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HSCI 5533
October 9, 2012

On Their Own Terms

Benjamin Elman's study of Chinese history, *Own Their Own Terms: Science in China, 1550-1900,* covers 350 years of Chinese science history in less than 600 pages. This tome contains almost everything one would want to know about Chinese calendar issues, Chinese/Jesuit interactions and how the Chinese reacted to European ideas. The latter of which seems to be the strong point of the book. When compared to Western accounts of Chinese history, Elman's study proves that the Chinese were actually working on issues of their own before the Jesuit missionaries arrived.

The book is divided into five parts, but in totality, it has only two main focal points: Chinese interaction with the Jesuit missionaries, from 1550 to 1800, and Chinese interaction with Protestant missionaries from about 1840-1900. Elman begins with an examination of Chinese *literati's* reaction to *the* new knowledge that they Jesuits were bringing to China. The key for these land-owning Chinese scholars was to understand the Western ideas without upsetting the indigenous "ways of knowing."

There are discussions of the Chinese encyclopedias and other collections of information. Nearly the entire astronomy section focuses on the "Ming calendar crisis," and how well astronomical predictions cold be made to signify special events. A crisis soon developed between the Vatican and the Qing court over Confucian rites and ancestor worship, the result of which saw the Jesuits lose their holding in China. Once the emperor had confiscated Jesuit property, the Chinese began to turn inward. Their focus soon shifted to their own ancient ways of thinking and the emperor "became convinces that European learning was derivative, and that ancient learning in China was the source of all reliable knowledge" (236).

By the time the Protestant missionaries arrived the Chinese had developed their own form of modern science by merging ancient Chinese ideas and knowledge with Western teachings. Chinese and

European collaborators worked on translations of mathematics and biology textbooks. These translations paired the new "modern' knowledge with classical Chinese terminology which allowed a transition into a new "way of knowing." These translations were supported either by western governmental campaigns or Christian organizations for evangelical purposes.

The final portion of Elman's study revolves around war. During the last half of the 19th century arsenals, machine shops, mines, began to flourish. The advisors, collaborators, new artisans, technicians, and engineers on these projects all transcended the need for "classical Chinese knowledge." The Chinese further "modernized" after their defeat by the Japanese in 1895. The Japanese represented a newer and easier to emulate model than the west. Even if Japan had learned most of their technology and science from western sources they had one thing that their European counterparts did not: the ideas were easily absorbed into Chinese culture because they appeared in familiar Chinese characters.

With a "learning from Japan" campaign underway, the Protestants influence began to wane. The result was a merger of classical Chinese knowledge, Jesuit teachings, Protestant supported translations, and Japanese technology. This can be seen as a parallel with the earlier encyclopedic collections that the *literati* were working on during the early Ming period. Throughout history China has proven to be a good collector of knowledge. Supporting what fit with ancient teachings, and letting what did not fall by the wayside. The outcome has made Chinese science appear to be an overnight success. What Elman does is reveal that such an appearance is only a superficial one, and that Chinese science has been evolving, adding to and detracting from its knowledge base to emerge more slowly than its contemporaries in the West, but one that was no less determined to address Chinese problems.

Working across such cultural divides over nearly four centuries leaves too much information for a reader to digest. Other than providing a general overview of the acceptance of western science in China, it is hard to glean any specific information from the text. He does compare some of the strengths and weaknesses of early nature studies in China and shows how broad scientific interests were in the

mid-17th century. This book could be utilized as a History of Science in Chinese Culture textbook provided that supplemental discourse on major periods and movements in China were provided.

What Elman proves in *On Their Own Terms* is that Chinese science was accepted in just that way. The *literati,* the emperors, the translators, and other interested parties took western knowledge and kept what fit, rejected what did not, and amended some of the in between. Many works were not universally accepted because they did not address universal issues. The power of Chinese science was its ability to pick and choose which western ideas fit classical models and could be used to benefit Chinese science. The breadth of western knowledge and the impact of waves of missionaries allowed Chinese scholars a comfortable position to casually pick up pieces of knowledge, selectively collect teachings, and slowly change their "indigenous knowledge" on their own terms.