



亞洲文明

第一集

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Astronomical Records in Ancient Far East and Their Applications in Modern Astronomy

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It is well known that China, Japan and Korea have preserved a great deal of records of astronomical phenomena prior to the European Renaissance, and that it is of value to modern astronomy. Perhaps one of the best examples is the identification of the supernova of A. D. 1054 with the Crab Nebula, which emits the whole range of electromagnetic waves and in the centre of which is a neutron star. According to modern theoretical ideas on stellar evolution, supernova explosions give rise to neutron stars or black holes. Since we lack observations of supernova that have exploded within our galaxy after the seventeenth century, it is important that the historical records we do possess of those events be analysed. Unfortunately there are no such references to supernovae in the Western literature. But if we adopt the criterion that a new star can be considered as a supernova if it is visible to the naked eye for six months, then we may consider that at least seven supernovae were recorded in Chinese and Japanese annals. Some consider it possible that the (presumably black hole) X—1 Cyg may be none other than the phenomenon recorded in A. D. 1480 by Chinese and Japanese astronomers.

Another use of ancient Far Eastern records in modern astronomy in recent years has been to confirm that the so-called "Maunder minimum" (1645—1715) is a single phenomenon within a longer cycle of solar activity, and that within the Maunder minimum the 11-year cycle still exists. The analysis of records of sun spots and auroras, conserved in the historical documents of China, Japan and Korea, has shown that the 11-year cycle has been in existence throughout history.

The records of solar eclipses in ancient Far East also have an important bearing on the modern so-called cosmological problem. A few years ago, a theory with a decreasing G (gravitational constant) has been presented. This problem has recently

rapidly. Since Meiji Reform she has made very endeavour to follow up, and imitates Europe and America, and imported Western civilization, but in former times she was strongly and deeply influenced by the Asian, especially the Chinese civilization. At present, though Western civilization, specially American civilization, is in vogue in upper society, yet what truly dominates over the lives, customs, thought and behaviours of the masses of people is Japanese civilization. Consequently, without studying the civilizations in neighboring countries, particularly that of China, it is impossible to have a proper comprehension of the origin, development, characteristics and influence of the Japanese civilization. Even during the last century on the modern Japanese, i. e. during the age of Meiji Reform, the new term "Orientalism" was already coined in the modern Japanese. In it, Japan, China and other East Asian countries were regarded as a total unity and became the object of much study. As a result of the persistent and painstaking qualities of industrious Japanese scholars, orientalism has become an important subject there ever since. This also promoted the development of the related disciplines, a great number of well-trained orientalists were brought up and caused the prosperity of the Asian studies in Japan, the number of their academic personnels, research institutes and publications are hardly comparable to any other country in breadth and scope. Orientalism has a powerful and notable impact on the humanities in Japan. This is very remarkable.

4. China is an ancient and civilized country in the East. Chinese civilization, as a part of Asia, has exerted remarkable influence over her neighboring countries and areas; she has also made significant contributions to world civilization. This is well known and acknowledged all over the world. In the past, though Chinese scholars have contributed much research work on Asiatic civilization, nonetheless, the studies have not yet become an independent discipline in China. This is because this kind of research work is not generally published, compared with the research network of other countries, ours is undeveloped, and does not reflect the significance, role and influence of China in Asia and in the world. Thus we have to provide a new kind of publication in order to exchange our views. It is quite necessary to bring out this symposium: "Asiatic Civilization" for the purpose of setting a base for Asian studies in China, and promoting the advance of the disciplines concerned. This is the guiding idea in

the compilation of this symposium.

5. The main contents of this symposium are the studies of Asian, especially Chinese civilization. The spread and intercommunication among civilizations will strengthen the friendly intercourse and sympathetic understanding among people of different countries. Therefore the studies in Asiatic civilization are not only academic and historic, but of realistic interests as well. Through research and discussion, truth will be clarified and difficult problems will be settled. Thus scientific researches will be promoted, the traditional friendship and mutual understanding between Chinese and other peoples will be enhanced and deepened. This is the purpose of the symposium.

6. China and her neighboring countries and areas are the main object of the studies in this symposium. First of all, the achievements and characteristics of the Chinese scholars in these fields are exhibited. We are doing our best to create favourable conditions and to improve the quality of the symposium, the contributions in it are selected on their originality and scientific value.

7. "Asiatic Civilization--A Symposium" relies on the supports of three sources. Firstly it relies on the support of the scholars, researchers of all the related fields, then, according to the necessity of the specific studies, the concrete support from the experts of the relevant disciplines and areas will be requested; while inaugurating important seminars or solving keynote and quite difficult problems, experts from the disciplines concerned will be invited to be the advisors or directors.

S. Z. Huang

Chinese Academy of Sciences
Beijing, May, 1983

Commencement, Purpose and Prospects

1. Civilization is the crystallization over the time of the creative labour in human society. It is the accumulation of the infinite wisdom of the broad masses of people in the process of historical development. The form of its expression is twofold, i. e. material and spiritual, but in its essence, it is a unity of both of them. As an ideology, civilization is the synthetic reflection of the politics and economics of a society. Present society is the outcome of the past, therefore, in various respects the elements of the past civilization are continued and imbibed in the present, and implicitly influence people's lives, customs, manners, ideology and behaviour. The civilization is formless and invisible, but its silent transforming influence is tremendous and unfathomable. Thus, in order to understand the historical characteristics of a country and the formation of the customs and manners of her people, studies in the origin, development, relationships and contacts of the civilization are indispensably necessary.

2. World civilization is divided into two systems; the East and the West. Each has developed separately within a complex of different processes. However, there have been mutual contacts, relationships and impacts between them. In Asia, China, India and Babylon are the three main sources of the Eastern civilization, the neighboring areas are more or less influenced by them. Asiatic civilization occupies an important position in the world and the studies of Asiatic civilization is an indispensable task for understanding the world and Western civilization. Since the 18th century scholars in the Western countries have been increasingly aware of the significance of the Asiatic civilization. This is found in the studies of "Orientalism", "Asiatic studies", "Sinology", "Indology" etc. Numerous societies, institutes, schools have been founded; journals, periodicals and other magazines have been published, some of which even have a history of over a hundred years.

3. China and Japan are neighbours separated only by a belt of water. Both of them are sections of Asiatic civilization. In modern times Japan has been developing

been analysed again using both laser lunar ranging measurements and eclipse data from ancient and medieval China. The close agreement between the two results is an evidence in favour of the constancy of G .

Chinese systematic records of Halley's comet is now used to discuss the possible existence of an unknown planet beyond pluto. On the basis of historical records , the epoch of perihelion of this comet seems to have a periodicity of 500 years. Some theoreticians have suggested that it is disturbed by an unknown planet, the orbit elements of which have been calculated; but not yet tested by observation which alone can say whether or not it corresponds to reality.

On Certain Problems Concerning Western Zhou Calendar on the Basis of Bronze Inscriptions

By Huang Shengzhang

The present paper is a summary of the results obtained from a comprehensive and thorough investigation of all the views and conclusions held and made heretofore by archaeological scholars on Western Zhou calendar, and the methods they used in their studies of the problem. In it are criticized and refuted: (1) the restoration of Western Zhou calendar and calendar manual by the four-division-month method, (2) the four-division month theory of Wang Guo-wei, and (3) the fixed-point moon-phase theory. None of them is sound and tenable in either theory or methodology, because in the time of Western Zhou no concrete and specific data on the solar year and lunar month existed, and therefore it was then impossible to make calculations for either the calendar or the calendar manual without them.

Now, on the problem of Western Zhou calendar, I want to make the following points with reference to the calendar days as recorded in Western Zhou bronze inscriptions, and other information found there in relating to calendar.

1. The term “shuo” (朔), meaning new moon, has never been discovered in Western Zhou bronze inscriptions so far, and therefore the method for the calculation of the first day of the lunar month was then unknown. Nor was there any fixed-point from which to count for the fifteenth day of the lunar month. It is thus impossible to hold the four-division month theory for Western Zhou calendar. All the restoration of Western Zhou calendar and calendar manual on the basis of the four-division method are purely imaginary, for they do not tally with facts.

2. So far five terms for identifying the days of the lunar month have been found in Western Zhou bronze inscriptions. Besides the four terms “chu ji” (初吉), “ji sheng ba” (既生霸), “ji wang” (既望) and “ji si ba” (既死霸), there is also the term “ji ji” (既吉). Thus Wang Guo-wei's four-division month theory is automatically refuted from its very foundations.

3. The days of the lunar month in Western Zhou calendar were counted by the

phases of the moon. Thus “ji”(既) means “ji wang”, “ji sheng ba” and “ji si ba”, but “ji” had no fixed reference point. Before “ji wang” goes “ji sheng ba”, which stands for the first half of the lunar month; and after “ji wang” comes “ji si ba”, which covers the second half of the lunar month. “ji wang” denotes the period of the moon phase change from full moon to complete waning, taking about 16, 17, and even 18 days; and “ji sheng ba” stands for period of the moon phase changing from crescent to nearly full moon i.e., 3rd to 14th of the lunar month, called the “hui” (moonless) period. The method of expression of the days of the lunar month by the changes of the moon phase was a unique dating method of Western Zhou. The division of the lunar month into two halves according to the phases of the crescent moon and the full moon is a Chinese invention out of experience of long-term astronomical observations, and is by no means introduced from India.

4. Neither “chu ji” nor “ji ji” refers to the phase of the moon. “Chu ji” or “xun”(旬) denotes the first ten days, namely the “chu agn ji” days(初干吉日). It originated from the ancient ten-day method called “xun ri fa”(ten-day method). The term “xun” appeared frequently in Western Zhou bronze inscriptions, and it meant the same thing in Western Zhou as it did in the Yin Dynasty. It is therefore a method inherited from ancient times.

5. There was an intercalary or leap month in Western Zhou calendar, and it was put at the end of the year as the year as the thirteenth month. This leap month has been found at least 7 to 8 times in bronze inscriptions. Its addition would keep the lunar calendar basically right with regard to the change of seasons for about two years.

6. Western Zhou calendar had six 29-day months and six 30-day months. As the decimal part behind the 29 days of the average solar month was unknown at the time, it seems that these 29-day and 30-day months could only be arranged alternately throughout the year, as it was impossible then to adjust the difference by making several consecutive 30-day months. But this is only what we believe theoretically. Actually, we do not know how these months were actually arranged in Western Zhou calendar, nor do we know which ones of the 12 months have 30 days, and which others have 29 days.

7. The “gan zhi”(the Heavenly Stems and the Earthly Branches) method of

couthing by using ten days as a base came down from the Yin Dynasty, and it was therefore a traditional method. But the moon-phase method of counting the days of the month was a natural result of long-term observation of the movements of the celestial bodies. This method was already known at the beginning of Western Zhou. The dating method used in Western Zhou bronze inscriptions is actually a combination of the above two methods. This was an advancement over the Yin Dynasty.

The number of Western Zhou bronze inscriptions with reference to the calendar of the period studied by the present author are still quite limited, and therefore the conclusions drawn upon them are bound to be incomplete and not free from errors, that have to be corrected and supplemented when more such bronze inscriptions are unearthed and become available in future. In the meanwhile, the author hopes that the present article may only serve as an invitation to much better ones on the problem of Western Zhou calendar and calendar manual, just as the Chinese saying goes: "To cast away a brick and attract a jade stone".

Neolithic Archeological Systems of Culture in China and the Problems Concerned

Shi Xingbang

The Present paper deals with the neolithic archeological systems of culture and the problems concerned on the basis of the results of the recent neolithic archeological researches in China. Starting from the characteristics of the Chinese history and culture and according to the sequence of developments of each culture and the process of dialectical development between their connexions, the author divided the neolithic cultures into three systems; 1. South-east primitive cultural system on the east coast and the regions to the south of Yangtze River. 2. North-west primitive cultural systems on the plateaux of yellow soil. 3. Microlithic primitive cultural systems on the desert-steppe in North and North-west China, through the mutual contacts and blending of these systems, (mainly Han People) came into existence. The present paper successively illustrates the development of each cultural system, the characteristics, process and the laws of their blending.

A Tentative Study of the Ethnic and Cultural Origins of the Ji-Zhou

Hu Qianying

(Institute of Archaeology, CASS)

It is of our opinion that the origin of the Ji-Zhou and its history before its removal to Qi (the present Qishan county) should be restored mainly through studies in field archaeology, though literary records including oral sources may of course provide a clue to and collateral evidence of researching and clarifying the problems.

According to historical records, the Ji-Zhou family should belong to a branch of the Rongdi nationality. An analysis of the archaeological data available shows that the Zhou Culture retains multi-elements of the Siwa Culture, that the culture prior to the Zhou Dynasty is later in date than the Siwa Culture and that the overlapping area of the distribution of the pre-Zhou Culture and Siwa Culture is in the valleys of the present Jingshui River and Qianshui River. Moreover, the upper reaches of the Jingshui River and its tributaries happen to be the places where the Zhou people conducted activities in its early days. On the other hand, in this area there was no other culture existing between the Zhou Culture and Siwa Culture. Therefore, we hold that the Zhou Culture probably developed on the bases of the Siwa Culture.

The Zhou nation did not obtain a fairly great progress and development in agriculture until it immigrated to Qi. Before its immigration the Zhou people seemed to be quite backward and premature in farm production.

Studies in the Origin of the Silk and Silkworm Breeding in China

Gao Hanyu

The present author investigates the origin of the silk and silkworm breeding through the neolithic cultural relics of the Shang Dynasty unearthed in various places in China.

1. By examining the neolithic relics of silk, silk belts and silk cord, unearthed in China San-yang the cross section of the silk fibre is obtuse triangular, the whole length of the fibre is 42.5 and the cross section is 40 square micrometers. A number of silkworm-like curves are engraved on the ivory cup unearthed among neolithic relics of Ho-Mu-Tu in the same province, probably a symbol of honour made by the primitive tribes there. Considering the geographical proximity of the two digs, the similarity in climate and the remarkable likeness of the two silks, it can be easily deduced that the history of silk-making can be traced back 7,000 years.

2. Analysing the miracle bone inscriptions unearthed from the relics of the Shang Dynasty (C. 16—11th Century B. C.), we are sure there was then a rank of officer called "Shang-Si 上丝" who was specially in charge of silk manufacture, and there were two kinds of mulberries trees, (the one is a tall tree and the other is a bush) three different species of silkworms (the one with black spots, another with crosses and the third with curves.) Manufacture of silk was well-developed along the Yellow River.

3. It is quite possible that there was already the developed technique of reeling silk from the hot boiler. Analysing the different kinds of silk, the projective width of silk warp and woof is 0.1-0.5mm and that of the silk unearthed in Chian-San-Yang is 0.4-0.6mm. These show that the technique of silk reeling was very advanced in China even 5,000 years ago.

4. The density of the silk unearthed in Chian San-Yang is 20×28 threads per square centimeter. About the time of the Shang Dynasty, various kinds of silk fabrics

such as white stiff silk, gauze, muslin, damask and fine silk etc. came into being. Three kinds of weave i. e. muslin weave, slenting weave and interweave became known. The technique of multi-entwining jacquard was utilized, and vermillion dyeing technique appeared for the first time. So these numerous kinds of silk fabrics clearly show the advanced level of technique the Chinese people achieved at that time and provide us with the most reliable evidence for the studies in the history of the development of silk manufacture before the Shang Dynasty.

Ancient Bronze Smelting Casting and Early Iron Casting in China

Hua Jueming

(Institute of History of Natural Science, Academic Sinica)

During past several years, following the steps of many predecessors, by way of researches which are synthetic in methodology, the author and his colleagues have got a breakthrough, i. e. we have, in the main, comprehended the essentials of the superb methods of Shang and Zhou bronzes, and its evolution as well. By synthesis we mean a combination of the following: first, an anatomy of typical wares; then, after studying relevant literatures, an exploration into ancient sites and examination of unearthed relics, and also an inquiry into some traditional methods still existing; and thirdly, ample application of modern scientific means to scrutinize them; and, last but not least, restoration of ancient craftsmanship and actual trial castings.

Apropos of the evolution in techniques, the author is of the opinion that in the development lasting two millennia, the pre-Qing bronze had undergone a course comprising five distinct stages.

From the later stone age to early Yenshi Erlitou, this was the inception stage. Unearthed at Tangshan, of Hebei, Wuwei and Yanjin, both of Gansu, Jiaoxian, of Shandong, Xiaxian, of Shanshi, etc., are bronze knives, awls, chisels, arrows and stone moulds for bells. These are all simple small things, made not only in bronze, but also in copper and early brass, some cast and some forged. Technically, people were only beginning and groping. However, so long as there appeared a frequent use of instruments as well as weapons, notably bronze arrows, the primitive copper metallurgy was existing to a certain extent. As confined by the unearthed wares, we are quite certain to assume that the later part of this inception stage, i. e. the Xia Dynasty, had entered into the bronze age.

Bronze bells cast with multiple pottery moulds, belonging to the third section of Erlitou, have been discovered. And the early Shang wares found at Zhengzhou, of Henan, Huangpi, of Hubei, Gaocheng, of Hebei, and Pinggu, of Beijing, are all made

of bronze without a single exception, either tin-bronze or lead-bronze, all made with pottery moulds. The ritual wares were already made in a series. And one very big, square cauldron has been found, weighing as much as 80kg. All these facts lead to the conclusion that we had another stage in which a technique based on multiple pottery moulds had been set up and finalized. It was from later Erlitou up to the removal of the Shang capital to Yin by King Pangen.

The bronze industry of the later Shang centered around its capital now called Anyang. The progress was tremendous. The technique reached perfection. So befell the brilliancy stage. The famous square cauldron "Sinuwu", magnificent in shape, elegant in decoration, 1.33 m high, 1.66 m long, 0.79m wide, weighing 875kg, is the heaviest bronze article ever discovered of pre-Qing china — Investigation shows that the mould consisted of four big belly moulds, in which were embedded 24 pieces of smaller moulds, a top mould, and two runner moulds. The molten bronze flowed along a channel, fed from six big furnaces about 80cm in diameter. Then two ears were added to the body.

The characteristics of the casting of Xiaotun wares are as follows:

All wares were cast with the aid of pottery moulds that had been baked at high temperatures. No samples made by the lost-wax method have been discovered yet.

Complicated wares made use of partitive casting. All known ways of partitive casting had existed during this stage, the mainstream being the post casting by dint of dovetails. The method of integral casting by dint of sectional moulds also came into being.

Clay cores were extensively used and used very dexterously, so that the vessel walls were very uniform in thickness and the designs very clear-cut and pronounced. The installation of the core made use of dovetails.

Casting, preparation of moulds and installation of the pouring system had all been standardized. Constituents of the alloy were also regulated. For important ritual wares people employed tin bronze, which had a high percentage of tin (14-18%). Vessel walls were generally made rather thick, though thin walls were also found.

For the purpose of verifying the above judgements and to elaborate on details, we have chosen several arrows, spears, cauldrons, gus, coming from the Yin ruins,