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Pulse of the World: Archaeology and Civilization along the Silk Road (I)

On the morning of November 2nd, the panel session "Pulse of the World: Archaeology and Civilization along the Silk Road" was inaugurated in Starlight Hall, Yingjie Exchange Centre, Peking University. Three speakers gave speeches on the topic of "The Usage of Science and Technology in Archaeology along the Silk Road".

Professor Jessica Rawson, from the University of Oxford, gave the keynote speech, titled "China's Unique Civilization and Technological Exchange across Eurasia, 3000–500 BC". She first pointed out the importance of ceramics, textile and lacquers in the exchange along the Silk Road, mainly from China to the West. These materials displayed the technical level that was solely possessed by the Chinese society. From examples such Liangzhu and other sites in the Yangtze River basin, Professor Rawson then pointed out that China's geographical position at the eastern end of the Eurasia is the foundation of its unique civilization. However, to the west of the Tibetan Massif were other cultural groups, with completely different subsistence and cultural practices, closely allied to the cultures of Mesopotamia and Egypt. She thus argued that the origins of the later Silk Road grew out of the differences between these two very different geographical regions, with very different forms of social complexity. Essential links between the two were the mobile groups of the deserts, oases and mountains of Central Asia and those of the steppe. People travelling with herds of sheep, goats and cattle, wagons drawn by oxen and later horse-drawn carts and chariots took with them many skills. Professor Rawson expressed her belief that one of the most important features of this exchange was the ways, specific to Chinese civilization, by which inhabitants of the Central Plains adapted these technologies. She pointed out examples such as incorporation of animal meat and the usage of difficult techniques to cast bronze vessels in rituals could indicate that China's subsistence patterns and social construction were established before these exchanges began, further determining the way in which new technologies were adapted. In other words, foreign cultural elements and technologies had to conform to the existing Chinese tradition in order to be integrated into the Chinese society. Such requirements also applied to the integration of Chinese culture with the West. Professor Rawson concluded her speech by emphasizing the significance of cultural diversity and geological differences to the development of cultural and technological

exchanges across Eurasia.

Professor Wu Xiaohong from Peking University was the second scholar to present her research, titled "Radiocarbon Dating of Grottos along the Silk Road in China: The Case Study of Kizil in Xinjiang". She started by making a brief introduction of the Kizil Grottoes and the importance of the grottoes' chronological research to the understanding of the cultural, political and economical realities along the Silk Road. She stated that the study of the Kizil Grottoes began from solely an art history perspective, but later shifted to the integration of archaeological methods with the help of important scholars such as Mr. Subai, who promoted the application of archaeological means to the chronological research of the grottoes. Professor Wu then introduced the current technological development applied in the dating of the Kizil Grottoes. New carbon-14 dating technologies allowed smaller sample sizes while securing more accurate results. The establishment of mathematical models using the Bayesian statistical method also helped researchers gather a more accurate and thorough date. Comparative studies between C14 dating and the traditional archaeological dating provided new insights into detecting the differences between the grottoes' excavation and restoration year. Professor Wu concluded that applications of these various methods provided reliable data to the comparative studies of the chronology of the grottoes, which in turn may be the key to understanding cultural exchanges along the Silk Road.

Professor Cui Yinqiu from Jilin University was the third scholar to present her research, titled "Paleogenomics Study on the Population Structure and History of the Early Bronze Age in Xinjiang". She started by stating the importance of archaeological discovery and DNA evidence to the study of the development of ancient human migration and cultural integration. She expressed her belief that the complexity of the formation of the Uyghur culture are evident just by analysing the ancestral components of the modern Uyghur population. In this study, human bone samples from the early Bronze Age sites in Xinjiang were collected by researchers who determined the DNA contents and obtained high quality genomic information. After introducing the research process, Professor Cui gave a detailed explanation the following results: First, the study showed that the population found in Xihe ancient burial sites share similar genetic components with the ancient Botai people from the Kazak Plains. Second, such ancestral components first appeared in Xinjiang before 5000 BC. Another result was that the Xiaohe population migrated westward in the later period and had a profound impact on the ancient Tarim societies. Fourth, there was a mixed

population of ancient North Eurasia and East Asia in Xinjiang in the early Bronze Age. This mixed population was widespread in the eastern part of the Eurasian steppe before the expansion of the Yannaya Civilization to the east. In the early Bronze Age, there were obvious genetic components in cemeteries, such as Songshugou and Nileke. Last, the study showed that the genetic components of the population in the western Eurasian steppe showed a decreasing trend from north to south, thus indicating that they entered Xinjiang through the northern part of Altai mountain.