Chapter 20

Taiwan Jade in the Context of Southeast Asian Archaeology
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Abstract

In Taiwan, nephrite tools and ornaments have been identified from more than one hundred archaeological sites dated from 5,000 to 2,000 years ago. Sourcing studies indicate that most of the raw materials were collected from the Fengtian source region, located inland from Hualian in eastern Taiwan. Recently, some green nephrite ornaments excavated from the Batanes Islands, northern Luzon and Palawan in the Philippines, and from Sarawak in East Malaysia, have been recognized as extremely similar to those discovered in Taiwan. The similarities include the technology of manufacture, artifact style, and the mineralogy of the raw materials.

Introduction

From the ancient past until modern times, jade has been one of the most favoured raw materials for body decoration in East Asia. Exquisite jade earrings were manufactured as early as 8,000 years ago in mainland China. After ca. 4,500 years ago, jade artifacts, ornaments and tools, became popular in archaeological sites in Southeast Asia, especially in Taiwan and in the countries that lie around the South China Sea (Philippines, East Malaysia, and Vietnam).

Electron probe micro-analyses of chemical compositions indicate that Taiwan nephrite was widely distributed in Southeast Asia, including Taiwan, adjacent islands such as Penghu and Lanyu, and the Philippines. The distance of transport between the source and the find places of artifacts of Taiwan nephrite is more than 1,500 km by sea, from Taiwan to Palawan, and still further to Sarawak on Borneo. Consequently, this study provides important evidence about the complicated interactions between the societies of Southeast Asia since the Neolithic period.

The geological sources of the jade artifacts found extensively in the South China Sea region, especially those of green jade, have stimulated great interest in Southeast Asian archaeology. Since the 1940s, archaeologists have noted the widespread occurrences of similar jade ornaments and have offered varying opinions about their possible dispersal histories. Kano Tadao (1946: 233) was the first to note that there are at least four types of penannular jade earrings with circumferential projections. He believed that they originated in northern Vietnam and from there spread either directly to Taiwan (in the case of his type 1), or reached Taiwan via northern Luzon (in the cases of his types 2, 3 and 4) (Figure 20.1).
Jade only occurs in specific geological settings and is localized in nature, so tracing the sources of jade artifacts and identifying quarries and workshops will allow us to reconstruct both the trade networks themselves, and perhaps also the broader social and economic interaction networks within which the jade moved from source to consumer. In this paper, we will discuss the distributions of jade artifacts and jade workshops as known to date, and describe the result of a sourcing study of jade artifacts from southern China, Taiwan, and Islands Southeast Asia. Issues of the broader social and economic interactions will have to await future research, and it should be noted here that very few of these artifacts come from well-described mortuary contexts.

The Distribution of Jade-bearing Sites and Workshops

Southern China

The most famous Neolithic cultures with jade technology are the Hongshan and the Liangzhu, in northern and central China respectively. In northeastern China, the earliest jade ornaments can be traced to the Xinglongwa Culture dated ca. 6,000 BC, the ancestor of the Hongshan.

According to Zhang Chi (2003: 131–3), the earliest jade workshops in central China occur in the Ningzhen and Chaohu areas of Jiangsu and Anhui provinces respectively (Figure 20.2). They belong to the early part of the Neolithic Beiyinyangying Culture of the lower reaches of the Yangtze River, ca. 5,000–3,500 BC, similar in age to the Majiabang culture in Zhejiang Province. Several jade workshops occur at the sites of Mopandun, Niejiadaduibu, Zhaozhiqiang, Huangniidan, Pingtoushan, Daigangqiao, Xiaojia-Jiangwantudun and Xuegoucun, all located in the southern hinterland of the Yangtze River in Jiangsu Province. The jade raw materials used in these workshops are probably from local sources, such as the nephrite outcrops at Xiaomeiling in Liyang City, Jiangsu Province, and at Fidong, Quanjiao and Huoshan in Anhui Province.

Xiaomeiling nephrite has already been characterised and its geological source has been located (Wen 1993). Jade technology declined in the Ningzhen and Chaohu regions during the later part of the Neolithic, and the focus of jade manufacture moved to the workshops of the Liangzhu Culture, ca. 3,500–2,500 BC, located on the Tai Lake plain, lower Yangtze basin. Since jade sources do not occur in this alluvial landscape, it is likely that the raw materials were brought from Xiaomeiling, located more than 100 km away (Zhang 2003: 128–34, 219–23). Zhang (2003: 128–34) has published a detailed review of the distributions of the jade workshops, jade artifacts and jade mines located in the middle and lower Yangtze basin. He argues that acquisition of the jade raw material was probably controlled by the elite during Liangzhu times, since jades served as significant symbols of wealth, status and power (Zhang 2003:220).

South of the Yangtze, jade tools and ornaments have been excavated at Shixia in northern Guangdong, dating to ca. 2,380–2,070 BC. The geological source of these jades is unknown (Yang 1998: 304–15). Ornaments similar in shape and style to those made of jade in the lower Yangtze, but in this case made of quartz rather than jade, occur in sites in the Pearl River (Zhujiang) delta, and Xiantouling near Shenzhen. Several workshops for making quartz earrings have been found here, but they date to at least 2,000 years later than the workshops along the Yangtze River (Tang 1998: 98).

Taiwan

Nephrite was the favoured type of green jade used in Taiwan prehistory. Nephrite objects have been found widely distributed in Taiwan, and have been exchanged since the Middle Neolithic, both on the main island and on nearby satellite islands such as Penghu, Ludao and Lanyu (Botel Tobago). So far, at least 108 sites have been found associated with nephrite artifacts in the Taiwan area. Chronologically, most nephrite artifacts occur in contexts dated between ca. 3,000 BC and AD 1 (Hung 2000: 37, 61–4) (Figure 20.3).
Between the 1930s and the 1970s, Japanese archaeologists believed that the jade ornaments excavated in Taiwan were of stone imported from either China or Southeast Asia (Miyahara 1931: 112; Miyamoto 1939: 41). After modern industrial mining of nephrite started in 1961 in the Fengtian deposits in eastern Taiwan, Taiwan archaeologists began to cooperate with geologists in sourcing the nephrite artifacts from Beinan (No. 98 in Fig. 20.3), the most abundant jade-yielding site in Neolithic Taiwan. Using petrographic microscopy and mineral
chemistry, the results indicated that Fengtian nephrite was the most probable source for them (Wang et al. 1996; Tan et al. 1997; Lien 2002). Similar results were reported by Huang Shih-Chiang and Chou Su-Jung (2001), who compared ten nephrite artifacts from the Laofanshe site (No. 97 in Figure 20.3), near Beinan, with Fengtian nephrite by Raman spectroscopy.

Since 1999, we have compared more than 50 nephrite artifacts from sites throughout Taiwan and adjacent islands with raw materials from the Fengtian source. The samples have been analysed by X-ray diffraction (with Lin Shu-Fen of the Institute of History and Philology, Academia Sinica; Hung 2000: 34–5), by oxygen isotope analysis (with Yui Tzeng-Fu of the Institute of Earth Sciences, Academia Sinica; Yui et al. 2001), and by electron probe micro analysis (EPMA) (Iizuka and Hung 2005). Both the artifacts and the Fengtian source rocks, which are composed of tremolite and actinolite amphiboles, are consistent with respect to chemical composition and the nature of the mineral inclusions in the nephrite. These results suggest that Fengtian was the major source for all of the nephrite artifacts analysed so far from Taiwan.

Huge quantities of grooved and drilled jade debris have been found at the Pinglin nephrite workshop, near Fengtian, which was first excavated in 1929 by Kano Tadao (1946), who believed it to be the largest ancient jade workshop in Southeast Asia. According to available dates, Pinglin was occupied during the Middle Neolithic (ca. 1500 BC) and re-occupied in the Late Neolithic (ca. 800 BC–AD 150; Liu 2003:10).

The Philippines
In the Philippines, a large collection of white jade tools, such as adzes and chisels, was made by H. Otley Beyer during the 1930s and 1940s in Batangas, Rizal and Laguna Provinces in southwestern Luzon. During the 1960s and 1970s, green jade artifacts were excavated by Robert B. Fox (1970) from sites on Palawan Island, and more have since been found in the Cagayan Valley on Luzon. To date, more than twenty sites have yielded jade ornaments in the Philippines (Figure 20.4). The green jade resembles Fengtian nephrite from Taiwan (Hung 2005), and the oldest example found so far is a bracelet dated to 1,500 BC in the lower layer of Nagsabaran, Cagayan Valley (Tsang et al. 2002: 244). The Batangas white jade adzes are dated to about 800 BC in the Uilang Bundok site (Hung 2000: 92).

Where were the sources for these jades unearthed in the Philippines? In 1948, Beyer (1948: 44–5) stated ‘where the raw material came from is still uncertain, as no natural source for it has yet been discovered in the Philippines’. In 1970, Fox commented ‘although there is no question that nephrite was worked extensively elsewhere in the Philippines, notably in Batangas Province where the writer believes a local but still undiscovered source of nephrite was known and worked, the ornaments of jade found in Palawan appear to have been introduced at different periods’ (Fox 1970: 131). From our recent studies, and the discovery of the Anaro nephrite workshop on Itbayat Island in the Batanes Islands by an Australian/Philippine team in 2004 (Bellwood and Dizon 2005:1–32), we have obtained some interesting new information.

Vietnam
Several jade workshops have been discovered in northern Vietnam, such as Trang Kenh, Bai Tu, Hong Da and Dau Ram (Nguyen 1998). Trang Kenh, one of the biggest and oldest jade workshops in northern Vietnam, is located in Haiphong Province (Figure 20.2). It is dated to around 1,300 to 1,000 BC and belongs to the Phung Nguyen Culture. In this site, many waste pieces of jade, such as the drilled-out cores from annular objects (e.g. tubular beads, earrings, bracelets and rings) have been excavated (Tang and Nguyen 2004). Most of these northern Vietnamese
jade artifacts are either white or pale orange in color. Nguyen Kim Dung believes that the raw materials may have been collected from river beds in the limestone hills in northern Vietnam (Nguyen Kim Dung, pers. comm.). Recently, a penannular green jade earring was excavated from Yen Bac in Ha Nam Province, buried about AD 200 (Bellwood et al. in prep.). This piece, made of tremolite amphibole, was probably imported from China.

One of the most remarkable types of jade ornament, the ear pendant with double animal heads facing outwards from each side, has been found in several sites in Vietnam (see Figure 20.5p and 20.5u). Southworth (2004: 212) has reported that caches of bicephalous earrings have been found together with an unfinished example at Dai Lanh in Quang Nam Province and with a preparatory nephrite block at Giong Ca Vo, southeast of Ho Chi Minh City, suggesting that the earrings were made in more than one locality. Single examples have also been found at quite a number of sites in central Vietnam; at Xuan An, a Dong Son Culture site in Nghe An Province, as well as at Ban Don Ta Phet and U Thong in central Thailand, on Palawan Island in the Philippines and Lan-yu Island, southeast of Taiwan.

The Dong Son and Sa Huynh contexts for these double animal-headed ear pendants suggest a date range between 500 BC and AD 300. From preliminary observations, these double animal-headed ear pendants and the lingling-o earrings with three pointed circumferential projections (the so-called “Sa Huynh type lingling-o” of Fox), from Sa Huynh cultural contexts in sites such as Gò Má Vôi (Reinecke et al. 2002:126 Fig. 4–6), show strong relationships with those from Lanyu, Palawan and Sarawak.

Borneo

Compared with other places around the South China Sea, rather few jade artifacts and no jade workshops have been reported from Borneo. In Sarawak, a jade earring with three circumferential projections was found in the Niah Cave West Mouth (Chin 1980: 11), this being a Sa Huynh type lingling-o of green and light brown nephrite. This particular type of jade earring has also been found in Lanyu, Palawan, and many sites in Vietnam. Through our recent study, we have confirmed that the Niah lingling-o is of Fengtian nephrite (Iizuka et al. in press).

The Chronology of Jade in East and Southeast Asia

In summary, the earliest jade manufacture in southern China occurred in the Beiyinyangying Culture of the lower Yangtze basin at ca. 5,000 BC–3,500 BC, and then became very well developed in the Liangzhu Culture at ca. 3,500 BC–2,500 BC. Somewhat later, similar jade technology appeared at Shixia in northern Guangdong, ca. 2,380 BC–2,070 BC, and in the Neolithic of Taiwan at ca. 2,500 BC. Jade artifacts appeared in northern...
Vietnam and the Philippines ca. 2000/1,500 BC. Finally, the lingling-o earrings with three pointed circumferential projections and the double animal-headed ear pendants seem to be younger than the Neolithic, perhaps Iron Age, dating to between 500 BC and as late as AD 1,000 in the Philippines (see below). It is highly possible that these successive jade technologies belong to a single continuous tradition, of which some traces perhaps survived into New Zealand Maori jades of the past few centuries (Bellwood, n.d.).

By comparing technologies and artifact styles in each region we can improve our understanding of the different levels of craft specialization that lay behind the workshop traditions. For example, in Taiwan, the remarkable and complicated zoo-anthropomorphic jade earrings, shaped as two human figures standing side by side and surmounted by an animal, occur not only at Beinan in southeast Taiwan, but also in northern Taiwan at Zhishanyan (Figure 20.3:5), Yuanshan (Figure 20.3:7), Shisanhang (Figure 20.3:11) and Wanshan (Figure 20.3:57). Another example comes from Chula (Figure 20.3:44) in southern Taiwan (Xia 2003). Their similarities suggest not only a high level of manufacturing technology, but also the existence of a limited number of very skilled craftsmen. Such zoo-anthropomorphic earrings have never been found elsewhere but Taiwan.

Another example is the lingling-o earring with three pointed circumferential projections. This type was referred to by Robert Fox (1970:129) as the Sa Huynh type lingling-o, because of its frequent occurrence in Sa Huynh (Iron Age) sites in central and southern Vietnam. It is the most noticeable and widespread form of jade ornament in the Southeast Asian Iron Age (its typical shape is shown in Figure 20.5s). Recently, we have investigated the occurrences of this type of artifact in the South China Sea region, and have verified that they have been found not only near El Nido (northern Palawan: Fox 1977a) and in the Tabon Caves (from where Fox reported them), but also on Lanyu Island, in many Sa Huynh Culture sites in Vietnam, from Niah Cave in Sarawak. All are similar in style, manufacturing technology and size, being about 3 cm in diameter. Their distribution is similar to that for the double animal-headed ear pendants that have been found at several sites in Vietnam, as well as at Ban Don Ta Phet and U Thong in central Thailand, at Khao Sam Kaeo in Peninsular Thailand, from the Tabon Caves in the Philippines, and from Lanyu (Figure 20.6).

The similarities between these widespread artifacts in different regions imply a former existence of highly skilled jade craftsmen working in a small number of jade workshops, maintaining frequent interactions between regions often very far apart.

Sourcing the Jades Found in Island Southeast Asia

In terms of style and context, the jade ornaments in the Philippines belong to two phases: Neolithic and Early Iron Age. Most green jade ornaments from Philippine Neolithic contexts are similar in style to contemporary ornaments of the Taiwan middle and late Neolithic phases. For example, Neolithic green jade bracelets without surface decoration occur at Nagsabaran in the Cagayan Valley and in Duyong Cave on Palawan. Both have measurements similar to those of a large sample of jade bracelets from contemporary sites in Taiwan (with almost identical diameters, thicknesses and widths) (Figure 20.5a, 20.5f and 20.5g; Hung 2005). Moreover, the jade bell-shaped beads (Figure 20.5b and 20.5h; Hung et al. 2004) and tube beads (Figure 20.5c, 20.5d, 20.5e, 20.5i, and 20.5j) (Hung 2005) from both the Philippines and Taiwan are almost identical. During the Early Iron Age in the Philippines, green jade lingling-o earrings and bracelets with surface decoration show many similarities with specimens from Ludao and Lanyu islands off southeastern Taiwan (Hung 2005) (Figure 20.5k to 20.5u).
After a preliminary examination of the jade collections in the National Museum of the Philippines, we observed that at least two kinds of jade raw material were used in the Philippines. The green jade, used for the ornaments discussed above, probably came from Taiwan. The white jade found in many Batangas sites was only used for tools such as adzes and chisels, and this may have been acquired from a local Luzon source. In order to identify the sources of the green jade artifacts in the Philippines, and to compare them with similar artifacts from Taiwan and the Fengtian source material, the second author has worked at Academia Sinica in Taipei on a series of electron probe micro-analyses.

The technique of electron probe micro-analysis, equipped with wave-length dispersive spectrometers (WDS-EPMA) has been used to construct a mineralogical database for several nephrite deposits in Asia and Oceania, including Fengtian. Criteria that can be used to identify Fengtian nephrite have been proposed, based on the mineral chemistry of both the nephrite matrix and the zinc (Zn)-chromite inclusion minerals (Iizuka and Hung 2005). A low-vacuum scanning electron microscope (LVSEM), equipped with an energy dispersive x-ray (EDX) spectrometer, offers a completely non-invasive analytical technique, and mineral identification and quantitative analyses have been carried out on jade artifacts from Taiwan, the Philippines and East Malaysia (Hung et al. 2004; Iizuka et al. 2005a, 2005b, 2005c; Iizuka et al. in press; Iizuka n.d.).

The analytical results are separated geographically from northern Taiwan through the Philippine Archipelago to Sarawak, and are shown in Figure 20.7 as a discrimination diagram of calcium (Ca) amphiboles [ratio of Si to Mg/(Mg+Fe)]. Regardless of the locations and shapes of the artifacts, the matrix portions of each can be identified as both tremolite and/or actinolite in the Ca-amphiboles, with Mg/(Mg+Fe) ratios below 0.93 for all samples. Based on their chemistry and fibrous textures, all the studied sample are of nephrite. The chemical compositions of the matrices of all these nephrite artifacts are comparable to that of Fengtian nephrite [Mg/(Mg+Fe)<0.93]. Chromites (Cr-rich spinels), black in color, were also observed on the surfaces of most specimens as inclusion minerals, and these chromites contain equivalent zinc to Fengtian nephrite. The sizes of these inclusions vary from a few μm to few mm. A zoned inclusion, spinel-rich (AlMg$_2$O$_4$) in the inner part and chromite rich (CrFe$_2$O$_4$) in the outer part, can be observed in the back-scattered electron image with EDX spectra. As shown in Figure 20.8, the chemical variations of the chromite inclusions are comparable to those of Fengtian nephrite, but not with the other green native nephrites which have similar matrices. Because no definite nephrite sources have been reported from Island Southeast Asia, except for Taiwan, these results indicate that the raw materials of all the studied jade artifacts came from Fengtian.

Four green Sa Huynh type lingling-o earrings with 3 pointed circumferential projections from the Tabon Caves have been studied and identified as being definitively of Fengtian nephrite (Iizuka and Hung 2005; Iizuka et al. 2005b). The Niah lingling-o that we mentioned above has also been tested and confirmed as Fengtian nephrite (Bellwood and Dizon 2005). In 2004, Peter Bellwood and Eusebio Dizon discovered the Anaro jade workshop in the northern Philippines and excavated two drilled cores, possibly from the central holes of lingling-o earrings of the Sa Huynh type, from contexts dated to about AD 500. Anaro is located on Ibayat Island, Batanes, half way between Taiwan and Luzon. After analysis of their mineral chemistry using a non-invasive LV-SEM/EDS technique, both cores have been confirmed as Fengtian nephrite (Bellwood and Dizon 2005; Iizuka et al. 2005a). Several sharp-edged pieces of flat Taiwan slate were also found at Anaro, probably used to groove the nephrite with wet sand abrasive, as appears to have been the case in Taiwan workshops such as Pinglin.

Since the 1940s, several lingling-o earrings and bracelets of jade have been found on Lanyu, southeast of Taiwan and 110 km north of Batanes. According to Shu Shao-Ying (2003), fourteen waste pieces of jade, including nine drilled-out cores from annular objects, were collected from the grounds of Lanyu High School (No. 106 in Figure 20.3) between 1978 and 1982. From the associated pottery, Shu infers that these jade materials belong to the Iron Age (2003:7–3, 7–4, 7–6), like those from Anaro on Ibayat. According to the general similarities in pottery decoration, jade ornaments and jar burial practices between Lanyu and Batanes (de Beauclair 1972; Dizon 1996; Bellwood and Dizon 2005), we believe that the Early Iron Age inhabitants of these islands shared closely related cultures, and created new fashions in jade artifacts (e.g. the lingling-o earrings) that spread into the Philippines and perhaps also the Austronesian-speaking regions of Vietnam.

In the past year, further mineralogical studies have been carried out on the white jade raw materials from Xiaomeiling in Jiangsu, Trang Kenh in Vietnam, and Batangas. It has been confirmed that all the white nephrites from these locations are tremolite (Fe-poor) amphibole (Figure 20.9), unlike the Fengtian green nephrite which is actinolite (Fe-rich) amphibole (Iizuka & Hung 2005). As shown above, all the analysed green nephrite artifacts excavated from the Philippines are from Fengtian, both in terms of chemistry as well as the specific characteristics of the chromite inclusions that occur only in Fengtian nephrite and no other source analysed (Figure 20.7). The
Fig. 20.7 Chemical compositions of green nephrite artifacts. The X- and Y-axes represent Si (atoms per formula unit) and Mg/(Mg+Fe) ratios, respectively. The chemical boundary between tremolite and actinolite is 0.90 in the Mg/(Mg+Fe) ratio (Leake et al. 1997). a): Taipei City, northern Taiwan; b): Hualien County, eastern Taiwan; c) and d): green and white coloured artifacts, respectively, from Nantou County, Central Taiwan; e): Penghu Archipelago, off western Taiwan in Taiwan Strait; f): Taidong County, southeastern Taiwan; g): Gaoxiong and Pingtong Counties, southwestern Taiwan; h): Lanyu Island, off southeast Taiwan; i): Anaro, on Itbayat Island, Batanes Islands (Philippines); j): Nagsabaran, Cagayan Province, northern Luzon; k): Kay Daing, Batangas Province, southwestern Luzon; l) and m): beads and bracelet, and lingling-o ear ornaments respectively from Tabon Caves on Palawan Island; n): a lingling-o earring from Niah Caves, Sarawak, East Malaysia. Enclosed areas contain the chemical compositions of Fengtian nephrite samples from the Fengtian mine area (8-hand specimens and 262 analysis points) and a nearby riverbed (9-hand specimens and 385 analysis points) (after Iizuka & Hung 2005). In the legends: b, bead; BR, bracelet; f, fragment; HK, Hong Kong type lingling-o; SH, Sa Huynh type lingling-o. N and n, numbers of analysis spots by WDS-EPMA and LVSEM-EDS, respectively.
Fig. 20.8 Discrimination diagram of Fengtian nephrite based on chemical variation of chromite in green nephrite artifacts from a): Taiwan and b): Philippines. The chemical compositions of the chromite inclusions in nephrites are plotted on a spinel (MgAl$_2$O$_4$)-chromite (FeCr$_2$O$_4$) diagram. The X- and Y-axes represent the Cr/(Al+Cr) and Fe/(Mg+Fe) ratios, respectively. Chemical variations from cores to rims of zoned chromites in green nephrite deposits from Fengtian, Gansu (China), Siberia, South Island of New Zealand and British Columbia are enclosed (after Iizuka & Hung 2005). n: number of analysis spots by WDS-EPMA. All data from both Taiwan and the Philippines are comparable to those for Fengtian nephrite.

Fig. 20.9 Chemical compositions of white nephrites.

a): white nephrite artifacts and preforms from Batangas, southwestern Luzon (PHL). The ranges for Fengtian nephrite and green nephrite artifacts in Taiwan and the Philippines (shown in Fig. 20.7) are enclosed. The white nephrites are divided into two groups by their Mg/(Mg+Fe) ratios; Group-A and preforms: milky white to transparent grey in color, analysed at 226 spots on nine chisels and 50 spots on two preforms by WDS-EPMA. Mg/(Mg+Fe) > 0.97. Group-B: brown, white to light green in color, analysed at 81 spots on two chisels by WDS-EPMA. Mg/(Mg+Fe) = 0.97 to 0.94 (Iizuka n.d.); b): three white nephrite artifacts from Trang Kenh (TK), Haiphong, northern Vietnam, and white jade raw material from Xiaomeiling (XML), Jiangsu, China. The enclosed areas represent the chemical variations in Philippine white nephrites (shown in Figure 20.9a). N = number of analysis spots by WDS-EPMA.

Conclusions

One of the most significant results from our study is the identification of a trading network for ornaments of Fengtian nephrite extending through Taiwan, into the Philippines, and at least as far as Sarawak. This is a new discovery that reflects continuing long distance seafaring. Neolithic and Iron Age Austronesians were active in the movement of jade from at least 3,500 years ago in the South China Sea region, an observation that suggests a high degree of maritime navigational ability on the part of the travellers.
We are also interested in the cultural geography of relations between Taiwan and surrounding areas. Why was Taiwan (Fengtian) nephrite taken to Luzon and Palawan in the Philippines, to Borneo and perhaps to southern Vietnam, but apparently never to Hong Kong, Guangdong or northern Vietnam, where no artifacts of green jade have yet been recognised? The Taiwan nephrite ornaments from Nagsabaran in northern Luzon are associated with pottery of a red-slipped type similar to contemporary pottery in eastern Taiwan at ca. 4,000 BP–3,500 BP (Hung 2005). This movement of jade artifacts might thus have been a result of Neolithic colonization, presumably by Malayo-Polynesian-speaking peoples within the Austronesian language family. This movement continued for more than 2,000 years, although during the Iron Age the Taiwan nephrite was apparently only exported to Lanyu and Ibayat as raw material, for manufacture there into artifacts of types not otherwise found in Taiwan, such as the lingling-o earrings shown in Figure 20.6.

Likewise, in the Tai Lake Plain of the lower Yangtze River, there was no local workshop for nephrite manufacture prior to the Liangzhu Culture, and all finished products were traded from Ningzhen in Jiangsu. But with the beginning of the Liangzhu Culture, nephrite manufacturing declined in Ningzhen and the workshops apparently moved downstream to the Tai Lake Plain, even though the nephrite itself still had to be carried from the Xiaomeiling Hills to the south of Ningzhen (Zhang 2003: 220; Zhang 2005 pers. comm.). This is quite interesting, because the pattern of translocation and continuity between Ningzhen and Tai Lake in the Yangtze Basin is very similar to that observed between Taiwan and the Philippines — initial export of finished artifacts, followed by import of raw material to make artifacts in the local styles required by the Liangzhu and Filipino consumers.

We have observed that elite groups appear to have controlled the jade sources, manufacturing technologies and transportation routes during Liangzhu times in China. We should also consider whether jade production and distribution in Taiwan and the Philippines occurred with elite involvement in the acquisition of raw materials and the subsequent exchange of prestige goods. From Robert Fox’s notes, it appears that some of the jade ornaments found in the Tabon Caves were found associated with jar burials, with bronze and copper objects and glass ornaments (Fox 1970:130). Unfortunately, many of these jar burials appear to have been disturbed and there is not enough information to allow more detailed discussion of social context at this time. On the other hand, from the relative homogeneity of the types of Taiwan nephrite ornament found around the South China Sea during the Iron Age, it can be suggested that the number of workshops was perhaps limited. Were they under elite patronage? This is quite possible.

Although we have not yet analysed any of the green nephrite artifacts from southern Vietnam, some are visually very similar to Fengtian nephrite in color and texture. In Vietnam, these green jade artifacts have only been excavated from Sa Huynh and Dong Nai Culture sites, belonging to a southern complex that is regarded as ancestral to the Chamic-speaking (Austronesian) ethnic groups of historical times. The Chamic languages belong to the Western Malayo-Polynesian branch of the Austronesian language family, and this branch also includes the native languages of the Philippines, Borneo, Malaysia and most of the Indonesian archipelago (Southworth 2004: 211).

Therefore, we suppose that the distribution of Taiwan nephrite probably indicates interaction between Austronesian-speaking groups in Taiwan, the Philippines, Sarawak and southern Vietnam. The nephrite trade was probably tracking relationships in language and cultural background formed by a shared history of migration during the Neolithic. A similar pattern of long distance contact has been reported from studies of the movement of Lapita obsidian from sources in New Britain, reaching as far west as Bukit Tengkorak in Sabah and as far east as Fiji prior to 3,000 years ago. Such contacts were probably also trading relationships between groups who shared prior migration histories, a situation visible also in the close relationships between pottery assemblages (Bellwood 1997; Summerhayes 2004).

Notes:

1 Jade is a term used in the broad sense of a hard and shiny stone, applied to one of two mono-mineralic rocks termed jadeite and Nephrite in gemology and geology. Both jadeite and nephrite occur in metamorphic rocks, but their chemical compositions are different. Jadeite is composed of jadeitite (sodium clinopyroxene), whereas nephrite is composed of calcium amphibole (tremolite and/or actinolite). Most jade artifacts in Neolithic and Iron Age Taiwan and the Philippines are of nephrite.

2 Lingling-o is a term for an ear pendant with a “c” shape and pointed circumferential projections. According to Fox (1970:126): This type of ear pendant (Fox 1970: fig37c to h), described herein as ‘lingling-o’ following Beyer (1948:68–69), are (sic) related to ear-pendants made of metal and still worn by the Ifugao of northern Luzon. The lingling-o is the diagnostic ornament of the Early Metal Age in the Tabon Caves.
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TAIWAN JADE IN THE CONTEXT OF SOUTHEAST ASIAN ARCHAEOLOGY


