The Distribution of Bronze Drums of the Heger I and Pre-I Types: Temporal Changes and Historical Background

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ABSTRACT

Based on the chronological sequence and temporal division of bronze drums published in 1993, the changes in their distribution throughout Southern China and Southeast Asia are examined. The chronology proposed in 1993 divided the bronze drums of the Heger I type into six phases: 1a, 1b, 2a, 2b, 3a and 3b. Since these small divisions leave many drums for which there is insufficient information unclassified, a rather rough division into phases 1, 2 and 3, plus phase 0 for the Pre-Heger I type, is also used.

The drums of phase 0 (4th ~ 3rd c. B.C.) concentrate in Southern China and Northern Vietnam. Phase 1 (3rd ~ 1st c. B.C.) shows a similar distribution, with partial expansions into the peninsular area of Thailand and the island of Java in Indonesia. In the next phase, 2a (1st c. B.C.), the bronze drums disappear almost completely from Southern China. Although Vietnam retains a fair number of drums, there are fewer large drums. In contrast to this situation in the northern areas, the southern areas of Southeast Asia witness an increase in number. There is a special phenomenon where particularly large drums concentrate on small islands of Eastern Indonesia. In phase 2b (1st c. A.D.), drums of the Dong Son tradition diffuse into the vacancy left by the Shizaishan tradition in Southern China, where it had disappeared; hence, Guangxi Province becomes the area with the densest distribution in phase 3b (2nd c. A.D. and after). Around this time, drums that are in the process of changing to the Indonesian Pejeng type, though very few in number, are seen in the southern areas.

Regarding the historical background, bronze drums disappeared temporarily in phase 2a in China and diffused into the southern part of Southeast Asia soon after the conquest of Southern China and Northern Vietnam by the Han Empire and as a direct consequence of this invasion.

The changes in the distribution of bronze drums reveal that prehistoric Southeast Asia was not a gathering of small, isolated worlds, but rather a network of mutually linked areas more or less in unison.

1. Outline of the Pre-Heger I and Heger I types

1-a. Significance of bronze drum research

Bronze drums have been reported plentifully, widely, and with precision more so than any other

* The information of bronze drums for this paper was mostly taken from the following books.
archaeological material in Southeast Asia. This situation enables us to examine the late prehistory and early historic times of a vast geographical area which extends from Southern China down to the southernmost parts of Southeast Asia, via one kind of artifact. This is one of the significances of bronze drum research.

1-b. Distribution research and temporal division

When we try to glean the historical implications behind the distribution of any kind of artifact, maps should be drawn according to the shortest possible temporal phases. Historical processes are hardly recognizable on maps which account for long durations, since such maps show an accumulation of phenomena occurring during long stretches of time. It is generally difficult to classify artifacts distributed across an extensive area into short phases. In the case of bronze drums, however, this can be done fairly easily, because they possess many common traits despite their wide distribution.

1-c. Several traditions in the early bronze drums (Figs. 1, 2)

Bronze drums have a wide range of shapes and decorations. However, by no means do they bear random combinations of traits. When we trace the changes in form and the lineage of each kind of decoration, and when we check which kinds of traits are seen together on each drum, we find that each drum can be placed at its own point in a precise sequence of changes. Among the early bronze drums, three important sequential traditions are recognized.

They are the Pre-Heger I (Imamura1973), Shizaishan and Dong Son (Imamura 1993) traditions. There are also rare specimens that can hardly be placed in any of these traditions. Let us first present an outline of the typological and distributional changes in order to facilitate the reader’s understanding of the topic.

Bronze drums of the Pre-I type were produced by turning bronze cauldrons upside down (Imamura1973); they were distributed in Southern China and Northern Vietnam during the earliest phase (phase 0, from the 4th to the 3rd century B.C.). They underwent a sequential development, basically from plain drums into drums with many decorative patterns on the surface (Imamura1979). Although the cauldrons also changed their form, they remained plain.

The Shizaishan tradition of the Heger I type evolved from the Pre-I type through intermediate instances. These maintained almost the same distributional areas (i.e., Southern China and Northern Vietnam), although a few rare specimens have been found in Thailand and on the island of Java in Indonesia. This tradition disappeared as early
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as the 1st century B.C. After this, Southern China experienced a short period with few bronze drums (Imamura1993).

The origin of the Dong Son tradition of the Heger I type is not clear. Its early stage is known to have been contemporaneous with the Shizaishan tradition, and its bronze drums were distributed mainly throughout Northern Vietnam. Before long, many drums of this tradition diffused into the southern parts of Southeast Asia, such as Thailand, the Malay Peninsula and Indonesia. This southward expansion occurred in the 1st century B.C. and will be discussed later. A local tradition developed soon in the southern portion of Southeast Asia, and seems to have continuously changed into the Pejeng type in Indonesia, although the existence of this link has not been proven to date by actual intermediate specimens.

For the period beginning with the 2nd century A.D., or in the final stage of the Heger I type, there are fewer finds in the southern part of Southeast Asia. Their distribution becomes concentrated once again in Northern Vietnam and China’s Guangxi Province. This revival of bronze drums in Southern China did not belong to the Shizaishan tradition, but was an expansion of the Dong Son tradition from Northern Vietnam, where it had been maintained (Imamura1993).

Several centuries later, the last drums of the Dong Son tradition evolved into the Heger II type, and also into an intermediate type between Heger I and IV. A few specimens from Thailand and Myanmar show that the last drums of the Heger I type evolved there into the Heger III type (Cooler1995).
2. Temporal, typological changes

A report on my research on the temporal, typological changes in the Heger I type was presented in 1993. The Dong Son tradition is important because it displays an unbroken series of sequential changes in one area, Northern Vietnam. Therefore, we can view it as the main axis and correlate the other traditions to it, enabling all Heger I drums to be arranged in a neat temporal order (Fig.2).

Like the Shizaishan tradition, the Dong Son tradition consists of large drums with several pictorial bands on the tympan and small drums with only one pictorial band of flying birds. The drums with more than one pictorial band are richly decorated with many kinds of patterns, which are useful for judging their relative chronology. Different kinds of patterns applied on the same drum were undoubtedly contemporaneous.

By estimating the temporal serial changes in each kind of pattern and checking each drum for contemporaneousness among different series of patterns, we can arrange the drums with multiple pictorial band (Fig.3).

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<th>Diameter of tympan</th>
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Fig.3 The sequential elements of Dong Son tradition multiple pictorial band drums
bands of the Dong Son tradition in Vietnam into a precise temporal order. This tradition can be divided into six phases, 1a, 1b, 2a, 2b, 3a and 3b, according to several indicative patterns and other features (Fig.3).

Among the Dong Son tradition drums with a single pictorial band, only the drums with patterns or traits common to those of drums with multiple pictorial bands can be classified into the same six phases, but the ones without such clues can only be roughly correlated. As for the drums of the Shizaishan tradition, their temporal positions can be estimated according to the traits common to the Shizaishan and the Dong Son traditions or based on the co-existence in one tomb with Dong Son tradition drums. Many Shizaishan drums cannot be precisely correlated to the six phases of the Dong Son tradition. However, this does not cause a big problem, because the tradition lasted only for a short time, mostly during the 1a and 1b phases. This is one of the reasons why I will not use the above-mentioned 6 phases, but three rougher phases (1, 2 and 3) when I will show some distribution maps later.

In phase 2b, the number of drums with a single pictorial band decreases and, in phases 3a and 3b, they disappear, leaving only drums with multiple pictorial bands.

3. Dates (Fig.8)

The causes that led to the change in the distribution of bronze drums will be discussed later. Possible causal historical events can be pointed out only after the calendar years for each phase are given. For the date of Pre-I drums, the Tiandong drum of Guangxi Province is important, because it was found together with a bronze jar of the Warring States period (Chen et al.1993) and is dated around the 4th century B.C. There are many pieces of evidence which point to the 2nd century B.C. for the Shizaishan type.

The Dong Son tradition, although important as the axis of our relative chronology, provides insufficient data for determining the calendar years. One phase 1b specimen has been unearthed from a tomb in Guangxi dating back to the 2nd century B.C (Museum of the Guangxi Zhuang Nationality Autonomous Region 1988). At the Phu Chanh site in the Binh Duong province of Vietnam, a Western Han mirror dating from the final phase of the dynasty, i.e. around the start of the Christian Era, was excavated together with a phase-2a bronze drum from one tomb (Yamagata et al. 2001).

One phase-3b specimen bears the inscription “199 A.D.” on its surface (Loewenstein, J. 1956). There is scant dating evidence stemming from between the last two points of time. A Chinese bronze basin which has been indirectly dated at about 100 A.D. (Yoshikai1995) has patterns of flying birds and feathered people, which are degenerated compared to the same kinds of patterns found on phase-2b drums. So, we can estimate the boundary between phases 2b and 3a to be a little earlier than 100 A.D. On the ground, we can estimate the boundary between phases 2a and 2b to be a little later than the beginning of the Christian Era; accordingly, most of phase 2a must have lasted no later than 42 A.D., the year of General Ma Yuan’s suppression of the
rebellion led by the Trung sisters.

4. Distribution

When the classification of the bronze drums into phases is completed, we only have to mark their sites of discovery on our maps. However, we cannot gather enough information, such as detailed photographs, for all the specimens, and the division into 6 narrow phases leaves many drums unclassified. For this reason, a division into 3 rougher phases (1, 2 and 3) is adopted here, adding phase 0 for the Pre-I type at the head.

Now, let us first examine the distribution across Southern China and Northern Vietnam, and then the whole of Southeast Asia, using the Vietnamese sequence as the standard scale of our relative chronology.
4-a. Distribution across Southern China and Vietnam

Phase 0 (4th ~ 3rd c. B.C.  Fig.4)

Pre-I drums were distributed in China’s Yunnan and Guangxi Provinces and in Northern Vietnam. Many Chinese archaeologists believe that Yunnan was the original area of bronze drums. Some drums, however, no younger than the earliest drums of Yunnan, have been unearthed in Northern Vietnam. Therefore, we cannot limit the original area to within Yunnan. Two plain specimens of this type, whose sites of discovery are not known, have been found in Thailand. It must be noted that plain cauldrons, similar to this type of drum, continued to exist into the time of Heger I.

Fig.5  Distribution of Phase 1 drums
Phase 1 (3rd ~ 1st c. B.C.  Fig.5)

Many drums of the Shizaishan tradition have been discovered in Southern China and Northern Vietnam. In Vietnam, not only drums of the Shizaishan tradition but also more of the Dong Son tradition drums have been unearthed. The Shizaishan tradition disappeared as early as the beginning of the 1st century B.C.

Phase 2 (1st c. B.C. ~1st c. A.D.  Fig.6)

Only one drum from the early part of phase 2a and three drums from phase 2b have been found in Yunnan and Guangxi, respectively. Therefore, bronze drums seem to have disappeared from Southern China for a short while during phase 2a. Although the production and use of drums continued in Vietnam, their number, especially in the area to the north of the Than Hoa Province, decreased. There are not many large
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drums among the remaining ones. The Dong Son tradition of Vietnam, however, began to extend into the neighboring Guangxi Province of China during phase 2b.

**Phase 3 (2nd c. A.D. ~ ? Fig.7)**

Only two specimens, from Vietnam, have been classified into phase 3a. An explanation is needed for the small number in this phase. Recently, a fragment of a clay mold used for the production of phase-3a drums was discovered by Dr. Nishimura in the banked precincts of the Lung Khe site in Hanoi (Nishimura 2001). (Lung Khe is generally identified as Lui Lau or the main city of the Jiaozhi Province of the Han Empire, although there are other opinions.) So far, phase-3a and -3b drums have been mostly discovered in the mountainous areas far from the plains of Northern Vietnam. This means that the phase-3 drums of Vietnam

Fig.7  Distribution of phase 3 drums
were made in the central city (or cities) and were distributed among the ethnic minorities around the plains, rather than used by the producers themselves.

In phase 3b, more drums were made in Guangxi than in any other area. Although they originated in the Dong Son tradition, many of them acquired new patterns different from those seen in Vietnam. Among them are many drums larger than 70cm in diameter, none of them, however, exceeds 100cm. This flourishing of bronze drums continued into the time of the Heger II phase.

**Absence of bronze drums in Guangdong**

An important fact is that no bronze drum belonging to any of these phases has ever been found in China’s Guangdong Province. In the 2nd century B.C., the capital of Nanyue (Nam Viet) was located in Guangdong, which ruled over Guangxi and Northern Vietnam, where bronze drums were commonly used. It could not have been that the people of Guangdong did not know about and could not obtain them. Therefore, the rulers of Nanyue would not use bronze drums, although they ruled over people who loved them. Ideological influences from Zhongyuan (the Central Plain of China) must have made Nanyue look down on the ceremonial instruments of local peoples. This was clearly shown again when the Han Empire subdued Nanyue and Dian of Yunnan, and the ideology of the Han pervaded these areas: bronze drums disappeared there.

**4-b. Distributional expansion into the southern areas of Southeast Asia**

Let us now turn to the changes occurring throughout Southeast Asia, using the sequential phases of the Dong Son tradition in Northern Vietnam as a time scale.

**Phase 0 (3rd c. B.C. and before)**

There is no information on the discovery sites of two Pre-I drums, which were found in antique shops in Bangkok.

**Phase 1 (3rd ~ 1st c. B.C.  Fig.5)**

Two drums of the Shizaishan tradition have been found in Thailand and Indonesia. About ten phase-1 drums of the Dong Son tradition have come out of Thailand and Indonesia, especially from the middle of the Malay Peninsula and from the island of Java. Many of them seem to belong to phase 1b.

**Phase 2 (1st c. B.C. ~ 1st c. A.D.  Fig 6)**

The situation changed drastically during phase 2a. In contrast to the decrease in the number of bronze drums, especially that of large drums in Northern Vietnam, many drums appeared in Thailand, the Malay Peninsula and Indonesia. More than half of them are large drums with multiple pictorial bands. Particularly large drums are conspicuously concentrated on small islands of Eastern Indonesia.

It seems to be commonly understood that this special distribution in Eastern Indonesia was an
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exceptional phenomenon that occurred in a late period in a remote area. When carefully examined, however, such drums reveal the same form, patterns, and rule of pattern layout to the normal phase-2a drums of Vietnam. In Indonesia, there are many drums with phase-2a features, but only one specimen has the emblem-like patterns commonly used in phase-2b in Vietnam. This is the reason why I judge the expansion as occurring during phase 2a.

There are opinions that the large drums of Eastern Indonesia were carried there from the continent fairly long after their production (Bellwood 1985). It is hard, however, to imagine that large drums belonging to only one phase were selected and accidentally carried to a limited area. They must have been carried purposefully to that specific area soon after their production.

The situation in Thailand and Malaysia is not simple. There are phase-2a drums that cannot be distinguished from the specimens of the Vietnamese Dong Son tradition. Four drums have the emblem-like patterns typical of phase 2b. There are some drums, however, which basically belong to phase 2 of the Dong Son tradition and also have some traits that are not seen in Vietnamese drums. As will be discussed later, local production is recognized to have started after a branching off from the Vietnamese Dong Son tradition. A few such drums have also been seen in Indonesia.

Phase 3 (1st c. A.D. and after Fig.7)

In the southern area, there are only three drums known to belong to phase 3b on the criterion of the Vietnamese Dong Son tradition. These drums also show some traits similar to those of the early Heger III specimens, indicating that the latter type originated in this area.

It is difficult to date the above-mentioned drums of the southern part of Southeast Asia, which are slightly more specialized in comparison to the normal drums of phase 2a. They do not have the traits characteristic of Vietnamese drums belonging to phases 2b, 3a and 3b, although their influence is known to have reached Thailand. So, it is natural to consider that they belong to a period earlier than phase 2b, and accordingly, were not influenced by the later types. Deeper scrutiny might infer that the Dong Son tradition reached there during phase 2a and then evolved independently without accepting new influences of Vietnam, and that these drums can be dated as late as phase 2b or 3.

Such drums are not very different from normal phase-2a drums. So, I consider them, even if they are dated later, to remain within the sphere of phase 2b. The distribution map for phase 2 was drawn based on this way of thinking.

The Kham Cha drum from Thailand (National Museums and The Fine Arts Department 2003), however, changed so much from the original Dong Son tradition that it can be dated at phase 3. The very high proportion of the bottom part renders it is closer to the Indonesian Pejeng type than to any other drum type.

* A Javanese drum as large as 130 cm in diameter was witnessed to have these patterns, although the specimen was later lost. (Kempers 1988)
Between the two, however, a big blank remains for which no intermediate specimen is available. Thus, the correlation of the specialized southern branch of the Dong Son tradition with the time scale of Vietnam requires further investigation.

5. Causes of the temporal decline in the northern area and the southward expansion

What is the cause of the temporal decline or disappearance of drums in Northern Vietnam and Southern China during phase 2? The cause of the extinction of the Shizaishan tradition at the beginning of 1st century B.C. is clear. The timing closely follows the conquest of Southern China by the Han Empire (111-109 B.C.). The drums of the Dong Son tradition also declined in the Red River Delta of Northern Vietnam, where the political power of Han reached.

Was the following drastic diffusion of bronze drums into the southern part of Southeast Asia a chain reaction having the same cause? There are two important historical events recorded in the Chinese chronicles that could have caused the decline in the northern area and the southward diffusion. One is the above-mentioned conquest by the Western Han, and the other is the suppression in 42 A.D. of the rebellion led by the Trung sisters by the Eastern Han General Ma Yuen, 150 years later than the first possible causal event. In the latter case, the chronicle Hou Han Shu records that the General confiscated bronze drums and recast them into (a) horse figure(s), which implies a crackdown on bronze drums.

The rapid expansion of bronze drums into the southern part of Southeast Asia occurred during phase 2a, and this phase has been previously estimated to end earlier than 42 A.D. Therefore, the crackdown by Ma Yuen could not have been the cause. The expansion into Eastern Indonesia is particularly prominent for many drums, larger than that seen in any other area. Not only the military pressure on the area of departure, but also the special conditions prevailing in the areas of arrival must have played a role. There could have been new societies in the process of growth that demanded large drums as special prestige goods.

The small number of phase-3a drums might have been due to either the short duration of the phase or the mistaking of one local school for a separate phase. The number could have really decreased as the result of the suppression by General Ma Yuan, since phase 3a is estimated to have lasted around the end of the 1st century A.D. One of the phase-3a drums was discovered at high altitude between the Ninh Binh and Thanh Hoa Provinces, and the other near the present border with Laos and Cambodia. These locations may indicate that the situation existed after the crackdown. However, this reasoning seems to be inconsistent with the fact

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* In this paper, I discussed the transport of bronze drums on the assumption that a historical event affected the distribution of drums produced after the event. The possibility should be considered, however, that a historical event could have affected the distribution of already existing drums: Ma Yuen’s crackdown could have forced the local chiefs to make their important drums escape southward. Nevertheless, this reasoning cannot explain why only large drums stemming from a limited period are found concentrated in similar locations in Eastern Indonesia.
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The revival and ensuing blossoming of bronze drums during phase 3b in Guangxi, Southern China, was a result of the northward expansion of the Dong Son tradition, which had been kept alive in Vietnam. This might have been related to the historical situation around the 2nd century A.D., when the power of the Eastern Han declined and governors such as Shi Xie pursued independent rulership in Vietnam. During phase 3b in Vietnam, bronze drums were still used mostly by people living at high altitudes, far from the center.

6. Production sites

Finally, let us consider the production sites of bronze drums. It goes without saying that the Pre-I and Schizaishan types were made at several places in Yunnan, Guangxi and Northern Vietnam, where they were distributed. The production of Dong Son drums continued in Northern Vietnam from phase 1 to phase 3 and further into the Heger II phase without interruption. The tradition and production were transplanted to Guangxi during phase 2b or 3b.

The most difficult issue is that of the production sites of the drums discovered in the southern areas
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of Southeast Asia. One Pre-I drum (the Idemitsu Museum drum) was purchased from an antique shop in Bangkok; it was cast with the lost-wax method (Imamura 1988), traces of which have not been seen on other drums belonging to the phase of Southern China and Northern Vietnam. So, this drum may have been cast in Thailand. Regarding the next phase, phase 1, no difference can be seen between the small number of drums discovered in the southern part of Southeast Asia and the drums seen in the original areas. They must have been transported over a long distance from their production sites.

As mentioned previously, many drums with traits characteristic of phase 2a have appeared in Thailand, the Malay Peninsula and Indonesia. Some are indistinguishable from phase-2a drums of the Vietnamese Dong Son tradition, while others, though basically belonging to the Dong Son tradition, have special decorations not seen in Vietnam. Two drums from Thailand have three-dimensional snail figures. Some drums have patterns of flying birds or feathered people, different from the patterns seen on Vietnamese drums. Many drums from Thailand have an additional plain band on the tympan. Five drums found in Thailand, Malaysia and Indonesia possess a band of geometric patterns not found on Vietnamese drums, and their origin is unknown.

Based on the above pieces of evidence, we can conclude that local production derived from the Dong Son tradition of Vietnam started during phase 2a in the region around Thailand.

Quite many extremely large drums are known to come from small islands of Eastern Indonesia, such as Sangeang, Salayar, Alor, Roti, Leti and Kur. Some of them bear realistic pictorial representations of humans, animals and other objects, and are very impressive, considering also their large sizes. If we neglect, however, their sizes and the newly added realistic patterns, they have traits characteristic of phase 2a of the Dong Son tradition. They can be explained as special instances of phase-2a drums bearing newly devised patterns, created with the intent to make marvelous pieces of artisanship. Such drums bear representations of feathered persons arranged in double rows. Only two drums from Vietnam have similar patterns. The rarity of such drums in Vietnam is quite natural, because such patterns were used only on large drums and Vietnam has only a small number of big phase-2a drums. We have to pay attention to the fact that similar patterns are seen on many phase-3b drums from Guangxi. As mentioned above, the production of such drums diffused from Vietnam, which proves that large drums were made during phase 2a in Vietnam.

On the above reasoning, we should admit the possibility that the large drums of Eastern Indonesia were made in Vietnam, and that the products did not remain there. Referring to the fact that the production sites and areas of use are far from each other in the case of phase 3a, we have to admit the possibility that all large phase-2a products of Vietnam were exported.

A few large drums in Eastern Indonesia, such as the Salayar drum, which has some original geometric patterns and other features not seen on the pure Vietnamese Dong Son tradition, might have been produced in Thailand or in other southern areas of Southeast Asia, where the Dong Son tradition had branched off into a new school.
7. Unity of prehistoric Southeast Asia

Bronze drums did not last without interruption in all areas of Southern China and Southeast Asia. Rather, local production and use repeatedly blossomed and declined. This process did not occur independently in each area, but rather in close concert among neighboring areas. The changes in the distribution of bronze drums reveal that prehistoric and early historic Southeast Asia and Southern China was not a mere agglomeration of isolated small worlds but a network of mutually linked areas more or less in unison.

REFERENCES
Imamura Keiji 1988. The discovery of a Pre-Heger I bronze drum cast by the lost-wax method. Paper read at the 1st International Conference on Ancient Bronze Drums and Bronze Cultures in Southern China and Southeast Asia (Chinese Translation in *Southern Ethnology and Archaeology*, vol.2).

POSTSCRIPT
1. In this paper, which was read at the 2006 conference of the IPPA, I discussed the distribution of Heger I type bronze drums, including the 115 specimens from Vietnam discovered by 1988 and described in *Dong Son Drums in Viet Nam*. At the same conference, however, Dr. Pham Minh Huyen reported that 179 specimens have been newly discovered during the years 1988-2005. This addition increased the known number of such drums to 2.5 times that of 1988. It goes without saying that this paper, which depended on *Dong Son Drums in Viet Nam*, cannot but
be seriously affected by this increase in number. It will be impossible, however, to obtain detailed information on so many new discoveries any time soon. Therefore, I submit here the original paper read at the congress, without any amendments. A revised paper will be published after the new information becomes available.

2. In this paper, judging from the typological sequences, I wrote that the large drums of Eastern Indonesia were produced in Vietnam, in spite of the fact that similar large specimens have not been discovered there. At the 2006 congress of the IPPA, however, Dr. Pham Minh Huyen reported on the newly discovered Hoa Binh drum, which is 107 cm in diameter and known to belong to phase 2b on her photographs. The Le Quang Chuc drum which Dr. Ambra Calo reported at the same conference was the same piece. This discovery proved that very large drums were actually produced in Vietnam during phase 2.

3. Like a criticism to my paper by an attendee at the IPPA conference, it is rather common idea in Chinese archaeology to push the original date of my Pre-I type (Wanjiaba type for Chinese archaeologists) bronze drums back to the 6th-7th century B.C., depending on the results of C14 dating. Such early dates are questionable, because the C14 dates, which are inherently inaccurate to some degree, do not fit the recognized process of history in detail, and because the calibration curve of C14 dating is so flat between the calendar years 400 and 700 B.C. that it gives roughly the same C14 dates. Such dates cannot be converted back to calendar years, and means that objects stemming from the period between 400 and 700 B.C. cannot be precisely dated by the C14 method.