

FOREWORD

The construction of constellations has been a historical process. In the beginning they were seen as individual stars, eventually human imagination organized them into small groups (asterisms) which were always associated with various cultural aspects of human life and experience, customs and habits, religion and ideas, social structure, etc.. In the West these asterisms became the basis of the large constellations of later times. In China, however, asterisms in the same sense were called *xing guan*, Celestial Officials. They were so called because the ancient Chinese thought that *xing guan* had its specific function in the celestial world, just like a secular official who had his own duty in human society. The process of the construction of constellations was a long one. Asterisms grew in number and finally covered the whole visible sky. Constellations developed from asterisms, like a crystallization process.

The western constellations were consolidated in the classical Greek times. The Greek world was composed of many municipal states. There were alliances among them which frequently shifted. Unlike the Chinese rulers, however, their rulers did not think that they had much connection with the sky and the constellations. They left astronomers responsible for the demarcation and knowledge of constellations. Thus a unique system of constellations developed in the Greek world. Although there were different schools of astronomy, their definition of the constellations seems to agree.

It was different in China. At least from as early as the Xia, Yin and Zhou dynasties, Chinese rulers believed that they received a mandate from Heaven to rule over the world. About benevolent or disastrous rule, about strength or weakness, Heaven would warn them with Signs — omens near certain asterisms, such as solar and lunar eclipses, comets, meteorite showers, etc.. Astronomers (astrologers) had to explain to the rulers what was intended by Heaven. Because Chinese asterisms primarily came into being

during the Warring States period, astronomers who served different masters built up rather different systems of asterisms. Therefore, from an academic point of view, different constellations represented different astronomical schools.

Due to many reasons, some systems of asterisms have been buried in oblivion. Some of them grew and prospered however. During the Han there were mainly three prominent systems, namely the systems of Shi (Shen) *Shi* (school), Gan (De) *Shi* and Wuxian *Shi*. There must have been systems of Huangdi *Shi*, *Hairen* (Marine People) *Shi*, etc., but because the historic material about these schools has been lost, it is nowadays impossible to investigate their systems of asterisms.

Since the Qin and Han dynasties, China became a unified and centrally governed empire. The imperial Han astronomers generally accepted Shi *Shi*'s system of constellations. The Shi *Shi* system consisted of most prominent constellations in the sky. Nevertheless, the other two schools, Gan *Shi* and Wuxian *Shi*, had many constellations which in an astrological sense were quite as important and which Shi *Shi* did not have. At the end of the Eastern Han, China was divided into the three kingdoms of Wei, Shu and Wu. Chen Zhuo, the royal astronomer of the Kingdom of Wu, made an effort to collect and conflate the constellations of the three schools. The result was a new large system of 283 constellations comprising 1464 stars. This system was adopted by all royal astronomical institutions of later times.

Because the large number of asterisms in Chen Zhuo's new system was not easy to remember and thus not easy to teach, some people made larger groups out of these asterisms. The most famous effort in that respect was the *Bu tian ge* (Song of Pacing the Heavens) from the Tang period. In this popular book all 283 asterisms were grouped into a so-called Three *Yuan* and Twenty Eight *Xiu* system, with each *Yuan* and each *Xiu* consisting of several asterisms, mainly for the purpose of education. But professional astronomers still used Chen Zhuo's system based on the asterisms of the Shi, Gan, and Wuxian schools.

The complete systems of asterisms of the Shi, Gan and Wu schools were established during the Han. If one wishes to know the history of astronomy in China, one should study the systems of asterisms. If one wishes to study the asterisms, one must start from the sky of the Han.

The present work is about the asterisms of the three schools during the

Han.

One of the authors, Sun Xiaochun, is a native of Liyang, Jiangsu, China. He graduated from the Astronomy Department of Nanjing University in 1984. Afterwards he studied with Professor Lu Yang for his Master's Degree in the History of Science. His thesis was *The meaning of Bei Dou in Chinese astronomy*. In 1989 he came to the Institute for History of Science of the Chinese Academy of Science in Beijing to study for his Doctor's Degree. He chose the Han sky as his subject.

In the meantime, by good luck, in Holland, ten thousand miles from China, the well-known physicist Professor Jacob Kistemaker, after retired from his position as director of the F.O.M. Institute for Atomic and Molecular Physics in 1982, returned to astronomy which he loved since he was young. He noticed that much of ancient Chinese astronomy had been neglected by the western world and decided to write a book on the Chinese sky. After this great effort was introduced in our institute by Dr. Wang Zhonglie (whose Doctor's Degree was supervised by Professor Kistemaker), it decided to help him with this effort. After some discussions we decided to introduce Sun Xiaochun to Professor Kistemaker. A Joint Education programme was arranged between China and Holland so that Sun Xiaochun was able to work in Amsterdam for one year. On the one hand Sun Xiaochun learned new methods, ideas and details of many cultures from Professor Kistemaker; on the other hand he used his own knowledge about ancient Chinese astronomy to work with Professor Kistemaker.

In the spring of 1992, Sun went to Holland. He worked very hard. He not only helped with the book, but also finished his thesis under the supervision of Professor Kistemaker. The doctoral ceremony was held in Beijing in the winter of 1993.

The two authors had collaborated fruitfully and decided to publish their work in two books. One has the title *The Chinese Sky During the Han*. The other has the title *The Origin of the Chinese Xiu* which will present more of Professor Kistemaker's initiatives and ideas. Now they decide to publish the first book. The other one will be prepared in due course and will be published in one or two years.

This book is the first specific study of the Chinese constellations written in English. Perhaps because of their different cultural backgrounds, western readers may be frightened away by the title of this book. But I want

to remind them that both authors have been nurtured in modern astronomy. Professor Kistemaker is a scholar of highest repute in the west. He certainly knows the interest of western readers and how to cross the threshold to an exotic culture. Dr. Sun Xiaochun is a brilliant young scholar who is very quick to learn. Their collaboration is really like *a string of pearls and a girdle of jade* – a happy combination to bring out the best of each. Their book is a good guide for western readers who want to study the “mysterious” ancient Chinese astronomy. Lay readers who have more general interest in Chinese culture may find valuable material in it about social life, social structure, folklore and mythology which were all reflected in the sky. Perhaps this material can be found nowhere else or has never been discussed in this context. In short, the time and patience invested in this book will be compensated for with profit and pleasure.

People living in the East and in the West share one common sky above their heads. Constellations projected on this common sky sometimes differ very much due to several reasons: different cultures, different civilizations and immense difficulties in transportation and communication during thousands of years.

But all of this now seems to be in the past. The world is changing quickly and we are all living near to each other. It is about time to learn to know each other. Books like “*Chinese Sky during the Han*” give a unique opportunity to non-Chinese people to know more about our great history, and to Chinese people themselves to learn more about their ancient roots. In essence human beings are the same everywhere on this earth.

I believe this book will contribute to the Friendship between East and West. We appreciate the diligence of the Authors.

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