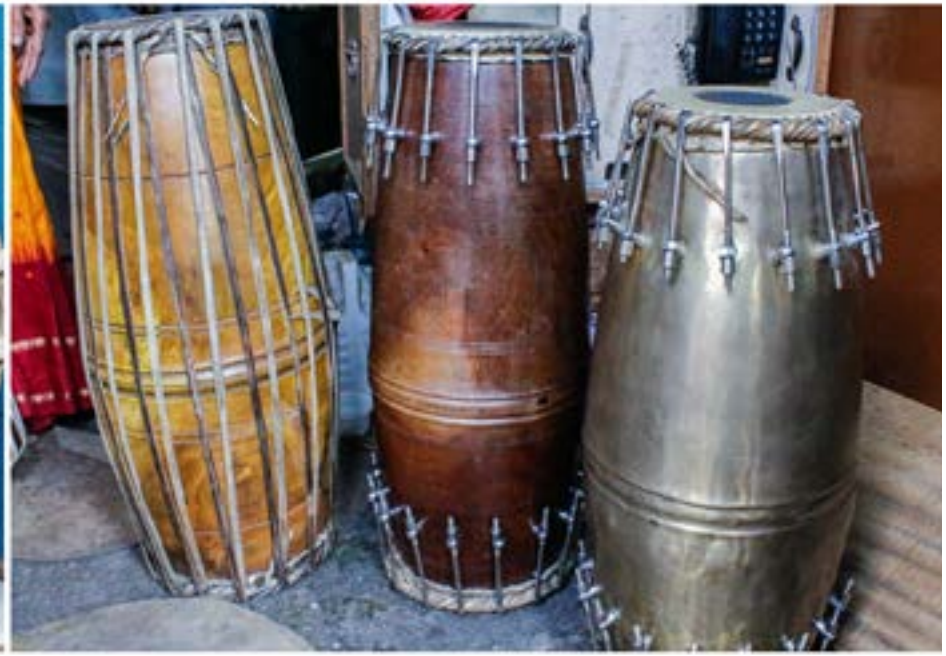
Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru



Source:
http://www.dsource.in/resource/making-mridangam-bengaluru-karnataka

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

Introduction

The music of India is one of the oldest systems of music in the world. It has two branches. The Hindustani sangeet (music) of the North and the Carnatic sangeet in the south. Collectively these two limbs form the body of a musical tradition that is said to extend back several thousand years.

The Carnatic sangeet of southern India prefers a drum called Mridangam. It is the principal drum used in the performance of classical South Indian music and dance. This instrument is a single piece of wood that is hollowed out and has playing heads on both sides. The Mridangam is a south Indian representative of a class of instrument known as Mridang. This class includes other drums like Maddal, Shuddha maddalam, Khol, and Pakhawaj. Mridangam forms the basis for Carnatic classical percussion in India.

One major winning point in Carnatic music is the rhythm management which admits of any amount of innovation and growth. In Western music, the rhythm instrument is the drum. The drum just maintains the pulse rate of the music and it calls for more of brawn than brain. In the big contrast with this, the Indian ruler among collision instruments - the Mridangam is first "tuned" to the appropriate pitch and far more than drum beat, it accompanies the music. It enriches and enhances the musical effect of the whole troupe. When on a solo turn, the variety and patterns and mode of rhythmic travel is a veritable feast to both the learned and the layman. That is the reason Mridangam is known as the king in the rhythmic real.

One of the differences between Indian Classical Music and its western counterpart is the importance given to percussion in the former style. Percussion is the backbone of Indian classical music. Its importance is best expressed in the saying Shruti Mata Laya Pita (the microtone is the mother while tempo is the father).

In ancient Hindu sculpture, painting, and mythology, the Mridangam is often depicted as the instrument of choice for a number of deities like Nandi, who is the vehicle and companion of Lord Shiva. Nandi is said to have played the Mridangam during Shiva's arcane Tandava dance, causing a divine rhythm to resound across the heavens. The Mridangam is thus also known as "Deva Vaadyam," or "Instrument of the Gods."

The word "Mridangam" is derived from the two Sanskrit words "Mrid" (clay or earth) and "Ang," (body). Early Mridangams were made of hardened clay. Over the years, the Mridangam evolved to be made of different kinds of wood due to its increased durability, and today, its body is constructed from wood of the jackfruit tree. It is widely believed that the Mridanga, the Mridangam's North Indian musical counterpart, was first constructed by splitting an Mridangam in half. With the development of the Mridangam came the evolution of the tala (rhythmic) system. The system of talas (or taalams) in South Indian Carnatic music may be the most complex percussive rhythm system of any form of classical music.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

The Mridangam is played resting it parallel to the floor. A right-handed Mridangam artist plays the smaller membrane with his or her right hand and the larger membrane with the left hand. This can be described simple: The Mridangam rests upon the right foot and ankle, the right leg being slightly extended, while the left leg is bent and rests against the hull of the drum and against the torso of the artist. For a left-handed percussionist, the legs and hands are switched.

The fingering technique is a very important consideration in a discussion pertaining to Mridangam. The Mridangam has a balance between the powerful and delicate techniques. The evolution of Mridangam may be traced to an archetypical Mridangam. This instrument had a close association to the ancient mythological dramas. This association meant that the drums would sometimes have to support both masculine and feminine characters. The delicate movements of the dance are known as Lasya while the more powerful masculine movements are known as Tandava. Powerful techniques were developed to accentuate the masculine roles while delicate techniques were developed to support the feminine roles.

Basic strokes on the Mridangam:

1. **Tha:** Non-vibrating tone played on the left hand side with the whole palm.
2. **Dhi:** Non-vibrating tone played on the center black portion of the right hand side using middle, ring and small fingers.
3. **Thom:** Vibrating tone played on the outer side of the left hand side.
4. **Nam:** Vibrating tone played on the outer layer of the right hand side using index finger, minimizing the black portion vibration with middle or ring finger- place the third finger in the gap in ring and the second finger hits the outer layer of the right hand side of the Mridangam (called 'Saatham').

There is also a parallel set of rhythmic solfa passages (known as "solkattu") which is sounded by mouth to mimic the sounds of the Mridangam. Students of this art are required to learn and vigorously practice both the fingering strokes and solfa passages to achieve proficiency and accuracy in this art.

Advanced strokes:

Many other strokes are also taught as the training becomes more advanced, which are generally used as aesthetic embellishments while playing. These notes include gumki (or gamakam), and chaapu. The combination of these finger strokes produces complex mathematical patterns that have both aesthetic and theoretical appeal. Increasingly complex calculations (kanakku) and meters (nadais) may be employed when the Mridangam is played.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

1. **Ta:** A sharp flat note played with the index finger in the middle of the black portion on the right side of the Mridangam.
2. **Gumukki:** A variating bass tone produced by playing on the inner layer of the lower end of the left hand side. Sound is produced only when there is a special paste applied.
3. **Full Chaapu:** It is a vibrating tone played with the small finger on the right hand side, between the black patch and the outer layer. The sound is tuned to the tonic of the Tambura.
4. **Ara Chaapu:** A note similar to Chaapu, but is an octave higher, and is played with the side of the hand and less of the pinky.
5. **Dheem:** A vibrational tone version of nam played on the black portion of the Mridangam.

Classically, training is by dharmic apprenticeship and includes both the yoga of drum construction and an emphasis on the internal discipline of voicing Mridangam tone and rhythm both syllabically and linguistically, in accordance with Rigveda, more than on mere performance.

Over the years and especially during the early 20th century, great maestros of Mridangam also arose, defining "schools" of Mridangam with distinct playing styles. Examples include the Puddukottai School and the Thanjavur School. The professional Palani Subramaniam Pillai, Palghat Mani Iyer, and C.S. Murugabhupathy contributed so much to the art that they are often referred to as the Mridangam Trinity. There is also another style i.e., the blending of Saakotai Rangu Iyengar's and Kumbakonam Azhaganambi Pillai's taught to hundreds of disciples by the legendary Late Sri Kumbakonam Narayanaswamy Iyer and late Sri Kumbakonam Rajappa Iyer. Other prominent Mridangam maestros of today include Umayalpuram K. Sivaraman, T. K. Murthy, Trichy Sankaran, Palghat R. Raghu, Karaikudi Mani, Guruvayur Dorai, Srimushnam Raja Rao, Vellore Ramabhadran, Anoor Anantha Krishna Sharma, Kovai Venugopal, Suresh Ramachandhran, Mannargudi Easwaran and Trichur C. Narendran.

Today the Mridangam is most widely used in Carnatic music performances. These performances take place all over Southern India and are now popular all over the world. As the principle rhythmic accompaniment (pakkavadyam), the Mridangam has a place of utmost importance, ensuring all of the other artists are keeping their timing in check while providing support to the main artist. One of the highlights of a modern Carnatic music concert is the percussion solo (thani avarthanam), where the Mridangam artist and other percussionists such as kanjira, morsing, and ghatam vidwans exchange various complex rhythmic patterns, culminating in a grand finale where the main artists resumes where he or she left off. Mridangam is used as an accompanying instrument in Yakshagana Himmela (orchestra) where it is called Maddale. However, Mridangam used in Yakshagana markedly different in structure and acoustics from the ones used in Carnatic music. The significant player of the Mridangam in modern times is Vidwan Umayalapuram K. Sivaraman who has been playing and advancing the technique since 1938.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

Mridangam is manufactured in shops that are exclusively meant for manufacturing these particular instruments. In such shops the contribution of a number of experienced technicians who are well versed in the job is immense. The more experienced Mridanga makers provide the better instrument. Most of all the eminent Mridanga exponents prefer to use the personalized Mridanga developed by the most experienced Mridanga makers from the Mridanga shops. One of such Mridanga shops is "Shantha Tabala Works" in Benglauru since 5 decades.

Vidwan.R.S.Anantharamaiah being born and brought up in a traditional family, was very much interested in playing percussion instruments like Mridanga, Khanjira and Dholki for many concerts. Later his interest turned towards the making of the instruments like Mridanga and Tabala. He learned the making of these instruments for many years under the guidance of Vidwan. Venkatappa that led him to open "Shantha Mridanga Works". Vidwan.R.S.Anantharamaiah founder proprietor of Shantha Tabala works established the store in 1962. He was recognized as the best Tabala and Mridanga maker of his generation. His instruments were purchased by many of the famous artists. Currently his son Mr. Srinivasa Anantharamaiah is looking after the shop and keeping busy himself by making these instruments. He also has students from Japan and other foreign countries to learn morsing / mourching, playing Tabala, Mridanga, Ghatam, Kanjeera and Dholak from him. The instruments built at Shantha Tabala works are issued 'fumigation certificate' referred as 'pest control certificate' by legal fumigator and then they are exported to foreign countries like Australia and etc.

Design Resource

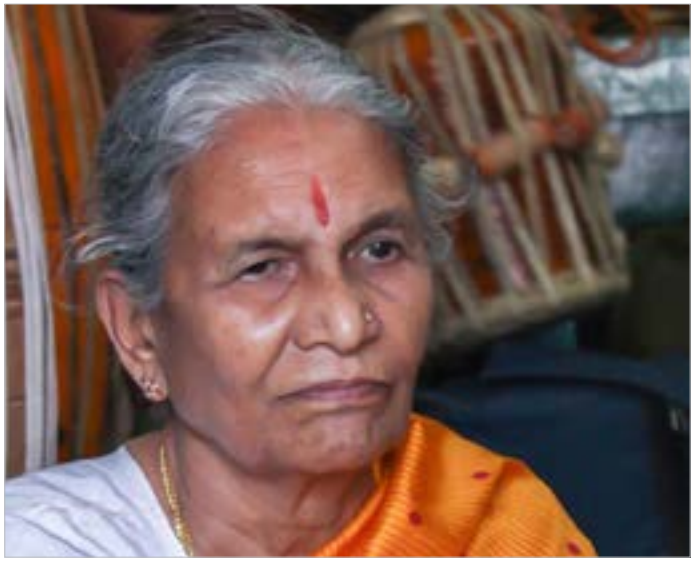
Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

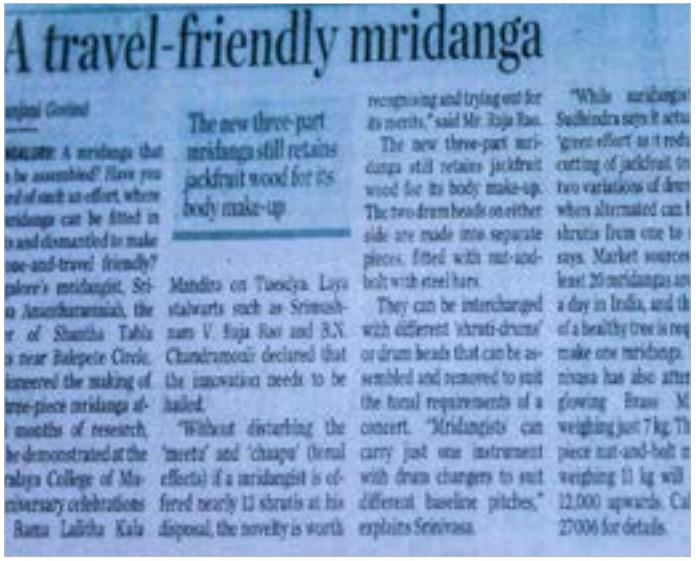
Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

Mr.Srinivas Anantharamaiah master artisan in making percussion instruments.



Senior artisan Mrs.Asvatama with an experience of almost 60 years.

Water is applied frequently to soften the leather.



A travel-friendly mridanga

The new three-part mridanga still retains jackfruit wood for its body make-up

A newspaper article about travel friendly mridangam invented by Mr.Srinivas Anantharamaiah.

Design Resource

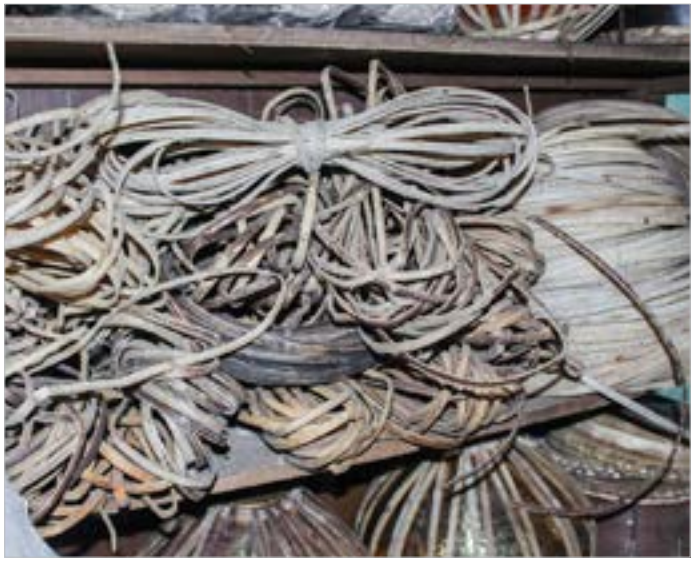
Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction

Standard mridangam comes in two sizes, 22 and 24 inch long.



Strips of leather after treatment done using slaked lime (chunna).

Family involved in tabala and mridangam making.

Travel friendly mridangam which can be separated into 3 pieces.

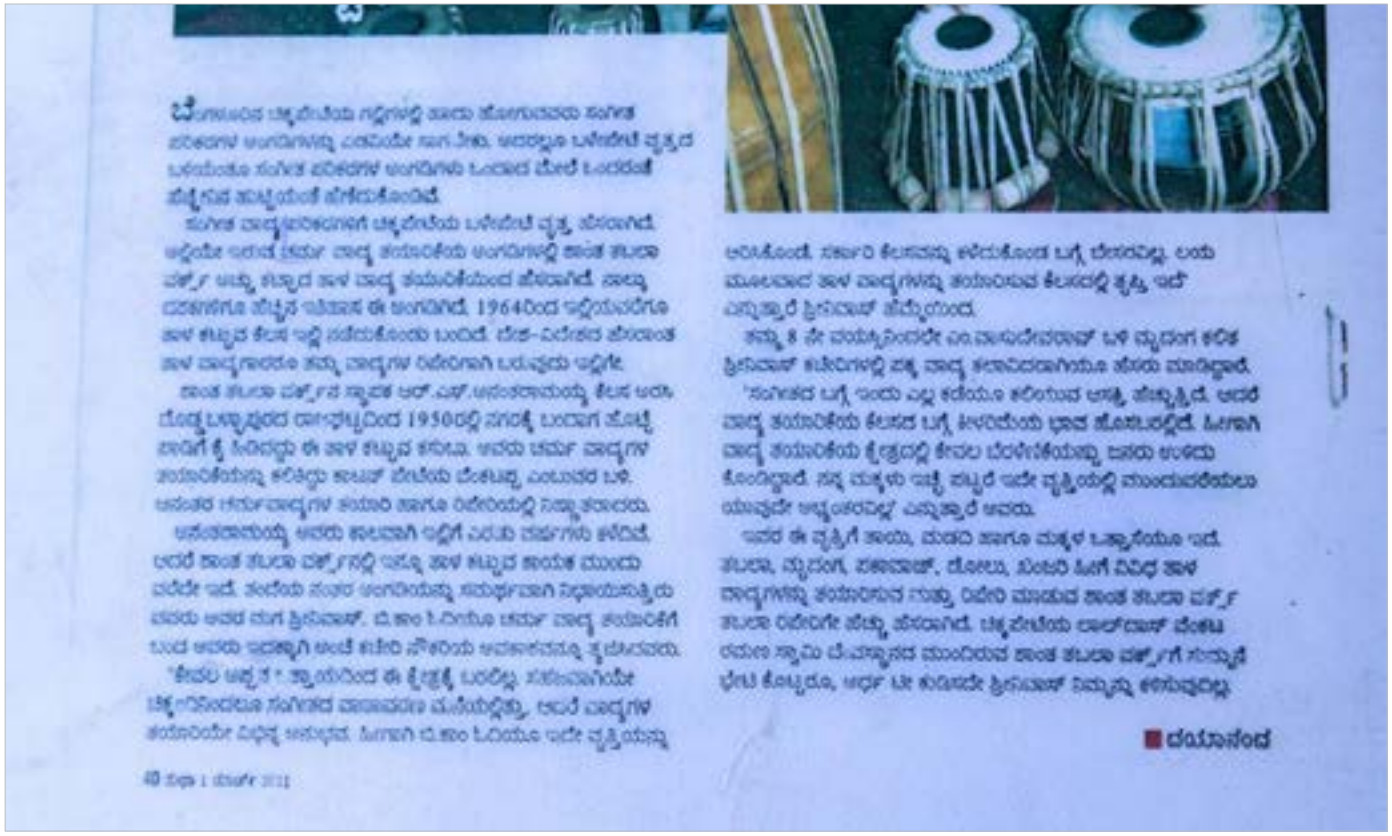
Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/introduction



A brief history of Shantha tabala works and artisan.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/tools-and-materials

Tools and Materials

- **Charcoal:** Charcoal is one among the main ingredients used for preparing karane / syahi.
- **Adhesive:** Synthetic adhesive is mixed with karane and applied at the center of leather covering the drum.
- **Neem Wood / Jackfruit Wood:** It is used for making the body of the instrument mridangam.
- **Compass:** Compass is used for drawing the precise circle on the leather.
- **Pen / Pencil:** It is used for markings.
- **Cutter:** It is used for cutting the required leather and also to chop off the unnecessary leather.
- **Water:** Water is used for soaking the leather overnight.
- **Limestone Powder:** Limestone powder is added to water while soaking the leather in it overnight.
- **Basalt:** Basalt, a smooth stone used for rubbing karane every time it is dried completely.
- **Hammer:** Hammer is used for tightening the leather straps of the instruments.
- **Small Wooden Bits:** Small wooden bits used in making of Dayan drum for tuning purpose.
- **Sticks:** Sticks of approximately one centimeter is used for getting the precise pitch in the instruments.
- **Castrol Oil:** Castrol oil is used for making mridangam to ease the making process/purpose.
- **Leather Straps or Rope:** Leather straps are used for winding around the wooden body of the instruments to tighten the ends that helps in tuning.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/tools-and-materials

- **Goat/Buffalo Skin:** To cover either side outer ring of the mridangam
- **Sheep Skin:** Used to cover inner ring of the mridangam.
- **Manganese Dust:** Manganese dust is the ingredient for preparing karane.
- **Tamarind Juice:** Tamarind juice is also one of the ingredients mixed with manganese dust for preparing karane.
- **Cooked Rice:** Cooked rice is the ingredient mixed for preparing karane.

Design Resource

Making of Mridangam, Bengaluru Karnataka

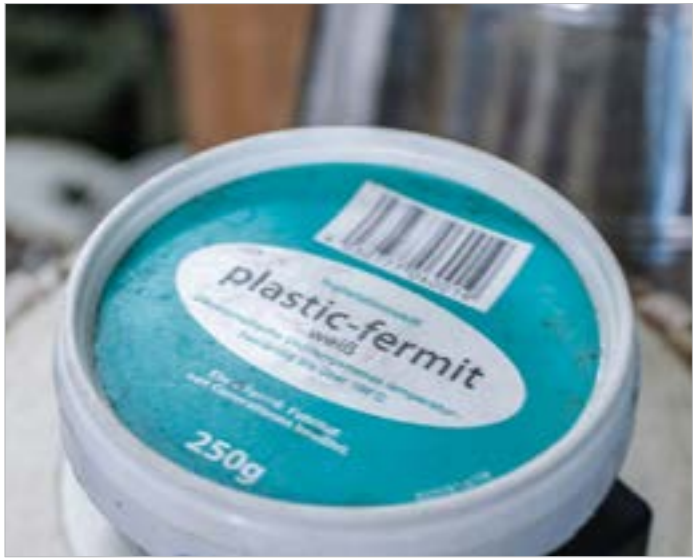
Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

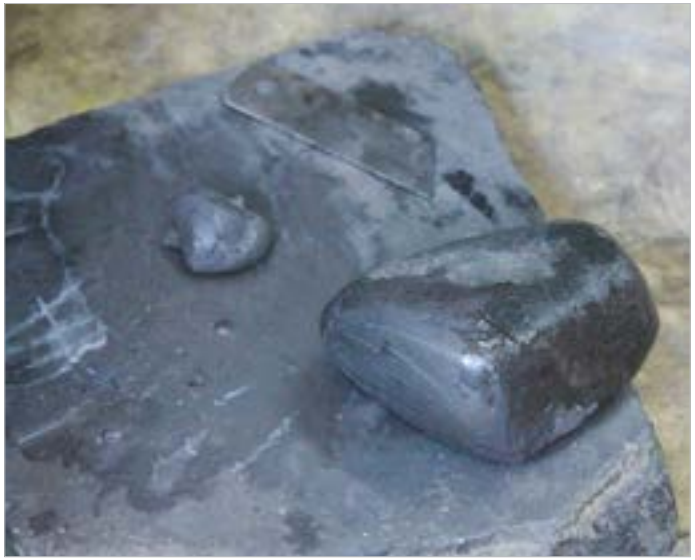
Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/tools-and-materials

Standard mridangam comes in two sizes, 22 and 24 inch long.

Strips of leather after treatment done using slaked lime (chunna).



Family involved in tabala and mridangam making.



Travel friendly mridangam which can be separated into 3 pieces.

Design Resource

Making of Mridangam, Bengaluru Karnataka

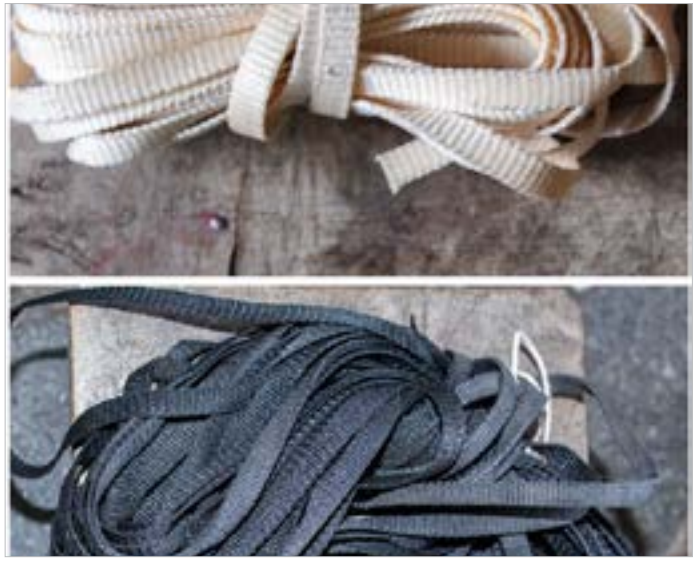
Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/tools-and-materials

Standard mridangam comes in two sizes, 22 and 24 inch long.

Strips of leather after treatment done using slaked lime (chunna).



Family involved in tabala and mridangam making.

Travel friendly mridangam which can be separated into 3 pieces.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

Making Process

The body of the mridangam is scooped out of a single block of wood. Jack wood or redwood is the ideal choice of mridangam makers, but the wood of morgosa tree or the core of the coconut tree and the palm tree is also used for this purpose. It is shaped like a barrel whose right head is a little smaller than the left. The instrument is one-and-a-half or two feet in length and its diameter is twenty-five to thirty centimeters. The making of the parchment is a highly developed skill. The right head of the drum consists of three concentric layers of the skin, the innermost being concealed from view, which is a complete skin, and two layers at the periphery. Out of these three the complete one is made of cow-hide with calf-skin used for the outer ring and sheep skin for the inner ring.

There is another version of the arrangement of the skin, i.e. the interior is made of calf skin, the middle layer is of goat skin and the outer thick layer is made from cow skin. The left head consists of only two rings. The outer one is made of buffalo skin and the inner one is of sheep/goat skin. Both the parchments are stretched and kept intact by means of a plait called chattai or pinnal made of twisted leather straps. These two plaits are connected with the leather braces of buffalo/cow skin. These can be tightened or loosened to keep the instrument in tune. At times small pieces of wood are also put in between these braces, in order to switch over to the desired pitch of the instrument. The right head of the drum is loaded with a permanent fixture of black paste. The circular layer, called 'soru', is a composition of manganese dust, boiled rice and tamarind juice or a composition of fine iron fillings and boiled rice.

A stone called kittan is powdered and mixed with rice in proper proportion. This black paste is applied on the inner skin in small grains and finely rubbed over for hardening with the polished surface of a hard stone. The paste is thickest in the center and thins out towards the edges. It is this black paste which gives the fine characteristic tone to the mridangam. The left face is not loaded with black paste like the right face, but at the commencement of a concert, a paste of soojee (fine flour) and boiled rice mixed with water and ashes is temporarily fixed on to the center of right head. The quantity of this paste is so adjusted that the note given by the left head is exactly an octave or a fourth below the note tuned at the right side.

The diameter of the left head is greater than that of the right head by about half an inch. The right head diameter varies from six-and-a-half inches to seven inches and the left head diameter from six-and-a-half inches to seven-and-a-half inches. The right head is tuned to the tone note of the main performer. On the two hoops of the instrument, there are sixteen interspaces for the leather braces of buffalo skin to pass through. By downward and upward strokes with a small hammer on the hoop at appropriate points, the pitch of the instrument can be increased or decreased by as much as a full tone.

Design Resource

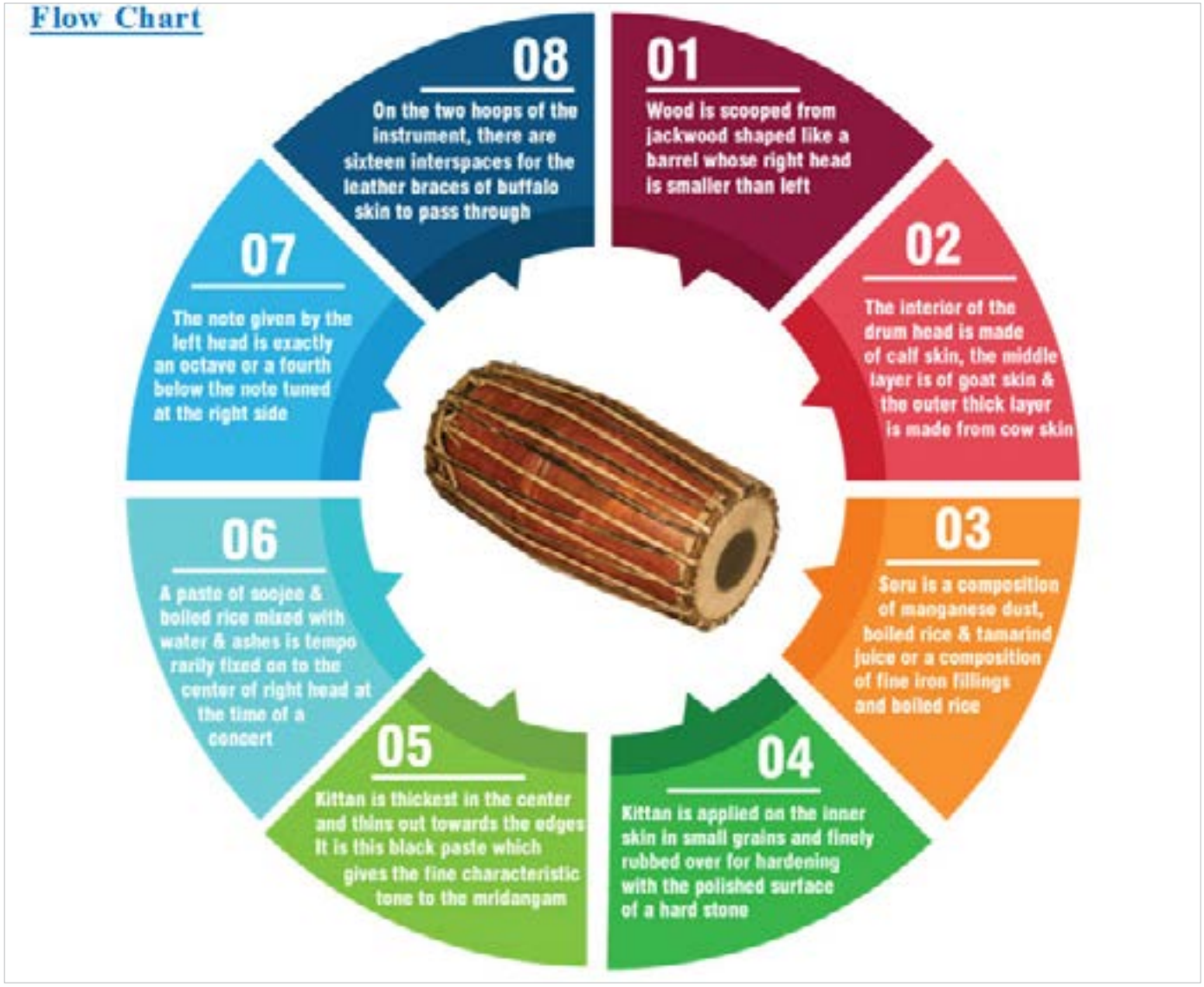
Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

Even as a clever musician is able to display his creative skill in the field of music, as main performer, so also an expert mridangam player is able to display his powers of creative skill in the sphere of tala by playing new permutations and combinations of jatis. The cross-rhythmical accompaniment provided by the mridangam player is rather unique.



Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

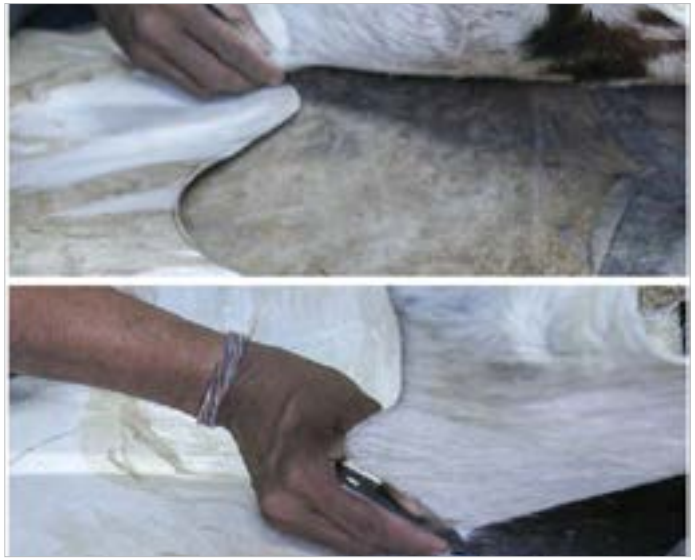
by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

Initially the wooden body of the instrument mridanga, is bought.

The mouth/openings of the mridanga is measured.

Initially marking is done on the leather using reference. Family involved in tabala and mridangam making.



Leather is cut using a cutter according to the markings.

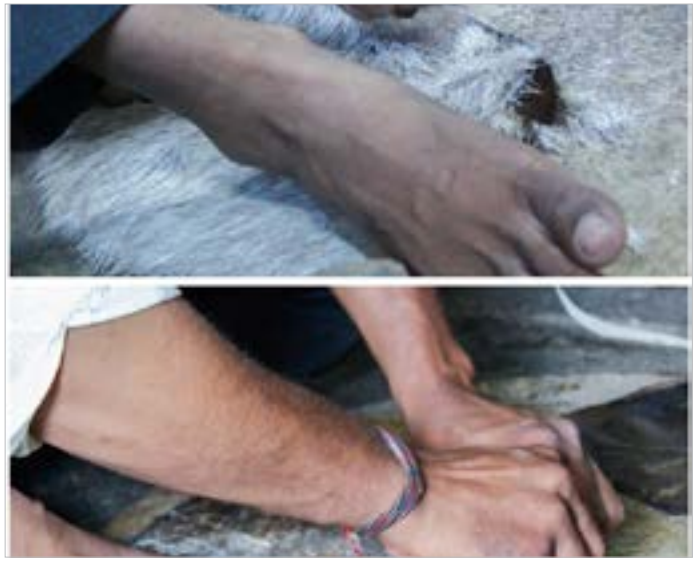
Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

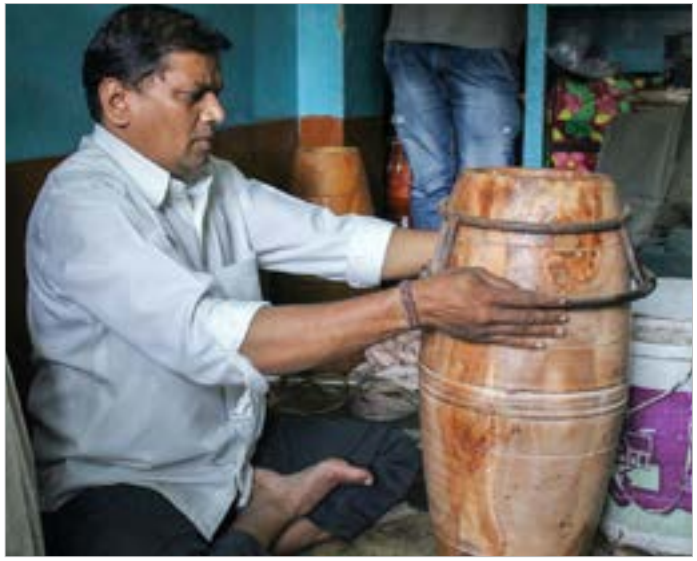
by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

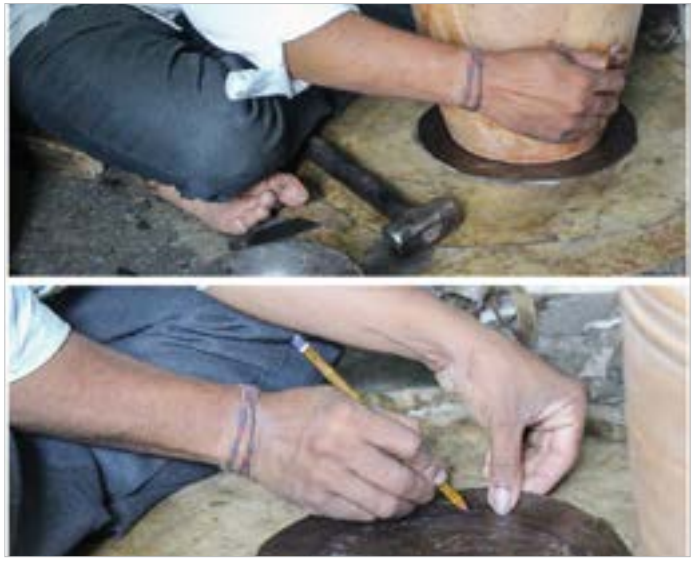


Fur on the leather is removed using cutter knife.

Leather is socked into water to make it soft.



Iron frame of circular shape is placed on wood resonator to support the leather straps.



Resonator is placed on leather for marking the required size.

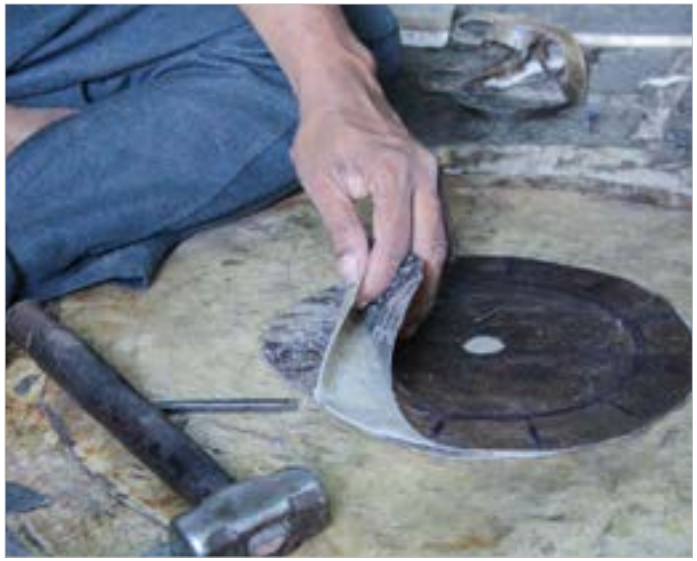
Design Resource

Making of Mridangam, Bengaluru Karnataka

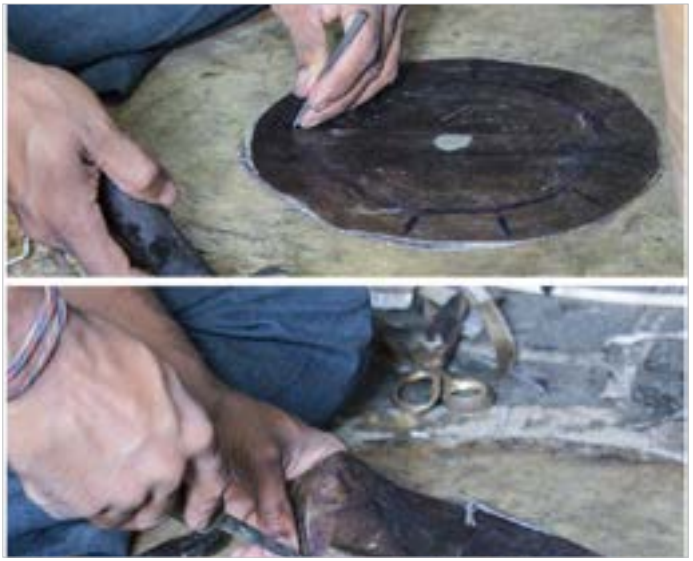
Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

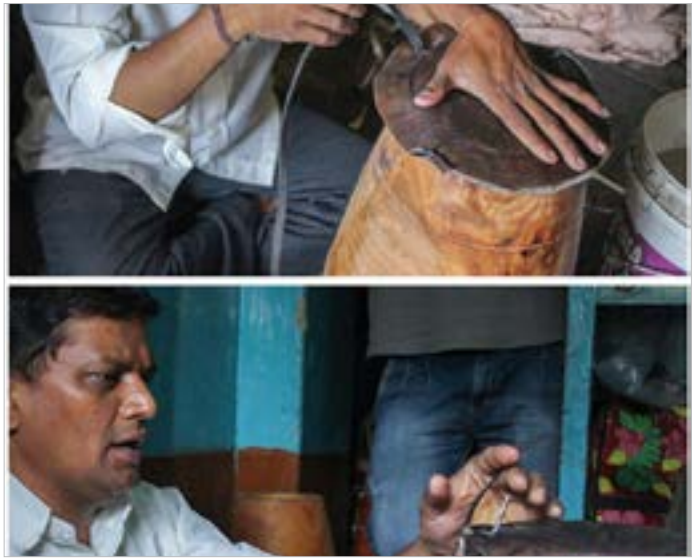
Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process



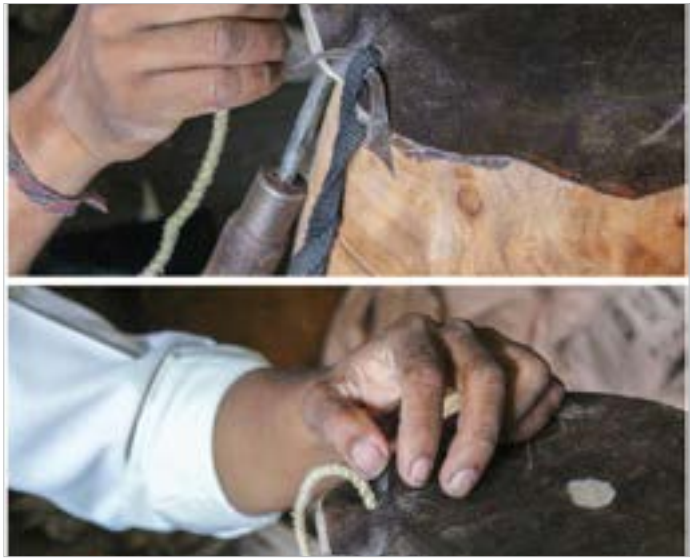
Three layers Buffalo, Goat and Buffalo calf leather is used to make the right side of the mridangam.



Holes are made on the leather to tie nylon strip.



Nylon strip is used to hold the leather in place on both sides.



Small holes are made and rope is inserted to hold the leather in place.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

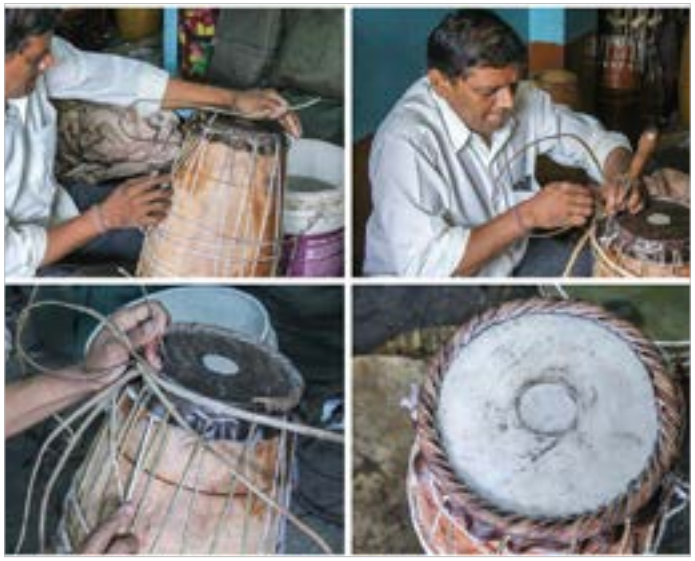
by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

The rope is passed through the iron frame.

A piece of leather is cut in circular shape from the top layer.

Rope is tighten using a hook.



Using leather strips, circular grip is woven around leather.

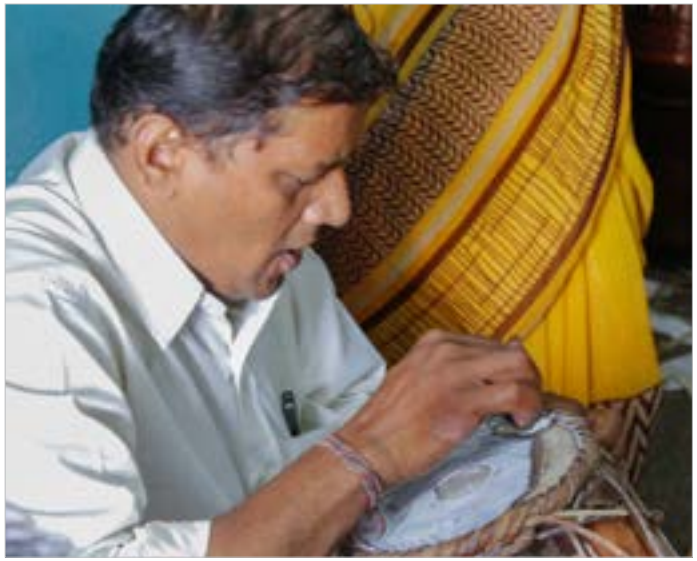
Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

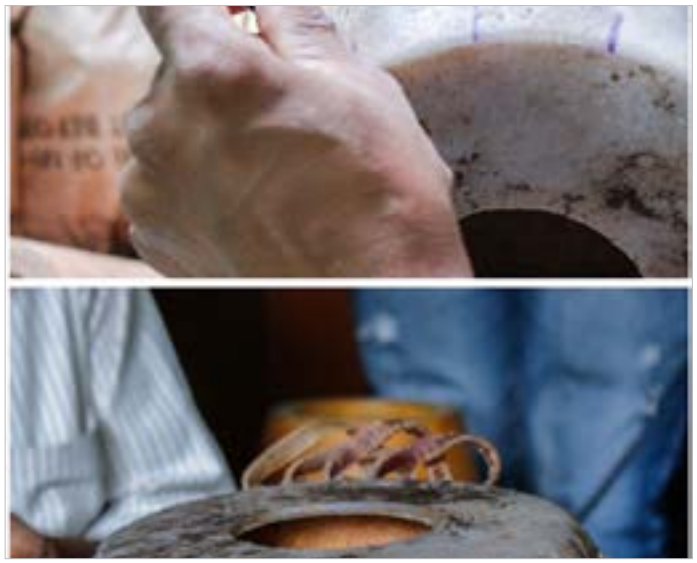
by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

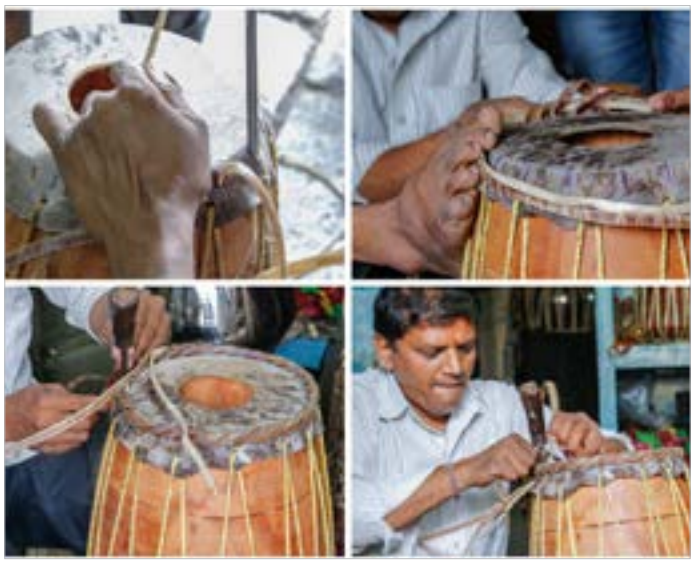


Slaked lime (chunna) is applied on the right side of mridangam.

Two layers of buffalo Leather with a big hole is tied to the left side of resonator using rope.



Forty-eight small holes are made in the edges to insert leather straps.



Leather straps is woven to make a circular grip.

Design Resource

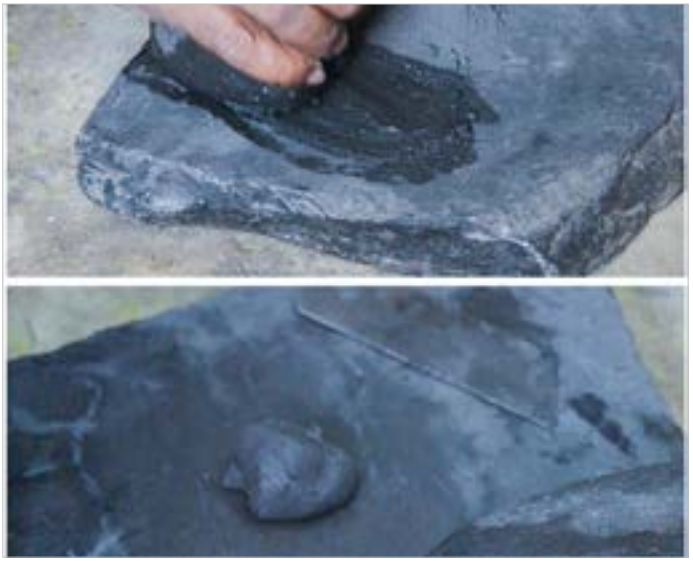
Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

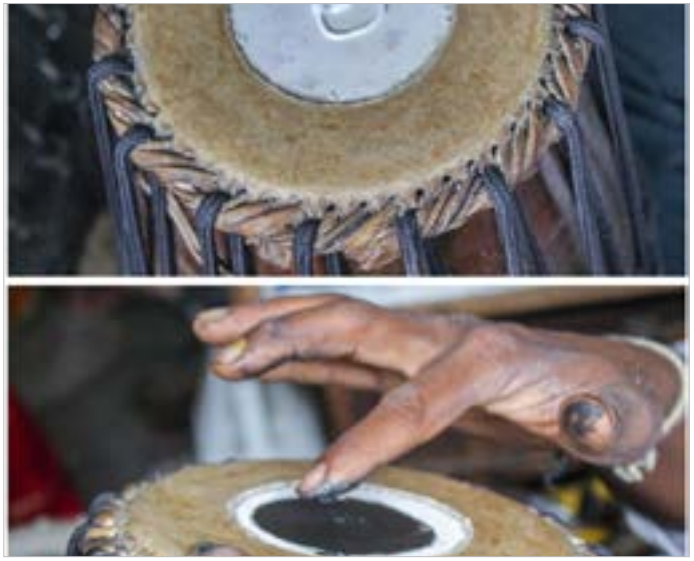
Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process

Another layer of goat leather is pasted at the bottom of the left side.



Rice, charcoal powder and water is mixed together to prepare "Karne" (black patch).

Using sand paper, the surface is cleaned.



Fevicol and karne (black patch) is applied on the right side of mridangam.

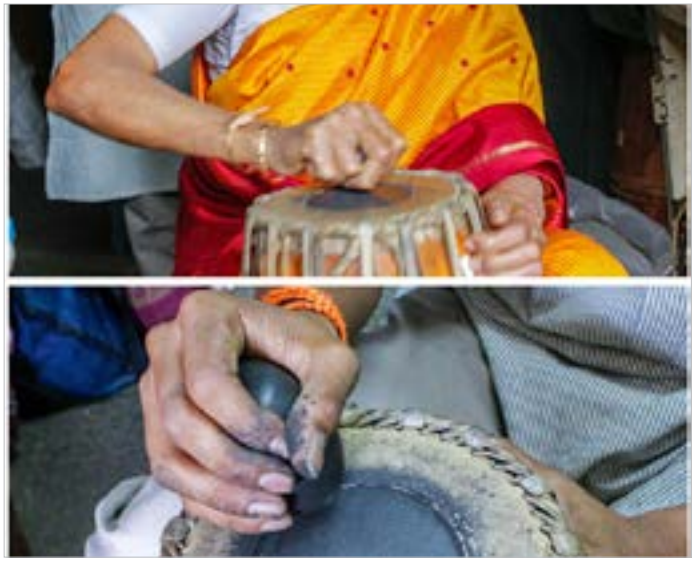
Design Resource

Making of Mridangam, Bengaluru Karnataka

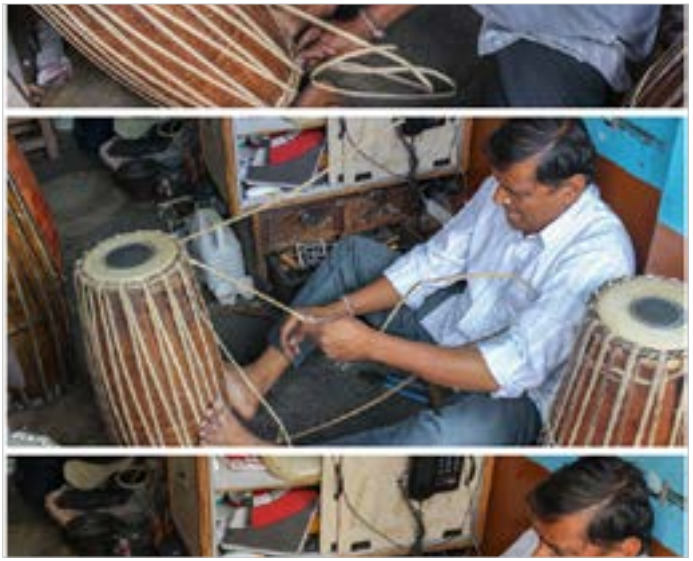
Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

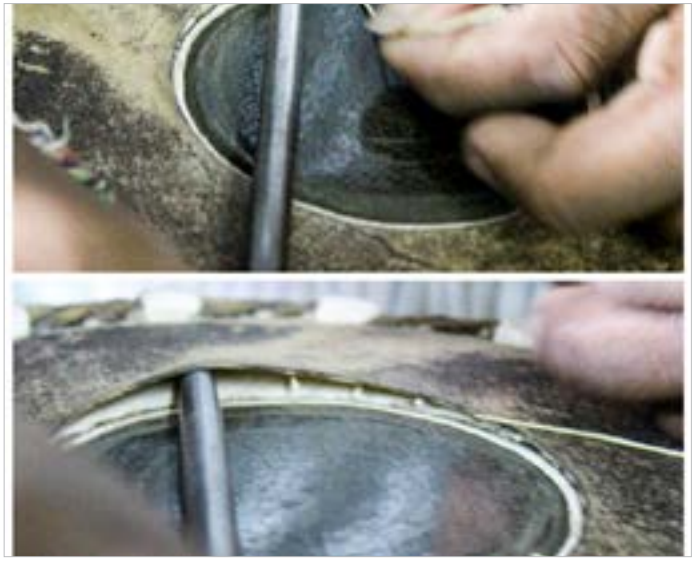
Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/making-process



The karne (black patch) is leveled layer by layer using a stone.



Leather or nylon straps is inserted between two circular grip.



Small stick is placed inside a layer of leather to produce good sound.

Plastic fermit paste is applied on the left side to produce bass sound.

Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/products

Products

Apart from being popular in India, Mridangam is also well known among other countries of Asia. The instrument Mridangam being a part of Indian classical music, it has also made a mark on devotional, theatre and also in film music. It is a much-sought instrument in multicultural and fusion musical experiments. It is manufactured at Shanta Tabla Works at Bengaluru. The other instrument that is manufactured at this shop is Tabla as per the individual's requirement. Price range of an Mridangam instrument would cost from INR 8,000/- to INR 15,000/- depending on the quality of materials used and size.

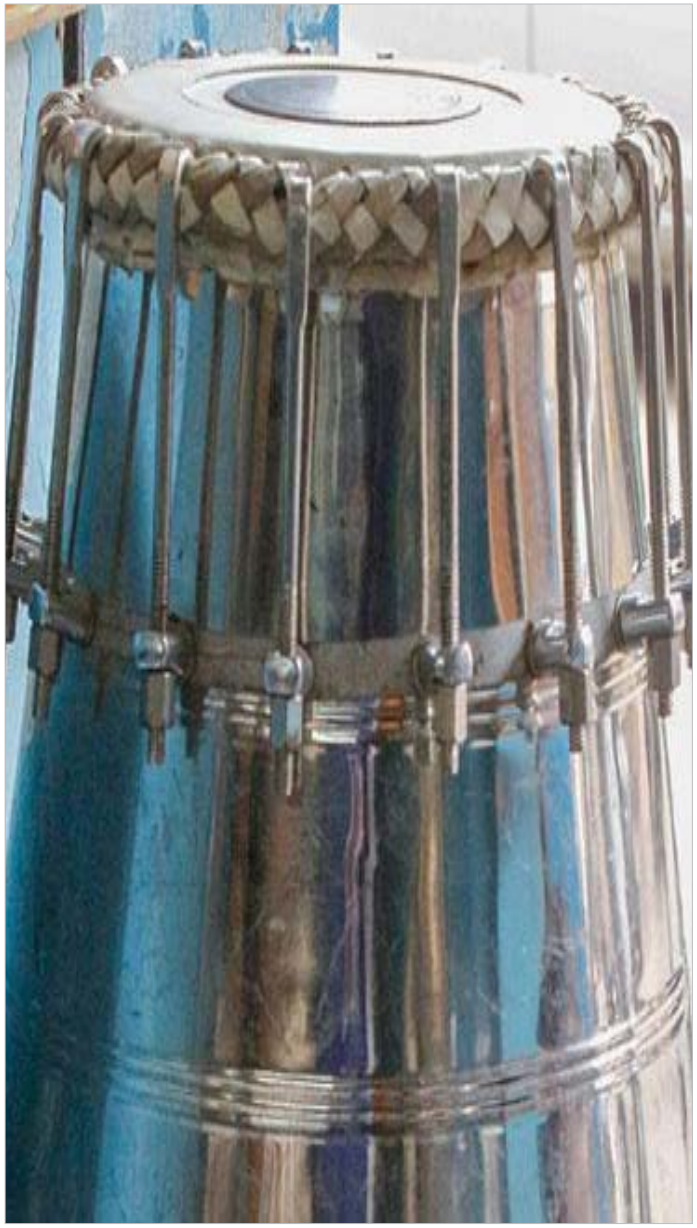
Design Resource

Making of Mridangam, Bengaluru Karnataka

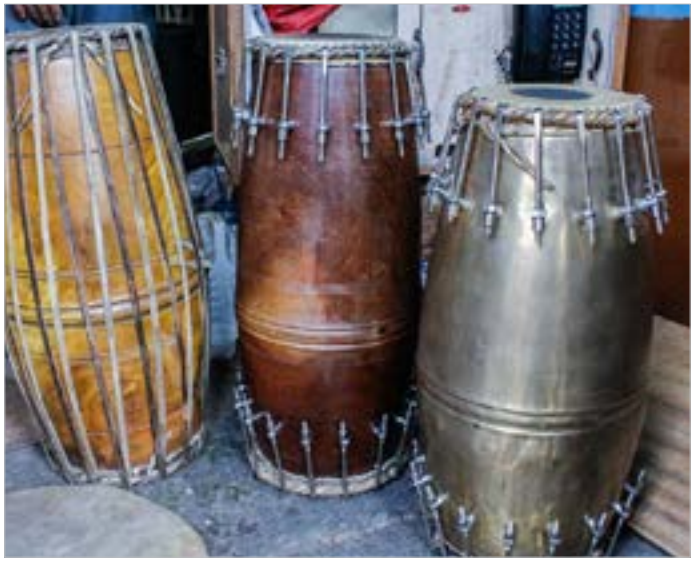
Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/products



The karne (black patch) is leveled layer by layer using a stone.



Leather or nylon straps is inserted between two circular grip.

Plastic fermit paste is applied on the left side to produce bass sound.

Design Resource

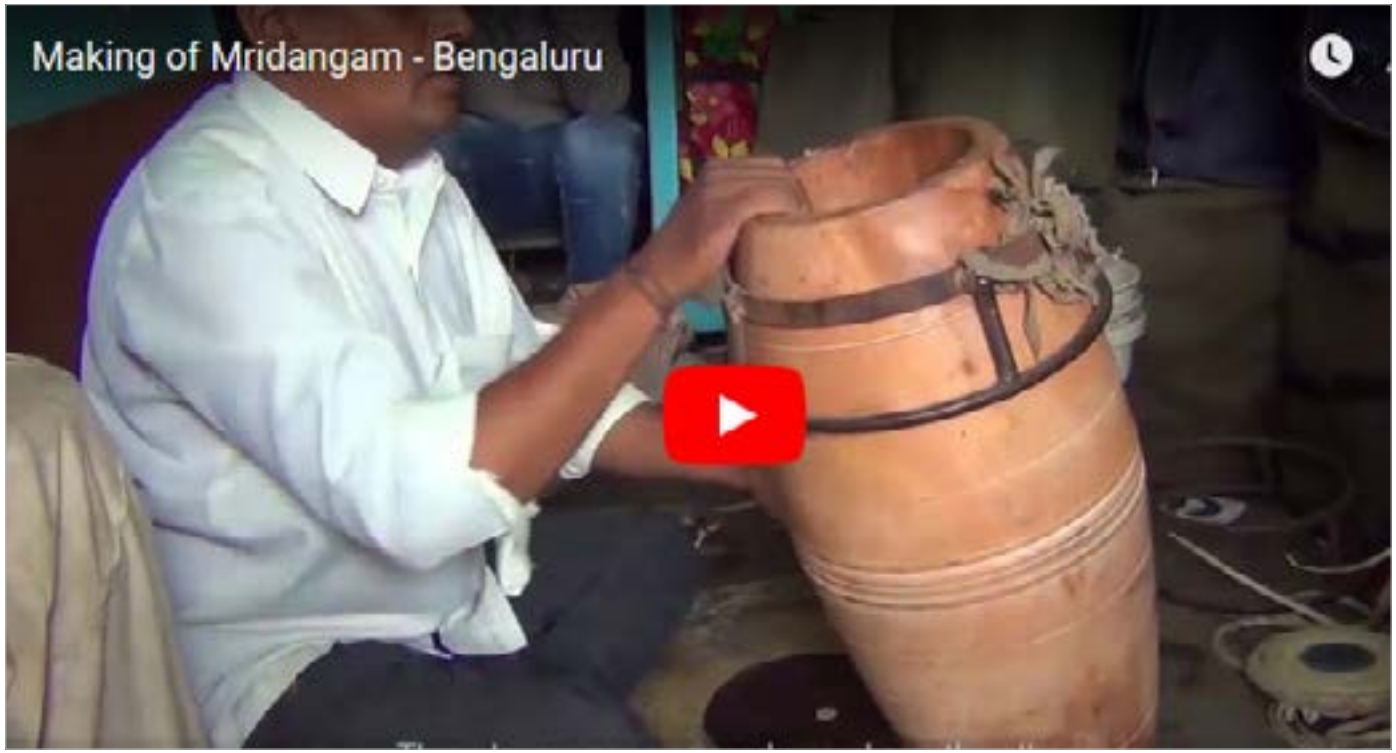
Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-bengaluru-karnataka/video

Video



Design Resource

Making of Mridangam, Bengaluru Karnataka

Musical Instrument of South India

by
Prof. Bibhudutta Baral, Guna D
NID, Bengaluru

Source:
http://www.dsource.in/resource/making-mridangam-instrument-bengaluru-karnataka/contact-details

Contact Details

This documentation was done by Professor Bibhudutta Baral and Guna D, at NID, R&D Campus, Bengaluru.

You can get in touch with him at bibhudutta[at]nid.edu

You could write to the following address regarding suggestions and clarifications:

Helpdesk Details:
Co-ordinator
Project e-kalpa
R & D Campus
National Institute of Design
#12 HMT Link Road, Off Tumkur Road
Bengaluru 560 022
India

Phone: +91 80 2357 9054
Fax: +91 80 23373086
Email: dsource.in[at]gmail.com