

The Chest Monochord Zithers in Ancient Sri Lanka

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Abstract

Chest monochord zithers represent a significant category of string instruments found throughout the Indian Ocean region, with historical evidence tracing back to the late 6th century in South and Southeast Asia. This study investigates the depictions of chest monochord zithers in ancient visual representations in Sri Lanka, aiming to identify their structural components and assembly methods across different historical periods. Through a multidisciplinary approach that includes iconographic analysis, cross-comparison, and documentary examination – along with visual illustrations – the research also integrates literary and ethnological materials. The findings reveal multiple variants of chest monochord zithers and propose three assembly methods corresponding to historical phases spanning from the late 6th to the early 19th centuries.

Keywords

Chest monochord zithers – String instruments – Music iconography – South and Southeast Asia

1 Introduction

There are many monochord stick, tube, and bar zither instruments with resonators – often made from gourds, coconut shells, or pots – found across the Indian Ocean region (Blench 2014; Deva 1977; Dyer 2016; Wrazen 1986). Examples include the *kse diev* in Cambodia; *phin pia* in Thailand; *bro jorai* in Vietnam; *kullutan rajan*, *jantar*, *tuila*, *kinnara vīṇā*, *bīn*, and *rudra vīṇā* in India; as well as bar zithers in Sulawesi. Instruments of the same family are also found in various African countries bordering the Indian Ocean, such as the *sese* (zeze), *mvét*, and *jejy voatavo*. Scholars studying the history and evolution of these instruments through ancient textual and iconographic sources have employed various classification terms based on their physical characteristics. Examples include: stick zither (Sachs 1968: 224; German: *Stabzitter*), bamboo zither, tube zither, tubular zither (Deva 1987: 110–49; Wrazen 1986), bar zither (Kunst 1968: 18–23; De Hen 1976), round-bar stick zither (Blench 2014: 682), gourd *vīṇā* (Prapatthong 1998: 127–224).

On numerous occasions, visual representations¹ reveal details about the external forms of instruments, but they rarely allow for a definitive understanding of their internal structure or materials. This prompts consideration of whether researchers who use visual representations in their studies can justifiably apply general classification terms derived from physical characteristics. For instance, there was a debate between Sachs and Deva regarding terminology. Sachs (1968: 463) introduced the term stick zither for these instruments, stating that their construction did not include a hollow interior. In contrast, Deva (1987: 111) and Wrazen (1986: 39), drawing on folk music instrument analysis, argued that the instruments depicted in ancient visual sources may have had hollow interiors and were likely made from bamboo. Based on this interpretation, they proposed more specific terms such as bamboo zither, tube zither, and tubular zither. Similarly, Prapatthong (1998: 127–224) introduced the term ‘gourd *vīṇā*’ in his research, based on the observation that some depicted instruments appeared to have resonators made from gourds. This interpretation stands in contrast to ancient literary sources, which suggest that coconut shells were considered more suitable for resonator construction (Prahlaḍ and Gupta 2023). Moreover, examples such as *paoqin* used by Qingbing (2023) and *vīṇā* cannot be considered generic classification labels for these instruments, as they are culturally specific names referring to distinct types of chordophones within their respective traditions.

In contrast, the terms “chest resonated monochord zithers” and “chest resonated stick zithers”, proposed by McGraw (2007) and Dyer (2016), are based on instruments such as the *phin pia*, *kse diev*, and *tuila*. Notably, these classifications introduce two key determinations – “chest-resonated” and “monochord zither” – that go beyond mere physical characteristics. The term “chest resonated” refers to the unique playing technique employed by the *phin pia*, *kse diev*, and *tuila*. These instruments produce a dynamic sound by pressing and releasing a resonator – typically attached to the upper end of the instrument – against the performer’s chest. However, this technique is not used with instruments such as the *bīn*, *kinnara vīṇā*, or *rudra vīṇā*. According to Deva, the term *monochord* is conceptually opposed to *polychord*. He defines *polychords* as instruments in which each string produces a single note, requiring many strings to play a melody – for example, harps, lyres, dulcimers, psalteries, harpsichords, and pianos. In contrast, *monochords* are those capable of producing an entire melody (or raga) on a single string. This category includes instruments such as the *gintang*, *tuila*, *ekantri*, *alapini*, and various lutes (e.g., *sarod*, *karnatak vīṇā*), as well as zithers like the *kinnari* and *rudra vīṇā*, and bowed instruments (excluding bowed harps; Deva 1977: 10). Deva (1987: 127) further clarifies: “Monochord does not imply an instrument having only one string; indeed, there may be many. However, even one is enough to play a tune”. The surviving instruments, which are examined in the present research, fall within the monochord zither category, making this a relevant and unifying classification principle. Moreover, regardless of differences in material type (stick, tube, or bar) or structural details, a defining characteristic of these instruments is the posture used during performance. Players typically hold them diagonally or vertically

¹ As a convenience to the reader, the word visual representation will be used for all kind of visual forms in visual arts such as carvings, paintings and statues.

against the chest, with the resonator (or resonators) resting on the belly, chest, or shoulder. According to the author's review, this holding posture is consistently depicted in the visual sources referenced by scholars who have proposed various classification terms. In light of these considerations, the author proposes the term *chest monochord zither* as a generic term for the instruments examined in this study.

Visual data and literary references from Indian Ocean countries, dating back to the late 6th century CE, offer valuable insights into chest monochord zithers. This type of instrument has continued to exist among communities that have preserved their musical traditions. Although Sri Lanka – part of the Indian Ocean region – lacks living examples of these instruments today, numerous visual representations found across the island indicate that such instruments were once familiar there. This research, therefore, focuses on chest monochord zithers as depicted in ancient pictorial evidence in Sri Lanka. It aims to identify and analyze the structural components and assembly methods of these instruments across different historical periods by employing a variety of sources and cross-referencing methods.

2 Literature review

In-depth studies specifically addressing string instruments in ancient Sri Lanka are limited. Only a few researchers – C. Godakumbura (1961a; 1961b; 1983), C. de S. Kulathilaka (1974; 1984; 1991; 2000), J.C.R. Kumara (2020; 2021; 2025), C.P. Meddegoda (2018), as well as the present author (2022a; 2022b) – have made significant contributions to the broader historical discourse on string instruments in Sri Lanka. Among these scholars, only a few – namely Godakumbura (1961a: 11, 16; 1961b; 1983: 23) and Kulathilaka (1984; 2000) – have paid attention to the representations of chest monochord zithers. However, their contributions are largely superficial, as they primarily identify these instruments as forms of the *vīṇā* that existed in ancient times. Kumara (2020: 160, 167; 2021: 87; 2025: 85–6) attempts to expand existing studies by comparing depictions found in Sri Lanka with those from other regions. However, his identification of chest monochord zithers is misleading, as he classifies them as harp type instruments (Kumara and Prasad 2025: 85–6). Furthermore, his studies are confined to the first millennium of Sri Lanka, and his analysis does not address the structural components and assembly methods of the musical instruments represented – areas that form a central focus of the present study.

In contrast, studies from outside Sri Lanka provide valuable methodologies that inform the present research. Marcel-Dubois (1941: 72–80, as cited in Wrazen 1986: 42–4) proposed a linear evolutionary model for chest monochord zithers in India, based on visual representations across historical stages. Curt Sachs (1968: 224) examined changes in specific structural components and playing postures of chest monochord zithers over time in India. Jeffrey Dyer (2016) studied the evolution of the *kse diev*, a chest monochord zither from Cambodia, arguing that its development can be traced through visual evidence. Chaitanya Deva (1977; 1987: 110–49) explored chest monochord zithers through a variety of sources, focusing largely on folk string instruments. He con-

tended that these instruments evolved from simpler to more complex forms. Drawing on materials from India and Southeast Asia, Louise Wrazen (1986) analyzed the historical development of the *bīn* and *Sarasvati vīṇā* in India. Jaap Kunst (1968: 18–23), a pioneer in Southeast Asian music studies, also investigated chest monochord zithers in Java, using diverse sources. Collectively, these scholars have aimed to understand the evolution and structural components of chest monochord zithers in India and Southeast Asia. Accordingly, the present study adopts similar methodologies and analytical frameworks to examine the structural components and assembly methods of chest monochord zithers in ancient Sri Lanka.

3 Methods and methodology

Sri Krishnaswami (1974: 6–7) asserts that literary, ethnographic, iconographic², and archaeological sources are essential for a comprehensive historical study of musical instruments. In alignment with this approach, the present research primarily draws on visual representations of chest monochord zithers in various forms – such as carvings, paintings, and statues – obtained from archaeological sources. These include ancient monuments, plaques, stone and wooden pillars, palm-leaf manuscripts, ivory boxes, flags, and various other antique objects. Ethnographic data is drawn from studies on chest monochord zithers currently or formerly played in South and Southeast Asia. This research does not propose an evolutionary scheme for chest monochord zithers from simple to complex. Rather, it aims to fill the knowledge gap regarding the types of string instruments in ancient Sri Lanka, which remain unclear due to limited literary evidence. First, it seeks to conduct a preliminary study to identify the parts of chest monochord zithers through visual representations spanning different historical periods. This is done using the methodological frameworks of Marcel-Dubois (1941: 72–80, as cited in Wrazen 1986: 42–4) and Dyer (2016: 20). The second objective involves a comparative analysis of iconographic evidence alongside ethnographic and historical research, with this triangulated approach aiming to propose plausible structural components and assembly methods for these ancient instruments. In addition, this research presents a series of visual models of chest monochord zithers (late 6th–18th centuries), developed using Microsoft Paint in Windows 11, to support the perception and understanding of the research findings.

4 The visual representations of chest monochord zithers in ancient Sri Lanka

Numerous visual representations of the chest monochord zither are found on the rock carvings at Mahabalipuram, India, dating back to the 7th century CE (Figure 1). Sachs (1968: 224) and Marcel-Dubois (1941, as cited in Wrazen 1986: 42) recognize these as the earliest known evidence of the instrument in India. Similar instruments began appearing in Southeast Asia between the late 6th

² This research aligns closely with the field of music iconography, a discipline that examines the historical development of musical instruments, performance practices, contexts, the identities of musicians, as well as the cultural narratives, symbolism, and allegories conveyed in visual art (Joubert 1982: 2–3).

Scholars believe this poem was written by someone who had seen the frescoes at Sigiriya (Bandaranayake 1986: 26; Godakumbura 1961b: 7–8; Godakumbura 1983: 23; Kulathilaka 1974: 92; Kulathilaka 1991: 69). The frescoes at Sigiriya were painted in the late 5th century CE.⁵ Currently, no surviving motif in the frescoes directly corresponds to the poem's description, suggesting that the relevant image may have faded over time (*ibid.*).

However, the posture described in poem no. 84 bears notable similarities to early visual representations of chest monochord zither players (Figure 3 and Figure 8), implying that the instrument described might indeed be a chest monochord zither. Second, two extant visual representations from the Ajanta Caves – specifically on the walls of Caves 16 and 17 – also appear to depict chest monochord zithers. These artworks date to the 5th century CE (Prahlaḍ and Gupta 2023: 7; here Figure 4). Third, further evidence comes from the remaining column heads and stone plaques found around the Thuparamaya (Figure 5), the Lovamahapaya or Bronze Palace (Figure 6), and Ruwanwelisaya (Figure 7)⁶. These artifacts date between the 5th and 10th centuries CE (Paranavitana 1950: 48 paragraph), although the representations are ambiguous and not clearly identifiable. Based on a comparative analysis with nearby visual depictions of harp instruments, the author infers that these ambiguous forms may represent either a lute or a zither.

While all this evidence closely resembles the chest monochord zither, it lacks sufficient accuracy and substantiated traces to confidently date the instrument's visual representation to earlier than the 6th century CE. Therefore, the author proposes that the visualization of chest monochord zithers likely began in the late 6th century CE.



Figure 2: Chest monochord zither held by a man or a woman in the Sambor Prei Kuk stone carvings. Source: Chanmara n.d.



Figure 3: Chest monochord zither held by a *kinnara* (right) on a plaque in the Isurumuniya Museum, Anuradhapura (no inventory number). Photo: I. Dehideniya. Published with permission.

⁵ See further Bandaranayake 1986: 26.

⁶ Currently, the plaque found at the Ruwanwelisaya Temple is preserved at the outdoor storage facility of the Anuradhapura Mahavihara Archaeological Site Office. The remaining head columns of Thuparamaya and Lovamahapaya are still present at their respective locations.



Figure 4: Chest monochord zither (?) held by a celestial musician in a painting in Cave 17 at Ajanta, Maharashtra.
Source: https://upload.wikimedia.org/wikipedia/commons/a/ac/Alapini_vina%2C_Ajanta_Cave_17.jpg [Accessed 12 November 2025].



Figure 6: Chest monochord zithers (?) held by men small in stature on the remains of the head columns at Lovamahapaya, Anuradhapura. © 1961 Godakumbura.



Figure 7: Chest monochord zither (?) held by a man small in stature on the remains of a plaque at Mahavihara Archaeological Site Office, Anuradhapura. Photo: I. Dehideniya. Published with permission.



Figure 5: Chest monochord zithers (?) held by men small in stature on the remains of the head columns at Thuparamaya, Anuradhapura. Photos: I. Dehideniya.



Figure 8: Chest monochord zither held by a man small in stature on the remains of a plaque at Isurumuniya Museum, Anuradhapura (no inventory number). Photo: I. Dehideniya. Published with permission.



Figure 9: Chest monochord zither held by a woman (?) on Sinha Pokuna (Lion Pond) at Mihintalaya site, Anuradhapura. Photo: I. Dehideniya.



Figure 10: Chest monochord zithers held by women on both sides of the gate doors at Yapahuwa fortress. Photos: I. Dehideniya.

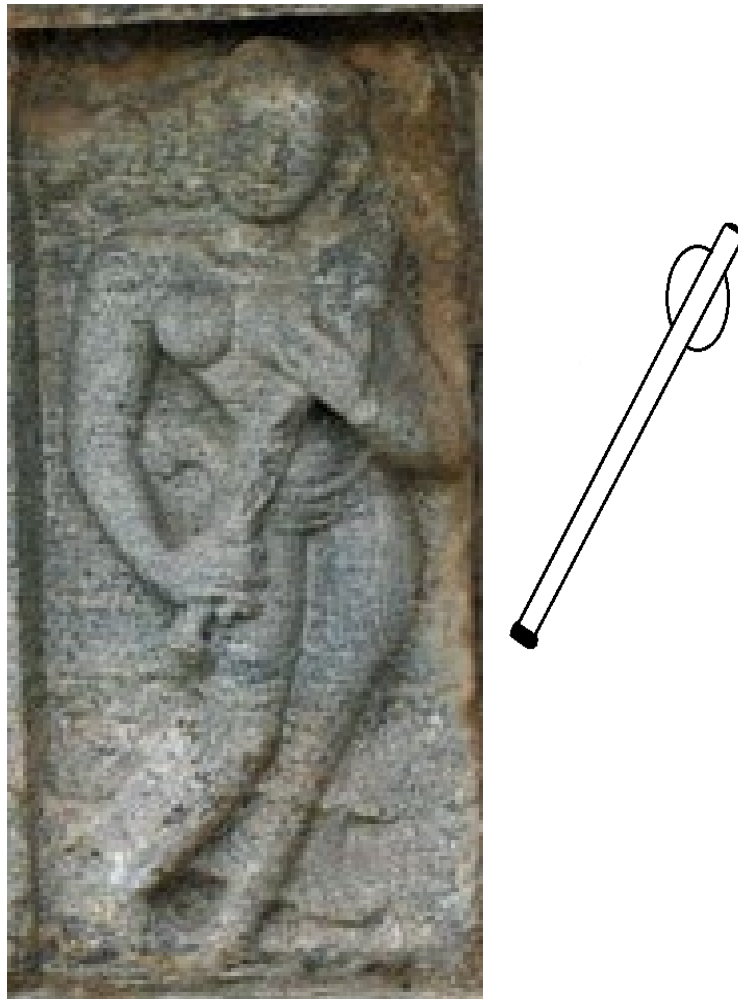


Figure 11: Chest monochord zither held by a woman on a parapet wall at Yapahuwa fortress. Photo and reconstructed drawing: I. Dehideniya.



Figure 12: Chest monochord zither held by a woman (?) on a parapet wall at Yapahuwa fortress (second from the right). Photo: Weerasooriya (n.d.). Republished with permission.



Figure 13: Chest monochord zither held by a woman (?) on a front pillar at Gadaladeniya Temple. Photo: I. Dehideniya.



Figure 14: Chest monochord zither held by a *kinnari* on a wooden pillar at Ambekka Temple. Photo: I. Dehideniya.

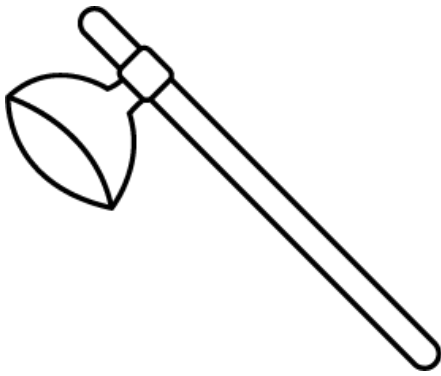


Figure 15: Chest monochord zither from an ivory casket.⁷ Drawing based on the original: I. Dehideniya.

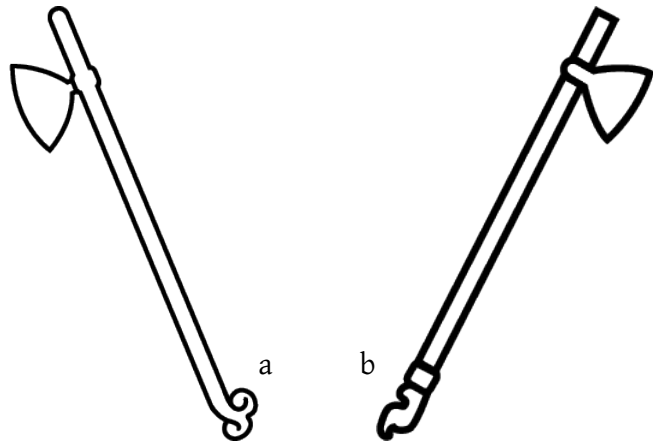


Figure 16: Two chest monochord zithers from an ivory casket.⁸ Drawing according to the original: I. Dehideniya.



Figure 17: Chest monochord zither held by a *kinnari* on a Robinson casket. Victoria and Albert Museum (London), Inv. IS.41-1980. © Victoria and Albert Museum, London. Source: <https://collections.vam.ac.uk/item/O18316/the-robinson-casket-casket-unknown/>.

⁷ For the original visual representation, see Biedermann 2017: fig. 3.4.

⁸ See original visual representations in Schroeder 1990: pl. 145E.



Figure 18: Chest monochord zither held by a *kinnari* on an ivory comb. British Museum (London), Inv. 1943,0712.4. © The Trustees of the British Museum. Source: https://www.britishmuseum.org/collection/object/A_1943-0712-4, CC BY-NC-SA 4.0.



Figure 19: Chest monochord zither held by a *kinnari* on an ivory comb. British Museum (London), Inv. 1943,0712.2. © The Trustees of the British Museum. Source: https://www.britishmuseum.org/collection/object/A_1943-0712-2, CC BY-NC-SA 4.0.



Figure 20: Chest monochord zither held by a woman on an ivory panel displayed at the Kandy National Museum, Sri Lanka (no inventory number). Photo: I. Dehideniya. Published with permission.



Figure 21: Chest monochord zither held by a deity on a *Makara Torana* (Dragon Arch) of the Ridi Viharaya at Kurunagala. Photo: I. Dehideniya.



Figure 22: Two angled photos show the socket that includes the bridge held tight by a ring in the representation at Ridi Viharaya Temple. Photos: I. Dehideniya.

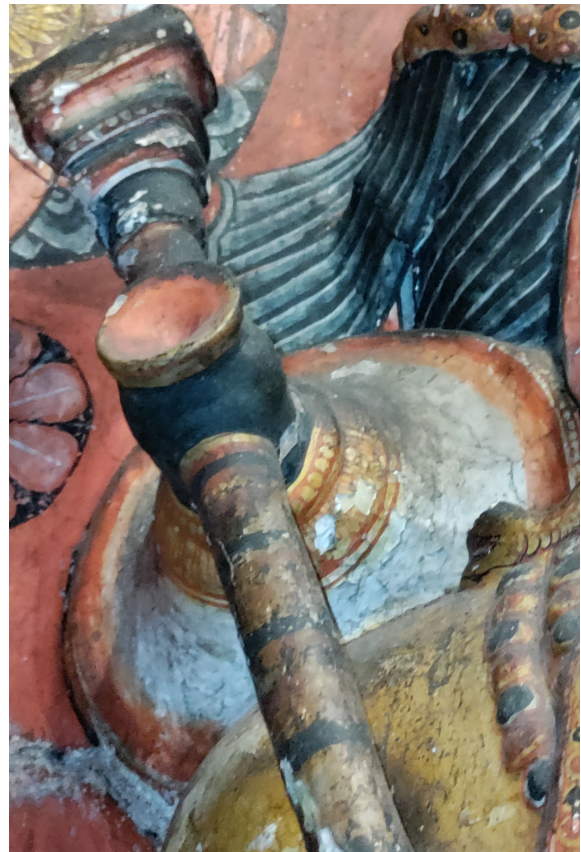
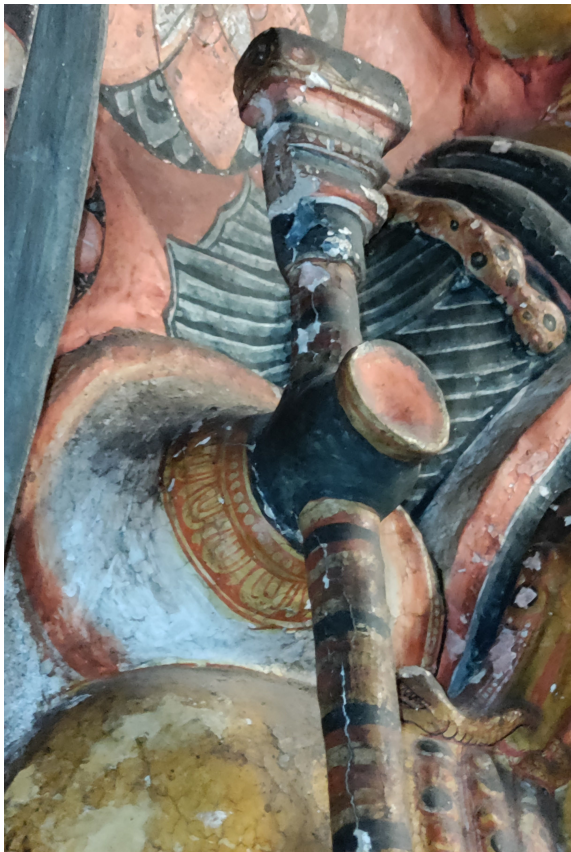


Figure 23: Two angled photos of the upper-side decorative socket, the interposed element, and the resonator of the representation at Ridi Viharaya Temple. Photos: I. Dehideniya.



Figure 24: Chest monochord zither held by a woman (?) on the Purampettukara Muhandiram's flag of Kandy period. © C. de S. Kulathilaka 1974.

Figure number	Time period (CE)	Size of the body	Number of resonators	String holder or Bridge	Tuning peg
3	6–7	Narrow	One	Not clearly visible	No
5	5–10	Wide	No	Not clearly visible	No
6	5–10	Wide	No	Not clearly visible	No
7	5–10	Narrow	No	Not clearly visible	No
8	6–7	Narrow	One	Not clearly visible	No
9	6–7	Narrow	One	Not clearly visible	No
10	13	Medium	One	Bridge	No
11	13	Medium	One	Bridge	No
12	13	Medium	One	String holder	No
13	14–15	Medium	One	String holder	No
14	14–15	Narrow	One	String holder	No
15	16	Medium	One	Not clearly visible	No
16A	16	Narrow	One	String holder	No
16B	16	Narrow	One	Bridge (?)	No
17	16	Narrow	One	String holder	No
18	17–18	Narrow	One	String holder	Yes
19	18	Narrow	One	String holder	Yes
20	17–18	Narrow	One	String holder	No
21–23	18	Narrow	One	Bridge	No
24	19	Narrow	Two	Not clearly visible	No

Table 1: Categorizing the parts of chest monochord zithers on visual representations in Sri Lanka.⁹

5 The parts of chest monochord zithers over different periods in ancient India and ancient Southeast Asia based on visual representations

This discussion focuses on the developmental processes outlined by Marcel-Dubois (1941: 72–80) and Dyer (2016), illustrating how past scholars have identified the parts of chest monochord zithers across different time periods. Marcel-Dubois proposed her explanation of the *vīṇā* based on visual sources in India (Marcel-Dubois 1941: 72–80, as cited in Wrazen 1986: 42–44), and it was paraphrased by Wrazen. According to Marcel-Dubois, the earliest stage of these instruments, spanning the 7th to 10th centuries CE, featured a single string and a half-calabash used as a resonator, which was positioned against the player’s chest to enhance resonance. In the second stage, dated between the 9th and 13th centuries CE, chest monochord zithers began to incorporate a “screw” or bridge for the string(s), and the calabash resonator extended to three-quarters of its full size. Some visual representations from this period depict instruments with two resonators, although this configu-

⁹ These are selected visual representations. The author has intentionally excluded certain examples from the same time period or with similar forms to avoid redundancy. Additionally, some original representations found on ivory caskets could not be included due to copyright restrictions. However, references and traceable sources have been provided to ensure accessibility for readers.

ration was relatively rare. Furthermore, Tarlekar (1965: 175) points out that visual depictions of chest monochord zithers equipped with fretboards began to appear between the 10th and 11th centuries CE. During this same period, the upper resonator was often placed high on the shoulder. The third stage, emerging in the 14th century, saw the standardization of chest monochord zithers with two complete gourds, which were held perpendicular to the player's body. However, this does not imply that earlier types were no longer used or represented; for instance, chest monochord zithers from the first stage continued to be depicted in India (Wrazen 1986: 44).

Visual representations of chest monochord zithers have also been discovered in several South-east Asian countries, including Cambodia, Indonesia, Vietnam, and Thailand (McGraw 2007: 117), though previous research indicates that Cambodia and Indonesia provide the most significant evidence. Dyer (2016: 20), who examined the chest monochord zither known as the *kse diev* in Cambodia, outlines its development in three distinct stages based on visual sources. In the first stage, the instrument featured a gourd as a resonator but lacked tuning pegs. In the second stage, two gourds appeared at either end of the instrument's body, still without tuning pegs. Notably, Dyer (2016: n. 17) mentions in a footnote a 13th-century carving that may show a tuning peg, although he expresses uncertainty. A notable example from this stage is the chest monochord zither with multiple resonators illustrated in the twelfth-century Bayon Temple at Angkor. The third stage, emerging in the 16th century CE, involved the removal of additional gourds, leaving a single resonator, and the introduction of a tuning peg placed on the upper side of the instrument. According to Dyer, this final configuration corresponds to the modern *kse diev*, which has remained essentially unchanged since the 16th century CE.

6 The parts of chest monochord zithers over different periods in ancient Sri Lanka based on visual representations

From the late 6th to the early 19th centuries CE, visual representations depict individuals holding the chest monochord zither in playing or dancing postures. The author observes that the characteristics of these instruments changed over time and, accordingly, has attempted to categorize them into three chronological phases, following the analytical frameworks of Marcel-Dubois and Jeffrey M. Dyer (Table 1). The first phase, spanning the 6th to the 12th centuries, includes depictions found in various monuments (Figures 3, 5, 6, 7, 8, 9), showing two variants of the chest monochord zither – one with a visible body and resonator (Figures 3, 8, 9), and the other without a resonator (Figures 5, 6, 7). The second phase, documented in visual sources from the 13th to the 18th centuries (Figures 10, 11, 12, 13, 14, 15, 16a, 16b, 17, 18, 19, 20, 21), also reveals two distinct variants: one equipped with a string holder (Figures 12, 13, 14, 16a, 17, 18, 19, 20), and the other featuring a bridge at the lower end of the instrument (Figures 10, 11, 16b, 21). A particularly significant 18th-century example, possibly illustrating the actual proportions of instruments used at the time, is held by a deity on the Dragon Arch (*Makara Torana*) in the upper shrine room (Uda Viharaya) of Ridi Viharaya Temple in Kurunegala (Figure 21). Unlike those in the first phase, both

variants in this period include a single resonator positioned on the upper side of the instrument's body. A new feature appears in some visual representations from the 17th to 18th centuries – namely, a tuning peg, as seen in Figure 18 and Figure 19. The third phase occurs in the latter half of the 18th century and the early 19th century, during which chest monochord zithers are depicted with two nearly complete resonators at either end of the instrument (Figure 24). By the early 19th century, visual representations of chest monochord zithers disappeared from religious monuments and buildings, replaced by depictions of the Kandyan *vīṇā* (also known as the coconut shell *vīṇā*) and Western string instruments (Dehideniya 2022a; Herath and Gajaweera 2015).

Visual representations in Sri Lanka prior to the 17th century (Figure 18) show no evidence of strings on the chest monochord zither. This absence is also observed more broadly across South and Southeast Asia, where depictions of strings only begin to appear after the 10th century CE in India and the 16th century in Southeast Asia. While the exact reason for this omission remains uncertain, it may be attributed either to the erosion of stone carvings over time or to the possibility that contemporary artists intentionally omitted the depiction of string arrangements.

In these visual representations, players are shown holding the instrument either diagonally or vertically against their chest. Over time, the position of the resonator shifted. From the 6th to the 12th centuries, resonators were placed between the player's chest and slightly above it. In the 13th and 14th centuries, they were positioned at or just below the shoulder. From the 14th to the 18th centuries, resonators appear placed over the shoulder. The author has not identified any visual evidence of plectrums being used; rather, the depictions suggest that players plucked and stopped the strings using their fingers. In visual sources from India and Southeast Asia, players are depicted both seated and standing (Deloche 1988: figs 13–15; Dyer 2016: figs 9, 10; Prahlad and Gupta 2023: figs 3, 6–8). In contrast, visual representations from Sri Lanka primarily depict the players in standing postures.

7 Cross-comparison between ethnological studies and historical studies

This study aims to reassess the distinct structural components and assembly methods of chest monochord zithers across various Asian regions, thereby gaining insight into how the parts observed in visual representations – such as resonators, bridges, string holders, tuning pegs, and strings – were physically constructed and assembled. Four fretless chest monochord zithers demonstrate notable similarities: the *tuila* (Figure 25) from India (used by Munda *ādivāsī* communities in Odisha and Jharkhand), the *kse diev* (Figure 26) from Cambodia, the *phin pia* (Figure 27) from Thailand, and the zither types documented by Walter Kaudern from Celebes Island (Figure 29). Additionally, the author references two related fretted chest monochord zithers from India – the *bīn* (Figure 30) and the *kinnari vīṇā* (Figure 32) – to further inform the comparative study.

The *tuila* consists of a hollow bamboo body with an open-ended resonator made from a gourd attached to the upper side of the body (De Hen 1976: 84–86). In contrast, the *kse diev* and *phin pia* utilize round wooden sticks for their bodies; the *phin pia* incorporates half of a coconut shell as its

open-ended resonator, while the *kse diev* uses a gourd, similar to the *tuila* (Dyer 2016: 12–13). Both the *kse diev* and *tuila* secure the resonator to the body using a string, whereas the *phin pia* includes a wooden piece interposed between the resonator and the body, with all three components fastened together by string. The headstocks, which contain the string holders of the *tuila* and *phin pia* (Figure 28), are directly attached to the lower end of the main body and are carved from a single piece of material. Chest monochord zithers featuring string holders in their second phase may have followed this assembly method (Figures 12, 13, 14, 16a, 17, 18, 19, 20). Notably, while the main bodies of these instruments are straight, the headstocks are curved and serve as attachment points for the lower end of the playing string (Dyer 2016: 7; De Hen 1976: 85). Despite decorative differences among the headstocks, they all elevate the playing string to create a gap between the string and the body, allowing for smooth vibrations and facilitating finger placement to produce desired pitches.

Both the *kse diev* and *phin pia* are equipped with tuning pegs and use steel strings. The *phin pia*, in particular, features two to five strings and tuning pegs, with the upper ends of the strings attached to these pegs (McGraw 2007: 116). In contrast, the *tuila* uses twisted thread for strings, with one end tied to the string holder at the lower end and the other tightly wound around the top of the body near the resonator (De Hen 1976: 86). Since visual representations prior to the 17th century do not depict tuning pegs, it is plausible that chest monochord zithers from the second phase used a string-binding system similar to that of the *tuila*. While *kse diev* and *phin pia* players use tuning pegs to adjust pitch with precision, the *tuila* lacks a standardized tuning pitch and relies on manual string tensioning for tuning (De Hen 1976: 86). Generally, these instruments are plucked with the right hand, while the left-hand fingertips press the string to vary pitch. During performance, musicians adjust the position of the resonator against their chest, thereby altering the tonal quality and dynamics of the sound.

The chest monochord zithers documented in Celebes (modern-day Sulawesi, Indonesia) exhibit a distinctive method of assembly (Kaudern 1927: 147–48). In his ethnographic research, Kaudern produced several illustrations depicting the types of chest monochord zithers commonly used by Celebes communities in the early 20th century (Kaudern 1927: figs 78–85). These instruments typically feature a bar-shaped body, artistically carved from a single piece of wood, incor-

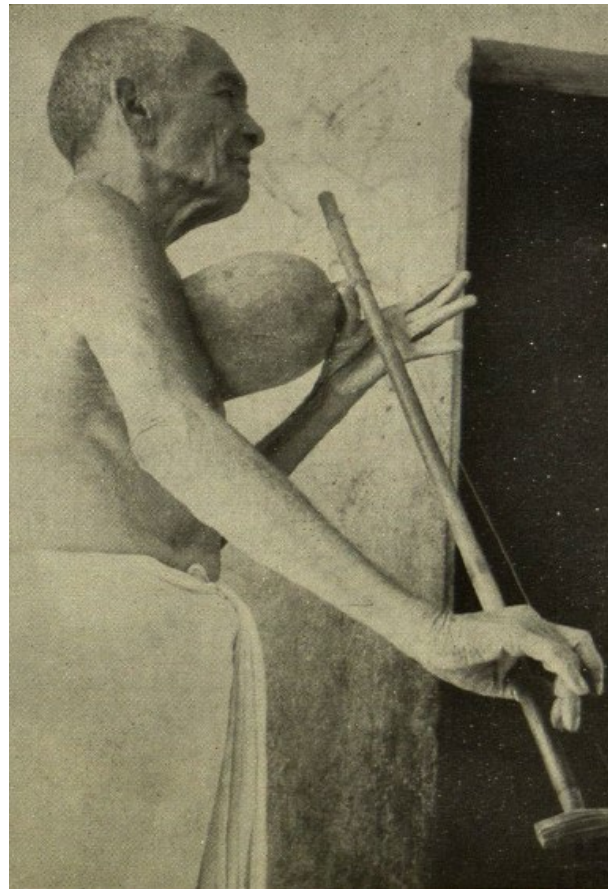


Figure 25: *Tuila* string instrument. Kothari 1968: fig. 23.



Figure 26: *Kse diev* string instrument, “stick zither with a single resonator”. © P. Kersalé.

Source: <https://www.soundsofangkor.org/english/ancient-music/zither-monochord-va/>.

porating a head and either one or two bridges (Figure 29B), or one or two curved ends (Figure 29A, 29C, and 29D), or occasionally an arched body (Kaudern 1927: 146–56). The open-ended resonator is affixed near the center of the body using a cord, with a short bamboo piece interposed between the resonator and the instrument body to maintain stability and resonance. Although early visual representations of chest monochord zithers in Sri Lanka (Phase I) do not depict the distinct bridges or string holders seen in second-phase depictions, the author proposes that these earlier representations may similarly portray instruments carved from a single piece of wood – comparable in design and construction to those from Celebes.



Figure 27: *Phin pia* string instrument, a pinpia/pin pia. © 世界の楽器 RAGAM. Source: <https://www.amazon.co.jp/-/en/pin-pia-pin-pia/dp/B07R6QLTFG>.



Figure 28: The string holder of *Phin pia* string instrument. Photo © 2025 WorthPoint Corporation. Source: <https://www.worthpoint.com/worthopedia/phin-pia-stringed-instrument-north-1798170018>.

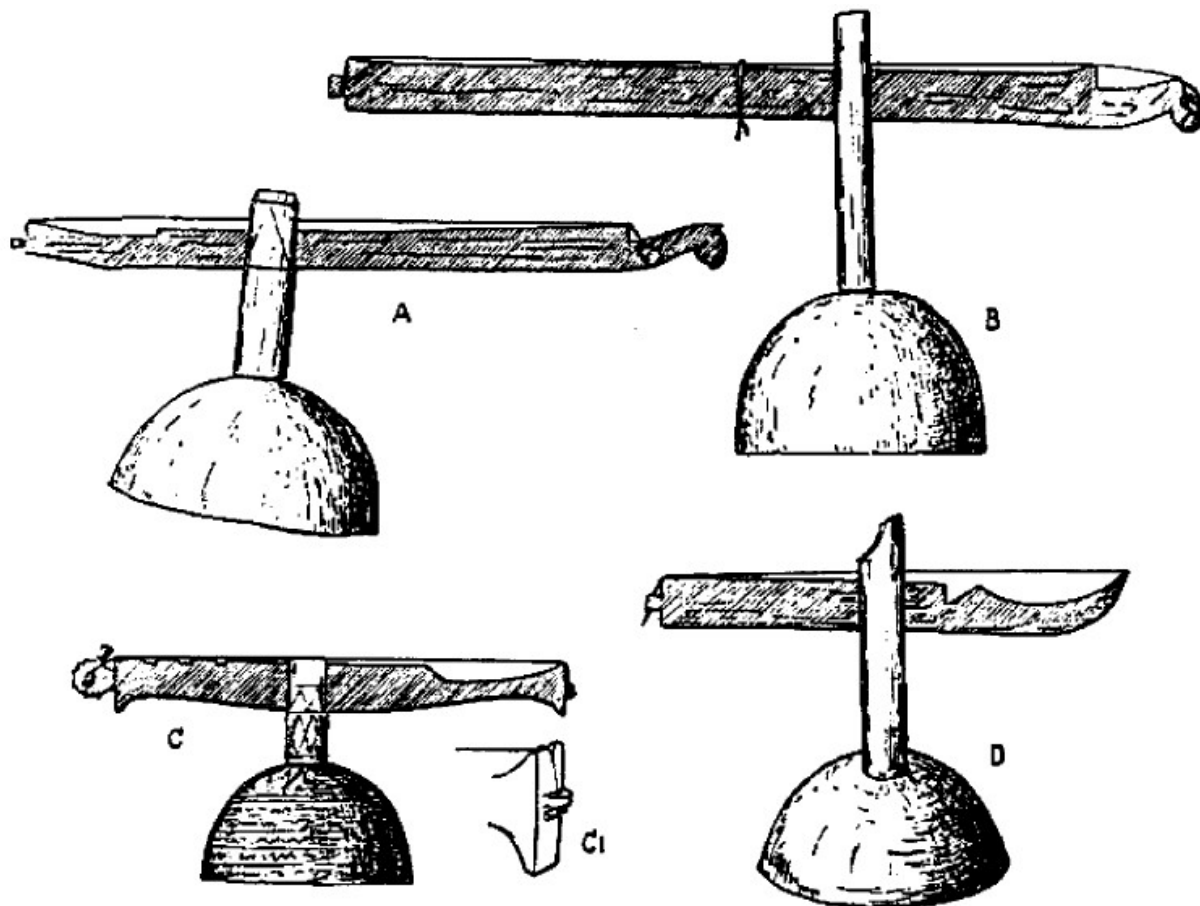


Figure 29: A few chest monochord zithers from Celebes Island drawn by Kaudern (1927: fig. 78).

In the second-phase representations, the example from Ridi Viharaya (Figure 21), which includes a bridge, provides significant insights into the structural components of this type of instrument. It appears that the headstock may have been carved integrally with the bridge and then

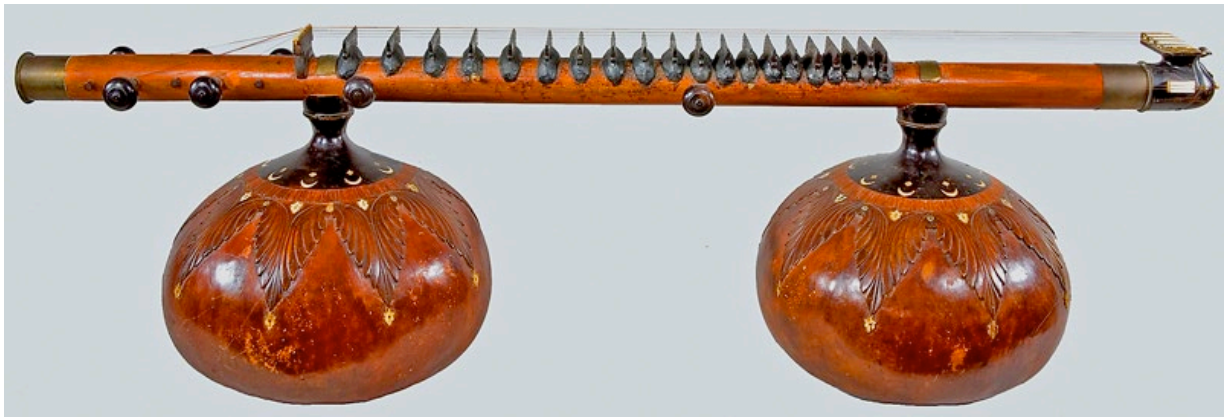


Figure 30: *Bīn* instrument. National music Museum (Vermillion, SD), Inv. 05267. © 2025 eMuseum. Source: <https://emuseum.nmmusd.org/objects/8529/rudra-vina?ctx=e0e80b1e-1f55-4088-b260-d9b65f5e3c4c&idx=0>.

securely affixed to the end of the instrument's body (Figure 22). This headstock seems to be fastened to the body using a ring mechanism, while the resonator is connected to the body via an interposed element. Additionally, it is evident that an ornate socket is fitted to the upper side of the body (Figure 23). The next stage of the research focuses on examining the components of both extant and extinct instruments that include a bridge, with the aim of proposing a plausible method for the assembly of instruments belonging to this type. Besides, this analysis will be more effective in suggesting assembly methods for the chest monochord zithers mentioned in the third phase.

Two instruments that exhibit distinct structural components are the *bīn* (Figure 30) and the *kinnari vīṇā* (Figure 32), with some musicians referring to the *bīn* as the *rudra vīṇā* (Deva 1985: 91–93; Day 1891: pl. 1 and 11). Both instruments are constructed with hollow tubular bodies and nearly complete resonators. The *bīn* is equipped with two identically sized resonators positioned at either end, while the *kinnari vīṇā* typically features three resonators, with the central one often being larger than the others. The methods of attaching these resonators vary: the *bīn* employs connecting wooden pieces as interposed elements, secured with metal nuts and bolts, whereas the *kinnari vīṇā* uses cords to fasten the resonators to the body. Both instruments include multiple frets. In the *kinnari vīṇā*, frets are affixed to the upper surface of the body using a special wax compound. The *bīn*, by contrast, utilizes either cords or wax for this purpose. Each instrument also features a separately constructed headstock, which incorporates flat or slightly curved bridges at the lower end. The lower ends of the *kinnari vīṇā*'s strings are tied directly to the surface of the headstock. In contrast, the *bīn*'s strings are fastened to pins inserted into the top of the headstock (Figure 31). In terms of tuning mechanisms function through tuning pegs, the *bīn* typically has a separately crafted peg box at the upper end, while such an addition is rare in the *kinnari vīṇā*.

Now our examination will turn to a review of the historical sources. Kulathilaka (1974: 147–48), a prominent musicologist who was in Sri Lanka, identified fourteen string instruments by examining primary texts from medieval Sri Lanka. These include the instruments *bhṛṅga vīṇā*, *nakula vīṇā*, *daddara vīṇā*, *brahma vīṇā*, *kovul vīṇā*, *vēṇu vīṇā*, *mṛdaṅga vīṇā*, *hasti vīṇā*, *kṣudra vīṇā*, *mayura vīṇā*, *kokanada vīṇā*, *tuṇḍi vīṇā*, *madhura vīṇā*, and *vallakiya*. In his treatise *Saṅgīta Ratnākara*, Śārṅgadeva documented ten prominent *vīṇā* instruments from the 11th to 13th centuries CE

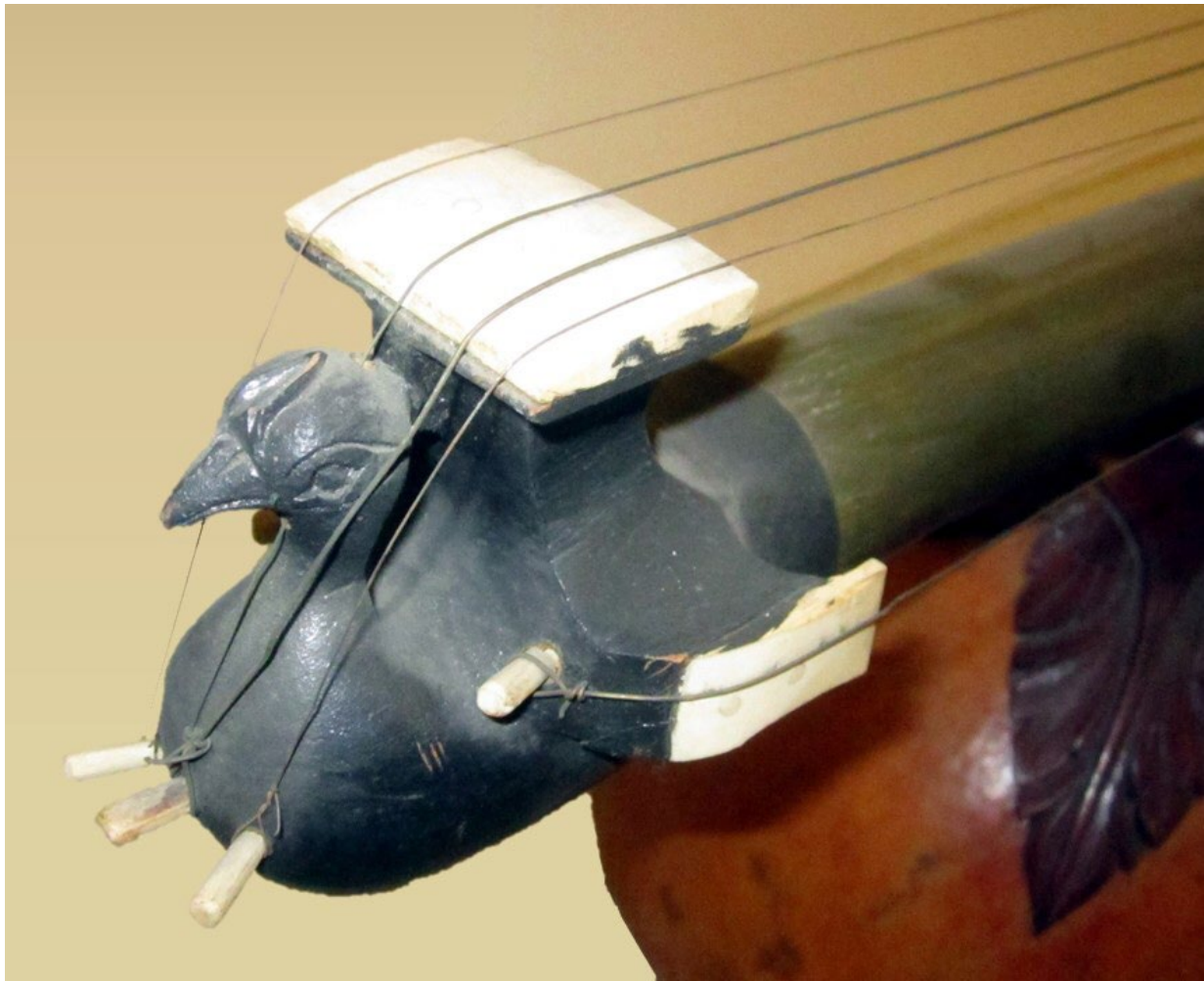


Figure 31: The head of the *bīn* instrument. The Metropolitan Museum of Art (NY), Inv. 89.4.192. © The Met Museum. Source: <https://www.metmuseum.org/art/collection/search/500761>.

(Wrazen 1986: 36). Among them, the *kinnari vīṇā*, *alāpini vīṇā*, and *ekatantrī vīṇā* have been recognized by scholars as chest monochord zithers (Dick, Widdess and Geekie 2001: 643). According to Kulathilaka's findings, these instruments were not referenced in ancient sources in Sri Lanka. However, *brahma vīṇā* – identified as an alternative name for *ekatantrī vīṇā* by Nanyadeva (11th–12th century CE; Deva 1977: 15) and Haripala (14th century CE; Sambamoorthy 1960: 205) – appears in historical musicological texts in India. Kulathilaka also lists the *nakula* or *nakuli vīṇā*, a lesser-known instrument characterized as having two strings, no resonators, and played with a plectrum (Deva 1977: 12; *Nakula Veeṇā* n.d.). While limited information is available, the ancient chest monochord zither *brahma vīṇā*, also referred to as *ekatantrī vīṇā*, may offer valuable insights into the assembly methods of similar instruments – particularly those depicted with bridges in second-phase representations from ancient Sri Lanka.

According to Śārṅgadeva (Gupta and Dangarikar 2019), the “body” (*daṇḍa*- Sanskrit language) of the *ekatantrī* was crafted from a hollowed-out, rounded wooden tube (Figure 33). A wooden peg was fixed into the bore at the lower end of this body. A specially designed, intricately shaped bridge with two feet was then placed upon the peg, ensuring it sat firmly without the need for glue (Figure

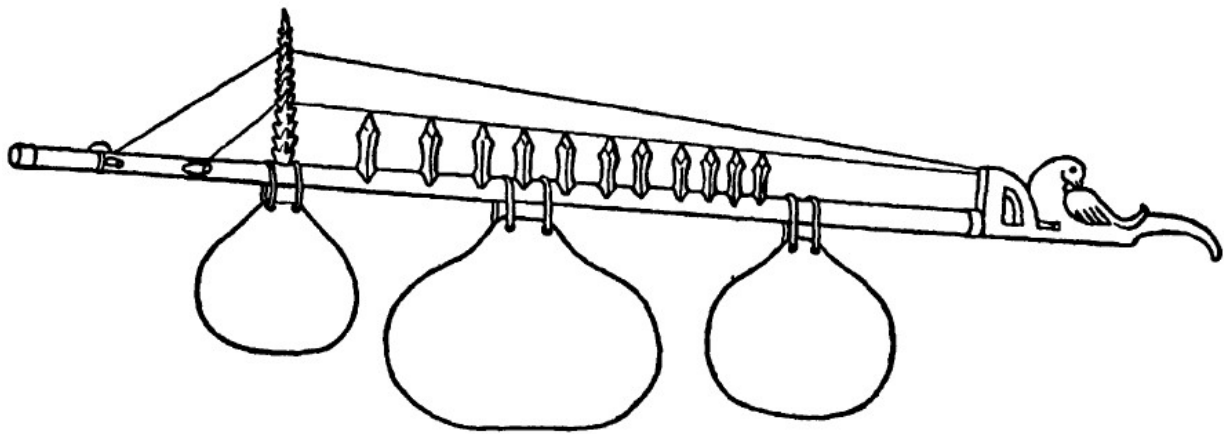


Figure 32: *Kinnari vīṇā* (reproduction of Sachs 1968: fig. 58).

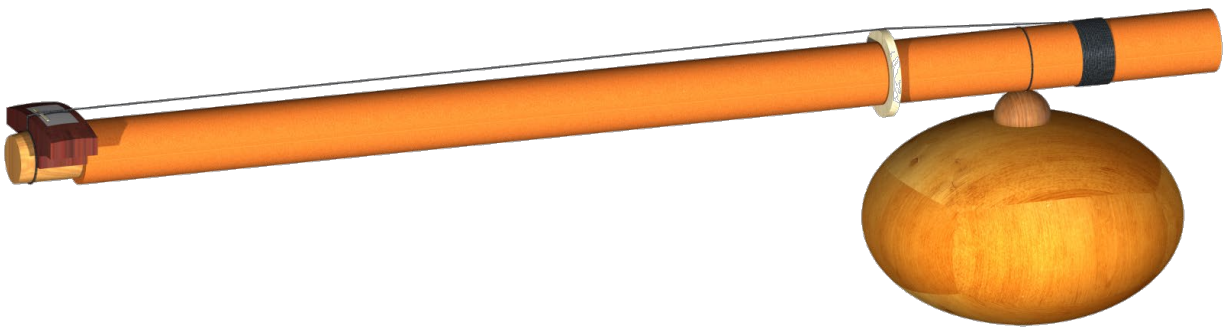


Figure 33: The digital model of *ekatantri vīṇā* designed by Gupta and Dangarikar (2019: fig. 09). Republished with permission.

34). A convex metal “plate” (*patrikā*) rested atop the bridge, with a bamboo “skin” (*jīvā*) placed over the plate. The complete gourd resonator was attached to the upper side of the body using a cord. An interposed element made of coconut shell was positioned between the resonator and the body. One end of the string was attached near the resonator with a hanging loop allowing slight adjustments in string tension and facilitating tuning without the use of a tuning peg, unlike the *kse diev* and *phin pia*. Moreover, a movable sleeve encircling the body near the resonator can be used to modify the vibrating length of the string, which may also affect the tuning. The other end of the string passed over the bridge and was securely fastened to the wooden peg.

Another extinct instrument, the *alapini vīṇā* (Prahlad and Gupta 2023), closely resembles the *ekatantri vīṇā*; however, literature and visual depictions indicate differences in their dimensions. Unlike the *ekatantri vīṇā*, the *alapini vīṇā* used an open-ended resonator tied with a cord and lacked an interposed element. The resonator of the *ekatantri* rested on the player’s shoulder, whereas the *alapini*’s was positioned on the chest. As noted earlier, the *ekatantri* featured a specialized bridge at the lower end of the body capable of producing a buzzing or drone sound through the *jīvā* and *patrikā*. These features appear to be absent in the *alapini*, as ancient texts do not clearly describe them. Additionally, the playing techniques differed: the *ekatantri vīṇā* was played by plucking the string with the fingers and damping it using a small wooden piece called the *kamrikā*, while the *alapini vīṇā* was played with both hands simultaneously plucking and damping the string without any auxiliary object.

8 Conclusions

Scholars have traced the history of chest monochord zithers across South and Southeast Asia. Although traditional practices involving these instruments have largely disappeared, visual evidence from Sri Lanka indicates their presence as early as the late 6th century CE. Using specific research methods and analytical models, this study investigates chest monochord zithers across various historical periods in ancient Sri Lanka. Key features observed in visual representations, when compared with existing instruments and literary sources, suggest the structural components and assembly methods for these instruments. They indicate that the main body of these instruments varies in form – it may be round, bar-shaped, or stick-like, and may be either hollow or solid. But, the main focus here is on the resonators, bridges, string holders, tuning pegs, and strings.

In the early period, from the late 6th to the 12th centuries CE, two variants of chest monochord zithers appeared, those with resonator, and those without it, further lacking a tuning peg. Carved from a single piece of wood, these instruments exhibited structural variations, including bridges, curved ends, or a slightly arched body. When present, the open-ended resonator was secured in place with a cord positioned between the upper and middle sections of the body.

During the second phase, spanning the 13th to 18th centuries, two variants continued to exist: one with a string holder and another with a bridge at the lower end. Unlike the first phase, the string holder or bridge was constructed separately from the body and attached to its lower end. Although the string holder could be carved from a single piece of material together with a headstock, the bridge itself was made either with or without a headstock. The strings were stretched from the lower end to the upper end, where they were secured around the body near the resonator or fastened to a tuning peg. For instruments that included a string holder, the string holder itself functioned as the lower end. In contrast, instruments with a bridge had two possible lower anchoring points: either the surface of the bridge itself or the top of the lower end on which the bridge was positioned. The bridges were either curved or flat and lacked surface features such as a plate or a bamboo skin. The open-end resonator was attached near the upper end by a cord with or without an interposed peg.

The third phase, covering the late 18th century to the early 19th century, featured chest monochord zithers with a body and two nearly complete resonators of differing sizes at each end. Interposed elements were placed between the body and resonators and connected by cords.

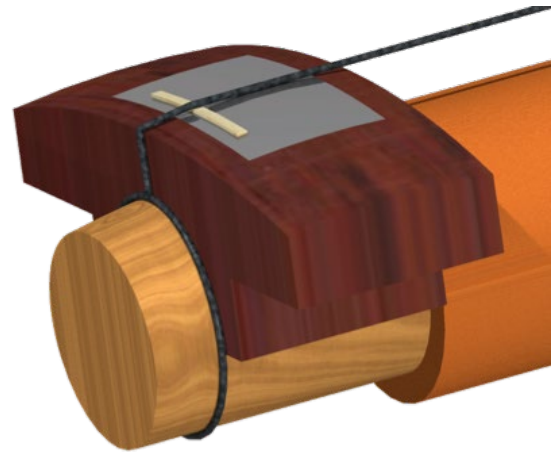


Figure 34: The digital model of *ekatantri viṇā* designed by Gupta and Dangarikar (2019: fig. 06). It represents, from top to bottom, the string (black), the bamboo skin, the iron plate, the bridge, and the peg. Republished under permission.

9 Visual models of the chest monochord zithers (late 6th–18th centuries)

Based on the conclusions of this research, a series of models have been drawn by the author to demonstrate the structural components and assembly methods of the instruments. These are not visual reconstructions or replicas, but two-dimensional models intended to support perception and understanding of the research findings.



Model A



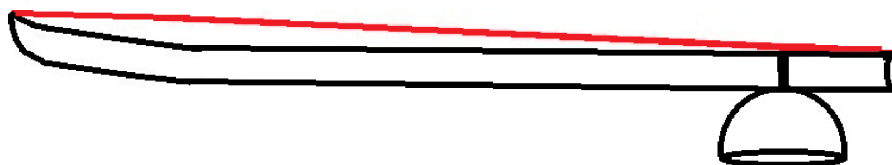
Model B



Model C



Model D



Model E

Figure 35: Models representing the first phase (late 6th–12th centuries) demonstrate the following variations drawn by author: Model A - two carved bridges, no resonator; Model B - one carved bridge, resonator; Model C - curved body, no resonator; Model D - single curved end, no resonator; Model E - single curved end, resonator.



Model A



Model B



Model C



Model D



Model E



Model F

Figure 36: Models representing the second phase (13th–18th centuries) demonstrate the following variations drawn by author: Model A - bridge + headstock, string anchored on headstock, no tuning peg, resonator attached by cord; Model B - bridge + headstock, string anchored on bridge, no tuning peg, resonator attached by cord and a peg; Model C - bridge only, string anchored on body, no tuning peg, resonator attached by cord; Model D - bridge only, string anchored on bridge, tuning peg, resonator attached by cord and a peg; Model E - string holder + headstock, tuning peg, resonator attached by cord; Model F - string holder + headstock, no tuning peg, resonator attached by cord and a peg.

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