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NEPHRITE CULTURES IN PREHISTORIC NORTHEAST ASIA *

The capacity for symbolic organized behavior, such as the use of languages and ornaments, is a defining characteristic of modern human beings. As gold is for the West, jades have been one of the finest symbolic vessels in the East since prehistory. Jades are a collective term applied to compact aggregates of either of two minerals, nephrite and jadeite. In recent years, a large amount of nephrite accessories have been excavated from Neolithic-Bronze Age archaeological sites in Northeast China, Cis-Baikal and Russian Far East. Rings and disks are the majority of such nephrite accessories, and the similarities and differences in their geological sources, production history and context of use pose important question for how the symbolic application of jade dispersed and evolved in the most part of Asia. The international scientific project described bellow is specially aimed to solve this problem together with some related ones. This timely first-handed investigation is the most comprehensive study thus far of long-distance exchanges and movements of nephrite raw materials, products and production technologies. It will make a significant contribution to the early history of jade symbolism and human interaction in Northeast Asia.

Keywords: Neolithic and Bronze Age of Northeast Asia, ancient jades, nephrite raw material, multidisciplinary studies.

The use of nephrite in human history can be traced as far back as the Upper Paleolithic in Northeast Asia. More commonly known as jades, nephrite later would become a highly revered and enduring symbolic cultural feature in East Asia, and especially China [Дэн Цун, 2012].

In Neolithic Northeast China, Xinglongwa culture (8 200–7 200 BP) and Hongshan Culture (ab. 6 000–5 000 BP) developed an especially advanced jade culture that used yellow-green nephrite for its most precious symbolic objects [Ян Ху, Лю Госян, 1998; Го Дашунь, 1998; Сунь Шоудао, 1998; Алкин, 2007. С. 67–71]. This kind of accessories proposed to be likely made from Xiuyan type

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nephrite, which is named after the only known prehistoric nephrite deposit in the region. Extensive geological surveys have been conducted in northern China to discover the source for Xinglongwa and Hongshan jades. As for Russian Siberia, academician A. P. Okladnikov proposed that the exposed northern cliff of Munko-Sardyk in the Eastern Sayan Mountains was the prehistoric source of nephrite in the whole Cis-Baikal region. In the recent several years, with the help of geochemical and other instrumental methods some new sources, sometimes separated with hundreds of kilometers, were added to the first one [Tsydenova et al., 2014; Burtseva et al., 2015]. Nephrite symbolic objects from as early as 20 000 years ago, and more commonly in burials of the Neolithic to early Bronze Age are found along the shores of Lake Baikal and the Angara river system [Горюнова, 2002; Горюнова, Вебер, Новиков, 2012]. Similar nephrite objects have been found in neighboring territories as well, such as Amur River basin of the Russian Far East. Those from the early Bronze Age in particular are often white in color and relatively translucent (see review on the last finds: [Komissarov, 2014]). Kato Shimpei in 1998 was one of the first archaeologists who suggested such white jade implements can also be found in Heilongjiang province of China. The distance for this travelling may seem surprising, but long-distance exchange in prehistoric Northeast Asia is not unheard of. There is evidence for very active human contacts and/or migration in the early-middle Upper Paleolithic (approximately 25 500 BP), with obsidian transportation covering distance in the order of hundreds and up to a thousand kilometers. The Amur (Heilongjiang) River flows along the border between the Russian Far East and Heilongjiang province. Possible interactions between prehistoric communities on either side of the river should not to be easily dismissed. White translucent nephrite accessories have been found not only in Heilongjiang, but also in Jilin, Inner Mongolia, and Liaoning during the late Neolithic to the early Bronze Age. They have been found in the aforementioned Hongshan culture sites, too, though not constituting the majority. It should be noted that such translucent nephrite cannot be found in Xiyuan, suggesting that these raw materials are possibly not of local origin.

The question is how nephrite was transported over long distances in prehistoric Northeast Asia. Previously, Chinese researchers have found that most geochemical methodologies (e. g. electron microprobe, X-ray diffraction, infrared spectroscopy, Raman spectroscopy) cannot conclusively differentiate nephrite sources within China. The same results were obtained by Russian specialists. But in the last years, however, researches in China and Russia have respectively published papers analyzing the trace and rare earth elements of nephrite with promising results. It seems that the higher sensitivity of ICP-MS (Inductively coupled plasma mass spectrometry) is better able to detect differences in concentration of rare earth elements between Xiuyan nephrite and other sources of nephrite in China. Nephrite from the Baikal region seems to have distinguishably different rare earth elements signature from that of Xiuyan as well. Strontium stable isotope is another successful method used to investigate nephrite provenance in other regions. All these studies suggest that a systematic ICP-MS study of nephrite resources in Cis-Baikal and Xiuyan would help elucidate the patterns of prehistoric access to nephrite in this region.

In East Asia, since a vast majority of the nephrite accessories are rings or slit rings, drilling technologies are of particular interest. Two main systems of nephrite drilling technologies have come to light. Largely in the north is Semenov's hypothesized drilling device in the Lake Baikal region [Семенов, 1955], the evidences of which were observed in Heilongjiang, Inner Mongolia and Jilin. This mainly overlaps with the distribution of rings and slit rings made from white translucent nephrite in northeast China, but not completely. Further south is Tang's reconstructed rotary machinery, of which evidence is seen from Inner Mongolia and Liaoning to Java Island in Southeast Asia [Дэн Цун, 2014; Tang Chung, Tang Mana, 2015]. The latter technology was reconstructed from the *in situ* context of stone bearings and their spatial relationships to ring products in prehistory jade workshop sites. Southern high-speed drilling technology can mass produce successively smaller nephrite rings of near perfect circles from a single piece of raw material, which contrast with the relatively irregular rings made by Northern hypothesized drilling technology.

Technological analyses of the production process have long been used to shed light on the knowledge, thought process, preferences, limitations and worldview of artisans. The story becomes especially complicated and interesting in the contact zone within the Russian Far East, Heilongjiang

and Inner Mongolia. For example, Chertovy Vorota site (7 550–6 880 cal. BP) has yielded an assemblage of nephrite slit rings, beads, bi-shaped pendants, and disks. This set of nephrite accessories is commonly found in Neolithic settlements that use Xiuyan type nephrite (e. g. Xinglongwa in Inner Mongolia). The production technologies used are also characteristic of what is found in Xiuyan. In southeast Inner Mongolia, about 500 graves and a large number of nephrite grave objects dated to approximately 5 000–4 000 BP were discovered at Ligaotu cemetery (Nanbao). Despite the site's close proximity to the most prominent nephrite cultures in Northeast China (i. e. Xinglongwa and Hongshan sites), the majority of its nephrite accessories is white, relatively translucent, and share typology and production tool marks with the ones Semenov described in the Cis-Baikal region. The time period also overlaps with Glazkovo period in Cis-Baikal, when white nephrite artifacts became distinctively noticeable among its grave goods, especially compared to the earlier Serovo period (ab. 6 200–5 000 BP). We also see archaeological sites where both yellow-green and white translucent nephrite accessories coexist. Less than 90 km from Nanbo one more ancient site was excavated at Humin in Horqin Left Middle Banner of Inner Mongolia. It represents a large settlement dated to 5 500–5 100 BP. Since 2010, skeletons of more than 200 individuals have been unearthed at the site, mostly found to be unceremoniously piled on top of one another on the living surface of burned houses. Over 30 jades have been found on the bodies of these dead persons, with some resembling the Xiuyan type and some resembling the Sayan Mountain type [Дэн Цун, Цзи Пин, 2014].

All these new data were used as a basis for the international scientific project supported by General Research Fund of Hong Kong. It consolidates the specialists from China, Russia and Japan for multidisciplinary and simultaneous investigation of ancient jade all over Northeast Asia. The close result would be the instrumental analyzing of geological provenance, production technologies, as well as *in situ* archaeological contexts and sociocultural meaning, and the final reconstruction of temporal and spatial distribution of different types of nephrite implements and related artifacts.

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НЕФРИТОВЫЕ КУЛЬТУРЫ СЕВЕРО-ВОСТОЧНОЙ АЗИИ

Дается краткая презентация и обоснование нового международного и междисциплинарного проекта по изучению производства и использования нефритовых изделий на территории Северо-Восточной Азии, поддержанного Генеральным исследовательским фондом Сянгана (Гонконга), а по отдельным направлениям – и грантом Российского научного фонда. Известно, какую исключительную роль играли нефритовые изделия в истории многих азиатских стран

и регионов, причем первые шаги в этом направлении были сделаны еще в эпоху верхнего палеолита на территории Восточной Сибири. Дальнейшее развитие традиция как бытового, так и ритуального использования нефрита получила на территории Прибайкалья в эпоху неолита и особенно бронзового века. Находки того же типа отмечаются на территории российского Дальнего Востока.

В Китае особое почитание нефрита и изделий из него прослеживается в культурах неолитической эпохи на территории Дунбэя, откуда затем распространяется дальше к югу. Использование нефритовых аксессуаров закрепляется в ритуальной практике древнекитайских государств (Шан и Чжоу), а толкование символики этого уникального минерала дается в канонической конфуцианской литературе. Именно в Китае и сопредельных странах нефрит становится подлинным символом превосходства.

Во многих предыдущих исследованиях по данной теме ставился (но не решался) вопрос о происхождении нефритовых изделий, о возможных взаимовлияниях и их векторе. Новые данные, полученные в последние годы как в России, так и в Китае, дают возможность рассмотреть эти вопросы на новом уровне. За счет междисциплинарного изучения находок нефрита в археологических комплексах методами геологии, минералогии, геохимии и т. д. удастся с достаточной степенью уверенности установить источник происхождения нефритового сырья. Для исследуемого региона наибольшее значение имело месторождение Сюянь в Маньчжурии и нефритовые выходы Саянских гор в Прибайкалье. Трасологические наблюдения позволили также выделить два технологических центра обработки нефрита, северный (сибирский) и южный (китайский). Несколько лет назад раскопки на территории Внутренней Монголии позволили выделить памятники, на которых найденные нефриты демонстрировали как северные, так и, условно говоря, южные особенности применительно к использованному сырью и технологиям. Выделение такой контактной зоны позволит более детально реконструировать картину контактов между древними культурами Северо-Восточной Азии в рамках представляемого в статье проекта, а отработанные методики междисциплинарных исследований будут полезны для дальнейшего исследования нефритовых артефактов российскими археологами (например, применительно к проблеме происхождения сейминских нефритов).

Ключевые слова: неолит и бронзовый век Северо-Восточной Азии, древние изделия из нефрита, нефритовое сырье, междисциплинарные исследования.

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