



## 8<sup>th</sup> Century Musical Instrument on Kalasan Temple's Relief

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### Abstract

This research aims to unveil the types, size, figures, and functions of musical instruments carved as reliefs of Kalasan Temple as a way to revitalize the music from the 8<sup>th</sup> century. This research implements heuristic methods with Panofsky's iconology analysis in three steps, which are pre-iconography, iconography, and iconology to analyse the reliefs of the Temple. The researchers validated the findings through forum group discussion with the Cultural Heritage Preservation Board of Yogyakarta. The findings show that (1) the relief of musical instruments in Kalasan temple is located on the head of *Kala*; (2) the musical instruments on the head are two wind instruments made of shells and a stringed instrument named *vina*; (3) there are two figures of musicians carved, which are two wind instruments players and a player of stringed instruments. The figures are depicted as heavenly creatures named *Gandharva*; (4) the measurement shows that the wind instruments have 35.98 cm length and 12.85 cm width, another one has 23.13 cm length and 12.85 cm width. Meanwhile, the stringed instrument has a length of 92.52 cm and 12.85 cm width; and (5) the musical instruments were performed to worship the Goddess of Tara.

**Keywords:** Kalasan Temple, musical instruments, relief

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### INTRODUCTION

Kalasan temple is located in Kalibening, Tirtamani, Sleman, Yogyakarta. The place is specifically located 10 km south of Yogyakarta's central business district and around 5 km from Prambanan temple. In Kalasan inscription, Kalasan temple is named after its location. The inscription explains that the location is called Kalasan, and the place is blessed in a meeting involving important figures, such as *pangkur*, *tawan*, and *tirip* (sets of local Javanese leaders) along with the ancestors of the village (Source: Prasasti Kalasan BPCB DIY Inventory Number D 147).

There is another temple not far from

the location, which is named Sari Temple. Both Kalasan and Sari have similarities in their fineness and sculptural subtlety. The specific character of the temple is that they have *vajralepa* (bajralepa), which is a layer that covers the ornaments and reliefs on the outer wall.

Apart from the characteristics, Kalasan temple displays musical instruments on its south relief. The displays attracted the researcher's attention when a musical performance was held in the area in 2017. Hence, the researchers initiated this research based on the curiosity to know detailed information regarding the types, size, figures, and functions of musical instruments carved as reliefs of Kalasan Temple.

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From the raised problem, it is a fact that Indian culture's influence in Indonesia reached its peak between the 8<sup>th</sup> and 11<sup>th</sup> centuries. During the time, there was a development of Javanese culture, especially in architecture, fine arts, and music. As an example, a lot of temples were built in the civilization.

There are many musical instruments displayed on the temples' reliefs. Some of the instruments came from India or Indonesia, such as *kledi*, flute, *siter* (Javanese violin), *angklung*, xylophone, *sapeq*, *gendang*, bells, gong, *saron*, *bonang*, and several wind instruments (Prier, 1991, p. 80).

The character of a musical instrument is based on the sound that it produces or simply its timbre. According to Sach & Erick, musical instruments are classified based on how to use them: (1) idiophone (percussions), e.g., xylophone, *angklung*, Belyra; (2) aerophone (wind instruments), e.g., *aulos*/ flute/flauto, clarinet, fagot, french horn, trombone, tuba, and trumpet; (3) chordophone (stringed instruments) *kecapi*, *siter*, harps, *rebab*, violin, cello, bass; (4) electrophone (electrical music instruments), e.g., electric guitar, electric piano, and keyboard (Banoë, 2003).

During the erection of Prambanan temple, Javanese Hindu has been identified as using musical instruments like *kecapi*, *kinara*, trumpet, drum, and symbals. The *kecapi* in Borobudur's relief is slim with different variations. It is predicted that the *kecapi* entered Java during Syailendran age (c. 725 - c. 850). *Kinara* is a musical instrument on the relief which shows the advanced development of music in Java. There is a trumpet-like instrument made of shells which represent a vital story of service and war during the time. The instrument is mentioned in old Javanese literature under the name of *sangka*, *mara*, and *sungu*. The drum musical instruments on Borobudur and Prambanan were diverse. They were approximately coming from the year 824 and the second half of the 9<sup>th</sup> century. Cymbals were found on Prambanan and Borobudur with a trophy-like figure (Kunst, 1927, p. 56).

This research employed a musical archeology approach. Broadly speaking, musical archeology is an approach that covers the history of musical sound art phenomena. The research findings focus on music that is dug and provide sound artefact (ancient musical and sound instruments), instrumental depiction, singer, dancer with musical instruments, posture of performances, and real performance. Archeological approach has already provided a sociocultural presentation and historical meaning of ancient music (Both, 2009, p. 1).

Prior studies have analysed some temples in Indonesia. A research has been conducted on a historical site in Kedulan. Kedulan contains the remains from the 9<sup>th</sup> century on the Temple of Hindu Mataram Kingdom at Tirtomartani, Kalasan, Sleman Regency, Yogyakarta. The temple was found accidentally by a sand digger on November 24<sup>th</sup>, 1993 under several meters of modern Merapi's vulcanic deposit. Technical studies are required to dig the temple carefully, specifically in geology and geophysics. One of the geophysics methods applied on this study was by the radar of soil penetration (georadar). The method used radar to get the profile from the sub-surface of the temple; thereby, the scientists can explain the soil substrate based on the distinct dielectrical constant. Georadar investigation were conducted by Geological Engineering Department of Engineering Faculty, Universitas Gadjah Mada, on Desember 4, 2007. The main aim of this is to identify the location of the stone fence as the approximate measurement of the whole temple's location (Husein *et al.*, 2015, p. 47).

Research of the Goddess of Tara has been conducted by Gogaoi, who states that the Goddess of Tara is the second of ten *Mahavidya* (Great and Magical Goddesses in Hinduism) (Gogaoi, 2011, p. 233). There is minimum information regarding the Goddess of Tara in Buddhism, which shows the origin of the Goddess or the influence of the Hindu and non-Arya tribe elements to the community (Jordaan,

1997). The rise of the cult was based on the northeast India. There was not any literature or archeological evidence regarding the existence of the Goddess before Gupta era or in between the third to the fifth century, despite being limitedly mentioned in Indian literature. Besides, Javanese inscription of Kalasan on the year 778 becomes the earliest epigraphical reference supporting her existence (Jordaan, 1997, pp. 286-287).

Brandes compared the portrayal of the Goddess of Tara on the Buddhist Temples in Central Java, which are Sewu Temple, Mendut Temple, and Kalasan Temple (1904). The portrayal in Mendut and Kalasan were most relevant with identical shapes and decoration as clearly depicted in Brandes' articles (Jordaan, 1997, p. 289).

The Goddess of Tara has become the main issue to reconstruct the religious worship. According to Monk Atisa in Tibet, the Goddess possess 21 characters of God. Based on the data, it is impossible to see whether the characters are completely represented on the reliefs in Kalasan.

Beyer states that the 21 positions of Taras are usually depicted as people sitting on the same position which is stretched right leg and pulled left leg. The visible difference is only on the colour of bottles on their hands or the existence of lotus attributes (1978, 333-35, 470). In the other temples, the statues sit on the throne and niche. The niches does not have the same size and decoration (Jordaan, 1997, p. 294). From the previous researches, this research identifies and focuses on the types, figures, construction, and functions of musical instruments on the relief of Kalasan Temple.

## METHODS

This research employs heuristic methods. Heuristic comes from Greek of *heuristiken* which means collecting or finding sources. The remains of human civilization, physical or nonphysical, are the trails of which the historians should reconstruct (Pranoto, 2014, p. 29). The

written sources of history are important documents, inscriptions, scripts, charters, chronicles, newspapers, books, research reports, and academic journals (Herdiani, 2016). The understanding supports Gottschalk who mentions that heuristic action directs research to an exploration, search, and collection of sources which is going to be researched in the location, whether as an exact thing or only verbal explanation which refers to the historical evident (Rahman, 2017; Wasino, 2018).

The heuristic data collection of written literature on this research cover: (1) Kalasan inscription which comes from the *Saka* year of 700; (2) the report of Kalasan temple's reconstruction; (3) the proceedings from the Association of Archeological Expert of Indonesia; (4) the international academic journals which cover Kalasan Temple and Widya Prabha Journals of Cultural Heritage Preservation Board of Yogyakarta; and (5) relevant reference in the library of the Cultural Heritage Preservation Board of Yogyakarta (BPCB DIY). A field study was conducted as a visit to the Kalasan temple, Yogyakarta.

The musical instruments on the relief were analysed in three steps, which are pre-iconography, iconography, and iconology. Pre-iconography is the study of the material object. The analysis of iconography covers the historical contextualization of the object. Iconology refers to the analysis which includes the elements of values and symbols (Panofsky, 1955).

The description of musical instruments in Kalasan temple began with the substantial analysis, followed by the measurement of physical and material dimensions along with the articulation of the object. The substantial analysis is the process of describing objects aided with the criteria of human face average from the chin to the head, which is around 25.7 cm (Panero, 1979, p. 12).

Before redesigning the musical instrument in Kalasan temple, the researchers have measured the musical instruments in centimeters. The researchers aim to ease the re-production of the instru-

ments after the research. To ensure the data validity, the researchers conducted a focus group discussion with the Cultural Heritage Preservation Board of Yogyakarta.

## RESULT AND DISCUSSION

### The Identification of Musical Instruments of the Relief on Kalasan Temple

After the literature study, field study, and study of documentation, the researchers found several data regarding the types of musical instruments in Kalasan temple. The instruments were projected on the southern relief of the temple, which is on the head of *Kala*.

The literature study was done by reviewing the book written by A.J Bernet Kempers which covers Kalasan Temple. In general, Kempers mentions that the relief in Kalasan temple is different from the relief in Javanese temples. Kalasan temple displays lesser stories than other temples. There is not any relief that provides local stories as on Mendut temple and Sadjivan, showcases the history of Buddha as on Borobudur, nor tells the stories of Ramayana and Kreshnayana as in Loro Jonggrang (Kempers, 1954, p. 26).

Kempers also states interesting information regarding the relief on the southern part of the temple. He infers that the musical instruments on the head of *Kala* do not have a background of earthly trees, instead, the background refers to the trees in heaven. The statement is supported by the existence of clouds surrounding the crest of *Kala*. The situation means that Kalasan temple's relief represents the set up in heaven (Kempers, 1954, p. 24).

Following the statement, Bawono states that the temple is the replica of Meru mountain, which is the resident of God in Indian mythology. As the resident of Gods, the temple is built by including the elements of heaven (Bawono, 2018). Besides, the temple is also strongly correlated with the concept of cosmology in Hindu (Raharjo, 2011).

Kempers also expresses that the resi-

dents of heaven play musical instruments. The identified musical instruments are *gendang*, *rebab*, and *shells* (Kempers, 1954, p. 24).

The relief of *Kala* on the southern remains of Kalasan was carved smoothly in detail. The relief was big in size. The *Kala* was carved with a lower jaw and decorated with heavenly trees. Then, there were some elements of buildings, natural scenery, and some heavenly creatures playing wind instruments (*sangkha*) and stringed instruments (*vina*) (Ferry, 2018, p. 1).

There is a difference between the two references above. The first source mentions that the musical instruments on the reliefs are *gendang*, *rebab*, and *shells*. Meanwhile, the second source declares that the instruments were wind instruments (*sangkha*) and stringed instruments (*vina*). The difference was mainly caused by the gap of time and publication between the first and second research.

A field study was conducted in June 2020 to strengthen the findings of the study above. The pictures of *Kala* and the heavenly figures playing musical instruments are still clear and in detail. The depiction was that there was a *kala* without a jaw surrounded by a heavenly tree. Around the situation, there are some heavenly creatures bringing lotus and playing musical instruments (figure 1).



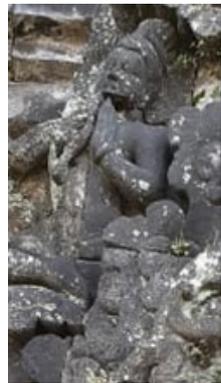
Figure 1. Head of Kala (Dokumentation of BPCB of Yogyakarta, July 20, 2018).

There are two musical instruments on the southern part of Kalasan temple and the depiction of three heavenly creatures playing *sangkha* made of shells and

stringed instrument with a neck (vina) as seen in Figures 2, 3, and 4.



**Figure 2.** The *sangkha* played by a heavenly creature on the left of *Kala*'s head (Document of researchers, June 9, 2020)



**Figure 3.** The *sangkha* played by a heavenly creature on the right of *Kala*'s head (Document of researchers, June 9, 2020)



**Figure 4.** A stringed musical instrument with a neck played by a heavenly creature on the right of *Kala*'s head (Document of researchers, June 9, 2020)

### The Identification of Heavenly Creature on the Relief of Kalasan Temple

The heavenly figure on the southern relief of Kalasan temple is known as *Gandharva*. Several references mention that

*Gandhabba/ Gandharva* refers to a resident of the heaven, or a musician of the heaven from the group of *Sakka*, which is also mentioned in *Sakkapañha-sutta* as *gandhabba* with the name of *Pañcasikha* (Anālayo, 2008, p. 97).

The researchers quoted several statements that the creature is *parivāradevatā* or a group of Gods that are not positioned in *garbhagṛha* or the temple's main room, yet the corridor instead (Liebert, 1976, p. 214). *Parivāradevatā* is divided into subs *parivāra* and main *parivāra*. The small *parivāra* have specific names, but their existence is not known specifically in the mythology of Indian Gods (Nugrahani, D.S, 2009, p. 9).

The small creatures are *Apsarā*, *Gaṇa*, *Gandharva*, *Kinnara*, *Vidyādara*, and *Ṛṣi* (Rao, 1971). *Gandharva* is a creature living in heaven as the musician for Gods. Hence, in the relief, the creature plays some musical instruments (Liebert, 1976, pp. 89-90). Supporting the statement, Nugroho (2018) mentions that *Gandharva* is a half-man and half-god creature who plays music, dance, and share the news to Gods (Nugroho, 2018, p. 1).

*Gandharva* is also mentioned in a quoted praise for the Goddess of Tara in Tibetan as follows.

Chhag tshäl gya jin me lha tshang pa  
Lung lha na tshog wang chhug chhö ma  
Jung po ro lang dri za nam dang  
Nö jin tshog kyi dün nä tö ma

Homage to you, Tara, venerated by Indra,  
Agni, Brahma, Vayu, and Ishvara,  
And praised by the assembly of spirits, raised  
corpses,  
Gandharvas, and all yakshas  
(Rigsel, 2014, p. 28)

### The Construction of Musical Instruments in Kalasan Temple's Relief

The measurement of the instruments was done in four steps as follows.

#### Step 1

The researcher made a set of a square in the penile of relief based on the human head's size under the scale of 1: 25.7 cm. 25.7 cm is the average size of adult male's head (Panero, 1979, p. 112). The square can

be seen in Figure 5 as follows.



Figure 5. Square

### Step 2

Dividing the square to 25 squares (see Figure 6).

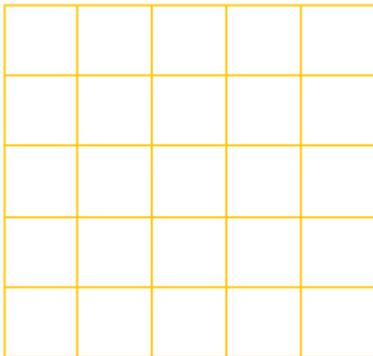


Figure 6. The division of squares to 25 squares on the same size (5 x 5)

### Step 3

Dividing the squares in the division to 100 box based on the same size as seen on Figure 7.

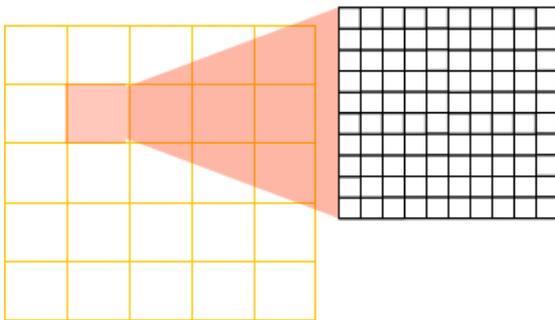


Figure 7. The sub-division of a square to 100 on the same size (small square 10x10)

### Step 4

Attaching the square on each box (Figure 7) on the picture of the musical instruments' relief. The following step is the measurement of the instruments' length and width (Figure 8).

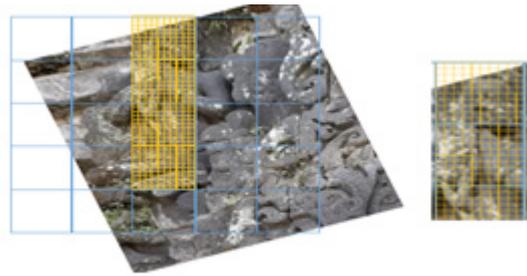


Figure 8. The example of measurement to the size of *Sangkha Shell 1*

After the measurement, the researcher then found the exact size of the instruments. The sizes are depicted as follows

### The size of *Sangkha Shell 1*

The musical instrument of *Sangkha shell 1* on Kalasan temple is 35.98 cm in length and 12.85 in width. The measurement is depicted in Figure 9.

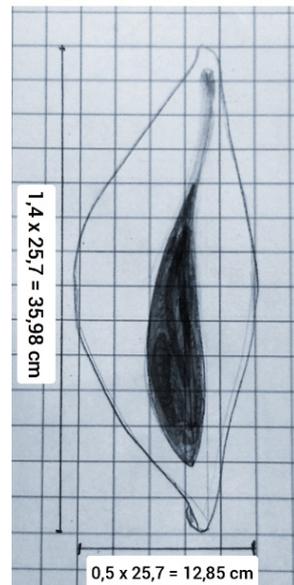


Figure 9. The measurement of *Sangkha Shell 1*

The wind instrument made of shell can be seen as in Figure 10 in real life.



Figure 10. The imitation of *Sangkha* shell 1

### The size of Sangkha Shell 2

Through the same measurement, the second *Sangkha* has the size of 23.13 cm in length and 12.85 cm in width. The second *Sangkha* is smaller than the first one.

### The Size of the Stringed Instrument

The stringed instrument was measured in the size of 92.52 cm in length with the width of resonance tube of 12.85 cm. The process of measurement can be seen in Figure 11.

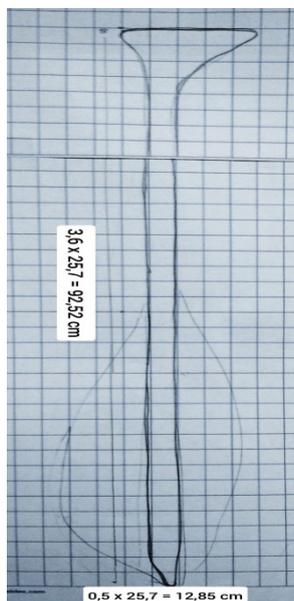


Figure 11. The process of measuring the scale of the stringed instrument

The musical instrument has a real life imitation as seen in Figure 12.



Figure 12. The imitation to the stringed instrument (*vina*)

### The Function of the Musical Instrument in the Relief of Kalasan Temple

Based on the previous chapters, the musical instruments have a function as the media of worship ritual to the Goddess of Tara. Gogaoui explains in his article on the worship for the Goddess of Tara as "Tara was one of the most important goddesses in this tantric form of Buddhism. Tara, also known as Jetsun Dolma in Tibetan, appears as a female Boddhisattva in Vajrayana Buddhism. She is known as the "mother of liberation" and represents the virtues of success in work and achievements" (Gogaoui, 2011, p. 232). Further, Gogaoui states that "Tara is the savior; she protects her devotees from Astamabhaya, the eight great fears. The Tibetan Tara has as many as 21 different manifestations, both fierce and compassionate" (Gogaoui, 2011, p. 232). In the relief, the musical players were the *Gandharva*, the actual musicians of heaven. The kinds of music were played to praise the Goddess of Tara.

### CONCLUSION

From the findings, it is concluded that the relief of the southern part of Kalasan temple projects two musical instruments, which are *Sangkha* (aerophone made of shells) and a stringed instrument with a neck (chordophone). The finding is interesting since it provides more detailed explanation comparing to the previous studies. Further, this research provides the real evident of the instruments which fill

the gap of difference in the previous literature.

The research identifies the existence of *Gandharva*. *Gandharva*, in the Kalasan's relief, is a new discovery since the previous research never came into such details. Further, this research finds that the musical instruments were used as the media to worship the Goddess of Tara.

Apart of the material and contextual problem, this research has proven that the scaling measurement can be used to reconstruct the musical instrument on Kalasan temple's reliefs. In the end, the researchers could present the design of musical instruments on the relief based on the scale of adult male's head.

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