectual and the social background together, he demonstrates that Korean traditional science received both positive and negative effects from the Chinese. When China was the most significant window of scientific knowledge and technology to them, Korean elites also shared the same limit with the Chinese because they understood science predominantly through the lens of Confucian classics and doctrines. The obvious utility of calendric astronomy and Euclidean geometry attracted their interest, but Korean interest in knowledge's usefulness did not reach the point where the traditional paradigm shifted to a new one; that is, knowledge for its own sake. Kim strongly argues that Korean elites often stopped their scientific research when, they thought, their skills caught up with new advancements in Ming-Qing China. Also, he notes that traditional science belonged to a lower social status of people without entering the highest circle of yangban scholar-officials.

Having three sections, the book presents an extensive bird-eye view on the Korean

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intellectual landscape, covering from the Confucian philosophy to the social structure of scientific activities and the Chinese and European influences. In each section, Kim well summarizes recent literature on its contents. Given his life-long research and teaching career in the field, his narration can greatly help junior scholars and university students find a new study topic or start a literature review. His profound comprehension of Zhu Xi's metaphysics can be an excellent guide in intellectual navigations about the Joseon dynasty. He carefully measured the complexity of medieval philosophy and, by doing so, critically presented controversial legacies of Neo-Confucianism in modern East Asia to his readers. For example, the Neo-Confucian concept of *li* 理 provided a significant foundation to Chinese and Korean scholars when they first encountered Western mathematics. The traditional theory of numbers was deeply interwoven with Confucian classics and Shao Yong (1012-1077)'s study of the *Book of Change* (*Ijing* [Ch.]), and Kim repeatedly emphasizes that the mathematicians in Joseon Korea and Ming-Qing China paid great respect to the ancient and medieval philosophy for nurturing their mathematical concepts. Also, it is noteworthy that his examination of both Neo-Confucianism and Western science uncovers the subtle tension and the balance-seeking movements in the historical encounter between the East and the West. Instead of explaining the traditional history of science in a monolithic tone of black and white, Kim reveals many grey areas where the pre-existing intellectual tradition adopted new ideas and concepts through negotiation and conflict. If there was no revolutionary moment, neither was a moment of stagnation. Students of East Asia history and Korean history can learn in Kim's book how complex the Confucian tradition was and better understand the particular sets of problems that philosophers, mathematicians, and astronomers faced in early modern East Asia.

However, it is the strength and weakness that Kim explains the intellectual dynamism with one single tradition of Zhu Xi's philosophy. This book well explains the basic tenets and methods of Zhu Xi's metaphysics in the first section of "Confucian tradition, science, and technology." With the outstanding depth of knowledge and insight of Kim in medieval thought, this book can be an excellent textbook for undergraduate classes and graduate seminars in East Asian intellectual history. The single emphasis on the dominant power of Zhu Xi's philosophy, nonetheless, also raises a critical question; was the Korean academic society so uniform and invariable throughout the Joseon dynasty? Although the civil service exams continued to recruit only those who absorbed the medieval school of philosophy, there is a possibility that people interested in practical knowledge and skill (*siryong* in Kim's term) read books other than Confucian canons. For instance, Fang Yizhi and his students in China appear in many places of the book, but Fang Yizhi himself departed from Zhu Xi's philosophy and instead built his own with Wang Yangming's philosophy. Of course, the Yangming school of philosophy, Taoism, and many other heterodoxies

might have had less influence in Joseon Korea than in Ming-Qing China. So, for now, it is understandable that Kim's book leaves the so-called 'heresy' untouched in the history of science. And, this vacancy can be an incredible foundation in which junior scholars and graduate students develop their own research topics and narrations. Finally, Kim's tremendous efforts to provide a comprehensive history of science and technology for the five centuries require effort for those with little background knowledge to read because of the numerous facts selected from different periods. But his thought-provoking analyses and thorough reviews of the latest literature make it worth traveling back and forth to endnotes and bibliography. In this COVID-19 pandemic, this book is an excellent company for anyone who wants to know the past and present of Korean science and technology, and Kim's endeavor admirably paved another concrete road for future generations in the field.