

SEAA 2021 Online Student Conference: Abstracts

<Liangzhu society of Neolithic China>

The Study on Prehistoric Ding Caldron-Shaped Pottery Yan Streamer with Septum in the Taihu Region

Northwest University, Na Li

The shape categories of prehistoric pottery Yan streamers in the Taihu Lake region are quite complicated, the largest number among them are Ding Caldron-Shaped Yan with septum. They look like Ding, yet have a round narrow septum inside and some even have a hole under the septum. According to typological analysis, Ding Caldron-Shaped Yan with a hole and the one without hole are two parallel sequences. The pottery Fu with septum or with a hole of Majiabang Culture may be the source, while the stove with septum of Longshan Culture could be traced to Ding Caldron-Shaped Yan with septum. The hole is probably used to add water for heat preservation or liquor distillation. Further more, the relationship between Ding Caldron-Shaped Yan with septum and Separated Yan reflects the social complexity in the late period of Liangzhu Culture.

A typo-chronological study of pottery from Liangzhu site and the Qiantang River left bank-estuary area and some implications

kyushu university, Chigusa Uchida

The Liangzhu culture of the lower Yangtze River, dating from the Late Neolithic period (B.C3300-2300), is important for understanding the developmental process of early agricultural society, eventually culminating in the formation of the ancient state. This presentation presents a new typo-chronology of pottery from the site and examines interactions indicated by pottery stylistic similarities/differences between the Liangzhu and Qiantang River left bank-estuary areas, the latter located to the northeast of the former. Attribute analyses of the shape-types Ding(鼎), Dou(豆), and Can(罐) show that the pottery from the Liangzhu and the Qiantang River left bank-estuary areas can be divided into three phases. Stylistic and technological similarities are significant in the first and third phases, whereas some differences emerge in the second phase. The author plans to investigate the cause of the emergence of regional differences in the second phase and the direction of influence/information flow in the first and third phase whereby to reconstruct the trajectory of the formation and integration of the polities comprising the Liangzhu cultural sphere.

Burial pottery of Liangzhu culture

Fudan University, Xiaohan Zhao

Burying pottery in graves was a cross-class custom of Liangzhu culture while there also existed geographical and hierarchical differences. The "cooking-serving-storing" combination of burial vessels in

low quality had appeared repeatedly in all periods and most areas of Liangzhu culture. During the middle and late period, there had developed some local customs on the east and southeast of Taihu Lake: the drinking vessels appeared more frequently, and maximum number of burial potteries in each grave increased synchronically. Similar to jade ware, some fine drinking vessels with engraved ornamentation acted as distinguishing objects that had an association with high-ranking individuals. This trend, however, did not affect the Liangzhu sites group and the surrounding areas on the south of Taihu Lake. The region had a near-institutionalized, simplistic pattern of burial potteries throughout all periods of Liangzhu culture, that does not differ significantly across social class groups. The differences in the symbolic meanings of the burial pottery in each region suggest the complexity and diversity among regions within Liangzhu society.

The jade of the many: Jade objects inside non-elite tombs of the Liangzhu Culture

Zhejiang University, Tansis Darien Garcia Rubio de Ycaza

The Liangzhu culture arguably represents the pinnacle of the jade cultures of the Neolithic. The Liangzhu “ritual” jades like the cong and bi are well known and therefore a great amount of scholarship has been devoted towards understanding their use and meaning. These objects, however, are only one part of the great spectrum of jade use of the Liangzhu culture. According to our analysis of more than 700 tombs excavated of the Liangzhu culture more than 60% of the population had access to jade mostly in the shape of beads and other simple elements. The research on these jades, mostly ignored as part of the jade culture of the Liangzhu, might hold the key to a better understanding of the jade economy which not only involved the elites but a very important part of society. Our preliminary study focuses on the presence or absence of jade in tombs according to site, region and temporality as a first step towards further studies which might shed light on other topics like economy and agency.

<Inter-regional studies>

Buyeo and the Yeongsan River Basin during the Korean Three-Kingdoms period: A preliminary micro-archaeobotanical investigation on vegetation

Chonnam National University, Brian Li

Understanding of the relationship between the Baekje Kingdom and the Yeongsan River (YSR) Basin politics has improved substantially in the past decades thanks to the proliferation of archaeological research in comparing structures and artefacts between Baekje capitals and YSR basin localities. In contrast, fewer research comparing their vegetation conditions have been conducted. In this presentation, micro archaeobotanical analyses results of sediment deposits, including pollen and macroscopic charcoal, from archaeological sites in Buyeo and the YSR basin are presented. These data not only show fluctuations in intensity of rice cultivation and human activities across the sites, but also shed light on inter-regional exchange and arboriculture. Pollen of *Cryptomeria japonica*, a tree species native to Japan but not to Korea, is consistently found throughout the soil profile of Naju Bokam-ri from

the 5th century onward. This discovery lend strength to the proposition that Naju was an important node of inter-regional exchange during the Korean Three-Kingdoms period. It also indicates the deliberate planting and care of exotic trees by the inhabitants of Naju at that time.

The study of residential area during Balhae period

Korea University, Jeonghun Lee

Balhae(Bohai) is a country which was found by Dae Joyoung from Goguryeo in A.D. 698. It's territory reached Russia, China and North Korea, so various ruins and artifacts are currently found in various regions. In Korea, various studies on Balhae have been conducted from 1980's. However, when it comes to residential area, achievements are still at low level. Previous studies dealt with palace, temple, Gudeul(Korean hypocaust) respectively, but there haven't been a comprehensive and detailed study about whole residential area. Furthermore, most of them tend to be based on only one province even though Balhae used to be spread out in three different countries. Therefore, this study plans to research about residential areas in Balhae period from Russia, China, North Korea. The study is going to categorize residential areas including palace, dwelling, temple and so on by specific criteria like the shape of dwelling, the way of construction, the shape of Gudeul, hierarchy of residential areas. Finally, we could expect structural differences of Balhae's residential areas according to hierarchy throughout this research.

A Study on the Flow and Consumption Patterns of Japanese porcelain in the Modern Era through the Excavations of HanyangDoseong

Korea University, Jiho Song

During the past 15 years, many relics dating back to the late 19th and early 20th centuries have been excavated. Among them, a number of Japanese ceramics have been excavated, providing major clues to estimate the characteristics and consumption patterns of Japanese porcelains introduced into Korea at that time. In particular, it is noteworthy that the consumption trends and types of porcelains are distinguished according to the distribution of population and building sites in the area of residence. High-quality Japanese porcelains have been excavated from Japanese residences formed in Namdaemun and Myeong-dong, taking into account Japanese tastes. In addition, a number of ceramics manufactured for export to Korea from Japan were excavated, and it is assumed that the distribution of Japanese ceramics in Namdaemun and Myeong-dong areas was active. Although the quality of the original white porcelain has declined significantly since the early modern era, it means that the inflow of foreign porcelain into Korea is relatively active, and clearly supports the most specific tendency within the four gates, the center of Hanyang.

Structure and Technical System of the Lamellar Armor of the Han Dynasty From the 2nd century B.C. to the 3rd Century A.D.

Pusan National University, Seongho Kim

As part of the East Asian armors and helmets study, I attempted to analyze the lamellar armor of the Han(漢) Dynasty where iron armor were produced in earnest. Through the analysis of the structure and manufacturing techniques of the lamellar armors, it is possible to classify the lamellar armor in three technological systems. The first is 'the Fish scales armor(魚鱗甲)' which can be called the traditional armor of Han Dynasty. It is mainly distributed in the Zhongyuan(中原) area and its environs. The second is the armor distributed north of the Yellow River, which is related to a nomadic culture. The last is the armor distributed south of the Yangtze River, which is characterized by the residual influence of the Qin(秦) Dynasty armor. During the East-Han Dynasty, the technology system of the armor of the Han Dynasty is spread to the central part of Korea. The southern part of Korea has its own technology system, which is different from the Han Dynasty's.

Migration and its evidences in archaeology: a comparison between Europe and Korea

Pusan National University, Valentina Pellizzaro

The role of migration in the creation and development of new cultures has always been a matter of discussion among archaeologists. In particular, great effort have been made to identify the evidences of migrations in the cultural material. However, recently these studies on migration have reached an impasse, mostly because of the complexity of the subject, which has made it difficult to find repetitive characteristics that can be used to create specific trends. This paper aims to discuss and compare migration theories and methodologies in the Western and the East Asian Worlds. After a brief discussion and introduction on the current tendencies in migration theories, the contexts of both Europe and East Asia will be analysed. In particular, a comparison between the migration evidences during the late Bronze and early Iron Age in Europe and Korea will be made. By comparing these evidences of migrations from these two different territories, we hope to underline similarities in migration samples that could help to develop a more complete migration theory. Co-presenter: Phd student -Koo Sook Hyun

Defining Early Korea-Japan Relations through Mortuary Practices from the Late Fifth to the Early Sixth Century

University of Oxford, Tanya Lee

Keyhole-shaped tombs were symbols of early Japanese hegemony and were recognised to be a uniquely Japanese-style burial. However, in 1983, Korean scholar Kang Ingu made a shocking announcement of the existence of keyhole-shaped tombs situated along the Yoŋgsan River basin in South Cholla province. This discovery shocked both the archaeological and political realms. It raised questions concerning early Korea-Japan relations with the possibility of Korea being colonised by Japan in ancient times. This paper focuses on the interactions between Paekche and Yamato in the late fifth to early sixth century A.D. This study presents a historical overview of the Paekche and Kofun period with a further discussion on the

relevance of the Yöngsan River basin to the long-distance relationship between both polities. It will also further discuss the similar and differing characteristics of the mortuary practices and activities found in the basin, as well as the ones built during the Kofun period in the Japanese Archipelago. Relevant East Asian historical records will also be referenced to understand the historical relationship in the region.

<Archaeology of gender in Chinese archaeology>

Analysis of the tomb in Daxi Site of Wushan from the perspective of gender archaeology

Chongqing Normal University, Chang Qin

Daxi Site, located in Wushan County, Chongqing, China, is one of the most important sites of Daxi culture. There are plenty of tomb materials, which have completed the gender identification of human bones. Therefore, we can analyze the tombs from the perspective of gender, in order to explore the social features reflected by Daxi cultural relics. In the specific research, taking gender archaeology as the theoretical basis can prevent the influence of preconceived ideas such as male vision; taking quantitative archaeology as the research method can prevent the subjective judgment in the research process, and shooting arrows before drawing targets in the process. The specific analysis process is based on the human bone gender identification materials provided in the "third excavation of Wushan Daxi site". Chi square test, Fisher test, binomial distribution hypothesis test and other related methods are adopted to analyze the correlation between the burial style, daily necessities, tools, ornaments and the gender of the tomb owner, and to compare the middle and late Daxi Culture. The results of the analysis were compared.

A study of gender archaeology in the early Neolithic Age: Gender and gender inequality in central-south Shandong, China

Shandong University, Lang Jingzhen

The purpose of the presentation is to explore whether the research methods of gender archaeology can be applied to solve the gender issues in the Neolithic Age. Based on the research of settlement archaeology and quantitative archaeology, the scene analysis of the tombs at the early stage of Dawenkou Site shows that gender began to appear and divide with the prominence of the social power of the male group in the early middle stage of Dawenkou Site. Since then, gender division of labor began to highlight, the unequal division of labor began to be constructed, gender temperament began to manifest in the tomb, and men and women began to become unequal. The emergence and expansion of gender inequality were complementary to the establishment and development of patriarchy. In the early stage of Dawenkou culture, the birth and establishment of patriarchy was also a process of the gradual deepening of gender socialization and the gradual construction of the temperament of both sexes.

From Classification, Space, and Time to Genderscape: gender and archaeology in China and revisit the genderscape of the Liangzhu Culture

New York University, Mi Wang

This paper seeks to bring attention to the state of the art of gender archaeology in China, the modern formation process of the “traditional” model of binary sex/gender system, and a different picture shown by tracing the actual trajectory of the Chinese language. It seeks to do so by demonstrating three key elements, which are classification, space, and time. Genderscape, which is defined as a socially constructed pattern of gender-chained/related/bounded practices, aims to see these three elements not only are what we use to answer questions, such as what is the difference across sexes/genders, but are questions themselves: how the lived experience of space and time influences the expression of gender identities, and vice versa. This approach is applied to the Neolithic Liangzhu Culture, a case study provided, using spatial, material culture, and bioarcheological data. Revisiting the Liangzhu Culture using this perspective reveals a far more complex picture behind an ideal model based on burial objects for determining and studying gender.

<Spatio-temporal organization of tombs (Korea)>

A New Approach to the Ruling Strategy in Baekje: Using Visibility Analysis of Tombs in the Yeongsan River Basin in the 5th and 6th Centuries

Chonnam National University, Hyeonghoo Park

Landscape changes by a large-scale monumental construction offer clues to a ruling strategy in state-level societies. Rulers can weaken the order, identity, and community network of local society to be integrated by using strategies to change the landscape of the local political center. Mahan societies along the Yeongsan River were subjugated to Baekje around the 4th century, but the massive mound tombs in the Bannam area, contrary to historical records, supported the possibility that the Mahan communities were politically independent of Baekje, causing a dichotomous debate among scholars. As an alternative, this study proposes that Baekje was indirectly but effectively controlling the Yeongsan River region by conducting visibility analysis on tombs. The result shows that Baekje was able to effectively control the local community by intentionally placing the Jamisan fortress in the center of the Bannam community. This case highlights that the landscape change of local communities through large-scale monumental construction projects played an important role in state formation as a ruling strategy to achieve a high level of centralization and social integration.

The forgotten hierarchy?: Social and temporal structure of low-ranking burials of Silla kingdom

Kyungpook National University, Jimin Park, Minbeom Kim

The cemeteries consisting of relatively low-ranking burials were formed in the territory of the ancient Silla(新羅) kingdom. In this study, we attempted an analysis focusing on the iron objects discovered as

burial goods and the spatial organization of individual burials in the cemeteries. For analysis, we make a data base of iron object association as a funeral kit of each burial and create a micro-level cemetery GIS shapefiles filled with the spatial and non-spatial attributes. We try to classify iron object associations including household tool, agricultural implement, weapon, and/or horse riding equipment, because they are assumed to be related to the social identity of the buried person. We use the GIS shapefile of the cemetery to examine how the burials are arranged according to the classified personhood. Through this analysis, we are able to understand the spatial organization and its temporal variations in the distribution of burials related to the different personhood.

Spatial Organization and Landscape of Baekje Royal Tombs

Kyungpook National University, Youngjae Lim

In ancient states, royal tombs were built for the highest status rulers. As a structure, the royal tomb reveals its unique monumentality, and its burial goods are known to represent the power, personhood, and identity of the buried. In Three-Kingdom period of Korea, the royal tombs of the Early Baekje were built in the structure of stone-piled tombs, but they developed into stone-chamber or brick-chamber types during the middle and late periods. The more important aspects of royal tombs to consider than the development of their structures are the spatial location and distribution pattern. During the early Baekje period, royal tombs were placed within the whole upper class cemetery, but in the mid-term, the Woongjin period, they were separated from other burials and formed an exclusive group of royal tombs. And in the latter period, it is believed that other aristocratic tombs were arranged to enhance the monumentality of royal tombs.

A Study on the Stone Lined Tombs of the Goryeo period in Gyeonggi Province, Korea

Jeonbuk National University, InHae Ko

This paper examines the changes in the stone lined tombs of the Goryeo Dynasty found in the Gyeonggi area and reviews the nature of Goryeo society at the time when the tombs were constructed. According to the existing research results, stone lined tombs, one of the tomb types of the Goryeo Dynasty, can reveal both chronological and regional characteristics, making it an important burial type in reconstructing Goryeo history. In this paper, I examine the structural aspects and construction processes of stone lined tombs of the Goryeo Dynasty. In addition, celadon, which is the most chronologically sensitive of the artifacts excavated from stone lined tombs, is analyzed. Finally, and the developmental process of the stone lined tombs of the Goryeo Dynasty is described according to phase. These analyses will provide insight on aspects of Goryeo society, such as the characteristics of stone lined tombs and economic differentiation within society.

<Archaeobotanical approaches to agriculture and society (China, Japan)>

Alcohol production in south-central Inner Mongolia during Yangshao period: a case study on the Miaozigou site

Stanford University, Yahui He

It has long been proposed that the south-central Inner Mongolia region was influenced by the cultures from multiple areas based on pottery typology, primarily including the Yangshao core region, those along the east flank of the Taihang Mountains, and the Hongshan culture system. By analyzing microfossil remains (starch, phytoliths, and fungi) in the residues extracted from three small-mouth double-handled jars and one funnel from the Miaozigou site in Wulanchabu city, we discovered Paniceae (primarily millet), Triticeae, snakegourd root, ginger, lily, and other tubers as raw materials for alcohol production. Meanwhile, the residue evidence indicates two methods utilized in alcohol production – cereal sprouting and qu starter. This study has revealed alcohol-making activities in the Miaozigou community, the spatial distribution of the small-mouth double-handled jars and funnels within the settlement, and the multi-dimensional and dynamic relationships in terms of alcoholic production technology among different regional cultures.

Bronze Age (The Third Millennium) agriculture and crop processing in Qinghai, northwest China: archaeobotanical evidence from the Xindian Culture of Lajia site

Sichuan University, Han Fei (Dr.)

Over the past years, archaeobotanical studies have clarified much of the chronological development of agriculture in Qinghai, northwest China. However, archaeobotanical research on the Xindian culture (BC1400-BC700), an important archaeological culture widely distributed in northwest China, has been relatively rare. The Xindian culture was generally agreed to be a transitional period from the earlier Qijia agriculture (BC2300-BC1600) based society to mainly pastoralism. Here we present the results of flotation samples collected from 2015-2018 field seasons at the Lajia site. Preliminary analysis indicates that agriculture was still important in the Xindian culture. However, a transition from foxtail millet dominant agriculture to broomcorn dominant agriculture can be seen in the later period of the Xindian Culture. Meanwhile, the proportion of barley was much higher. This represents an important archaeobotanical contribution to the discussion of subsistence transition during this period. Crop processing analysis also show different characteristics from earlier Qijia period which probably suggest changes in agricultural labor organization.

The agricultural structure and its influence factors during the Later Zhou Dynasty in the coastal areas of Jiangsu Province

Nanjing Normal University, Liu Zhen

The research on crop communication between the north and the south was restrained by the archaeobotany work in the coastal areas of Jiangsu Province. The agricultural structures were established during the Pre-Qin period based on the radiocarbon dating and the identification on the carbonized plant remains recovered by the Datongpu site in Jiangsu Province. Two radiocarbon dating

on wheat and foxtail millet respectively indicated that the Datongpu site covered a range of 2750-2350 cal yr BP. A total of 5146 grains of carbonized plants were identified, including foxtail millet, broomcorn millet, wheat and rice, as well as rice spikelet base and wheat rachis. The agricultural structure with almost equal proportion on dry farming and rice farming. In addition, the expansions of dry farming were synchronization with the cultural diffusions from Central China (represented by Li, an ancient cooking tripod with hollow legs) in Jianghuai and Lower Yangtze River. The agricultural development in the coastal areas of Jiangsu Province likely related to the population expansion in the Central Plains.

Neolithic agriculture and the rise of the Walled settlement in Chengdu Plain: archaeobotanical evidence from Gaoshan site

Shandong University, Xiaobin Wang

Southwest China played a crucial role in the development of agriculture and social complexity across East and Southeast Asia, Chengdu Plain is one of the centers of the origin of civilization in Southwest China. The current study presents new results of plant remains analysis obtained from the Gaoshan archaeological site (~2500–2000 cal. BC), located on the Chengdu Plain. The archaeobotanical data shows that the ancestors of the site mainly planted rice, millet and a small amount of soybean, and may have increased the investment in rice cultivation from early to late period. At the same time, people chose to process crops in small or medium-sized scale after harvest. The identification of these important crops at Gaoshan extends the record of combined system of rice and foxtail millet agriculture in Chengdu Plain. Compared with the Baodun site of the same period, millet occupied a higher position in the crop structure of the Gaoshan Walled settlement site, which may be influenced by environmental factors, social background and exotic culture.

Morphological Changes of the 'Chinese Five grains' upon Heating: An Experimental Archaeological Study

Shandong University, Yang Liu

We usually study the proportion of plant-based food and agricultural structure in archaeobotany, but the process of carbonization may affect the preservation probability of charred seeds, resulting in the inaccurate cognition of crop structure, thus need the study of the conditions and formation process of carbonization. The five kinds of cereal recovered from archaeological sites were charred under different temperature and condition, and they are the most frequently crops found in archaeological sites in China. This paper aims at finding the changes in size and mass loss of grains under aerobic conditions. The size and quality were measured from the untreated specimens and charred residues heated at each temperature and time. The temperature directly and obviously affects the mass loss of the grains, the exposure time is also related but the correlation is not that obvious. The ranges of carbonization temperature of 'five grains' were recorded. As for the size, the wheat turned swollen and round, and the other four types of grains shrank at lower temperatures and expanded rapidly at higher temperatures.

Agriculture, the environment, and social complexity from the Early to Late Yangshao periods: Insights from macro-botanical remains in north-central China

Shandong University, Yaping Li (Dr.)

In northern China, the Yangshao cultural period (5000-3000 BC) was a critical timespan in the establishment of ancient agricultural economies and the emergence of social complexity. We present the results of archaeobotanical analysis of carbonized remains from 58 soil samples collected from 12 recently investigated sites located in the Luoyang Basin, and compared our novel dataset with data from previous archaeobotanical research in central and western Henan Province. Our research shows that climatic conditions during the Holocene fostered the development of agriculture during the Yangshao Culture period and that the distribution of settlements throughout this time was influenced by highly localized geomorphic environments delimiting the distribution of crops. The rise of agriculture promoted the formation of complex and stratified economies in the Yangshao Culture period and it was the intensification and elaboration of these new economic and social systems that led to later transformation in agricultural structures and settlement sizes later on.

The Developmental Process of Agricultural Techniques in an Early Agricultural Society: A Comparative Study of Harvesting Tools in the Japanese Archipelago and the Korean Peninsula

Kyushu University, Mikishiro Matsuo

Lately, the domestication of plants has become recognized as a multistage process rather than a revolutionary event. In the case of the Japanese archipelago, however, an agrarian society was formed by accepting agriculture that had already been established in China and the Korean Peninsula, and the process subsequently unfolded was the intensification of the already established techniques and practices. Previous researches inferred that increased agricultural productivity in the Later Yayoi period led to rapid development in harvesting techniques. However, the hypothesis has never been properly tested. This study examines the development and distribution of harvesting tools in western Japan and the Korean Peninsula. The results show that the timings of the termination of the use of stone reaping knives and the beginning of the use of iron sickles differ between the two regions. From the results, this study concludes that the process of the intensification of agriculture was different between the two regions and that this is because the functional development and the availability of the iron plow differ greatly between those regions.

Preliminary Results of a Glasshouse Rice Growing Experiment: $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ Values as Indicators of Watering and Manuring Treatments

University of Oxford, Rubi Wu

Previous work has shown stable carbon and nitrogen isotope analysis of cereal grains and pulses seeds is useful for indicating their water status and soil nitrogen composition in modern experiments and farming systems in Europe and West Asia. Rice is an important cereal crop in East, South and Southeast Asia from prehistory until today. The aim of the present study was to test whether stable carbon and

nitrogen isotopes in rice grains can provide an independent line of evidence for rice management, including irrigation and manuring. Three heritage and four commercial landraces were cultivated under various watering and manuring conditions in the glasshouse at the Department of Plant Sciences, Oxford. The results show watering has a negative effect on the $\delta^{13}\text{C}$ values of heritage rice and significant differences can be found between saturation and waterlogging conditions. Manuring brings an increase in the $\delta^{15}\text{N}$ values although the appearance of significant differences between levels varies according to landraces.

<Ceramic production (China)>

The basic physical characteristics of potters indicated by handprints on the surface of tomb bricks from the Eastern Han Dynasty to the Southern Dynasty in Guangxi and Guangdong provinces

Wuhan University, Wei xuan

Handprint on the surface of tomb brick is a special printed image consciously left by potters when they made and produced bricks, which is a particular cultural phenomenon. Research of modern forensic medicine, dactylography and trace inspection has indicated that the handprint is closely related to the basic physical characteristics of humans. Using the basis methods of these disciplines, we also can deduce the basic physical characteristics of ancient people. By measuring and analyzing the handprints on tomb bricks from the Eastern Han dynasty and the Southern dynasty in Guangxi and Guangdong provinces, we can discuss the sexual, age, handedness, stature, body weight and somatotype of ancient potters. It was indicated that most potters were young and middle-aged men and a few juveniles and females were also present. And most of potters were of medium height and a little short, which is slightly different from modern people in Guangxi and Guangdong provinces. This study provides a new perspective to understand the ancient potters' group structure characteristics and the ancient handicraft industry in Southern China.

The Study of Technical Choices in Pottery Manufacture of the Ken-ting Culture in the O-Luan-Pi I site

National Tsing Hua University, Tzu Yu Chen

The Red Corded Ware Culture is the dominant archaeological culture in Taiwan during the Middle Neolithic Period (dated c. 4,700-3,800 B.P.). It has been further classified into several sub-culture in various areas on the island, including the Ken-ting Culture at the southern point of Taiwan. However, previous studies of pottery typology from the Ken-ting Culture focused on the red corded ware, while other types of pottery have received less attention. Besides, other topics about pottery, such as production or consumption, have not been explored. The present research aims to study the manufacture characteristics of pottery from the O-Luan-Pi I site, the representative site of the Ken-ting Culture, including the technology of pottery making and the usage of the natural environment, by using the technical choice approach. The research findings will not only help to understand the prehistory of southern Taiwan but also reevaluate different methods in pottery analysis in archaeology. Keywords: Red Corded Ware Culture, Ken-ting Culture, O-Luan-Pi I site, Pottery technical choice.

Scientific testing research of the pottery weapon moulds unearthed from Ancient Capital City Site of the Zhu Kingdom

Shandong university, Puwen Song

During excavations from 2015 to 2019, the Archaeological Team of the Ancient Capital City Site of the Zhu Kingdom (In Shandong province) of Shandong University identified the distribution of the bronze smelting areas of the site, and unearthed a number of casting remains, including pottery moulds, crucible and slag. The excavation unearthed a total of more than 200 pottery moulds, and those who could distinguish the styles were weapons, including swords, spears, arrowheads, knives and so on. In order to understand the manufacturing process of pottery weapon moulds and the coating problems on the surface layer of the pottery moulds, and to discuss the bronze casting technology reflected by the pottery moulds, we use XRF, XRD, SEM-EDX, RTIR, DIL and quantitative petrographic analysis methods to have a Scientific testing research of the pottery weapon moulds unearthed from Ancient Capital City Site of the Zhu Kingdom.

Typology of Basket Pattern – A Reflection of Technology in Pottery Production

Harvard University, Jie Shen

This work focuses on the typology and technology of “basket pattern 篮纹”, which is a widely spread decorative pattern on ceramic vessels in Neolithic China. The lack of a standard definition for basket pattern in previous researches has led to confusion in using the term “basket pattern” and identifying the pattern per se. This work traces back the original meaning of “basket pattern” and discovers the non-corresponding relation between the name and reference. To address questions in definition and typology of basket pattern, this work studies collected 3D data of basket patterns from the Qijiaping 齐家坪 site, a series of replication experiments are conducted to reproduce different subtypes of basket patterns through which I figured out the relation between morphological features and technological characteristics. By connecting the variations in pattern and the diversities in techniques, tools, and behaviors, this study provides a new perspective for typological work which focuses lesser on visual impressions of similarity as traditions but establishes the definition of “basket pattern” and explained all morphological variations technologically.

The Exhibition of Power: Proto-porcelain Imitations of Bronze Vessels and Their Meanings in the Lower Yangtze (ca. 5th century BCE)

Columbia University, Shih-han Wang

The cultural adoption and reinterpretation on the “periphery” of a “center” have long been a research focus for scholars studying Bronze Age China. The lower Yangtze was one of the peripheries of Zhou culture with distinctive material culture. Around the 5th century BCE, the region witnessed the

appearance of proto-porcelain imitations of foreign-style bronze vessels. Instead of viewing them as the reflection of Zhou ritual, this paper argues that these imitations were consciously selected and reproduced per local elites' requests and local traditions. The possession of these rare and foreign imitations becomes a strategic move facilitating elites' pursuit of dominance by showing other elites not only the patrons' control over the workshop but their ability to connect the unknown outside world and the heroic quality provided by such connection. The article offers a more detailed picture of an understudied region as well as a new perspective to the study of peripheries in Early China.

<East Asian diaspora archaeology>

Circulation in Four Walnuts from the Sarah Pike Conger Collection

Harvard University, Veronica Peterson

Four polished walnuts stand out from the elaborate, hyper-elite objects related to women and children's life in the Late Qing Dynasty at the Peabody Museum of Archaeology and Ethnology. How do we interpret this ethnographic collection today, steeped in notions of "traditional China" and assumptions about the intentions of a wealthy American foreigner interested in "exotic" art? This paper explores the collecting ethos of both Sarah Pike Conger as she led the American diplomatic household in the Beijing Foreign Legation (1898-1905) and the trajectories of the culture of collecting in elite circles of the Late Qing Dynasty (1875-1912). The walnuts spark questions about how late 19th century scholarly elites cultivated health and wealth with social, political, and economic relations through gift giving and the connections of this past activity to present-day phenomenon like the walnut speculation in China between 2008-2013. Using concepts of mobility and materiality, I investigate the relationships, networks, and circulations provoked by the artificial obscurity cloaking these objects.

Microfossil Analysis of Archaeological Ceramic Residue at the Arboretum Chinese Labor Quarters

Stanford University, Jingbo Li

The Arboretum Chinese Labor Quarters site (ACLQ) is a residential area housing Chinese employees, who worked in the Stanford vineyards, built and maintained the University's landscapes. In 2017, Chinese Brown Glazed Stoneware (CGBS) sherds were recovered from a kitchen midden at the ACLQ site. This study focuses on the food and foodways of Chinese employees and the function of these CGBS vessels. Organic residue attached to the CGBS sherds was extracted and examined under microscope. Different assemblages of Triticeae and panicoidae starch grains, phytolith, molds, or yeast were found. The microfossil evidence suggests that ACLQ residents shared a common base of plant ingredients in their diets. Despite the foreign environment, they were able to retain their native foodways, possibly wheat, rice, and Chinese fermented beverages, and meanwhile consumed western food resources such as corns. The preliminary study sheds light on the diet and the food practice of overseas Chinese laborers at ACLQ. In addition, the results further provides the potential of applying the microfossil method on analyzing food residue from glazed vessels.

Consuming Japan in Santa Barbara: Towards a Diasporic Analysis of Material Culture

Stanford University, Koji Lau-Ozawa

The archaeology of the Japanese diaspora has been growing over the past several decades. Increasing numbers of case studies have proliferated as have conference sessions and publications. However, these writings have largely been centered around North America, with a small number of exceptions representing South America and the Pacific. Further there have been few attempts to assess consumption habits across the multiple areas represented in the diaspora as scholars tend to compare material culture patterns unidirectionally between Japanese migrant settlements and Japan, or to other settlements within relatively similar geographic locals. Such frameworks, however, do not encompass the complex movements of peoples and goods within the Japanese diaspora. This paper provides an overview of the archaeology of the Japanese diaspora as the field stands today and presents a case study of recently analyzed finds from the Japanese quarter of Santa Barbara, a small coastal city in California. By utilizing digitized print media sources from throughout multiple regions of Japanese settlement around the world, the first steps towards inter-regional diasporic analysis can begin.

When Old Boston was in the Basin: Ongoing Archaeological Research on Chinese Mining Sites in Southern Idaho

University of Idaho, Renae Campbell

In the late nineteenth century, the placer-mining towns of Southern Idaho's Boise Basin briefly became the largest population center in Northwest America. In communities like Old Boston, Centerville, Placerville, and Idaho City, nearly half of this population had been born in China. Today the Boise Basin is known for its outdoor recreation activities, historic graveyards, and not-quite ghost towns, but it also contains a network of over 300 archaeological sites that were associated with Chinese miners and that are now managed by the Boise National Forest. These sites, and the Chinese migrants that once occupied the region, have been the focus of interdisciplinary research since the 1980s. This presentation provides a summary of renewed efforts to process a backlog of archaeological collections and ongoing attempts to recover the connections between abandoned townsites like Old Boston and the global networks that once animated them.

Korean Diaspora Archaeology: Korean Diaspora in the Early 20th Century Western U.S.

Kyungpook National University, Jiyeon Lee

Korean diaspora in the U.S. has not been actively researched in the field of archaeology. In 1903, the official Korean immigration to the U.S. started as a form of recruited labor for plantations in Hawaii. Around 7,500 Koreans arrived in Hawaii from 1903 to 1905, and about 1,300 Korean immigrants entered the U.S. mainland through San Francisco from 1905 to 1907. Additionally, picture brides, students, and the Korean Independence Movement activists came to the U.S. Racial discrimination and violence

against Asians were prevalent in the U.S., and Japan colonized the immigrants' homeland. Despite these hardships, the early immigrants established their own communities and paved their way in the Western U.S. In this presentation, Korean heritage artifacts and Korean diaspora sites from the early 20th century Hawaii and California are introduced. All information is drawn from existing archival data and museum collections. Possible future agenda of Korean diaspora archaeology is presented by illustrating early Korean Americans' lifeways through sites and artifacts.

<Feasting, music, and the senses (China)>

Review on feasting pottery studies in China

Fudan University, Kexin Pan

Feasting is an important topic for archaeologists and anthropologists to study political organization and social complexity in the past. Pottery, as a vessel in the feasting scene, has been excavated in large quantities and types, so scholars can study a large number of pottery specimens and focus on their role play in the feasting then exploring the meaning behind the feast and the social structure. Archaeological studies of ancient pottery in China have changed from a single study of chronology and typology to diversity. And feasting pottery study is a significant manifestation of the diversity of pottery studies. The presentation will mainly review the latest feasting pottery studies in China and make a comparison with European and American archaeological feasting pottery studies. Then the presentation will go on to sort out and summarize the common concerns of feasting pottery studies, such as the relationship between feasting pottery and the food served and the context of excavated pottery, which deserve more in-depth and detailed discussion in the future studies of feasting pottery.

Analysis of the Reasons for the Popular Use of Spices in Chang'an During the Period of Tang Xuanzong

Southwest Minzu University, Qian Liao

Based on the analysis of literature and archaeological materials, this paper studies the reasons for the popular use of spices in the city of Chang'an during the Emperor Xuanzong of Tang period. From the daily demands, the various functions of spices have been discovered, widely used in clothing, food, housing and medical fields. In addition, through the analysis of the drainage and sewage system in the city of Chang'an at that time, and the discussion of the smell of the citizens of the world who came here, this article believes that avoiding odors may also be a big reason why the residents of Chang'an need spices. On the other hand, in terms of supply relations, the development of the tributary route and the smooth flow of the Silk Road caused a large number of spices to flood into the huge consumer market of Chang'an. In addition, the literati and Taoist culture also promoted the spread of spices on a larger scale.

A Research on the Newly Seen Chime-Bells Arrangement System in the tomb of the State of Chu in Wuwangdun, Huainan, Anhui

Xiamen University, Yijie Mei

The two sets of Niu-bells newly excavated from the Chu Tomb of Wuwangdun in Huainan, Anhui have the new characteristics of chime bells during the Warring and Han Dynasties. They are mainly manifested in the aspects of rounded bell body, wedge-shaped sound beam and carved tuning. The sound measurement of these two sets of Niu-bells shows that they both have obvious dual-tone phenomena. The 14-piece group spans three octaves, forming a "occlusal connection", which can play complex and complete music. It shows that the emergence of the new characteristics on the Niu-bells in the late Warring States period was not the direct cause of the loss of the dual-tone bells' technology. The 9-piece group arrangement once popular in the Spring and Autumn Period reappeared in the tomb of Chu in the late Warring States period, obviously has the special meaning of ritual; and the 14 one with maximum musical performance was adopted by the Qin Central Yuefu and passed on to later generations, which basically laid the foundation for the music of the Han Dynasty.

A Brief Study of the Late Shang musicians Seen in oracle and bronzes inscriptions

Xiamen University, Qinfei Chen

Corresponding markers can provide reference for judgment of the identity of the tomb occupant, in a similar way, the location of the immolated human and his burial objects can also provide clues for judging his identity. After sorting out objects belongs to M48 in the east of Huayuan Village in An Yang, we believe that inscriptions on the Bronze Jue 爵 can be interpreted as "Zinao"子饶, and the owner is a musician with the surname "Zi" 子 who is in charge of composing and playing nao 饶. There is such a phenomenon in the late Shang Dynasty that musicians were sacrificed in large and medium-sized tombs and that the higher the level of tombs, the more common it was to immolated musicians. Except for the royals' tombs, musical instruments and immolated musicians were also unearthed from some clans and states during late Shang, which shows the maturity of the ritual and music system in late Shang Dynasty. After the Zhou people destroyed Shang Dynasty, their music custom blended gradually.

Tasting Tea Through Colour: A Sensory Archaeological Approach to Chinese Ceramics

University of Oxford, Melody Li

Historical sources and poems from the Tang Dynasty onwards celebrate the sensory experiences of drinking tea, and the relationship between tea-tasting and ceramic type has been noted in literature. This link between connoisseurship and materiality provides a tantalising area of study for sensory archaeology. Sensory archaeology is a theoretical approach that acknowledges the presence of senses in the past. It considers the role of embodied sensory experiences in relation to material objects and collective identity over time. There is a growing call to bring sensory epistemology into the very way we create archaeological research, but little formal research on Chinese assemblages from a sensory perspective exists. Despite this, many studies indirectly touch on these aspects – for example, research on ceramics and glazes. Touch and clay, colour and glazes, taste and cooking—from production to use, ceramic performance characteristics depend on sensory functions. Therefore, this paper proposes a

sensory approach to Chinese tea-ware, but the framework provides food for thought on other ceramic vessels associated with cooking, brewing, serving, and culinary use across East Asia.

<Settlement patterns, state formation, social complexity (China, Taiwan)>

Architectural Changes of Capital City Palaces in Ancient China: A case of Xianqin era capital cities

Korea University, Youngmin Jin

The palace(宮殿) refers to the place where the king lived and it is synonymous with the royal residence(王宮). According to the literature records, this particular architecture was used to be called as 'qiandian(前殿)' or 'dachaozhengdian(大朝正殿)' in ancient Chinese society. The prerequisite for the construction of palace is the presence of the state and kingship. The palace was the most important building in the capital city. At the same time, it is on the top of the architectural hierarchy and clearly distinguished from other buildings in terms of scale and structure. However, archaeological understanding of the palace itself has not been well articulated. This research aims to analyze the excavated Xianqin era palaces' structural elements such as lay-out, scale, and auxiliary facilities, and interpret the meanings of structural changes of the palace over time.

Agropastoralism, Shimao and Late Longshan Complexity

Fudan University, Edward Allen

How can we connect agropastoralism in 3rd millennium BC north China and the cultural complexity necessary to begin understanding early state in China? My research, focusing on the Shimao phenomenon, takes three separate but interrelated avenues, which I wish to present at this conference. Firstly, I have been constructing a diachronic comparative framework for societies and complexity in agropastoral ecotones across Eurasia and Africa. Secondly, I have been drawing up diachronic changes and emerging complexity of agropastoralist regimes around the Shimao core. This partly begins with predominantly agricultural/ hunting-gathering regimes and limited agropastoralism around 3000BC, developing into larger agropastoralist settlements by the Middle Longshan, and peaking with the Shimao megasite around 2300BC onwards. Thirdly, I have been thinking of how to discuss the complex agropastoral society seen as Shimao and elsewhere in an appropriately expanded context. No work has taken agropastoralism and agropastoralist entities as an essential comparative entity and discussed cultural transformation accordingly, at Shimao and beyond. This gives multiple new meanings to the Late Longshan, Chinese state, and later agriculturalist contexts.

Diachronic changes in settlement configuration and community organization of the indigenous Kucapungane tribe in southern Taiwan as seen through space syntax analysis

National Taiwan University, Chung Yu Liu

The several comparative studies between spatial analysis and ethnographic data demonstrate that this approach can help archaeologists to better understand the changing patterns of social community organization behind settlement configurations. This article uses space syntax to analyze the layouts of abandoned settlements in Pingtung, southern Taiwan, associated with the Kucapungane Rukai, an Austronesian indigenous tribe, based on ethnographic accounts. "Old-Kucapungane" settlement was their home for 600-700 years until the government forced the Kucapungane people to move "Tulalekelre" in 1978 and "Rinari" in 2009. Nonetheless, a small amount of the current population still has memories of how living in the settlements were. In this study, space syntax analysis of two abandoned Kucapungane settlement configurations (Old-Kucapungane and Tulalekelre) allows an alternative changing pattern of the social community organization with deeper time depth. Then ethnographic records can identify how community interactions are expressed spatially. In conclusion, the results of comparing space syntax analysis and ethnographic data highlight that this approach can predict the differences of social interaction and the community division effectively through a local interaction perspective.

Economy, Sharing Strategy and Community Structure in an Early Neolithic Village of Chahai, Northeast China

Hebrew University, Dongdong Tu

The genesis of agriculture is one of the recurring themes of Chinese archaeology. However, while questions about where and when the earliest domesticated plants and animals emerged have received much recent attention, anthropologically oriented research on early sedentary communities that conducted small scale cereal cultivation and animal husbandry is a less developed field. This paper contributes to such research by focusing on the social structure of an early sedentary community- the Chahai site- in Northeast China and addressing such issues as economic adaptation, the internal organization of community, economic activities and sharing strategies of household members, and mechanisms of community integration. Analysis of data from the Chahai site suggests that households were relatively equal, independent production and consumption units with little sharing and exchange among households. The variable that affected the sizes of houses was the number of people living within them. The integration of the community was probably associated with non-economic activity such as group rituals.

Astronomy Archaeology from the Perspective of Semiotics: Trace to Civilization Origin of Sanxingdui

University at Buffalo, the State University of New York, Xinyan Chi

Based on the author's previous "New Method of Large Regional Archaeology - Creating Astronomical Symbol Database", this study takes Sanxingdui as an example, to extract symbols of cultural relics with clues from pottery character symbols, to refer to Chengtoushan and archaeological discoveries around the world, and to correspond with the Book of Mountains and Seas and Bible. The conclusion is that the

chief gods of Sanxingdui are Fuxi, the snake-bird God, and Zhuanxu, the 6-snake ancestor God . The birthplace of Sanxingdui civilization is the 3-river watershed at the foot of Emei Mountain in Sichuan Basin, which is the landform of 9-star Big Dipper ("Λ+十") ,the extension of cross handle is Chengdu Plain. Aiming at carrying "meteorite" to repair "canopy" and harness "Deluge", jade, bronze, painted pottery, silk, character and astronomical civilization were produced. Fuxi utilized imitation of spinning track "Z"(or"S") of silkworm to the double dippers (V+Λ) of 9-star Big Dipper, and then deduced "Eight Trigrams", Yin Yang and five elements "X" and "Z+S" ("卍"), and established 5-star 10-month calendar - "10 Heavenly Stems".

<Student Award Session>

The Climatic, Demographic and Economic Influences on the Rise of Shimao in the North Loess Plateau, China

University of Oxford, Ying Tung Fung

The recognition in 2011 of the extraordinary site Shimao (ca. 2000–1600 cal. BC) as a late Neolithic stone fortification, and the unusual combinations of herd animals, millet, ceramic tripods discovered at this 400-hectare site and other sites in the climate-sensitive North Loess Plateau (the Shimao region), have led to the question of how the climatic, demographic and economic factors may have interacted and brought fluorescence to Shimao and more broadly to the south of the region. This paper considers multiple sources of published data to explore the developmental trajectory in time and space from a wholistic regional perspective. The radiocarbon dates are reviewed and subjected to Bayesian modelling for a firmer chronology; other information including settlement size and distribution, and economic basis as judged from faunal abundances and mortality profiles are considered within this chronological framework. The findings suggest that after the southwards demographic shift between 2100 and 2000 BC, the population presumably became more nucleated at Shimao, a new economic system, meanwhile, was formed to sustain the societies in the south.

NO SUPPER FOR THE ANCESTORS: AN ANALYSIS OF SHANG UTILITARIAN MORTUARY CERAMICS AT DAXINZHUANG, JINAN

University of Toronto, William Harrison

Much of the literature concerning Shang mortuary archaeology focuses on the analysis of bronzes, leaving more widely available grave goods— such as utilitarian ceramics— poorly understood. Both bronze and ceramic vessels were associated with sharing food between ancestors and the living, a political activity that influenced the production of authority in the Shang polity. The lack of research on utilitarian ceramics is represents a serious gap in the research. This paper aims to fill part of this lacuna by explicating the differences between the use of bronzes and utilitarian food vessels in Shang tombs. I compare published literature on Shang burial and feasting with a battery of statistical analyses on li

tripods from the Daxin Zhuang site. These analyses demonstrate that burial ceramics were indistinguishable from domestic wares, both in production and decoration. This contrasts with highly decorated and exclusive bronzes, and implies that ceramics were not used for aggrandizing displays of wealth. However, most burial ceramics appear to be unused, suggesting that, like bronzes, they deemphasized the role of food-sharing within the burial ritual.

The Emergence of Early Complex Societies in Western Tibet--the example of Dingdong, Jiwen and Kardong settlement sites

Sichuan University, Hailun Xu (Dr.)

Through the recent archaeological excavations and based on the previously published materials, this presentation intends to focus on the three settlement sites of Dingdong, Jiwen and Kardong, together with other sites and cemeteries of the same period in the region, and try to make an exploratory interpretation of the social complexity of the early Metal Age in western Tibet through the exploration of the settlement site morphology and the spatial distribution of the sites and their resource domains.

The Grave Value Analysis and Stable Isotopic Analysis of Shangshihe Cemetery

Zhengzhou University, Rongyu Fu

We examined tombs and human skeletons of the Guo State (虢国), an elite group that were in exile during the Eastern Zhou Dynasty (771–476 BCE), excavated from the Shangshihe cemetery, Henan Province, China. Differences in total burial values and diet structure between different social ranks, sex and age groups were assessed using mortuary analysis and stable carbon and nitrogen isotopic analysis. Mortuary analysis indicated that there were significant differences in total burial values between people of different social classes, while were independent of age and sex. Isotopic analysis indicated that people with high social status consumed more animal-derived protein-rich food than people with lower social status. The elderly might have better nutrition than younger people did. However, there was no sex-based difference in nutrition. These findings revealed that the Guo State people maintained the stratification of their social structure while in exile. This study would be very useful in reconstructing the lifestyle and burial rituals in ancient China.

THE ARCHEOLOGICAL LANDSCAPE OF WESTERN ZHOU : MOUND-LIKE SITES IN JIANGHUAI REGION, SOUTHERN CHINA

Wuhan University, Yixuan Hao

The JiangHuai region is located in the valley portions between the Yangtze River and the Huai River. Past research during the last sixty years has focused on ceramic and population organization. In this study, I make research on this kind of Mound-like sites from area, layout and some special remains, focusing on the level of social development. Some of these mound-like sites show us clues that the people in JiangHuai region have entered the complicated society, through the tall city walls and rammed-earth foundations. Especially the appearance of a townsite seems to be a military stronghold pointing to the

rise and aggression of the Wu people. During the Western Zhou period, Wu people not only occupied the southern region of the lower reaches of the Yangtze River, but also expanded its power to the northern zone. Therefore, the analysis of the mound-like sites from this study suggest the settlement layout and structure of JiangHuai region, and it is expected to explain the mode of communication between the Zhou Dynasty and the surrounding people.

<Household archaeology and daily life in Chinese and Korean archaeology>

Preliminary study on the production of pottery for daily use unearthed from miaodigou site

Wuhan university, Pengfei Li, Zichen Xie

The Miaodigou culture is named after the Miaodigou site in Shanxian County of Henan Province, dating between 4000 BC and 3500 BC. It was during the Miaodigou period that some dramatic sociopolitical and economic changes took place, including social reorganization and differentiation on the basis of regional settlement hierarchy. Painted pottery was remarkably developed in the Miaodigou cultural area but also had strongly influenced regions beyond the Central Plains. The production, distribution, and consumption of painted pottery related to the emergence and development of the Miaodigou societies, but little has been understood on this topic. We present a compositional study on 157 sherds from two features unearthed at the Miaodigou site, in the hope of understanding how pottery production and consumption was organized at the site. The results suggest a highly developed pottery craft specialization which, we interpret, played an important role in the formation of Miaodigou societies.

Compositional study of household ceramic assemblages from a Late Neolithic (5300–4500 cal BP) earthen walled-town in the middle Yangtze River valley of China

Wuhan university, Shuai Yao

The emergence of earthen walled-towns triggered sociopolitical and economical changes in the Late Neolithic middle Yangtze River valley, but how town emergence related to social complexity in the region has remained poorly understood. We present here a compositional study on household ceramic assemblages unearthed from two Upper Qujialing period (5300—4500 cal BP) households, but showing different social or wealth status, at Zoumaling, one of the earliest earthen walled-towns in East Asia. Principal component analysis of compositional data extracted from sherds and local clays has shown that at each household, domestic pottery, as well as utilitarian tools and personal ornaments that were made of pottery, differ little in chemical composition, being largely produced using clays procured within the walled-town. Furthermore, both households have almost the same access to the pottery pool. We argue for household interdependence within the town but reject the likelihood that secured access to clays, or control over pottery products, led to interhousehold differences. We propose that the pathway to social differentiation at the Zoumaling walled-town lie beyond the economic domain.

Applications of Micromorphology to Understanding Use of Space in Prehistoric Houses, South Korea: A case of the Hajung-dong site

Korea University, Dongju Park

Prehistoric houses have valuable information about their occupants, but it is sometimes difficult to reconstruct their domestic life only with artifacts. As an attempt to understand the use of space within the house, soil micromorphological analysis can be useful to identify impacts of domestic activities on soils and the post-depositional processes. This paper presents a case study of the Neolithic houses at the Hajung-dong site, South Korea. The results of micromorphological analysis show that the living floor with the signs of trampling is clearly distinguished from the subsurface. However, the evidence of intentional preparation of living floor or spatial division often seen in Early Bronze Age House, was not found. It may indicate the less advanced architectural technology in Neolithic times. Additionally, the possibility of combustion in the low temperature or the presence of reworked burnt soils at the hearth is suggested. With more samples from the Bronze Age houses, it is expected to reconstruct the temporal changes of domestic activities and architectural technologies through soil analyses.

Human-Rodent Relationship in the Hunting-gathering Society——a Case Study from Lower Depositions of Niupodong, Guizhou, China

Chongqing Normal University, Min Liu

Niupodong site, one of Top Ten Archaeological Discoveries in China 2016, is located in Guiyang of Guizhou Province. Rodent remains can be identified as 9 species. Except some medium and large-size rodents such as *Rhizomys* and *Hystrix*, most were deposited as the result of non-human originated factors. The records indicated obviously that *Eothenomys eleusis*, *Niviventer fulvescens* and *Niviventer confucianus* dominated the early rodent-assemblage at Niupodong site, being different from the modern rodent-assemblage in Guizhou province dominated by *Apodemus agrarius* and *Apodemus draco* in the wilderness and *Rattus norvegicus* and *Rattus tanezumi* in the human residential areas. It seems like that the currently 'domestic rodents' had not appeared. However, a flexible primitive commensalism might have formed at that time. Specifically, *Niviventer fulvescens* and *Niviventer confucianus* had invaded caves inhabited by humans, the *Eothenomys eleusis* haunted frequently nearby, but the *Rattus norvegicus* (brown rats), popular in nowadays Chinese continent, played a very weak role in the life of residents at Niupodong. The predominance of *Eothenomys eleusis* at Niupodong site rodents may represented dry and cold climate.

Preliminary study on the production of pottery for daily use unearthed from miaodigou site

Wuhan University, Zichen Xie

The Miaodigou culture is named after the Miaodigou site in Shanxian County of Henan Province, dating between 4000 BC and 3500 BC. It was during the Miaodigou period that some dramatic sociopolitical and economic changes took place, including social reorganization and differentiation on the basis of regional settlement hierarchy. Painted pottery was remarkably developed in the Miaodigou cultural area

but also had strongly influenced regions beyond the Central Plains. The production, distribution, and consumption of painted pottery related to the emergence and development of the Miaodigou societies, but little has been understood on this topic. We present a compositional study on 157 sherds from two features unearthed at the Miaodigou site, in the hope of understanding how pottery production and consumption was organized at the site. The results suggest a highly developed pottery craft specialization which, we interpret, played an important role in the formation of Miaodigou societies.

<Public archaeology, collaboration and CRM in Korea and Japan>

The flip side of cultural resource management archaeology: Case study from Miho-river basin, Southern part of the Korean Peninsula.

Kyungpook National University, Heegeun Kim, Yae-eun Kim

In Korea, most of archaeological materials is collected by the development-led excavation. When a certain range of land development, including archaeological sites, is planned, the surface of it is first surveyed by archaeologists and the sections of test excavation are selected according to the results. The archaeological materials located in the alluvial plain are so deeply deposited that they cannot be found by surface survey and therefore are difficult to be selected as the target area of excavation. In this study, we categorized the Three-Kingdoms Period pit-houses and burials in the Miho-river basin, where the development-led excavations have been widely conducted, into six chronological units each. As a result, it is identified that the burials were divided into all chronological units, but there were settlement units in which no pit-house was allocated. In particular, the early settlements located in alluvial lands were not recognized by the surface survey and were excluded from the excavation. Therefore, we would like to propose the use of ground penetrating survey to find archaeological resource in the alluvial plain.

Historical Development and Institutionalization of Cultural Heritage Management in the Republic of Korea

Kyungpook National University, Margaret NG'ANG'A

This study is aimed at exploring the historical development of the protective legislation and institutionalization of the South Korean cultural heritage management critically. South Korea has achieved impressive success in its cultural heritage management due to many factors but has experienced changes in the idea, perception, and purpose of cultural heritage owing to social and economic background, as well as political ideologies. In Japanese colonial era, Korea's cultural heritage management system was first institutionalized by Japanese colonial government, with the purpose of showing how quickly the colonial government restored the abandoned Korean cultural heritage and made them usable for tourism and education through its own policies. After World War II, South Korea was under authoritarian rule during which the cultural heritage preservation agenda was spearheaded by nationalistic ideologies and political ambitions, which saw the state's strong control over cultural resources and absence of public participation. After the military rule, the concept of cultural resources

and the management system expanded and diversified dramatically, especially in the aspects of the target, method, entity, and scope of management.

Taking the First Step: Community-based Responses to the Public Archaeology Initiatives Associated with the Hamanaka 2 Site, Rebun Island

Hokkaido University, Amanda Gomes

Over the past decade, an international network of scholars have conducted seasonal excavations at the Hamanaka 2 site in northern Japan. From its inception, the project incorporated an outreach component with the aim of engaging the local community, but early evaluative strategies targeted local educators and tourists. This presentation discusses the results of interviews with community members in order to evaluate the impact of the excavation's public archaeology initiatives. This research revealed the community's historical relationship with the local archaeological heritage and its managers. It also demonstrated how local attitudes and values were shifting as a result of policy changes in lieu of the efforts of the excavation team. Furthermore, participants provided methods for more effective community involvement and engagement. In part this research advocates for the use of ethnographic research into community-oriented projects in order to encourage those living in proximity of the site to "take the first step". The inclusion of community feedback has potential to shift these initiatives from an educational model to a more collaborative one.

The Development of Collaborative Practices in Archaeological Heritage Management in Hokkaido"

Hokkaido University, Amanda Gomes

Over the past decade archaeology in Japan has seen a shift towards "people-oriented" practices and the development of relationships between local communities and the past. Yet, academic literature and public data is limited and rarely adopts a regional scope. This creates a huge disadvantage for critical assessments of practices or discourse relating to archaeology and local communities, especially in Hokkaido, which is a part of the ancestral home of the Ainu. I address these gaps in the literature through a quantitative and qualitative study of various institutions that manage and utilize archaeological collections in order to grasp the standards of practices of outreach within Hokkaido. This presentation explores who conducts these practices and their relationships with local communities. While there is a preference towards top-down approaches that maintain specialist control over the production of archaeological knowledge, there are a few institutions that are working collaboratively with descendant communities. Collaboration with local and descendant communities is highly dependent upon the relationship between community representatives and specialists, as well as access to resources and support.

<Population, demography, settlement patterns, environment (East Asia)>

Population fluctuations in Neolithic Korea: An SPD analysis of C14 dates

Chonnam National University, Jiwon Lim

This paper examines population fluctuation across the southern part of the Korean Peninsula during the Neolithic Chulmun period. The Chulmun people were primarily hunter-gatherer-fishers, and exploited both terrestrial and marine resources. Little is known with regard to whether the relative importance of different types of resources were same throughout the Chulmun period or whether it changed over time. The examination of summed probability distribution (SPD) of 14C dates revealed that the Chulmun population increased in ca. 5500-4500 BP and that the population of the coastal and inland regions increased almost simultaneously. This indicates that the relative importance of terrestrial resources (e.g., nuts and land mammals) and marine resources (e.g., fish, shellfish, and sea mammals) presumably remained the same. However, the examination also highlighted some regional variations and suggested the adoption of alternative subsistence strategies in the inland regions.

Prehistoric Population dynamics in Korean Peninsular

Seoul National University, Yongje Oh

The Estimation of the population in prehistoric times is difficult because archaeological data are fragmented. Nevertheless, it is worth discussing because population issues are essential to understand the characteristics of past societies. In the southern part of the Korean peninsula, due to extensive development projects, many rescue excavations accumulated a large amount of archaeological data since the 1990s. However, there is not much research on diachronic subjects, such as long-term changes in the frequency of human activity. In this presentation, a diachronic examination of various data, such as the number of excavated pit-houses and their radiocarbon dates, which can be used to estimate frequencies of human activities, from the Neolithic period to the Early Iron Age of the southern part of the Korean peninsula is attempted. In Malthusian theory, exponential growth of the population is assumed if other conditions are set constant. However, overall frequencies of human activity increased since the Neolithic period to the entrance of the Historical period, but many fluctuations also existed.

Systematic analysis on the settlement pattern and storage facilities of the Three Kingdoms Period, Southern part of the Korean Peninsula

Kyungpook National University, Hyunwoo Shin, Dongkyoon Kim, Eunyoung Jeon, Seonwoon Jeong

Pit-houses, pits, and four-post buildings with raised floor are known as the main archaeological features that make up the settlement of the Three Kingdoms Period. It has often been assumed that pit-houses are residential structures and that pits and four-post buildings were used to store food, household goods, and farming equipment. However, some studies have estimated that the reason for the increase in the size of the pit-house may be due to its storage function. This study assumes that the number of pits and four-post buildings and the area of pit-house are deeply related to each other, which depends on the storage method. We quantitatively analyzed the size of the pit-house, the number of pits and four-post granaries, and the number and capacity of storage jars. Of course, storage does not entirely

determine the structure of the settlement of farmers, but it is suggested that it was deeply involved in the size, number, and distribution patterns of major facilities in the settlement.

A Paleodemographic Investigation of the Middle Jomon Boom and Bust Population Pattern in the Kanto and Chubu Regions

Ritsumeikan University, Corey Noxon

In this study, the boom and bust population pattern that appears to have occurred during the Middle Jomon period in the Kanto and Chubu regions of Japan was reexamined through the use of skeletal remains. Prior Jomon population estimations have been based on the use of site counts, dwelling counts, or summed probability distributions of radiocarbon dates, but these methods all share the similar weakness of being susceptible to changes in residential mobility. Paleodemographic analyses relying on skeletal remains should be more resistant to these changes and provide a way to rule out changes in residential mobility as a driver of the results found in the previous studies. This paleodemographic analysis showed results similar to previous population studies, indicating that the population boom and bust pattern was not strictly a reflection of possible mobility changes, but indeed represented an actual shift in population levels. Using skeletal data to calculate past birth rate proxies provides another useful line of evidence to help create a better and more holistic understanding of Jomon period population changes.

How do settlement patterns reflect social organization and transformation? : A case study of the later Yayoi period southern Kanto region.

Kyushu University, Chuya Hoshino

Within previous studies seeking to understand process of social change through settlement patterns during the Yayoi period, new models have been proposed from western Japanese archaeology, explaining the process of social hierarchisation as the result of changes in intra/inter-descent group relationships. This paper attempts to examine the validity of the western Japanese model by investigating the temporal changes of settlement patterns in the eastern Japanese region, mainly focusing on the southern Kanto region in the latter half of the Yayoi period. Results show that social differentiation becomes increasingly clear during the period in the scale and contents of residential groups, and also in the quality and quantity of grave goods excavated from cemeteries belonging to respective residential groups. These differences lead to the differentiation between central place-type large settlements and smaller satellite-type settlements. These results have verified the existing western Japan model, showing that this model is applicable in the eastern Japanese region.

The “Great Flood” and Archeological Evidence for Paleofloods in China

Heidelberg University, Jannika Newen

Floods have wreaked havoc in China across the millennia, giving rise to cultural phenomena as well as legends, such as the one of the Great Deluge. In recent years, the hunt for archeological evidence of this story has gained momentum. The most famous claim ended up in *Science* in 2016, naming Lajia (喇家), a disaster site covered by mud, the location of the “great flood”. In putting this claim to the test and examining the disappearance of other archeological cultures such as Liangzhu and Shijiahe during the Late Neolithic based on excavation reports and geoarcheological research conducted by authors in the region, this study finds that there is no concrete evidence for a single-event, large-scale river flood. Lajia Site fell victim to a mudslide connected with an earthquake event, and for Liangzhu and Shijiahe, there is multi-phase flooding to be observed. Human factors pertaining to the Late Neolithic, such as increasing deforestation and exploitation are attributed added importance in the changing cultural landscape.

Stable Oxygen Isotopes and Seasonal Ocean Palaeotemperatures: Recent Results from Hamanaka II, Northern Hokkaido.

University of Oxford, Tansy Branscombe

Seasonality studies offer significant insight into human-environment interactions, particularly for mobile or semi-sedentary groups. Hokkaido, the northernmost island of the Japanese archipelago, was occupied predominantly by marine-adapted hunter-gatherers until its colonisation by Japan following the Meiji restoration. Hamanaka II, Rebun Island, provides a record of late Holocene hunter-gatherers from the Late Jomon to historical Ainu (~4000-80 cal BP), offering an ideal opportunity to study hunter-gatherer subsistence economy in this region. Stable oxygen isotope profiles of marine carbonates are a well-established technique for the reconstruction of seasonal sea surface temperatures. Our recent work on modern specimens of the marine bivalve *Spisula sachalinensis* (Sakhalin surf clam, ホッキ貝) confirms its utility in providing high resolution intra-annual ocean temperatures for the northwest Pacific. Here, we present the results of stable oxygen isotope analysis on this species from the Epi-Jomon and Ainu periods at Hamanaka II. By combining insights from local ocean palaeotemperatures with archaeological context from recent excavations at Hamanaka II, we target a more detailed view of regional cultural development and environmental adaptations.

<Kiln sites (Korea, Japan)>

Sue ware Production Systems during the Ritsuryo State Formation period: A comparative case study in Northern Kyushu, Japan

Kyushu university, Yuki Adachi

This study investigates the organization of Sue ware production during the formative period of the Ritsuryo state (late 6th through the early 8th century AD) by examining two regional kilns, the Ushikubi and Yame, in Northern Kyushu, Japan. Previous researches hypothesized that pseudo-kin-group networks organized by powerful clans of the present-day Kinki region enabled the sharing of stylistic

traits and production techniques between the central and remote regions. This study examines the hypothesis by examining products of the Ushikubi and Yame kilns. It has been revealed that the products of the Ushikubi follow the latest style and production techniques of the Kinki region whereas Yame products retain regional traditional traits and techniques. Those suggest that the production at the Ushikubi was conducted by groups belonging to a Kinki-based pseudo kin group called the Miwa clan, indicated by a sherd inscribed 'Omiwa-be minokan' in Chinese characters, and production techniques and styles were continuously shared through the pseudo-clan ties. The Yame kilns appear to have been under the control of a dominant regional clan, the Chikushi-no-kimi.

Long-term distribution of historic Kilns in the Korean Peninsula; focusing on the spatial attributes

Kyungpook National University, Seulae Kim, Semin Kim, Taehee Kim

The first kiln began to be built in Korea in the early Three-Kingdoms Period, and the advanced celadon and porcelain kiln appeared in the Early Goryeo Period. The distribution of numerous kilns recorded throughout the Korean Peninsula shows nationwide or local variations. In this study, we created GIS shapefile by filling out all kiln's geographical information found in South Korea from the 4th to 19th centuries with various non-spatial attributes. And using this database, we investigated the spatial patterning of kilns of different production scale at different times and regions. Although the spatial distribution of Kiln is determined by the settlement pattern and the distributional network of production and consumption during the Three-Kingdoms Period, and that of high quality celadon and porcelain kiln is influenced by the location of raw material sources.

A study on the Architecture remains and Workshop site of the Goryeo Celadon kiln site of Buan Yucheon-ri

Korea University, Hyungi Jun

Six building relic have been identified through excavation surveys, and stone alignments and foundations have been identified in the tile deposition layer, which is believed to have additional building sites. Celadon production processes such as elutriation, molding, drying, and storage were reflected in the building site. The overall composition of the space is in the form of □ or 田 shape. Similar spatial structures are also found in the celadon kiln site of Yonggye-ri, Gochang. The step was constructed and the space was separated by the stone alignment. The stone alignment was used to divided the space between selection, intendance and storage, craft workroom. The Kiln Site No. 23 in Sadang-ri, Gangjin has the same spatial structure. Buan Yucheon-ri, Gochang Yonggye-ri, and Gangjin Sadang-ri all have tile building sites. Based on the artifacts excavated, it is believed to have been a government-managed kiln sites. Through such study, we were able to examine the composition celadon kiln site during the Goryeo Dynasty and hope to help us understand the Goryeo celadon production system.

A Study on the Characteristics and the Kiln Sites of Production of Buncheong wares Excavated from the Taesil in Seongju during the reign of King Sejong's reign of the Joseon Dynasty

Korea University, Sejin Ahn

In Seongju, Gyengsangbuk-do, Taesil(胎室, placenta chamber) of 18 sons and a son of the crown prince of King Sejong(世宗大王) is located in one place. This study targets six lids of Buncheong wares whose owners were identified. Research objectives are largely divided into two. First, the method of baking was deduced through the traces of roasting on the outside of the cover, and the kiln site where related tools were excavated was examined. Second, where was the Buncheong wares lids made? Is it the Seongju area? Neraby? Or is it somewhere else? In order to trace this, several Uigwe(『儀軌』, The Royal Protocol) and the Sejong Silok Jiriji(『世宗實錄』 『地理志』, Geographical Appendix of King Sejong Chronicle) were referred to. The significance of this study is to analyze the system applied to the creation the royal ritual of prince's Taesil, was first attempted, and to consider the status of Buncheong wares and related kiln sites.

A Study on the Diversity of Goryeo Celadon Technology genealogy through Goryeo Celadon kiln.

Korea University, Sun Kyoung Oh

Many Goryeo kiln sites have been excavated throughout the country. Based on this, a lot of new data is appearing. Recently, a new type of kiln has been identified, that is Mantoukiln in KagJin, and the early Goryeo celadon kiln with pillar of fire in Haenam. Therefore, we need to focus on the Goryeo kiln again. Accordingly, I attempted to analyze 87kilns where it believed to be from 11th to 13th centuries. That period when celadon technology and production was activated on the Korean Peninsula, and trade with China was many active. I focused where the technology of celadon came from. When we considering the social situation and characteristic; which found new type kiln and a pillar of fire kiln, and didn't appear ring type of kiln furniture below the Gochang, Wuekiln-making group entered the Korean Peninsula, it was questionable 'the theory of one group developed the celadon kiln in Korea'. Therefore, we need to raise the possibility that it may have been introduced from various genealogy in the process of introducing celadon technology.

<Craft production and technology (Korea)>

Understanding the process of technological transitions during the Late Paleolithic in Korea based on cultural transmission

University of Washington, Gayoung Park

Evolutionary approaches suggest that technological transitions can occur through changes in social learning processes, and transmission biases are important loci of changes. The onset of the Late

Paleolithic period in Korea, represented by the appearance of projectile points and blades, is a key event in understanding modern human dispersal in East Asia. This research applies a cultural transmission framework to investigate the social contexts that can provide insights into this emergence of new technology. The main question is what is the dominant mode of cultural transmission for technological innovation in the Korean Late Palaeolithic. Inspired by Bettinger and Eerkens (1999), I propose two models using guided variation and model-based bias. To test the models and understand the transmission process of technology, I use coefficients of variation (CV), correlations, and Principal Component Analysis (PCA). The results show that the information about the new technology was transmitted via selective combinations of guided variation and model-based bias. I anticipate this approach to be applicable to other research about technological change within social and cultural impact.

Production, consumption, and networks: A comparative study of production system of the Red burnished pottery in the Bronze Age

Chungnam National University, Jeongeun Lee

Around the 8th century B.C., the Bronze Age in Korea had been greatly altered in economic and political aspects caused by the introduction of rice paddy cultivation. The production-exchange system of logistics is crucial in that it provides a critical clue for tracking these changes. This paper aims to study the production-distribution system of the Korean Bronze Age by investigating the red burnished pottery which indicates that there was a systematic production-exchange system with specialists. Sites from the Geum and the Nam River watershed were compared and examined by analyzing the correlation among the standardization of the red burnished pottery and its production system, and consumption. The result suggests that pottery production in those two areas was systematized, which involved being standardized of pottery. While the red burnished pottery of the Nam River is distributed widely along the river, the pottery from the Geum River is located in relatively narrow areas. Besides, the two regions reveal considerable differences brought by various socioeconomic factors, such as the role of base settlement, the differentiation of regional networks.

An economic review of the appearance of Silla stamped-design pottery

Seoul National University, Hyunwoo Kim

Silla stamped-design pottery, which emerged in the 6th century, Korea, involves the introduction of the stamping technique as well as the reduction of height of the base and pottery types. This change in pottery is estimated to have had an economic effect related to production, especially the stamping technique, which is known to have reduced time spent on pottery decoration. Despite of this perception, existing research has overlooked the political economic implications associated with the emergence of Silla stamped-design pottery. Therefore, this presentation reveals that Silla stamped-design pottery had a lower production cost than earlier wares and examines changes in Silla's economic conditions, especially changes in the labor market and the supply and demand of pottery.

Exploring the Building Technology Network in the Ancient Period of Korea

Seoul National University, Mirae Jo

This research explores the Technology Network in the ancient period of Korea (57 B.C.-A.D. 935) by focusing specifically on what types of building methods were shared. To do so, this research compares the construction technologies of seven embankments (excavated from 1972-present). The literature on this topic mostly depends on historical records. What is lacking is the thorough examination of archaeological data. Thus, this research seeks to analyze the archaeological materials by extracting the building techniques of large earthen structures. The driving questions of this research are: 1) why do existing studies regard the cause of similarities and differences as time or space? 2) Is there another possible explanation to describe the factors of similarities and differences except for the period or culture? To approach these questions, first, this paper analyzes building technologies per stage through the lens of Chaîne Opératoire. Second, by using statistical analysis on the analyzed data, it checks whether or not there are reoccurring patterns. Third, the research suggests more effective ways to interpret the result of the analysis.

The law of demand and supply: Analysis on the ceramic production system of Baekje kingdom, Central Korean Peninsula.

Kyungpook National University, Nochan Bae, Hyeonji Kim, Jutak Jang

During the Proto-Three Kingdoms Period, the new ceramic production techniques of Han(漢) Empire were introduced to the settlement of Han-river basin. However, only a very limited variety of utilitarian vessels was produced by the new chaîne opératoire. In the urban center of Baekje(百濟), which emerged as an ancient state in the lower Han-river valley, more specialized production system was organized, and the more diversified vessels were produced in standardized forms from the late 4th century. Among the various ceramic vessels in the center of Baekje, storage pots and their production technologies were transmitted to the settlement of the upper Han-river valley. However, the new technology-based production organization did not develop much compared to the center of Baekje. Based on the comparative analysis of the technological transmission and the production organization between the center and the peripheral region, the limitation of demand could be proposed as factor that had not been successful in the technological innovation and the reorganization of production.

The study of the iron farming tools in Goguryeo

Korea University, Dongkeon Lee

Iron farming tools are evidences to show the ironware culture and agricultural culture of a society. It's known that Goguryeo produced their own style ironware after A.D. 4C. Besides, Goguryeo expanded their territory southward to meet the demand of farmland since the end of the 4C. As such, Goguryeo

iron farming tools could give important data to understand how ironware culture and agricultural culture had been developed in Goguryeo. However, existing research just only introduced some Goguryeo's iron farming tools within various subjects. Compare to Silla or Baekje, there are few excavated materials in Goguryeo, and it might be the reason why there haven't been specific studies about Goguryeo farming tools. Moreover, some types of tools were categorized by unclear standard, for example iron knives(鐵刀子) and iron hoes(鐵鋤). This study aims to summarize the accumulated excavation data of iron farming tools in Goguryeo territory until a recent date. Furthermore, throughout this study, reinterpretation of various ironware equipments such as iron knives(鐵刀子), iron sickles(鐵鎌), iron hoes(鐵鋤) and iron axes(鐵斧) etc could be expected.

Experimental study of bone fracture

Nanzan University, Shunna Suzuki

The research of chipped bone tools has two difficult problems. First, there is animal bone rarely found in Japanese Paleolithic site since bone tend to naturally decompose in the soil. Second, the fracture is difficult to distinguish a man-made fracture by another reason. Therefore, in this presentation, I will show the result of my experiment about a man-made fracture and research perspectives for my graduation thesis. I experiment on bone what hit to obtain marrow and to make tools with stones and bones. And the sample of bones are observed focus a part of there. I extract fracture to make chipped bone tools based on the result of the experiment for my research plan what I will restore for the technology of chipped bone tools and uncover for technology base by comparing same age chipped bone tools and technology of chipped stone tools.

<Trade, exchange, and sourcing of materials (East Asia)>

Trade and Entanglement in Precolonial Hokkaido: Presenting a theoretical model for the formation of the Okhotsk Culture

University of Washington, Erin Gamble

One of the least well understood issues in the archaeology of northern Hokkaido is how the Okhotsk culture, a subarctic maritime adapted culture group found on the coastlines of the Sea of Okhotsk from around 400 to 1000 CE, formed. Once in place, the Okhotsk became key players in trade networks connecting Japan and mainland Asia, ultimately contributing to the formation of the Indigenous Ainu of Hokkaido, Sakhalin and the Kuril Islands. This paper examines the relationship between the initial introduction of commodities trade and culture change in precolonial foraging societies on Rebun Island in Northern Hokkaido, Japan. I suggest a model framed within the concepts of practice, resilience, and risk-mitigation to explain the formation of the Okhotsk culture and how hypotheses derived from this model will be tested using geoarchaeological methods. Through this research, we seek to clarify the

historical relationships between foraging societies in northern Hokkaido and to contribute to the broader understanding of prehistoric Hokkaido.

Maritime trade between Jeju Island and mainland polities in proto-historic Korea

Seoul National University, Matthew Conte, Jiyoung Park

In the context of emerging state societies, proximal islands often play an important role as loci of exchange and waypoints for maritime travel. In this study, we seek to investigate motivations for initiating and maintaining and/or intensifying trade between island polities and their mainland counterparts. Jeju, an island located approximately 85km south of the Korean peninsula provides a case study to investigate the initiation of trade relations between burgeoning states and a proximal insular polity. Ethnohistoric records indicate that by the proto-Three Kingdoms Period of Korea (ca. 100 BCE - 300 CE) exchange among inhabitants of a polity on Jeju Island and polities on the Korean peninsula was already established. We will take into consideration the ethnohistoric and archaeological record as well as the environmental conditions of Jeju Island to begin to piece together what kinds of resources were likely exchanged and which actors were involved in trade. By comparing evidence of exchange in two economic contexts—the domestic and political economies—we will attempt to infer potential motivations for initiating and maintaining insular-peninsular trade relations.

Prospect of lithic sourcing research based on the subdivision of “Gero glassy rhyolite” in the central Japan

Nanzan University, Saki Murase

“Gero glassy rhyolite” occurs in Yugamine volcano was the representative lithic raw material from Paleolithic to Neolithic period in the central Japan. In the previous study, it seems to be homogenous which is unnecessary to subdivide in the context of the lithic sourcing research mainly according to the X-Ray fluorescence analysis. However, the rhyolite has diversity in their appearance correspond to location and elevation in the volcano. In this presentation, I will report my tentative result regarding the subdivision of the rhyolite based on the specific gravity and magnetic susceptibility to exhibit objective data. Besides, I will discuss how utilization of lithic sources sites and ancient lithic transportation of the rhyolite are renovated by such analyses of stone artifact excavated around Yugamine volcano.

Characteristics and Distribution of Heishanling Site Turquoises

Fudan University, Li Xintong

In 1981, a geological survey crew chanced upon the Heishanling and Tianhudong turquoise mine site in the desert around Ruoqiang County, Xinjiang. The discovery hinted at one source of turquoise excavated at nearby contemporary sites. There are differences in the geochemical characteristics of turquoise from different origins, which can be used as ‘fingerprints’, allowing us to distinguish different places of

origin. Turquoises unearthed from the Yanghai (Springs and Autumns – Eastern Han) and Jiayi (Western Han) cemeteries, Xigou Tomb No. 1 (Western Han) , Xitugou site and the Heishanling and Tianhudong were selected as test samples for composition analysis. The results demonstrated a high degree of geochemical consistency between the turquoises from Jiayi, Xigou Tomb No. 1 and Heishanling, Tianhudong turquoise, while the composition of the turquoise samples from the earlier Yanghai cemetery is closer to that of the Central Plains Luonan mine sample, whose ore is likely to come from the Central Plains.

Prehistoric land use of the lithic raw material source in central part of Japanese archipelago

Nanzan University, Satsuki Murai

The site located on the peak of Mt. Yugamine considered to be a source of “Gero glassy rhyolite” has many flakes and unfinished bifaces made of such rhyolite and “Gero porous rhyolite” as surface collection. Dating of the site and finding out the meaning of lithic production using two kinds of raw material will be a key to clarify the utilization of Mt. Yugamine as a source of lithic raw material in the prehistoric age. In this presentation, I will focus on the site to reveal the consumption of lithic raw material by the observation of surface collection and the comparing with sites in surrounding area.

A Study on the Artifacts related to the Western Regions of the Eastern Jin Dynasty and Southern Dynasties Periods, China

Korea University, Heetae Kim

Since Zhangqian(張騫) opened the exchange route to the Western Regions(西域), the cultural exchange between two regions had been highly enhanced. Despite of political and social unrest during the Wei-Jin, Southern and Northern Dynasties periods, the cultural exchange with Western Regions greatly developed. Although it may have shrunk during the Eastern Jin Dynasty and Southern Dynasties periods when the trade route was blocked by the northern tribes, the cultural exchange continued through the maritime route. The artifacts showing the Western Regions’ and foreign influence were also discovered in the south of the River Yangtze(長江) and coastal areas, but their quantity is low. Excavated artifacts include glasswares, jewelries or precious stones, silver coins, clay figures with the foreigner’s appearance and the items related to Buddhism. My study intends to review the archaeological data to understand the cultural exchange between the southern region of China and Western Regions, which is underrepresented in the history of trade research.

Provenancing eastern Zhou proto-porcelain wares in the circum-Tai region

Nanjing university, Zequn Li

The circum-Tai region is the most concentrated area of production and consumption of proto-porcelain wares in China. Where were the products of the sites circulated? Where were the wares found in the settlements and cemeteries imported from? This paper will approach these questions by examining samples from this region with the dual methods of typological and chemical analyses. Samples of Eastern Zhou proto-porcelain wares from settlements and tombs in the northern and eastern coasts can be typologically classified into group A and group B. The chemical composition of the glaze and body of the samples finds that Group A samples are produced in the Longshan cluster in the middle Dongtiaoxi River, whereas Group B samples may have been produced in the Qingshan cluster in the lower Dongtiaoxi River. Products of the production sites of the two clusters were circulated over the water surface of Lake Tai and further into the river valleys around it; Wuxi and Suzhou may have served as redistribution centers for the northern coast.

The Role of Tsushima in the East Asian Trade System - Foreign pottery excavated from Tsushima during the Yayoi Period-

Pusan National University, Jae-hyun Jung, Seul-ji Jang, Jin-eop Kwon

Tsushima's material culture, dated to the Yayoi period, not only presents elements of the Yayoi culture, but it also shows characteristics belonging to others cultures. These foreign elements are evidence of the trades and exchanges that took part in the island. In this sense, the establishment of Nakrang in 108 BCE had a significant impact on East Asian trade relations. Traces of this trade system can be found throughout the southern part of the Korean Peninsula up to the Japanese archipelago. Among the trade artifacts, pottery is the material that best represent Tsushima's role in the East Asian trade system, which was centered around Nakrang. The main trading agents of the yayoi society during this period were small countries. Moreover, the foreign pottery excavated in each region and its variety, are believed to reflect different roles in specific foreign negotiations. In this poster presentation, we would like to analyze Tsushima's role in the East Asian network through a comparative review of the characteristics of the foreign pottery excavated in different areas inside and outside Tsushima.

Scientific Analysis of Copper Artifacts Excavated from Sepon Mine, Laos

Sichuan University, ZiShu Yang

The Sepon site, located in southern Laos, was most likely an important Bronze Age copper export site in Southeast Asia. Previous scientific excavations at the site and inadequate scientific and technical analyses on smelting remains have limited the depth of related research. Therefore, in 2018, we conducted a scientific excavation at the Tengksam East site in the Sepon mining area and carried out a comprehensive scientific analysis of the bronzes unearthed at the site, including composition analysis, lead isotope analysis. Finally, a comparative study was conducted in conjunction with previous scientific and technical analyses of bronze artifacts from the surrounding area to discuss issues such as the raw material of bronze and the metallurgical spread of the technology. Our preliminary study shows that there are complicated exchanges between the Sepon site and the surrounding areas on multiple level such as mineral materials, smelting semi-finished products, bronzes.

<Burial practices (East Asia)>

Paleopathological Analysis of Skeletal materials from Medieval (XII-XV) site Khorig Mountain, Mongolia
National University of Mongolia, Byambadorj Batsuren

We introduce the results of the paleopathological study of 62 human remains from the medieval period (XII-XV AD) of Mongolia. The sample consisted of 19 females, 24 males, and 19 of undetermined sex, and the prevalences of osteoarthritis, trauma, and oral diseases were examined. No tooth caries was observed, dental abscess, antemortem tooth loss are recorded in 20%, and 55% respectively among 20 individuals observable for dental diseases. Only one case (5%) of enamel hypoplasia has been observed which was a female individual. Despite a small size, various pathological cases are recorded in this sample. Trauma was observed in 10.2%, limb joint osteoarthritis - in 28.6%, spinal diseases (Schomrl's Node, vertebral fusion, and osteophytes) - in 32.6% of 49 human remains. In addition, a case of DISH, two cases of ankylosing spondylitis, and three possible cases of gout were recorded. Pathological traits of this population could be associated with the daily activity of nomadic herder lifestyles.

How material things affected ancient people: space division and emphasized durability in Kannonyama Kofun

Seoul National University, Jinoh Kim

Funerary deposits have been commonly interpreted as the representations of political power, symbolic meanings or ritual behaviours. Instead of this, I'd like to focus on how the material characteristics of the deposits influenced the behaviours and interpretations of the ancient people who actually encountered them. To be more specific, I investigate the case of Kannonyama Kofun in Takasaki, Gunma Prefecture, Japan. Firstly, I pay attention to the construction and funerary processes which actually took place at the site. Based on this, I suggest that the Kofun's mound and the chamber structure contributed to the space division among people during the funeral, which might have resulted in the social differentiation. Secondly, I contrast the monumentality of the mound with the fragility of Haniwas. I am not interested in what the Haniwas represent for. Rather, I focus on their materiality and how it was experienced by the ancient people. I propose that their fragility might have emphasized the durability of the mound, which made the people realize the permanency of the dead after the funeral.

Cultural Contacts and Hybridization in the Proto-Historic Period Northeast Asia: The acceptance and transformation of wooden chamber burials by indigenous groups

Kyungpook National University, Yongchao Bao

In Northeast Asia, however, the wooden coffin burials appeared first in the Lower Xiajiadian Culture belonging to the Early Bronze Age, while the wooden chamber burials began to be used in the Weiyngzi culture of the Middle Bronze Age. The wooden chamber burials found in Northeast Asia can be divided into two types, the coffin and coffin-less. Although the emergence of both types are assumed to be

related to the chamber burials of the central China, the coffin-type can be regarded as a direct manifestation of the Yan-Qin-Han culture, while the coffin-less type as a localized adoptions of the indigenous groups. In the North East Asia, the funerary facilities had been changed steadily from the Early Bronze Age to the Qin-Han Period due to the direct or indirect expansion of central China and the cultural choice of indigenous people.

The study of provincial hierarchy during Unified Silla period –Based on roof end tile-

Korea University, Seul Ju Jung

After the unification of Korean peninsula during A.D 7C, Unified Silla kingdom embraces various culture from Goguryeo, Baekje, Tang dynasty. Moreover, it occurs the change of material characteristic like type, usage and facility. Especially, when it comes to the roof end tile of Unified Silla period, there had been drastic change compare to other material. Thus, previous studies tried to found the rules about roof end tile by categorizing the pattern. However, there was a problem that previous categorization didn't care about other properties like size, length etc. Therefore, this study is going to recategorize the roof end tile by adding specific measurements, for instance length, height, thickness etc. After then, the study will divide this recategorized roof end tile into several groups by researching the hierarchy of findspot like government offices, temple areas, residential areas, tombs. Finally, throughout this analyze, it could be expected that there was hierarchy difference in Unified Silla roof end tile and this difference could explain the different hierarchy of each different province.

Breaking down Neuk-do Cemetery: Mortuary Practice and Social Dynamics during the Late Bronze Age, Korea

Chungbuk National University, Sung Hyun Park

In understanding on the pre-state social dynamics of southern Korea, the importance of Neuk-do cemetery (ca. 150~50 BCE) cannot be exaggerated. It was not only the biggest LBA cemetery but also includes skeletal remains rare in the context of Korean prehistory. However, relationship among the buried of the cemetery have not been fully explained. Through quantitative and spatial analyses of the burial and skeletal data, I get closer to vertical and/or horizontal cleavages of the community. Neuk-do cemetery might have reflected socioeconomic inequality, solidarity, sex- and age-division in intermingled manner, during the Late Bronze Age.

Flexed Burial as an Identity Marker of Qin?

University of Oxford, Shi Jie Zhu

Flexed burial involves burying the deceased in a bent position via tying the limbs with fabric or leather before the body toughens. It was typical of Qin tombs during the Zhou dynasty and is often used by

archaeologists to identify Qin tombs. However, scholars have not reached a consensus as to how Qin people adopted the burial practice, who in the society used it, and why it was abandoned. Therefore, this presentation situates Qin's flexed burial in the sociocultural context to explore its origin, investigates the identities of those who used it, and examines its popularity throughout Zhou. It will demonstrate that flexed burial should not be viewed as a static identity marker of Qin as it does not represent Qin people as an ethnic group, was only adopted by parts of the Qin population, and its frequency in Qin tombs changed through time. Instead, it is a burial custom developed in conjunction with some shared beliefs, whose popularity in Qin society vacillated throughout Zhou – in relation to the changing cultural and social context.

Investigating the identity of the Late Kofun Period Ukiha-Kurume decorated tombs

Ca' Foscari University of Venice, Claudia Zancan

The decorated tombs phenomenon in Japan started in Kyūshū island from the Late Kofun Period (475-710 CE), but their development is still unclear. One serious problem involves the lack of studies with most scholars interpreting these mounds as a mere imitation of Paekche decorated tombs tradition, while evidence points they are a part of a new hybrid culture created by the long-term interactions between the society of Kyūshū and Paekche. The decorated tombs from Ukiha-Kurume territory in Fukuoka prefecture show some unique and homogeneous samples of narrative decorations in a close area (120 km²) and share architecture features with mainland tombs: an example of this hybrid culture. Only a few studies focus on the role played by decorated tombs in the Late Kofun society and on the identity behind these mounds. This paper will address this problem through an analysis of 13 decorated kofun in Ukiha – Kurume, examining both architecture and depictions. The main tombs' characteristics will be briefly summarized, and lastly, some considerations on the identity behind these decorated kofun will be proposed.

<Ritual and religion (East Asia)>

The Significance of the Sun in Kofun Period Japan

Martin-Luther-University Halle-Wittenberg, Doreen Thierfelder

Sun worship as a major element of Japanese identity, especially in relation to the Imperial family, dates back to the oldest written records which were compiled in the 8th century. The role of the sun in earlier pre- and protohistoric religious beliefs is however still largely unknown. The Kofun period (250-600 CE) was a period in which great religious change coincided with political change and the beginning of state formation. By analyzing grave goods associated with the sun I will provide new insights into Kofun period religion and ritual. An examination of religious objects such as bronze mirrors, clay figurines as well as depictions in decorated tombs will show the significance of the sun in the belief system of Kofun period society. This paper will demonstrate how the sun was used for political legitimation in Kofun period Japan and how the worship of the sun developed from encosmic to hypercosmic.

Becoming Artifact: An Ontological Study of Buddhist Whole-Body Relics

Institut National de la Recherche Scientifique (INRS), Lily-Cannelle Mathieu

The exhibition of Buddhist monks' non-decomposing corpses, although not a prevailing Buddhist practice, is quite widespread across East Asia. These showcased corpses, the almost always lacquered and often gilded bodies of deceased monks having allegedly attained enlightenment, can be found exhibited in some Ch'an/Zen and Shugendō Shingon Buddhist precincts across Tibet, Mongolia, China, Taiwan, Vietnam, Thailand and Japan. Laypeople and scholars have often used terms such as 'living Buddhas' or 'dharmic bodies' to refer to these statuesque corpses, which I refer to as 'whole-body relics'. In this talk, I argue that, in becoming whole-body relics, the preserved Buddhist monks transcend subjecthood and attain a state of objecthood that endows them, because of the transgression of the dichotomous ordering opposing subjects to objects that is constitutive of their being (human) objects, with spiritual power. This talk presents reflections on the special ontological status of these whole-body relics and on the potential meaning of their being and becoming 'artifacts'.

A Study on Ring Ditches of Bronze Age in Hoseo Area, South Korea

Korea University, Jeongmi Son

My broad research theme is the rituals of the Bronze Age societies, South Korea. In particular, I focus on the ring ditches dating to the Bronze Age in Hoseo Area where ring ditches were newly discovered. Five Bronze Age ring ditches and one Early Iron Age ring ditch were found in Hoseo area. Located on the top of the hills, all of them have a clear view of the surroundings. Fully excavated ring ditches have a round lay-out while partially exposed ring ditches tend to have been constructed along the contour lines. Excavated artifacts are either absent or fragmented. In the case of a large-scale ring ditch, its function is assumed to be a defensive facility in that more large-size houses aggregated in an enclosed area. On the contrary, it is postulated that smaller ring ditches may have been used as ritual places because no archaeological features were found in an enclosed area.

3D analysis of stone implements in the Jomon period

Nanzan University, Tomoyasu Oka

Stone implements are the elements that characterize the Jomon period. Attempts have been made to elucidate the rituals using stone implements, but a study on stone implements has a major issue. It is whether there is continuity between the middle phase stone implements and the late phase one. How did the rituals with stone implements change from the middle phase to the late phase, or did the rituals of the late phase change to completely new rituals with no relation with the middle phase? Isn't this a point that should be noted not only at the level of a study on stone implements but also at the level of a study on prehistoric society? I will try to clarify this issue by analyzing 3D models.

Chasing Ghosts: The motivations and purposes for the construction of religious rock carvings in Southern Sichuan

Peking University, Francesca Monteith

By examining the location, setting and structure of religious rock carvings (摩崖造像) in Southern Sichuan this presentation demonstrates the presence of two distinct traditions of practice were present in the region during the late Tang through to Song Dynasty.

Buddhist Archaeological Assemblage of Early Sixth-Century Sichuan

The Chinese University of Hong Kong, Zelan Liu

The Sichuan Basin has been the most important site to study the Buddhist art of Southern Dynasties (420-589). With their political center located in lower Yangzi, most, if not all, of free-standing Buddhist images pertaining to the Southern Empire come from this "remote" region. My presentation reviews this archaeological assemblage anew, especially focusing on the Liang 梁 period (502-557). Major excavations have been made from urban Chengdu 成都, including such localities as Wanfosi 萬佛寺, Shangye Jie 商業街, Xi'an Lu 西安路, and Xia Tongren Lu 下同仁路. While previous scholarship concerned iconography, chronology, style, artistic originality and trans-regional interactions, my study highlights issues in production and other socio-economic factors, such as donors, workshops, local consumption, and ritual context. With this new insight, we can come to a more refined understanding on the Liang context. For instance, I argue that the seeming variety in artistic style was mainly conditioned by several participant workshops as well as contingent ritual usage.

<Craft production and social organization (China)>

Morphological standardization and ceramic specialization : a case study of pottery from Taosi site, China.

Kyushu university, Yang Bai

Ceramic specialization is often linked to implications for social complexity. In the previous studies, the standardization is applied as evidence for specialization, but the specific links are oversimplified. This study has chosen the cooking vessels excavated from the Taosi site(2300-1900BC) to clarify the possible link between standardized pottery and ceramic specialization and its implication to social complexity. This study has investigated pottery standardization by analyzing shape variables with geometric morphological analysis. The research compares the variation degree provided by elliptical Fourier analysis and finds that the morphological variation of the cooking vessels, which was considerably large in the early period, decreased in the middle and late periods, showing a standardization trend. Some standardized vessels were caused by the intervention of the elites in the early and middle periods. In

contrast, in the late period, such a standardized trend resulted from individual workshop production due to the ceramic specialization, indicating the combined effect of political and economic factors in pottery production of Taosi site.

A Craft Perspective: The Production of Stone Artifacts at Sanxingdui

Peking University, Shiyu Xu (Dr.)

More than 1,000 stone artifacts were unearthed from Sanxingdui site over the years, encompassing non-practical items mainly composed of bi discs and practical tools which largely are axes and adzes. In terms of lithic technology, the major techniques employed in Sanxingdui site involved direct hammer percussion, grinding and tube drilling. The general production sequence (*chaîne opératoire* in the narrow sense) of bi discs was preforming, limited grinding and tube drilling. The blanks for axes mostly were cobbles, and the manufacturing sequence can be divided into 3 phases as follows: first reducing the longitudinal sides of the cobble, then flaking from both sides, top and bottom to produce the preform and finally polishing. By comparison, the manufacturing process of adzes was comparatively simple: first chipping and pecking the flake, which is mainly the blanks for adzes, into the rectangular or trapezoidal shape, making use of the edge of flake as the adze's blade, then polishing the whole tool.

Belt Plaques' Production Process in the Jin Dynasty: A Look Through the Macro Lens

Waseda University, Liu Dekai (Dr)

The production and circulation of metal artefacts led by the Jin-style belt plaques(晉式銙帶) in the 3rd to 5th centuries, represents an important and not negligible stage in the development of East Asian regional exchanges. Current research demonstrates they could significantly enhance our understanding about ancient metalworking, but their production process needs detailed research according to the archaeological data individually. Here the method of macro photography is used to investigate a set of gilded copper belt plaques, unearthed from the tomb in Xiongjialing site, in Wuhan, China and dated at the Eastern Jin Dynasty (317-420AD). It approaches production process involved in metal forming, processing of carving and assembly method through the observation of metal surface's trace phenomenon. This research suggests a kind of production process of the Jin-style belt plaques: make model→ make mold→ casting→ remove mold→ truing→ carving patterns→ gilding→ assembly.

Keywords: Belt plaques; Jin dynasty; Production process; Trace analysis.

The development of lead-barium glass in China; a review of the experimental and archaeological evidence.

The University of Sheffield, David Montgomery

Lead-Barium glass was used in China during the Warring States and Han Dynasty. The unique composition, limited geographical distribution, local technical know-how and availability of raw

materials have led scholars to suggest that there was indigenous production of this glass within China. As no production sites have currently been identified, recent studies of this glass have used scientific analysis of archaeological samples in conjunction with experimental work in an attempt to reconstruct the technology and determine likely provenance. Despite this recent research, there is still some debate on the origins of this glass and particularly its relationship to glass production in other areas of the world. For example, a recent study by Ma et al. (2021) have argued that imported glass from West Asia was essential to its production. This paper reviews recent and new experimental and archaeological data and seeks to present a viewpoint of this debate using a more holistic approach, which combines of archaeological, literary and scientific evidence to establish whether lead-barium glass was in fact indigenously developed in China.

Investigating shared technological knowledge in production of Majiayao-style pottery

University of Oxford, Evgenia Dammer

This paper discusses the possibility of technological knowledge transfer in production of the Neolithic Majiayao-style pottery (5300-4000 cal yr BP) over long distances. Fine and coarse pottery in Majiayao style was widely distributed across remote sites located in different river valleys in modern Chinese provinces Gansu and Qinghai. This study investigates whether there are similarities in production technology of the Majiayao-style beyond shape and decoration. Macroscopic examination, ceramic petrography and experimental firing of raw materials were used to reconstruct the chaîne opératoire of the fine and coarse Majiayao-style pottery from Tao River, Huangshui River, and the Yellow River valleys. The results revealed similarities in materials and techniques used in production in different locations indicating common technological knowledge that could have been disseminated among potters. The observations further suggest patterns in connection of coarse and fine clay pastes with specific decoration and firing atmospheres. It is possible that besides technological knowledge, production of Majiayao-style pottery also required specific social knowledge to connect the outer appearance of the Majiayao style with the production materials and techniques.

<Bronze technology and bronze objects (China)>

Lead isotope analysis of Shang period bronzes from Liujiazhuang, Jinan : A discussion of highly radiogenic lead

Yale University, Qingzhu Wang

This article presents lead isotope data from bronze artifacts uncovered at Liujiazhuang, a Late Shang period site in Jinan, Shandong Province. According to our analysis, most of the Liujiazhuang bronzes contain highly radiogenic lead and these isotope signatures fall within a relatively small range. By comparing the Liujiazhuang results to data from other Shang period sites, we identified two major types of highly radiogenic lead (Types A and B) that appeared almost exclusively at different phases of the Shang period. Type A first appeared during the Early Shang period in Zhengzhou and Panlongcheng.

During the Middle Shang and the early phase of the Late Shang period, Type B replaced Type A in all of the bronze assemblages over a wide geographic area. Then, Type A became dominant again during the late phase of the Late Shang period. Our discovery offers a new standard for evaluating highly radiogenic lead resources in the Shang period and contributes a different avenue for investigating the socio-political and economic organization of the Shang society.

Interactive spheres of the artisans: seeing the late Shang artisans through the bronze vessel casting moulds

University of Toronto, Wen Yin Cheng

Bronze vessel casting technology in the late Shang dynasty is a significant area of interest in our comprehension of the artisans. However, the artifacts these artisans left behind are the bronze vessels made and used by the elites. The artisans had greatly influenced bronze casting molds through their design, production, and use. Thus, this is the ideal artifact to comprehend the various spheres that the artisans interacted to produce them. Through the use of petrographic analysis and SEM the various steps chosen by the artisans can be determined. Thus, how the artisans connected their social, geographical, and technological sphere is visible by looking at the various steps involved in the production of the casting moulds housed at the Royal Ontario Museum.

Forging Pathways of Return: The Afterlife Role of Bronze Shan-Character Mirrors in Chinese Chu Culture

Smith College, Yixuan Tang

During the Warring States period, the Chu-state bronze mirrors' design manifests a duality of inheritance and innovation, especially those adorned with the geometric motif resembling the Chinese character "mountain". Previous scholarship has offered various interpretations of this particular décor: an abstracted pattern derived from a repeated thunder-hook motif, an ideograph for "mountain," or an auspicious symbol of stability. However, none of these analyses articulated the motif's representation regarding the funerary culture. I challenge these preceding opinions by proposing a new interpretation of this décor. Through closely examining three "mountain" bronze mirrors from this epoch and comparing them with similar motifs from other artifacts, I unravel the symbolism of the décor that embodies the afterlife journey of one's soul. I first argue that these mirrors accompanied the soul of the deceased on an afterlife journey. They then served as a guardian of protection in the nether world. Lastly, these mirrors guided the soul to return to the earthly realm, where it fulfills the ultimate goal of unifying with nature as suggested in the Chu religious pantheon.

The Making of Bronze, Frontier, and Empire: An Archaeometallurgical Case Study of Chenzhen (4th century BCE - 3rd century CE)

The Chinese University of Hong Kong, Yuqi Xiao

Based on a bottom-up analysis of the bronze objects unearthed from graves dating to the Warring States and Han periods (from the 4th century BCE to 3rd century CE) in Chenzhou, Hunan, this research aims to assess the controversial perceptions of the early imperial encounters on the southern frontiers. Combining metallurgical and typological analysis approaches, the microscopic case study shows us how the frontier society experienced the external stimulations and inner epistemological transformation within the broad sociopolitical context of incorporation into early empires. Through observations on the diachronic pattern of bronze production and consumption, the cultural, economic, and political spheres of interactions between the local society and surrounding regions as well as the central state are vividly presented. Emphasizing the regional process of incorporation into a macroregional empire network, this study also reevaluates the validity of the concept of Sinicization under the context of early imperial frontiers.

A brief discussion of Ge you from Ningxiang and other related bronze vessels

The Institute for the History of Natural Sciences, Chinese Academy of Sciences, Jingjing Lu

Referring to the nature of Chinese bronzes, a great number of work has been done. However, how to recognize the essential making period and the style of a vessel, how the style had made a connection with its time, craftsmanship and manufacture, and to what extent does an object reflect the identification of a clan or nationality, still remain questionable. This discussion is based on the bronze Ge you unearthed from Ningxiang, Hunan province and other related bronze vessels' shape, pattern, combination of features, manufacturing technique as well as the excavated background, to reveal their connotation and give a preliminary suggestion of style, period and produce origin. According to eighteen reliable pieces, it could not be ignored that though each of them has quite distinctive characteristics, they are rather to share a close cultural tradition and producing conception. It is highly possible that these objects owned by several clans were made under a same craftsmanship but from successive generations between mid-Anyang period and early Western Zhou in less than a hundred years.

Xiang Zun Vessels (象尊) in Shang period

Guangzhou Academy of Fine Arts, Xiyang Duan

Animal-shaped vessel is an idiosyncratic category in Shang bronzes, which usually takes the form of a real-life animal and composes its decoration in accordance with the shape. The number of extant Xiang Zun vessels which take elephant as the object of representation is very limited. This presentation takes four pieces of Xiang Zun vessels from the Shang period, including three bronzes and one white pottery, as the objects of research. It intends to discuss the selection of motifs in animal-shaped bronzes and the cause of the formation of sectionalized decoration by analyzing decorative and technical features in these four vessels. Furthermore, it reevaluates the concept of "ornamental system", raised by the art historian Jessica Rawson and proposes new insights in regard to the inner relationship between sectionalized decoration and piece-mold casting technique. Through the discussions on the decorative

element on elephant's forehead, scale motif and the image of elephant in bronzes, it shall present new understandings on the origin and the dating of Xiang Zun vessels in Shang period.