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RESEARCH ARTICLE

The Zri-Rab: A New String Instrument from the Ancient Frescos of Sri Lanka

Zri-Rab: Sri Lanka'nın Eski Fresklerinden Yeni Bir Yaylı Çalgı

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ABSTRACT

Inside the ancient temple of Thivanka Pilimage (Thivanka Image House), which was built in Polonnaruwa between the 12th-13th centuries AD, several frescoes were depicted based on Buddha's life events and the *Jataka* tales. Before all these frescoes faded, draftsmen working for the Archaeological Survey of Ceylon copied them. Among the frescoes the draftsman P. G. Perera copied is one that depicts a man or woman holding a long-necked lute. The purpose of the present research is to interpret this string instrument and reconstruct a physical string instrument that is consistent in form. This study involves experimental research and falls under the music discipline of organology. The study uses iconographic analyses and morphological analogues to discover how to organize the structure and elements needed to design and build a musical instrument that is consistent with the ancient form of the long-necked lute. The *tar* (long-necked lute) and *sgra-snyan* (7-string long-necked lute, also known as dramyin) are string instruments used in modern times that have also been identified as morphologically similar to the string instrument depicted in the Thivanka Pilimage. The *tar* used in the Middle East provides information on how to organize the structure and elements needed to reconstruct a string instrument that can be used in modern music without changing the ancient form. In this way, the merging of antiquity and modernism has led to the revival of the string instrument called the *zri-rab*.

Keywords: Long-necked lute, *Sgra-snyan*, Thivanka Pilimage, Tar, *Zri-rab*

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Introduction

Visual art, a visual object or experience consciously created through an expression of skill or imagination. The term art encompasses diverse media such as painting, sculpture, printmaking, drawing, decorative arts, photography, and installation (Augustyn, 2020).

Figure 1. The Thivanka Pilimage Temple (Tivanka Image House - Ancient City of Polonnaruwa, n.d.).

Ancient visual arts provide remarkable details regarding the music that may have been used by people in the past despite not appearing in written sources. Musical iconography is a method that is used to identify, describe, analyze, and interpret which musical practices, instruments, events, themes, and matters are represented by such visual arts. The core methods of musical iconography are derived from musicology and art history (Ruccius, 2014). The present research focuses on a string instrument depicted in an ancient fresco in Thivanka Pilimage (Fig. 1) in Sri Lanka. The Thivanka (or Thiwanka) Pilimage Temple in Polonnaruwa was constructed during the rule of King Parakramabahu I of the Kingdom of Polonnaruwa and was built in accordance with the Dravidian architecture using materials such as bricks and stones. The remnants of sculptures, carvings, frescos, and other architectural sources of archaeological value can be seen both within and outside of this building (Wijerathna, 2014). In particular, the frescoes on the inside of the

walls depict scenes based on the Buddha's life events and the *Jataka* tales and represent Sri Lankan mediaeval art traditions belonging to the 12th-13th centuries AD (Somathilake, 2000). As per the author's observations, a significant amount of the frescoes at Thivanka Pilimage have faded beyond recognition. However, several draftsmen working in the Ceylon Archaeological Survey made copies in the early 20th century (Bell, 1918; Joseph, 1918). P. G. Perera was one of the professional draftsmen who copied some the Thivanka Pilimage frescoes at a small scale in the form of outline drawings, the copies of which were published in the Annual report 1909 archaeological survey of Ceylon (Bell, 1918).

One fresco Perera copied from the south wall of the vestibule of Thivanka Pilimage depicted a man or woman holding a long-necked lute (Fig. 2). Unfortunately, the original depiction has since faded from Thivanka Pilimage's wall. According to Bell, who was the first Archaeological Commissioner in Sri Lanka, this fresco represents a scene from the *Vidura-Pandita Jataka* (Bell, 1914). However, Charles Godakumbura (1969) refuted this opinion, instead suggesting this fresco to belong to the *Guttila Jataka*. The aim of the present exploration is to interpret the long-necked lute depicted in Thivanka Pilimage and to reconstruct a physical musical instrument that is consistent in form. Prior to current research, the author reintroduced an ancient stringed coconut shell instrument called the *Kandyan vina* (Dehideniya, 2022). The present study is another step in reintroducing a musical instrument through research based on Sri Lankan historical evidence.

Lutes are any string instrument in which "the plane of the strings runs parallel with the sound-table" (Von Hornbostel & Sachs, 1961, p. 22), and are called necked lutes when "the handle is attached to or carved from the resonator, like a neck" (p. 23). Generally, these can be categorized under short-necked and long-necked lutes based on the length of the handle.

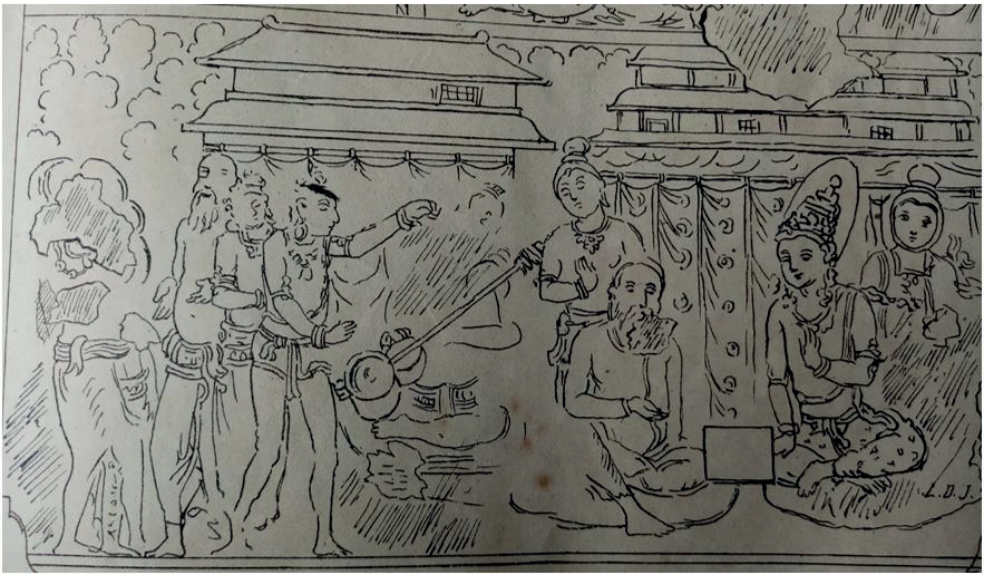

Figure 2. The fresco on the south wall of the vestibule portraying the long-necked lute, as copied by the draftsman P. G. Perera (Bell, 1914, plate C).

Usually, reconstruction is necessary only when an object no longer exists, has only been partially preserved, or is damaged beyond repair (Suits, n.d.). The present research problem involves how to reconstruct a string instrument consistent with the form of the long-necked lute-type instrument depicted in Thivanka Pilimage so it can be used in modern music. Archaeomusicological researchers have conducted studies on musical instrument reconstruction using one or more of the following sources: artifacts, iconography, and literary evidence (Koumartzis et al., 2015; Roberts, 1981; Taylor, 2021). However, reconstruction depends on what sources have been preserved. The present study could find no supplemental pictorial or literary evidence in Sri Lanka regarding the long-necked string instrument depicted in Thivanka Pilimage. If a reconstruction can only follow an illustrative example in the form of a fresco or sculpture, talking about precisely duplicating an instrument is difficult (Suits, n.d.). In fact, create an exact copy or anything precisely like the original is impossible because no examples of this type remain (Raymaekers, 1997).

Methodology

The first step is to find sources appropriate for gathering information on how to organize the structure and elements that are needed to design and physically build a musical instrument that is similar in form to an ancient depiction. Stelios Psaroudakēs (2020, p. 227) has an answer to this question, as he has described "how an archaeo-organologist can develop a methodology of 'historically informed' reconstructions of ancient, obsolete instruments by combining primary evidence with select analogues from different times and places." His argument is important for acquiring a perspective for the present study, particularly regarding how to select the sources and reconstruct a musical instrument depicted in visual art. Thus, the present research uses selected evidence from historical frescoes, museum artifacts, and modern musical instruments that have iconographical and morphological relations to the long-necked lute in Thivanka Pilimage. The study will discuss the frescoes through iconographic analyses, an art history methodology. The study analogizes the morphologies of ancient artifacts with modern string instruments that resemble the ancient depiction and draws a new design in accordance with the research objective. In addition, the study draws upon secondary sources such as books and research articles to provide supplementary information for the above analysis.

This study involves experimental research and operates under the musical discipline of organology, which also pertains to practical testing. "The term 'experimental' carries multiple connotations. It suggests something provisional, 'being tested', perhaps not yet ready for release to the wider public" (Busuttil, 2013, p. 60). Many previous researchers who've reconstructed musical instruments have attempted to utilize the original materials and measurements that past societies had used (Koumartzis et al., 2015; Roberts, 1981; Taylor, 2021). The present research has no original details, which constitutes one of its limitations. After gathering information from selective evidence related to the long-necked lute-type instrument in Thivanka Pilimage, the author designed a new hypothetical technical plan regarding the ancient form so that can build a physical instrument in accordance with the technical plan and inspect the accuracy of the research in its final stage.

Results and Discussion

Figure 3. A close-up image of the long-necked lute depicted in Thivanka Pilimage (Bell, 1914, plate C).

According to the fresco (Fig. 3), several parts of the long-necked lute string instrument are recognizable (i.e., the two-chamber resonator where the first chamber is circle-shaped and the second is oval-shaped), and a long straight rod goes up to the lower edge of the surface of the second chamber.

Figure 4. The long-necked lute as isolated from the context of the fresco by the author.

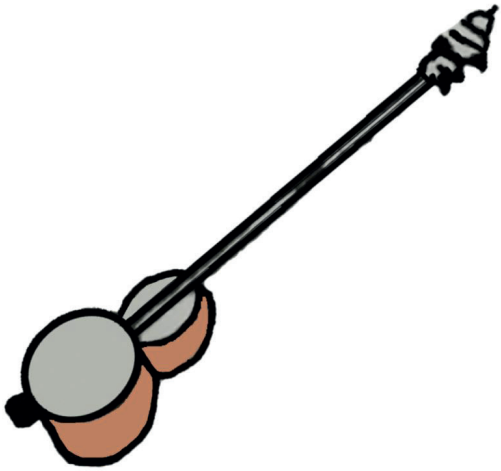

Figure 5. The long-necked lute isolated from the context of the fresco and colored in by the author.

Archaeological Artifacts and Pictorial Evidence Resembling the Long-Necked Lute Depicted in *Thivanka Pilimage*.

Figure 6. The *tar*, a string instrument from the 19th century (The Metropolitan Museum of Art, n.d.a).

The *tar* belongs to the category of plucked long-necked lutes and is one of the musical instruments that developed and metamorphosized from the ancient rabab of the Middle East (During et al., 1991). According to another opinion, the direct ancestor of the Persian and Azerbaijani *tar* is probably a variety of *rabab* called the *shidirghu*, as an instrument from Turkestan (During, 2013). Based on his analysis of the Persian *Safavid* frescoes which depict ancient *rabab* or *shidirghu* instrument (Fig. 7 and Fig. 8), Jean During (2013) states that the circle-shaped first chamber of the ancient instrument is covered with animal leather, while the oblong-shaped second chamber is covered with a wooden plank. These ancient features cannot be seen in modern *tar* string instruments since both chambers are covered with animal leather.

Modern *tar* string instruments are used in countries in the Middle East and Central Asia, including Iran, Azerbaijan, Uzbekistan, Armenia, Georgia, Turkey, Tajikistan, and Caucasus. Two different types of *tar* string instruments with distinct features are used in the contemporary Middle East, namely the Persian *tar* (Fig. 9) and Azerbaijan *tar* (Fig. 10). The shape of the modern Persian *tar* resonator is similar to the Arabic number eight (8), and the small chamber of the Azerbaijani *tar* is round in shape (During, 2013). Moreover, the two *tar* varieties show differences in their bridge shape and number of strings.

Figure 7. Fresco presenting an ancient *rabab* or a variety of *rabab* called the shidirghu and a round tambourine with bells (or daireh; 16th-17th century A.D; Maḫzan al-asrār; Niẓāmī, n.d.).

Figure 8. A Safavid fresco presenting an ancient *rabab* or a variety of *rabab* called the shidirghu (16th-17th century A.D; Young man with rubab, n.d.).

Figure 9. The modern Persian *tar* string instrument (Persian Tar String Musical Instrument, n.d.).

Figure 10. The modern Azerbaijani *tar* string instrument (Azerbaijani musical instrument tar, 2013).

Figure 11 shows an ancient *sgra-snyan/dra-nyen* string instrument belonging to the 14th-16th century AD as used in the Tibetan region. It is now preserved at the Metropolitan Museum of Art (MET) in the United States. According to the MET description, this instrument is a remarkable example of musical exchange between the West and East Asia.

The body of this antique instrument consisting of two chambers covered with animal leathers is a rare illustration of an archaic transitional form that seems to point to the Afghan *rabab* and various Himalayan lutes. It also provides some insight into the development of the modern *sgra-snyan* (The Metropolitan Museum of Art, n.d.b). Its elements and design as well as geographical diffusion of *sgra-snyan* instruments seem to indicate an origin linked to Central Asia more than any other area. More specifically, the *sgra-snyan* is most closely related to the Central Asian long-necked lute family (Collinge, 1993). This instrument is mostly used in the western and central Tibet (much of Tibet Autonomous Region), and sometimes in the Tibetan provinces of Sichuan, Yunnan, Qinghai, and Gansu. The *sgra-snyan* is also played outside of China in Chang La Pass in Ladakh, India and by some groups of Sherpas and the Manang people of Northern Nepal, as well as the Bhutanese (Collinge, 1993). In modern times, a few types of *sgra-snyan* are used in those areas and contain minor differences in terms of shape, design, and playing techniques (Collinge, 1991).

Figure 11. An ancient *sgra-snyan/ dra-nyen* string instrument (14-16 A.D; The Metropolitan Museum of Art, n.d.b).

Figure 12. A modern *sgra-snyan* of the *Dharamsala* model (i.pinimg, n.d.).

Figure 13. A modern *sgra-snyan* instrument of the Bhutanese model (Dramyen, n.d.).

Jeffrey Charest (2019) studied the genealogy of the *tanbur* family and their genres in his PhD dissertation and identified seven families of long-necked lutes (Fig. 14). Using the materials of resonators and soundboards as key features, Charest divided the long-necked lutes into seven families. According to his explanation, the long-necked lutes consisting of "wood resonators and skin soundboards fall in the rabab/rawap family" (p. 30).

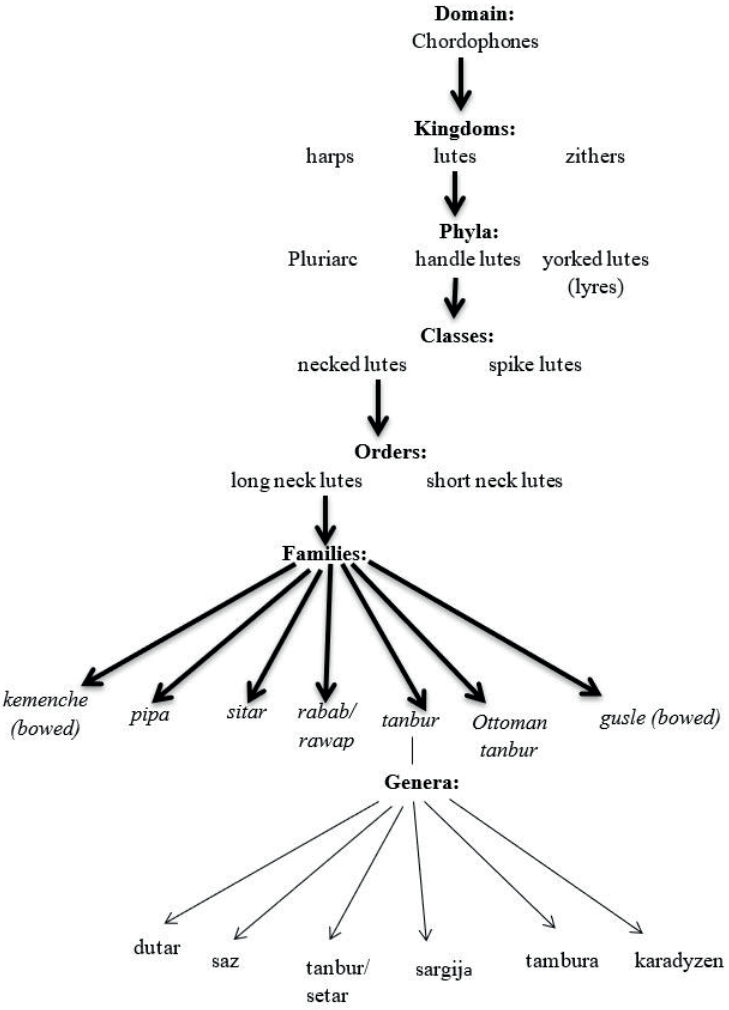

Figure 14. The seven long-necked lute families, as quoted from the schema for the "genealogy of chordophones to genera of the *Tanbur* family" (Charest, 2019, p. 29).

According to the morphologies of the *tar* and *sgras-senayan* string instruments, they belong to the *rabab* family of long-necked lutes. Past researchers have been noted the origin of the *tar* and *sgras-snayan* string instruments to be linked to *rabab* string instruments. According to the above discussion, the morphologies of the *tar* and *sgras-snayan* string instruments seem to resemble the iconographies of the long-necked lute instrument as depicted in Thivanka Pilimage. Thus, one can assume the iconographies of the long-necked lute instrument depicted in Thivanka Pilimage to share a kinship with the *rabab* long-necked lute family. "Rabāb (*rubāb*/*rubob*/*rebab*/*rabob*/*robāb*/*ribāb*/*rbab*/*rabāba etc.*), a term for various chordophones, particularly lutes (mainly with skin sound table), both bowed and plucked, and lyres" (Sadie & Tyrrell, 2001, p. 696). The first written evidence of a *rabab* was noted by al-Farabi (872-950 AD; Kuckertz, 1970).

Rohitha Dasanayaka (2018) studied the cultural, religious, and social relations between Sri Lanka and the Middle Eastern region that had resulted from their economic and political ties, as well as their camaraderie, based on archaeological and literary evidence. Some of the information revealed in his research is essential and important to the current research. Middle Eastern (i.e., Oman, Siraf, and Yeman) trading settlements appear to have been established in coastal Sri Lanka in 7th century AD. However, the establishment of the Arab trading settlements on the Sri Lankan coast may date back to the pre-Islamic period. A comprehensive economic relationship was also established with Arabians between the 8th-9th centuries AD, with diplomatic visits and knowledge about medicine and academia being exchanged between the two regions. Adam's Peak in Sri Lanka has attracted the particular attention of Islamic devotees since the 8th century AD due to the belief that Adam's footprints rest on the mountain. As a result, a significant number of people from the Middle East had come to worship on Adam's Peak until the 15th-16th centuries AD. Based on this information from Dasanayaka, one can assume that a proto-type instrument belonging to the *Rabab* long-necked lute family may have arrived in Sri Lanka by way of the Middle Easterners.

Designing a New Technical Plan

The study designed a new plan consistent with the form of the long-necked lute string instrument before constructing the physical instrument. As mentioned at the beginning of this research, the new plan should be designed without making changes to the ancient model. When designing a plan for a musical instrument, identifying how its structure and elements

should be organized is necessary, in addition to identifying its form. Thus, the arrangement of the structure and elements in the modern string instrument named *tar*, being morphologically similar to the string instrument depicted in the *Thivanka Pilimage*, have been substituted and used for the new design. The technical plan for the *tar* instrument given in Figure 15 has provided the details required for the new design (Fig. 16).

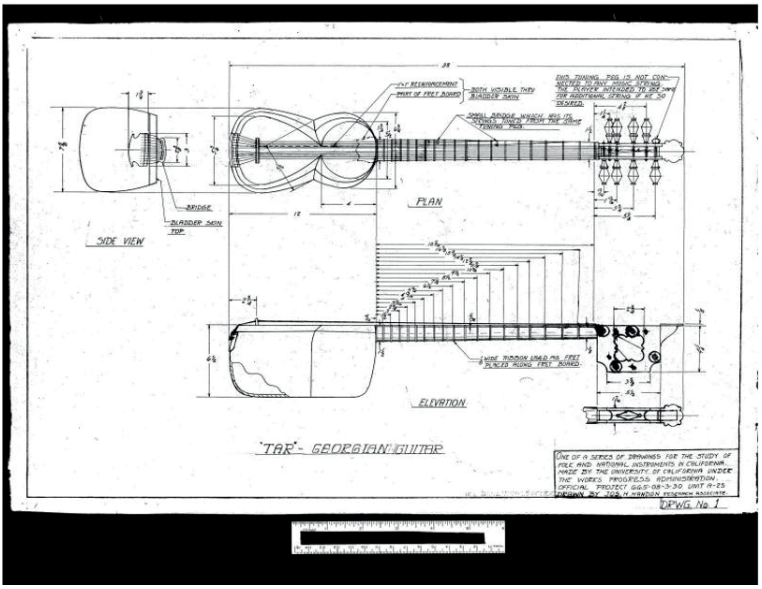

Figure 15. A technical plan of the *Tar* (Cowell, Handon, & University of California, 1938).

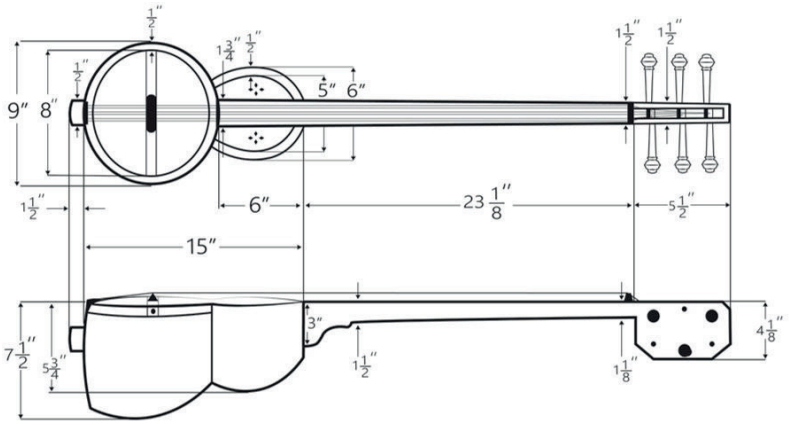

Figure 16. The new technical plan consistent with the form of the long-necked lute string instrument depicted in the *Thivanka Pilimage* as drawn by the author.

The Reconstruction Process

Figure 17. The part of the jackfruit wood used for the resonator (upper left); rough trimming the resonator (upper right); designing the resonator surface by marking the wood (bottom left); designing the side of the resonator by marking the wood (bottom right).

Figure 18. Right-side view of the physical resonator (upper left), left-side view of the physical resonator (upper right), and inside view of the physical resonator (bottom).

Figure 19. The neck (upper left), peg box (upper right), tuning pegs (bottom left), and the bridge and tailpiece (bottom right).

Figure 20. Assembly of all elements constructed (front view).

Figure 21. Front view of final physical instrument.

Figure 22. Side view of the final physical instrument.

The resonator and neck of this stringed instrument are made from jackfruit wood; the pegs and peg box are made from teak; and the bridge, nut, and tailpiece are made from ebony. The first chamber is covered with goat skin, while the second chamber is covered with wooden planks as seen in the *rabab* or *shidirghu* string instruments dating back to the 16th-17th centuries AD. The author hired the professional wood carver, Sathish Kumara Piyasena, who lives in Ambakke in Kandy, for carpentry assistance under the author's full supervision during the physical construction of this string instrument. The author suggests the name *zri-rab* for this instrument that has been built according to the form of the long-necked lute depicted in Thivanka Pilimage, as the word *zri* is derived from the name Sri Lanka, and *rab* is derived from the *rabab* instrument. *Zri-rab* has three paired strings similar to the *tar* string tuning arrangement of C3, G3, and C4. Octave plucking can also be done, similar to the *tar* string instrument. The *zri-rab* has a melodious sound and is most suitable for professional players who play plucked lute instruments. The author hopes to create some pieces of music and introduce this new sound.

Conclusions

This research attempted to interpret the long-necked lute depicted in the *Thivanka Pilimage* and reconstruct a musical instrument consistent with its form that can be used in modern music. *Tar* and *sgra-snyan* stringed instruments used in modern times have been identified as morphologically similar to the stringed instrument depicted in the *Thivanka Pilimage*. According to those similarities, the string instrument depicted in the *Thivanka Pilimage* seems to belong to the *rabab* long-necked lute family. The above mentioned string instruments provide information on the organizing of structure and elements required to reconstruct a stringed instrument that can be used in modern music which does not deviate from the ancient form depicted in *Thivanka Pilimage*. Thus, the revival of the

reconstructed stringed instrument called *zri-rab* consists of two combinations of antiquity and modernism. Furthermore, the *zri-rab* can be introduced as a new string instrument which is a replication of an ancient model.

Figure 23. A photograph of the author playing the *zri-rab*, a physical instrument consistent with the long-necked lute-style represented in the *Thivanka Pilimage* fresco.

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