THE SPREAD OF GEORGIUS AGRICOLA'S _DE RE METALLICA_ IN LATE MING CHINA

BY

PAN JIXING

Academica Sinica, Beijing

The original Latin version of _De Re Metallica_, the famous work on mining and metallurgy by Georgius Agricola (1494–1555) was brought to China in 1621. In the late 'thirties an adapted Chinese translation was made and submitted to Emperor Ch’ung-chen (1628–1644), who thereupon ordered that it be distributed throughout the empire to be used as a basis for exploiting mines. In the following pages some further information will be presented on this interesting episode in the history of early Sino-European scientific and technological exchange.

The Latin original had been brought to China by the Jesuit missionary Nicolas Trigault (1577–1628). Trigault had first come to China in 1610, but only two years later he had returned to Europe. He had travelled extensively, in Italy, France, Germany, Flanders, Spain and Portugal1 in order to collect books and scientific instruments for the China mission, and so to lay the basis for a Western library in China. He did so with the help of a Swiss Jesuit, Johann Terrenz (1576–1630). As an expert in natural science and medicine, Terrenz was famous in Italian and German academic circles; he also was a friend of Galilei Galileo and Johannes Kepler.2

In 1621, Trigault, accompanied by Terrenz, came back to China with no less than 7,000 Western books on religious and scientific subjects, amongst which was Agricola’s _De Re Metallica_. It had been given to Trigault by the Duke of Bavaria and it is interesting to note that of these 7,000 books it was the first to be translated into Chinese. When Terrenz lived in Peking he knew, through Trigault,

---

that a Chinese scholar, Wang Cheng 王徵 (1571–1644), was an expert in machine-making and Western science and had made many machines for both agricultural use and scientific research, such as an automatic mill, an automatic well, a siphon, and a mechanical plough. His Hsin chih chu-ch'i t'u-shuo 新製諸器圖說 ("Collected Diagrams and Explanations of Newly-made Machines") was published in 1627. He is regarded by Dr. Joseph Needham as the first modern Chinese engineer. Because Wang was interested in designing machines, he asked Terrenz to show him Western books on mechanics, with the result that they decided to compile a book based on Western sources. Their joint work, entitled Yuan-hsi ch'i-ch'i t'u-shuo 遠西奇器圖說 ("Collected Diagrams and Explanations of Wonderful Machines from the Far West") was published in 1627. This was the first book which introduced modern mechanical principles and mechanics to China and it contained some quotations from Agricola’s De Re Metallica in an adapted form, such as a description of the suction-lift pump operated by crank and rocking beam.

In Chapter One of the Ch'i-ch'i t'u-shuo, Wang Cheng tells us of some authors whose works were used as sources in compiling the book: "At the present time, among clever persons who well understand the principles of machines we can list Wei-to 未多 and Hsi-men 西門. Other people, such as Keng-t'ien 耕田 and La-mo-li 前里, published well-illustrated books. They are all experts in mechanics." Here, Wei-to and Hsi-men are the transliteration of, respectively, the famous Roman architect Pollio Vitruvius (fl. 50–26 BC), the author of De Architectura, and the Flemish scientist Simon Stevin (1540–1620), the author of Hypomnemata Mathematica, whereas "La-mo-li" stands for the Italian engineer Agostino Ramelli (c. 1537–1608), the author of Diversi et artificiose machine (1578). As to "Keng-t'ien" ("farmer"), this clearly is a translation of "Agricola". Terrenz and Wang first introduced the name of Agricola to Chinese readers in 1627. As a far-sighted

---

5 Wang Cheng 王徵, Yuan-hsi ch'i-ch'i t'u-shuo 遠西奇器圖說 ("Collected Diagrams and Explanations of Wonderful Machines from the Far West"), Book 1, p. 44 (Shanghai, 1996). The original runs as follows: 今時巧人之最能明器者以然之理者，一名未多，一名西門。又有繪圖刻書者，一名耕田，一名刺里。此皆發藝彛中傳授之人也。