Astronomy on Oracle Bone Inscriptions

Xu Zhen-tao\textsuperscript{1}, F.R. Stephenson\textsuperscript{2} and Jiang Yao-tiao\textsuperscript{3}

\textsuperscript{1}Purple Mountain Observatory, China, \textsuperscript{2}University of Durham, UK and \textsuperscript{3}Nanjing University, China

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SUMMARY

In this paper we review the records of astronomical phenomena on oracle bone inscriptions of the Shang Dynasty. The history of research on the bone inscriptions is less than 100 years from their discovery and articles on oracle bone astronomy are even more recent. Since the people of the Shang Dynasty deeply worshipped the celestial bodies, for example the Sun, Moon and Stars, many bone inscriptions, recording astronomical phenomena, have been found by palaeographers and astronomers. By means of a study of published rubbings, we discuss the astronomical records of bone inscriptions, such as solar and lunar eclipses, solar phenomena, planets, comets, new stars or supernovae and certain fixed stars. In particular some records, such as solar and lunar eclipses, sunspots and comets are discussed in detail. It is concluded that astronomy in the Shang Dynasty (from about 1500–1050 BC) had already attained a fair level. However, the names of some planets and rather bright stars such as Venus and Mars, or Sirius and Vega, have not yet been deciphered from bone inscriptions. We give several suggestions for extending study in this area.

1 INTRODUCTION

The ‘oracle bones’, which have contributed so much to present-day knowledge of ancient Chinese history, were first discovered at Xiao-tun near An-yang, Henan Province, China in AD 1899. These relics of the latter half of the Shang (also known as the Yin) Dynasty (which lasted from 1500–1050 BC) consist of animal bones and turtle shells inscribed with a primitive form of Chinese characters. About 160 000 pieces of oracle bone have, so far, been unearthed since the initial discovery. It seems likely that these bones originally formed part of the royal archives kept at the later Shang capital. The city on the site of Xiao-tun was probably the residence of the Shang kings between about 1350 and 1050 BC.

The name ‘oracle bones’ stems from the nature of the bone and shell inscriptions. In these texts, the queries posed to the ancestral spirits and replies judged to have been received as the result of divination were recorded, together with their verified outcomes. The context of each individual oracle inscription generally consisted of four parts: preface, charge, prognostication and verification. The most common ‘preface’ is of the following form: “The divination on…[date] was performed by…[the name of diviner]”. The date is expressed jointly in terms of the lunar calendar and a 60-day cycle. The latter consists of two parts: 10 stems (\textit{tian-gan}) and 12 branches (\textit{di-zhi}) respectively. Use of the 60-day \textit{gan-zhi} cycle is frequently found in bronze inscriptions from both the Shang and Zhou Dynasties as well as in historical