

CATALOGUE
OF
MUSICAL INSTRUMENTS
EXHIBITED IN THE
GOVERNMENT MUSEUM, CHENNAI

BY
P. SAMBAMOORTHY, B.A., B.L.
Head of the Department of Indian Music (Retd.), University of Madras
Director, Sangeeta Vidhyalaya, Annamalai Mandram, Chennai.



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REVISED EDITION

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PREFACE TO THE SECOND EDITION

The first edition of Prof. P. Sambamoorthy's *Catalogue of Musical Instruments in the Government Museum, Madras*, was published as Volume II, No. 3 of the Madras Museum Bulletin (General Series). Since then several new instruments have been added to the collection, principal among them being the rare Burmese Harp and the equally rare Panchamukha vadyam. This revised edition includes a great deal of new information on these additions in particular while much of the original matter has been very carefully revised. Two more plates have been added to the Catalogue to illustrate the more important of the newly added musical instruments. We are grateful to Prof. P. Sambamoorthy for the trouble and care he has taken in the preparation of this revised edition. It is hoped that this edition would be found to be useful by students of Indian music among whom there is a growing demand for this book.

GOVERNMENT MUSEUM, MADRAS,
7th May 1955

A. AIYAPPAN,
Superintendent

PREFACE TO THE THIRD REVISED EDITION

Since the second edition of Prof. P. Sambamoorthy's *Catalogue of Musical Instruments in the Government Museum, Madras*, published in 1955, ran out of stock about a year ago, the need for reprinting the Bulletin was keenly felt especially in view of the persistent demand for copies of this handy volume, both from scholars and the lay public. Since the publication of the last edition, several new instruments have been added to the collections and these have been now incorporated in this Catalogue. While the original text of Prof. P. Sambamoorthy is preserved intact, an appendix has now been contributed by Sri A.V.N. Sarma, Curator for Anthropology in this Museum, embodying brief notes on the recent acquisitions together with three plates of illustrations.

In recent years, several of the galleries in this Museum have been re-organized on modern lines and it is hoped that it would be possible to have the entire gallery of musical instruments also re-arranged and modernized as to lend a touch of realism to the presentation of this fascinating subject. Modern museums in the West are now attempting to make their musical instruments galleries lively and realistic by occasionally arranging demonstrations of ancient musical instruments as part of their regular educational programmes, and it is hoped that in course of time the Madras Museum will also be in a position to organize similar programmes with its collection of musical instruments and thus help to recapture to some extent the glory of India's rich musical tradition.

GOVERNMENT MUSEUM, MADRAS,
16th August, 1962.

S.T. SATYAMURTI
Superintendent

PREFACE TO THE FOURTH EDITION.

The third edition of the *Catalogue of Musical Instruments in the Government Museum, Madras*, by Prof. P. Sambamoorthy, published in 1962, ran out of stock a year ago and the need for reprinting this instructive catalogue was keenly felt, since it is the largest selling publication of this Museum when there is no better and simple handy monograph on the Indian Musical Instruments at present in the open market.

In recent years the Museum had acquired a number of Yash, Veena and Sitar models of ancient time prepared accurately and skillfully by Thiru B. Damodharan of Madras and provisions have been made to exhibit them permanently in new show cases which are awaited, in course of time. The brick floor of the Musical Instruments Gallery has been replaced with decorative mosaic chips and the windows have been provided with new Khadi curtains. The scheme of modernising this gallery with new built-in cases is in the perspective plan of this Museum and it is hoped that this will materialise in the next few years.

As a special item of educational service, the Museum had arranged a demonstration of about 25 rare and ancient musical instruments exhibited in the Museum by Thiru M. R. Balakrishna Naidu of Madras on 18th January 1973 in the Museum theatre and it was appreciated very well by one and all.

In foreign museums, attempts are being made to interpret collections of musical instruments more effectively in recent years by means of audio-visual aids such as recorded tapes installed in the musical instruments galleries. Demonstrations of musical instruments are also frequently held in European and American Museums which arrange special programmes of concerts to render their collections of musical instruments more appealing and meaningful to the public. It is hoped that similar efforts could be taken in the Madras Museum also in the near future, when more funds become available.

GOVERNMENT MUSEUM, MADRAS
12th September 1973

S. T. SATYAMURTI,
Director of Museums.

INDIAN MUSICAL INSTRUMENTS

1. INTRODUCTION

India is one of the few countries in the world presenting a rich variety of musical instruments. The varieties that have been evolved in the course of her long history are thoroughly representative of the stringed, wind and percussion groups. There are at least five hundred of them, each with a distinct name, shape, construction, technique and quality of tone. The instruments of the key-board type, however, did not find favour with the musical genius of India. Since such instruments, *have only* notes of fixed pitch, it was not possible by any amount of skill on the part of the performer to produce the *gamakas* (the graces and embellishments). The *gamakas* are the life and soul of Indian music and, in the words of a classic writer¹, "Music without *gamaka* is like a moonless night, a river without water, a creeper without flowers and a lady without jewels." The practical disappearance of the *swaramandala* (Pl. XI. Fig. 1) and the harp² is to be attributed to the same cause. These two instruments were played on open strings and there was no provision to stop them, which is a necessary condition for the production of *gamaka*. Another reason for the absence of key-board instruments in India is the fact that Indian classical music employs a large number of quarter-tones. The limited number of keys on such instruments made the production of quarter-tones impossible.

The materials of which the instruments are made are for the most part those that are easily procurable in the country. Large gourds, bamboo, canes, reeds, jackwood, black-wood, red-wood, earthenware and the skin of calf, sheep, buffalo and monitor (*Varanus*) lizard are employed. The gourds are trained in their growth to the required shape. Silver, bronze, brass, copper and iron are amongst the materials used in the manufacture of musical instruments.

One characteristic feature of Indian musical instruments is that in both the stringed and the wind group, the fingers stop the strings and the finger-holes directly and there is no intervening mechanism like a key³.

The great advantage of this system is that the playing of the most subtle *gamakas* becomes easy⁴. Complexities in the construction of the instruments are also avoided.

¹ Bharata in his "*Natya sastra*", Chapter XXIX, sloka, 75.

The word 'alamkara' in this sloka approximates to the later word 'gamaka'

² There are three Buddhist sculptures from Amaravati (belonging to the 2nd century A.D.) preserved in the Archaeological Gallery of the Madras Museum in which the harp figures. The best is a fragment of the left hand side of a medallion showing several women one of whom is playing the harp. In the renunciation seen above the most complete of the Chaitya slabs (Burgess, *The Buddhist Stupas of Amaravathi and Jaggayyapeta*, pl. I.), a similar harp is resting against one of the women sleeping in the foreground. In the sculpture on the coping of the railing showing the Malla women celebrating the division of the Buddha's relics (Ibid. pl. XXV, fig. 2) one of the women is holding a harp.

³ The wind instruments of the West are provided with keys. In the piano, the strings are struck by mechanical hammers. In the bowed the plucked instruments of the West, however, the fingers stop the strings directly.

⁴ In the *gotuvadyam* a piece of wood is used to stop the strings. Since this piece of wood is held firmly by the left hand fingers, effective direct manipulation takes place. This is as good as the fingers themselves stopping the strings.

Every instrument has its own technique in playing. Ample provision is made for the accurate tuning of the stringed and percussion instruments. The concert-drum in Indian music plays a far more important part than in European music. It is played, continuously and it also closely accompanies the singer. The pitch of the concert-drum is invariably the same as the key note of the singer or the principal performer. The cross-rhythmical accompaniment provided by the performer on the concert drum in India, furnishes a pleasing rhythmical harmony to the music of the principal performed.

II. CLASSIFICATION.

Musical instruments are classified into—

- (1) *Stringed instruments*
- (2) *Wind instruments*
- (3) *Percussion instruments*

Stringed instruments or *chordophones* are known as *tala vadyas* in Sanskrit and *Narambu karuvigal* in Tamil. They are of three kinds—

- (a) Bowed varieties: *violin, sārangi, dilrūba* and *bālasaraswati*.
- (b) Plucked varieties, where the strings are plucked by the fingers or by a plectrum of wire or horn: *vinā, gotuvādyam, sitār, swarabat, tambura* and *ektār*.
- (c) Those struck with a hammer or a pair of sticks either directly or mechanically: *gotu vādyam, gānun* and *pianoforte*.

The bowed and the plucked varieties, where the strings are stopped, admit of two varieties each:—

- (1) Those with a plain finger-board: *violin, sārangi, sarode* and *gotuvādyam*.
- (2) Those with frets: *vinā, sitār, dilrūba* and *bālasaraswati*.

Wind instruments or aerophones are known as *sushira vādyas* in Sanskrit and *Kattru vāttiyangal* or *tulai karuvigal* in Tamil. They are of two kinds

- (1) Where the wind is supplied by a mechanical contrivance, commonly a bellows: e.g., *organ* and the *harmonium*.
- (2) Where the wind is supplied by the breath of the performer: *conch* and musical *pipes*.

Gaurikālām, ekkālam, tiruchinnam, tārđi, tuttāri, bhūri, kombu and *reed dulcimer* are instances of musical pipes without finger-holes. *Nāgaswaram, sanāi, flute, mukhavīna* and *magudi* are instances of musical pipes with finger-holes.

In some musical pipes, wind is blown through vibrating reeds or tongues or mouth-pieces. Examples are, *nāgaswaram, ottu, mukhavina* and *sanāi*.

In others, wind is blown through an orifice in the wall of the instrument itself, as in the *flute*.

Instruments of percussion which are mostly time-keeping instruments are of two kinds :-

(1) *Skin-covered instruments* or the *membranophones*. They are called *avanaddha vādyas* in Sanskrit, and *Tōl Karuvigal* in Tamil.

(2) *Ghana vādyas* or *autophones*. They are solid and weighty instruments of metal or wood. *Cymbals* and *cāstanets* are examples.

The skin in the *avanaddha vādyas* may be stretched over an open circular frame of wood or metal as in *kanjira*, *tambattam*, *chakravādyā* and *sūryapirai*; or over a hollow body enclosing air inside as in *damarum*, *tabla*, *bāya*, *nagōra*, *Kinikittu*, *karanai* and *vira malahāri*; or, the skin may be stretched over the two faces of a hollow shell at both ends as in *udal*, *tavil*, *udukkai*, and *mridangam*.

There is a huge drum called *Panchamukhavādyam* in the Tiruvārur temple and the Tiruthuraipundi temple in Thanjavur district. It has five faces. A specimen was purchased and added to this Museum in 1937 (see Pl. X).

Ghana vādyas are either of metal or wood. *Cymbals*, *jhanj*, *brahmatālām*, *sēmakkalam* and *talam* are instances of the former class and *chipla*, *kartāl* and other wooden castanets are examples of the latter class.

From the point of *utility*, musical instruments might be classified into those used in—

(1) *Concert music*, which again fall under three classes—

(a) *Sruti vādyas*, i.e., used for sounding the drone or the key-note, e.g., *tambura*, *ottu* and *sruti upānga*.

(b) *Laya vādyas*, i.e., used for keeping time, e.g., *mridangam*, *ghatam*, *kanjira* and *gottu vādyam*.

(c) *Sagita vādyas*, i.e., used for playing music, e.g., *vina*, *violin*, *sitār*, *flute*, *nāgaswaram* and *jalatarangam*.

(2) *Temple music*, e.g., *horns*, *trumpets*, *mukhavīna*, *conch*, *bhūri udal*, *udukki*, *pambai*, *panchamukha vādyam*, *sudda maddalam*, *idakka*, *timila* and *nanduni*.

(3) *Martial music*, e.g., *Vīra murasu*, *dundubhi*, *bheri*, *parai*, *tārai*.

(4) *Folk music*, e.g., *ēktār*, *tuntina*, *villukottu*, *nedunkuzhal*, *tuttāri*, *kombu*, *pot-drum*, *tomuku* and crude cymbals of iron.

III. EVOLUTION

Of the stringed, wind and percussion groups, the last named has the longest pedigree. We come across wind and stringed instruments at slightly later stages of human history. Wind instruments came into existence soon after the earlier types of percussion instruments; likewise stringed instruments came into existence soon after the earlier types of wind instruments. In most cases the principle underlying each instrument was suggested to man by nature itself.

Percussion group—The following instruments roughly illustrate the main stages of evolution in this group :-

- (1) Stone-gongs and rude wooden castanets.
- (2) Metallic cymbals and gongs.
- (3) Skin stretched over a simple circular frame : tambattam and kanjira.
- (4) Skin stretched over a hollow body enclosing air inside : Pot-drums, *kudamuzha* and wooden conical drums.
- (5) Skin stretched over the two faces of a hollow, cylindrical or hour-glass shaped body, udal, dólak, tavil and udukkai.
- (6) Double-faced drums—one of the faces capable of being tubed; mridangam, tabala and suddha maddalam.
- (7) Five-faced drum—Panchamukhavādyam or *Kuda panchamukhi* in Tamil.

Wind-instruments group—The following instruments roughly illustrate the main stages of evolution in this group :-

- (1) Horns and pipes : kombu.
- (2) Pipes with longer sound-columns to strengthen the sound : *bent-horns* and horns with a series of windings (*nāgapāni*)
- (3) Horns with tube-like devices: ekkālam and the *telescope trumpet*.
- (4) Reed dulcimer and the *gourd flute* : in the latter, reeds of different lengths are inserted into a gourd to give a scale of sounds.
- (5) Musical pipes with a few finger-holes as the murali and nedunkuzhal.
- (6) The concert flute.
- (7) Pipes with mouth-pieces and reeds or tongues : *Nāgaswaram*, *mukhavīna*.

Stringed instruments group—The following instruments roughly illustrate the main stages of evolution in this group :

- (1) *Bow-string*—Reference to the twanging of the bow-string (*tankāra*) is to be found in the *Ramayana*.
- (2) Improved bow-string, with strings of different lengths and tuning pegs for tightening or slackening the tension of the strings.
- (3) Harp and the swaramandala.

All the instruments up till this stage were played on open strings. It was found to be a laborious process to be twanging the various strings for the various notes and serious attempts were made to play the different notes on the same string and this led to the invention of frets. The finger-holes of the flute naturally suggested the idea of frets. Prior to the coming into existence of the fretted vina, there was the vina with the plain finger-board. This instrument is seen in all early sculptures.

- (4) Kinnari . . . }
 (5) Rudra . . . } Gourd resonators.
 (6) Vina with movable frets (Ēka rāga mēja vīna)

(7) The modern South Indian Vina with 24 fixed frets and a wooden resonator (Sarvarāga mēla vīpa.

- (8) Mahānātaka vīpa (Gōtuvādyam)

Amongst sruti vādyas, the ěktār and tuntina occur earlier and then comes the tambura.

The bowed varieties came into existence shortly after the plucked varieties.

Instruments of percussion of definite sonorousness for playing the different notes like the jalatarangam (see Pl. VIII, fig. 1) are also old. The jalatarangam is known as *udakavādyam* in early literature. The art of playing on it constituted one of the 64 arts—*Chatush shashti kalās*. Only metallic cups were used in ancient times. Porcelain cups came to be used after contact with the Chinese. The *saptagantika* consists of bells of various sizes which are struck by small hammers, connected to a key-board.

IV. PLACE OF MUSIC IN INDIA LIFE.

In India, music is given an important place in the scheme of life of the nation. There is not a single festival or ceremony without some form of music or other. Every Indian prince had in his court, talented musicians and they were paid handsome salaries. The Emperor Akbar had in his court the gifted musician, Tan Sen. We learn from the *Ain-i-Akbari*¹ that the *Naubat*² was held in great esteem in the time of the Mogul Emperors and that Emperor Akbar was even a performer. The performances of the Naubat occupied a prominent place in the daily palace routine. Shah Jehan rewarded a musician with a fee of his weight in gold. Yoga Narendra Malla of Palam inscribed on his coins the title "*Sangitārnavā Pārāga*" – skilled in the sea of music. In the Tamil books, *Purānanūru* and *Pattupāṭṭu*, the drum is referred to as occupying a position of very great honour. Musical inscriptions like those at Kudumiyamalai and Tirumavam and the representation of musical instruments in the Amarāvati and Sānchi sculptures and in the Sculptures existing upon various old cave-temples and ancient Buddhist topes and stupas in different parts of India furnish ample proofs of the esteem in which the art was held and the dignity which it enjoyed.

Besides the instruments used in martial music, royal dignitaries had in their establishments silver-horns and *tārai* and *tamuki* of bell-metal as befitting their rank.

The heads of mutts and other spiritual gurus also, according to their rank, had in their establishment, performers of musical instruments.

¹ See Blockmann's translation, Vol. 1.

² *Naulat* (literally nine performers) is an old institution of Indian music found in the establishments of Hindu and Mahomedan chieftains and zamindars. The players sit in balconies over the gateways of cities palaces mansions or in other elevated places and perform at stated hours of the day and night. The place where they sit and perform is called the *Naubalkhana*. The music when heard at a distance has a charm all its own. The *naubat* was also stationed over the gateways of mausoleums and tombs of royalty as in the combuz or the mausoleum of Hyder Ali, Tippu Sultan and his mother, in Serangapattinam, in Mysore.

Next to the State, the temple has given great prominence to music in various ways. The *periyā¹ mēlam* (Nāgaswaram band) is to be found in every temple in Southern India, whether rich or poor. The *nāgaswaram* music is one of the essential items in all processions and festivals. No Hindu marriage is celebrated without it. On the occasion of the Dipavali and Pongal festivals, the *nagaswaram* players go to the houses of their patrons and after playing a tune or two, receive their customary presents. Besides the *nāgaswaram* party, there are in the temple establishments performers of various kinds of wind and percussion instruments, who perform before the deity in temple procession on the occasion of the annual festivals. The finely decorated elephant, camel and the horse carry special drums on their backs in front of the deity. In some big shrines, on the occasion of certain important services, the *sarvavādyam* (literally all instruments) is played. The trial of *sarvavādyam* consists of performances on 32 different varieties of wind and percussion instruments, some performed solo and some in combination with others. A few items of vocal music and dancing also figure herein. The entire ritual lasts for three hours. The idea underlying the performance of *sarvavādyam* is the worship of God through the triple channel of *gīta*, *vādyā* and *nrītya* (vocal music, instrumental music and dancing).

In addition to this outdoor music, many temples have in their establishments regular paid musicians-vocalists and instrumentalists (*vīna*, violin, *tambura* and *mridangam* players) and *bhajana* parties. These musicians perform on all festive occasions and are entitled to the temple honours and privileges. Some of them are given *ināms* of land in lieu of their services. *Vināikkani*, for example, is a gift of land given to a *vainika* in lieu of his *vīna* recitals in temple on stated occasion. In Saivite temples, there are the *Oduvārs* who sing *Tevāra hymns²* in the daily services and enjoy the same status as the musicians mentioned above.

Musical instruments of the primitive type are seen in the hands of wandering medicants, *dāssaris*, *āndis*, jugglers, ballad-singers, *pandārams* and gipsles.

V. ARRANGEMENT IN THE GALLERY

In the musical instruments gallery of the Ethnological Section of the Chennai Museum, there are about 100 specimens representing the prominent South Indian varieties. This includes a good collection of tribal instruments, particularly those belonging to the *Kotas* and the people of the West Coast. With the exception of a few unimportant ones, all the specimens has been photographed and shown in the plates. A detailed description of the instruments in the Plates is given in Section VI. For the sake of the casual visitor, however, a list of the instruments exhibited in each case at the time of the preparation of the second edition of this catalogue (1954) is given below. The Roman figure against each instrument shows the number of the Plate in which it is seen and the Arabic numeral denotes the number of the specimen in the Plate. Where there are no figures, it is to be presumed that such instruments have not been photographed and reproduced in the Plates. The number immediately preceding the name of the instruments is the catalogue number.

¹ *Melam*—The Indian band consisting of performers of wind instruments, drums and cymbals is called as *melam*. The *nagaswaram* band (see page 16) known also as the *Tanjore* band is called the *periamelam* (big *melam*). Contrasted with this is the *chinna melam* (small *melam*) or the *nautch party* which consists of the dancing women and four male musicians at the back, playing the flute (now substituted by the western clarinet), *sruti upanga* (bag-pipe drone), *mridangam* and *talam* (cymbals), respectively. The dancing woman wears on her legs ankle-bells (*gejjai*) and *silambu* both of which give a sweet tinkling sound as she sways to and fro.

² *Tevāra hymns* Songs of the three South Indian Saiva Saints : *Tirugnanasambandar*, *Appar* and *Sundaramurti Nayanar*.

Case I—

1. 9 Tambura with a gourd shell.
2. 10 Tambura with a wooden shell and rest (II, 3.)
3. 10-a Tambura (Tanjore model) (II, 1.)
4. 12 Ēktār (II, 4.)
4. 36-a Udukkai (wooden shell.)
5. 37 Davandai (VI, 4.)
6. 38 Pambai (VI, 5.)
7. 58 Dāsari Tappaṭṭai (IV, 8.)
8. 66 Urumi
9. 69 Timila.

Case II—

1. 1 Vina (Tanjore model) (I, 1.)
2. 4 Big Sitar (I, 4.)
3. 5 Small Sitar (I, 5.)

Case III—

1. 2 Gōtuvadyām (I, 2.)
2. 7-a Violin.
3. 7 Sārangi (II, 6.)
4. 11 Tuntina (II, 2.)

Case IV—

1. 8 Kinnari (IV, 6.)
2. 3 Swarabat (I, 3.)
3. 6 Bālasaraswati (II, 5.)

Case V—

1. 14 Nāgaswaram (VI, 1.)
2. 15 Nāgaswaram : another variety (VI, 2.)
3. 16 Ottu (IV, 3.)
4. 17 Mukhavina (IV, 4.)
5. 18 Sanāi (IV, 5.)
6. 18-a Sanāi (rosewood).
7. 28 Magudī (III, 5.)
8. 25 Shepherd's flute (III, 2.)
9. 13 Concert flute (III, 4.)
10. 27 Nedunguzhal (III, 1.)
11. 26 Reed Dulcimer (III, 3.)
12. 19 Conch (VI, 7.)
13. 19-a Mounted Conch.
14. 40 Sēmakkalam (IV, 7.)

Case VI—

1. 23 Kombu (III, 9.)
2. 56 Kombu (IX, 5.)
3. 23-a, 24, 24-a, S-shaped horns (III, 10, 11, 12.)
4. 22 Tiruchinnam (III, 8.)
5. 20 Bhūri (III, 6.)
6. 21 Ekkālam (III, 7.)

Case VII—

1. 29 Mridangam (V, 1.)
2. 30-a, b Tabla and Bāya (V, 2a and b.)
3. 36 Udukkai (metal shell) (VI, 3.)

Case VIII—

1. 46 Jalatarangam (VIII, 1.)
2. 48 Gejjai (ankle bells) VIII, 3.)
3. 47 Silambu (VIII, 2.)
4. 49-a Pājūri kai chilambu (VIII, 4.)
5. 41 Jālrā (VII, 1.)
6. 43 Tōlam (VII, 3.)
7. 42 Brahmatōlam (VII, 2.)
8. 44 Chipjā (VII, 4.)
9. 51 Moursing (VIII, 6.)
10. 75 Kāshta Tarang.

Case IX—

1. 53 Pulluvan kudam (IX, 1.)
2. 50 Ghatam (VIII, 5.)
3. 55 Vīṇa kunju (IX, 4.)
4. 78 Tanti pānai (XI, 2.)
5. 79 Gummaṭi.

Case X—

1. 32 Tavil (V, 4.)
2. 28 Tambattam (IX, 7.)
3. 35 Damārum (VI, 2.)
4. 33 Kaṇjīrā (V, 5.)
5. 70 Idakka.

Case XI—

1. 39-a, b Suryapirai and Chandrapirai (VI, 6.)
2. 45 Kartāl (VII, 5.)
3. 54 Villukoṭṭu (IX, 3.)
4. 81 Cylindrical drum (IX, 6.)
5. 58-a Tambattam (Koṭa instruments) (IX, 7.)
6. 52 Villāḍi vādayam (IX, 1.)
7. 71 Nanduni (IX, 3.)
8. 31 Dolak (V, 3.)
9. 65 Gotuvādyam

Case XII—

- Nagāra (VI, 1.)

Case XIII—

1. 76 Swaramaṇḍala (XI, 1.)
2. 72 Burmese Sāwn (X, 1.)

Case XIV—

- 73 Panchamukha vādyam (X, 2.)

VI. DESCRIPTION

I. INSTRUMENTS IN GENERAL USE.

A.—STRINGED INSTRUMENTS

(a) Concert Class

- | | |
|----------------------|--------------------------|
| 1. Vina, 1. | 7. Sārangi, 7. |
| 2. Gotuvadyam, 2. | 8. Kinnari, 8. |
| 3. Swarabat, 3, 74. | 9. Swaramaṇḍala, 76, 85. |
| 4. Sitār, 4. | 10. Burmese Sāwn, 72. |
| 5. Small Sitār, 5. | 11. Nanduni, 71. |
| 6. Bālasaraswati, 6. | |

Vina (pl. I, fig. I) — The vina is the classical instrument of India. It is the instrument *par excellence* for rendering Indian music and rightly occupies the first and the most honourable place amongst Indian musical instruments. It is the instrument associated with Saraswati, the Goddess of learning and music, and Narada, the Divine Musician and Sage. It occupies the premier place in the celebrated *Vādyā trayam* — Vina, venu and mridangam. All the delicacies and niceties of Indian music can be produced with accuracy on the vina. Different kinds of vinas are mentioned in the old literature on music and all of them practically represent the different stages of evolution of the instrument. The specimen shown in the plate is what is commonly known as the Saraswati Vina. This is the modern South Indian Vina with twenty four fixed frets, twelve for each octave. This type of vina is only three centuries old and was perfected for the first time by Raghunath Naik of Tanjore, ably assisted by his Prime Minister Govinda Dikshitar. Prior to his time, the number of frets on the vina was less than twenty and the frets were either fixed or movable.

The vina consists of a large pear-shaped bowl called *kai* or *kudam*¹ in Tamil. It is hollowed out of a single block of wood. The Tanjore manufactures use Jackwood and the Mysore manufacturers use blackwood for this purpose. The block of wood that is intended for the vina bowl is preserved for a long time and portions are scooped out at long intervals. The flat top of the bowl is about a foot in diameter. At its centre is the main bridge of wood, is the side bridge which is an ore of metal. The bowl is separated from the stem or *dandi*² by a projecting ledge ivory. The stem is of the same wood as the bowl and is hollowed out thin. A flat piece of thin wood covers its entire top. The stem is broad at the bowl end and gradually tapers towards the other end. Running along each side of the stem are two ledges made of a wax-like substance and on these ledges are fixed the 24 frets. This waxy material can be softened by gentle heat and the frets re-set in their correct positions when necessary. The frets are half-round bars of about 1/6 inch in thickness and are of brass, bronze or silver. The stem leads on to the neck which is covered downwards and its tip is carved into the head of a *yāli* (யாலி) a weird animal. On the under side of the stem near the neck is fixed a hollow gourd (calabash) which serves both as a rest and a resonator. This gourd is easily detachable and is fastened to a cup or socket of metal by means of a nut and screw. This gourd resonator has a round hole cut out at the bottom.

1. *Kudam* - A large pear-shaped bowl.

2. *Dandi-stem* of the vina

In most vinas, the bowl, the stem and the head-piece will be found to be separate pieces, joined together. But in the *Ēkadāṇḍi vīṇa*, the bowl and the stem are scooped out of a single continuous block of wood, the head-piece alone being separate. In the *Ēkāṇḍa vīṇa* the entire instrument including the head-piece is scooped out of a single block of wood. The tone of the *Ēkadāṇḍi vīṇa* and *Ēkāṇḍa vīṇa* are, relatively speaking, good and pleasing. The age of the wood used for the several parts is a vital factor in determining the tone of the instrument. If the bowl, the stem and the head-piece are made from the trunk and branches of the same tree, the tone is bound to be good on account of the homogeneity of the age of the wood of the three parts and the consequent uniformity in response.

The *vīṇa* has seven strings, four main strings for playing music and three side strings for sounding the drone notes and keeping time. Thus there is the provision for both a rhythmical and drone accompaniment in the *vīṇa*. At the bowl end, the strings are tied to metallic fastenings called *langer* (லாங்) in Tamil and these are secured to the attachment. Small metallic rings gliding over these metal fastenings help in accurate tuning. The four main strings which pass over the bridge and the 24 frets are tied to the tuning pegs which are two on each side of the neck. The three side strings which pass over the metallic (side-bridge) and then over small ivory pegs on the side of the stem are fastened to the three pegs on the side. In the figure, only one of these three tuning pegs is clearly seen, the other two are visible on the gourd.

The names of the seven strings, their gauge numbers and the notes to which they are tuned are given in the following table :

TABLE - I.

	Number and name of the string.	The note to which it is tuned	Gauge No.
†	1. Sārani	Madhya Sthāyi shadja or s	31 Steel.
	2. Panchama	Mandra sthāyi panchama or p	29 Do.
	3. Mandaram	Mandra sthāyi shadja or s	26 brass.
	4. Anumandaram	Anumandra Sthāyi Panchama or p	24 Do.
†	5. Pakka Sarani	Madhya sthāyi shadja or s	33 steel.
	6. Pakka Panchamam	Madhya Sthāyi panchama or p	34 Do.
	7. Hechu Sārani	Tara Sthāyi shadja or s	36 Do.

*Note on notation. - The notation used in Indian music is what is known as the *sa ri ga ma or sargam* notation. It is a notation employing scripts and symbols. The seven swaras or notes are called Shadja, Rishabha Gandhara, Madhyama, Panchama, Daivata and Nishada and for *solfa*-ing purposes these notes are shortly called *sa, ri, ga, ma, pa, dha, ni*. In notation these seven swaras are represented with their initial letters thus: *s r g m p & n*. (The system of notation used in Indian music corresponds in a sense to the western tonic solfa notation).

Sthāyi is the Indian term corresponding to the octave or voice register in western music. All Indian music ranges within three *sthāyis*. They are called -

- (1) Mandra sthāyi or lower octave,
- (2) Madhya sthāyi or middle octave,
- (3) Tara sthāyi or higher octave.

The *sthāyi* below the mandra sthāyi is called Anumandra sthāyi; and the *sthāyi* above the tara sthāyi is called Ati tara sthāyi

The *sthāyi* and *Tāra sthāyi* notes are represented with dots below and above the notes respectively; *ghus s r g n* (Mandra) and *s r g m* (Tara). Anumandra and Ati *tāra sthāyi* notes are represented with two dots below and above the notes respectively as *s r g m* (Anumandra) and *s r g m* (Ati tara). There are also signs to denote the time-values of the notes and their graced utterances.

† 1, 2, 3, 4, - are the four main playing strings.

† 5, 6, 7, are the three side-strings used to provide the rhythmical and drone accompaniment.

It should be noted that of the four main strings, the strings nearest the player reckoned as the first string; the next one as the second string and so on.

The *vīṇa* is held in a horizontal position across the player's knees and played. Sometimes the instrument is held vertical, the bowl resting on the thigh and played. The forefinger and middle finger of the left hand are used to stop the four main strings on the frets, while the corresponding fingers of the right hand twang these strings alternately near the bridge. The fingernail of the two hand fingers, which are grown for the purpose are used to pluck the strings. Sometimes wire plectra are used for the purpose. While the main strings are plucked downwards, the three side strings are sounded by the little finger of the right hand moving upwards.

The metallic plate on the top of the bridge of the *vīṇa* is made of an alloy of 5 metals. The region of contact of the strings on this plate is finely surfaced and a delightful and rich tone emanates as a consequence. This process is called *Jīl pārttal* (ஜீல் பார்த்தல்) in Tamil.

The tone of the *vīṇa* though not rich is sweet and pleasant. It is an *Ekānta Vādyam* and is enjoyed best when played in *Ekāniam* (solitude). Its compass extends over 3½ octaves. All the peculiar graces of Indian music and its delicate micro-tones find excellent expression on this instrument. Double stops performed on the *vīṇa* are interesting to hear. *Vaiṇika* is the name given to a *vīṇa* player. Thanjavur, Mysore, Trivandrum, Vizianagaram, Bobbili, Lucknow and Rampur are the chief manufacturing centres for *vīṇa* in India. Thanjavur *vīṇas* are elaborately ornamented by ivory carvings.

Gōtuvādyam (Pl, I, Fig. 2). - Called also *Mahānātaka vīṇa*. *Kōḍu* in Tamil means a wooden stick and the instrument played with a wooden stick came to be called *Koṭṭuvādyam*, *Kōḍu + Vādyam* becomes *Kōṭṭu Vādayam* according to Tamil grammar. The word later became *Kōtuvādyam*.

This is the same as the *vīṇa* in shape and construction but has no frets. The strings are stopped by a cylindrical wooden piece (shown separately near the top of the bowl in the plate) which is about 2 to 3 inches in length and 1 inch in diameter. This piece may also be barrel-shaped. The piece is held in the left hand and made to glide over the main strings. On account of the absence of frets, notes ranging over more than four octaves could be played on this instrument by placing the wooden piece on the first string at points very near the main bridge. Whereas in the *vīṇa*, the *gamakas* are produced by the lateral deflection of the string, that is, by varying its tension, here the *gamakas* are produced by varying the vibrating length of the string rapidly, and in this respect, it resembles the violin. Some *gamakas* are also produced by pressing the string downwards with the stick. Whereas in the *vīṇa*, the strings are kept in medium tension, in the *gōtuvādyam* the strings are kept in tight tension, as in the violin. This instrument is provided with sympathetic strings, which pass over a small bridge beneath the main bridge (see figure) and then over the finger-board beneath the four main strings. The seven small screws to which the seven sympathetic strings are fastened are seen in the illustration fixed in the stem. The seven small pegs seen on the finger-board are the pegs round which the sympathetic strings pass before reaching the screws.

The case with which one can play simultaneously in both the octaves, considerably enhances the value of *gōtuvādyam* as a concert instrument.

Swarabat (Pl. I. fig. 3) - The bucket-shaped resonator and the stem are hollowed out of a piece of wood. There is a parchment belly. Upon this is the bridge over which six strings pass. There are two circular sound-holes of about an inch in diameter in the belly. The finger-board is narrow. There are frets of guts to indicate the *svrasthānas*. The head is carved down into the shape of a parrot. In the neck are the six tuning pegs. A ledge separates the neck from the stem. The strings are plucked by a horn plectrum shown separately below the stem in the figure. On account of the peculiar construction of the instrument, its range and scope are limited. Although popularly called *swarabat*, the correct name is *swaragat*.

Big Sitār (Pl. I. fig. 4) - The Sitar (literally *Sehtar* which means three wires) is the invention of Amir Khusru, the famous poet and singer attached to the court of Sultan Ala-ud-din Khilji of Delhi (1295-1315). This is the most popular instrument in Northern India and is used for playing musical compositions while the *Bin* is used for playing *Rāhgā ālāpāna*. This is considerably easier to master than the *vina*.

The bowl of the sitar is of jackwood or of some other resonant wood. More often the bowl consists of a gourd cut in half in the direction of the core. There is a belly of thin wood fixed upon it. This belly is pierced with sound-holes. The body is connected with the finger-board by means of an ivory ledge. The top of this finger board which is about three inches in width is slightly convex. Eighteen to twenty frets of brass or of silver are placed on this finger-board. The frets are elliptical and not straight as in the *viṇā*. Each fret is held in position by a brass spring passing round the stem and connecting its two ends. On account of this spring arrangement, the frets are easily movable and each time there is a change of mode, or *Thāt'* the positions of the concerned frets are re-adjusted. Thus it resembles the *Ekarāgamēla vina* of the mediaeval period. The finger-board leads on to the neck which is straight and not curved as in the *vina*. There is no gourd-rest near the neck. There is only one bridge in the centre of the belly over which the seven strings pass. All the strings are of metal. After passing over the frets the strings pass through a ledge having notches beyond the frets and then again through a ledge before entering the tuning pegs. These ledges are of ivory. Five tuning pegs are fixed in the neck and two in the stem. Some sitārs are provided with sympathetic strings.

The instrument is played with a wire plectrum placed upon the forefinger of the right hand, while the thumb presses the edge of the belly. As the music is played mostly on the last string, this alone is stopped with the forefinger and the middle finger of the left hand. The other strings pass through a small bead which aids in accurate tuning.

The sitār is also called as *satār*, i.e., *sapta-tār* = seven stringed and also as *Sundari*, the beautiful.

Small sitar (Pl. I, fig. 5) - This is another variety of the above instrument. Guts hold the frets (which are flat here) in position here instead of brass springs. The bowl is pear-shaped and not somewhat flat as in the above.

Bālāsaraswati (Pl. II, fig. 5) - This is called *Tāvus* in the north. In shape and construction it is the same as the sitār, but has a peacock like resonator and the instrument is played with a bow. The frets are movable. The body and the stem are painted like that of the peacock. Underneath the frets there are a number of sympathetic strings. The small ivory pegs round which these sympathetic strings pass before reaching the tuning pegs are seen as white dots on the finger-board in the figure. The small tuning pegs for these sympathetic strings are seen on the side of the stem. There is a parchment belly over which an ivory bridge is placed. The

¹That - Melakarta raga or primary scale.

instrument has a soft mellow tone. While the right-hand handles the bow (shown below separately in the figure) the fore-finger and the middle-finger of the left-hand are used to stop the strings on the frets. The instrument is held in an oblique position - the neck resting on the left shoulder and the legs of the peacock resting on the ground and played. The neck of the peacock is easily detachable from the body. The instrument is finely ornamented with ivory. On account of the peacock-like resonator, the instrument is also called Mayuri, Peacock sitār and Peacock fiddle.

Sārangi (Pl. II, fig. 6) is the Indian Fiddle. This is more common in Northern India than in the South and is used largely in dance and theatrical music. The instrument consists of a single block of wood hollowed out and has a parchment belly over which is the bridge. There are three thick gut strings to which a fourth string of wire is sometimes added. The pegs for these four main strings are fixed in the neck. Running underneath these main strings are the sympathetic strings whose number vary from eleven to fifteen. The small holes on the finger-board through which these sympathetic strings pass before reaching the tuning pegs are clearly seen in the illustration. The small tuning pegs fixed in the stem are those of the sympathetic strings. The instrument is played by means of a short bow, shown above the figure. The tone is mellow, delicate and sweet and resembles that of the viola. It is held vertically and played. The most interesting thing about the instrument is that the strings are not stopped on the top with the finger-tips as in the case of most pucked and bowed instruments, but on their *sides* by the *finger nails* of the left hand. All the beautiful graces and gamakas of Indian music can be reproduced with accuracy on the *Sārangi*. This is one of the prominent instruments used in the North Indian orchestra.

Kinnari (Pl. IV, fig. 6) - One of the oldest stringed instruments named after the inventor *Kinnara*, one of the musicians of Heaven. There is hardly a single Sanskrit treatise that does not make mention of this instrument. It is represented on many old Indian sculptures and paintings. The Bible mentions a stringed instrument of much the same name - Kinnor (II Chronicles XX, 28).

The finger-board consists of a round stick of balckwood or bamboo and upon this are fixed twelve frets of bone or metal with a resinous substance. The tail-piece of the instrument is sometimes made to represent a kite beneath the finger-board are three gourd resonators, the middle one being larger than the other two.

There are two or three strings, one of which passes over the frets, the others being drone strings. The tone of the instrument is weak and thin and the range is short.

The kinnari is in common use among the peasants and lower castes of the Ceded Districts, Mysore and South Kanara. In the tall stone column in front of the Basavangudi Temple in Bangalore, an image of a person playing the kinnari is seen.

Swaramandala (Pl. XI, fig. 1) - The swaramandala is an ancient instrument. It is referred as the Sata tantri Vīna and the Kātyāyana Vīna (after the sage Kātāyana) in ancient literature. The resonator is of wood and is trapezoid or quadrilateral in shape. It has a number of parallel strings. In the specimen in the Gallery there are 32 strings. The strings are tied to the attachment and after passing over a bridge are tied to the pegs on the other side. The pitch is adjusted by turning the pegs. A key is used to turn the pegs. The strings are tuned to the required scale. The strings are plucked by the fingers of both the hands and played. Though some of the intricate graces cannot be played on this instrument, still it has a place amongst concert instruments.

When the number of strings is 32 or less, each string is tuned to give a separate note of the scale. When the number of strings is more, two contiguous strings are tuned to give the same note. In this case, the total number of notes that can be played upon will be equal to half the total number of strings. When a new rāga has to be played the concerned strings are re-tuned to the required pitch and played. The instrument has as compass of more than four octaves.

Burmese sawn (pl. X, fig.1)- This beautiful instrument reminds us of the ancient harp, *yazh* of South India. It has a boat-shaped resonator and is covered on the top with skin. The strings emerging from the resonator are tied to the arm projecting from one side of the resonator. The strings are plucked. Since the instrument is played on open strings, the performance of intricate srutis and gamakas becomes some what difficult.

Nanduni (P. XI, fig.3.) This is a stringed instrument of the plucked group and has seven frets. It has three strings. The strings are plucked by a plectrum. This instrument is played in the temples in Malabar.

(b) *Drone Class*

- | | |
|--------------------------|-------------------------------|
| (1) Tambura, 9,10,10 (a) | (3) Tambura (another variety) |
| (2) Tuntina 11. | (4) Ektār. 12 |

Tambura (Pl. II, fig.1).- This is the classical drone accompaniment of the stringed group. In outer form, it resembles the *vīṇa* minus the frets, gourd resonator, and the headpiece (*Yāli*). The body is semi-globular in shape and is of jack-wood. Miraj tamburas have a gourd resonator instead of a wooden one. The belly on the top is slightly convex. The body is connected with the stem by means of a ledge. The stem leads on to the neck into which are fixed four tuning pegs - two at right angles to the head and two on the sides. All the four strings are secured directly to the ledge fixed on to the bowl. In the place of the langar of the *vīṇa*, there are beads threaded upon the strings between the bridge and the attachment. These aid in accurate tuning. The bridge on the belly is of wood. Besides this bridge, there is a small ivory bridge sliding over a portion of the stem from the neck. Over this bridge, the three strings excepting the mandaram string pass. Once the instrument is set in tune, it is possible to easily alter the pitch of these three strings by merely sliding the bridge up or down, in which case the mandaram string is tuned separately. This is a great advantage from the musical standpoint. This *sliding bridge is seen on the stem near the neck in the figure. The four strings pass over the main bridge and then over the sliding bridge and then through holes in a ledge at the junction of the stem and the neck and then enter the pegs. The mandaram string however as already mentioned does not pass over the sliding bridge. The length of the sliding bridge is less than three-fourths of the width of the finger-board so that there is ample space left free for the mandaram string to pass. Tamburas of Thanjavur make are invariably provided with the sliding bridge in addition to the main bridge.

The names of the four strings, their gauge numbers and the notes to which they are tuned are given in the following table :-

TABLE II.

Number and name of the string	The note to which it is tuned	Gauge number
1. Panchamam	Mandrasthāyi Panchama or p.	29 steel.
2. Sarani	Madhyasthāyi Shadja or s	31 steel
3. Anusaranai	Do.	31 steel
4. Mandaram	Mandrasthāyi shadja or s.	26 brass

*The sliding bridge is called Edir mettu, (எதிரெட்டு) i.e., opposite bridge in Tamil.

It should be noted that the Panchamam string No. 1 is the string farthest away from the performer when the instrument is held in a horizontal position with its body to his right. The gauge numbers given for the strings here as well as for the vina are those commonly met with. There may be slight differences here and there in the thickness of the strings used. The gauge numbers will vary according to the pitch of the performer.

The tambura is usually held upright and played. The bowl is made to rest on the right thigh. The four strings which are never stopped are gently pulled one after another starting from the Panchamam and ending with the Mandaram. This process is continually repeated. The fore-finger of the right hand is used for this purpose. Plectra are never used. Little pieces of silk or wool placed between the strings and the main bridge in a particular position serve to enrich the tonal effect. These threads are called *Jivāḷi* (lifegivers) and when placed in the correct position the overtones of each string are heard clearly.

The tambura provides an excellent drone accompaniment to any music, vocal or Instrumental. The fifth harmonic note Antara gāndhāra or E. Natural is clearly heard on the Mandaram string. There are sound holes on the belly of this instrument. The tambura is made both for the rich and for the poor. It is to be seen in the hands of the beggar as well as in the hands of aristocracy. Thanjavur tamburas are beautifully carved and ornamented with ivory. Trivandrum, Mysore, Vizianagaram, Miraj, Rampur and Lucknow are the other leading centres for the manufacture of Tamburas in India.

Tambura (Pl. II, fig. 3) (another variety), - This variety of tambura is rather an uncommon specimen. The bowl is of wood and the top is octagonal (eight cornered) in shape. There is a wooden rest near the neck. The neck is carved into a griffin's head bent upwards and not downwards as in the *vīṇa*.

Tuntina (Pl. II, fig. 2) - This and the *Ēktār* (No. 4) are the begger's drones. *Tuntina* consists of a hollow cylinder of wood or metal covered on the lower side with a parchment. A round stick is fixed on the outer wall of this cylinder. This stick is provided with a tuning peg at the top. A metallic string, tied to a small stick and made to pass through a copper coin and a hole in the centre of the parchment, is fastened to the peg at the top. The small stick and the copper coin prevent the string from slipping back. The string is tuned to the key-note of the singer's music and the tone is sufficiently loud. The top of the stick (stem) is sometimes decorated with peacock feathers. The instrument is held either in the right hand or the left hand and the forefinger is used to pluck the string.

Ēktār (Pl. II, fig. 4) - (Ek=one, tār=string) is the mendicants' drone. A round stick usually of bamboo of about 4 ft. in length and less than 2 inches in diameter forms the finger-board. One end of this stick is provided with a tuning peg and the other end is passed through a hollow gourd resonator. It has an open string, one end of which is fastened to a nail fixed on to the projection of the stick beyond the resonator. From here the string passes over a crude wooden bridge placed on the gourd and then fastened to the peg at the top. To increase the richness of tone, a silken or woollen thread is placed between the bridge and the string. The instrument is held either in the right hand or the left-hand and the fore-finger is used to pluck the string. The instrument is sometimes decorated with peacock feathers and pearls. Bright copper coins are also fixed on to the gourd by wax.

B. WIND INSTRUMENTS

(a) Concert Instruments.

- | | |
|-------------------------------------|--------------------------|
| 1. Flute. 13 | 4. Ottu. 16 |
| 2. Nāgaswaram. 14 | 5. Mukhavīṇā. 17 |
| 3. Nāgaswaram (another variety), 15 | 6. Sanāi. 18 and 18 (a). |

Flute (Pl. II, fig. 1) - This is the instrument with which Sri Krishna charmed the Gōpis of Brindavan in times of yore. There are several varieties of the flute, each variety having a distinct name. The distinction between the several varieties consists mostly in the distance between the mouth-hole and the finger holes. *Muraḷi* was the variety used by Sri Krishna.

The flute consists of a simple cylindrical tube of uniform bore closed at one end. The mouth-hole called the *mukha randhra* is pierced at a distance of about three-fourths of an inch from the closed end. The number of finger-holes which are of uniform size vary from seven to nine. The mouth-hole and the finger-holes are in a straight line. The mouth-hole is slightly bigger than the finger-hole. The three fingers of the left hand (fore-finger, middle-finger and the ring-finger) and the four fingers of the right hand (excluding the thumb) close the seven finger-holes; the finger-holes nearest the mouth-hole is reckoned as the first hole. It is called the *tāra randhra*. The various quarter-tones and micro-tones are produced by the partial opening or closing of the finger holes. All the delicate graces and subtle shades and gamakas of Indian music can be played with accuracy on this instrument. The system of fingering adopted for the Indian flute is entirely different from the European system.

Flutes may also be made of the following substances : Ivory, Sandalwood, Ebony, Rakta chandana (Red variety of sandalwood), iron, bell-metal, silver and gold. but the cheap bamboo has been preferred to all these on account of the excellent quality of its tone and its fine resonating properties.

The range of the flute, played in the Indian method is 2 1/2 octaves, which is the range of an average cultivated human voice. In its monotone quality and in the technique underlying the production of gamakas and jantaswaras, the flute resembles the human voice.

The flute is a concert instrument in India, enjoying the same rank and dignity as the Vīṇa, Vina, Venu and Mridangam (*Vādyatrayam*) are frequently mentioned as the three great instruments of Indian music in all the old literature.

Nāgaswaram (P. IV, fig. 1) - This instrument called Nāyanam in Tamil, is the principal instrument found in the out-door music of Southern India. Its tone is loud and could be heard at long distances.

It consists of a wooden conical bore 2 to 2 1/2 feet in length, enlarging downwards. There are seven finger-holes and at the bottom there are five other holes which serve as controllers. Into the metal staple at the top, a reed is introduced. A metallic bell adorns the bottom. Besides spare reeds, an ivory bodkin for adjustment is attached to the instrument. Nāgaswaram playing is a complex technique. The half-tones and quarter-tones here are not produced by the partial closing and opening of the finger-holes as in the flute but by adjusting the strength of flow of air in the pipe. This is a laborious process and consequently it takes a long time to attain proficiency in playing this instrument. The system of fingering adopted for the production of the seven swaras being the same as in the flute, the compass of the nāgaswaram is also the same that of the flute - 2 1/2 octaves. Since the reed of the nāgaswaram is held within the mouth and played, there is not so much of wastage in the air blown, as in the flute - where the wind is blown directly across the mouth-hole.

There are two varieties of this instrument. One is called the *Bāri* and the other the *Timiri*. The former is slightly longer and bigger. Experts as a rule use only the bari type.

The *Nāgasvaram* band or the Tanjore band (*Periya mēlam*) as it is often called, consists of -

- (1) The *Nāgasvaram* player who is the principal performer and the leader of the band.]
- (2) The *ottu* or the drone-player.
- (3) The *tavil*-player (drummer).
- (4) The time-keeper.

Sometimes an additional *nāgasvaram* player and a *tavil* player may be seen in the band. Occasionally a conch-blower forms an interesting addition to the band and he plays *jatis*¹ solo and also in conjunction with the drummer.

Nāgasvaram music is in great demand at weddings, ceremonials, processions and festivals. Expert performers are paid fabulous sums for their performances. *Nāgasvaram* playing is the monopoly of certain castes in Southern India and elsewhere. They have a continuous tradition behind them. *Nāgasvaram* performers in the establishments of temples, mutts and Rajahs hold hereditary appointments and in most cases they are given inams of land in lieu of their services.

Pl. IV. fig. 2, shows another variety of the same instrument.

Ottu (Pl. IV fig. 3) - This is the drone accompaniment used in the *nāgasvaram* band. It resembles the *nāgasvaram* in shape and construction but is slightly longer. There are four or five holes pierced near the bottom. By closing these holes, wholly or partially with wax, the *sruti* (key-note) of the instrument is brought up to the desired pitch.

Mukhavīṇa (Pl. IV fig. 4) - This is a miniature *nāgasvaram* and has nothing to do with the *vīṇa* as its name is likely to suggest. Its tone is soft and pleasant. A bag-pipe called *Sruti upāṅga* is used as the drone accompaniment to the *mukhavīṇa* music. Generally the *mridangam* provides the drum accompaniment : sometimes '*Dhanki*' a peculiar drum is used in the place of the *mridangam*.

The *mukhavīṇa* was formerly used to provide accompaniment in the *chinnamelam* (dance music.) It has now been replaced by the western clarinet. On the occasion of the *Dipavali* and *Pongal* festivals, it is usual for pipers to go to the houses of their patrons, playing the soft *mukhavīṇa* music and receive the customary presents. Its music could be heard during certain services in the *vaishnavite* temples of souther India.

Sanāi (Pl. IV fig. 5) - There are no metal staples and bells here; the cross-section is greater than that of the *nāgasvaram*. The reed is introduced directly into the hole on the top of the instruments. It has a very shrill tone and is used by Muslims. Its music could be heard in Muslim marriage processions and festivals.

There is also the correct instrument *Sanāi* used in Northern India. It corresponds to the *Nāgasvaram* of the South and has a pleasing tone.

¹*Jati* is the name given to the rhythmical *solfa* syllables like. These *jatis* are played on the drums. *Dramming* is a great art in India and is one of the unique features of Indian music.

(b) Temple Instruments.

- | | |
|---------------------------|----------------------------|
| 1. Sankhu (conch) 19, 19a | 4. Tiruchinnam, 22 |
| 2. Bhūri, 20 | 5. Kombu, 23, 23a |
| 3. Ekkālam, 21 | 6. S-shaped horns, 24, 24a |

Sankhu (conch) (Pl. VI. fig. 7) - The most ancient wind instrument known to man. It is held very sacred and reference to it is found in all the literature of India. It is represented in the Amarāvati and Sanchi Sculptures (3rd cent, B.C.). It is one of the attributes of Sri Vishnu. The conch used by Sri Krishna was called *Pāñchajanya*.

The conch is blown through a small hole made in the spiral. Its tone has a distinctive quality of its own and can be heard at a long distance. It is used in temples, religious ceremonies and processions. Dāsaris, Paṇḍārams and members of the Pañichavan caste are the people who usually play this instruments.

The Sankhu is frequently decorated with a beautiful workmanship at its two ends. A specimen of this type is shown separately in the gallery. The mount on the spiral has a mouth-piece. The mount at the other end has a large flange expansion in shape like the tail of a mythical bird. The picture of a Paṇḍāram of playing an ornamented conch and *semakkalam*, is placed near this case.

Bhūri (Pl. III. Fig.6). - This is the curved brass used in temples and mutts.

Ekkālam (Pl. III, fig. 7). - This is a straight trumpet of brass or copper having four tubes fitting into one another. The instrument is blown at the narrow end and gives a loud shrill note. It is used largely, in temple processions.

Tiruchinnam or *Srichūrṇām* (Pl. III, fig. 8). - Consists of a pair of thin brass trumpets each about 2½ feet in length. It is used in temples on the occasion of services. It is also used by the Dāsaris and mendicants. The two narrow ends are held in the mouth and blown at the same time.

Kombu or *Horn* (Pl. III, fig. 9) called "Sringa" in the north. It is about four to six feet in length and consists of 4 or 5 brass tubes fitting into one another as shown in the illustration. The end pieces are connected by a rod or cord to give stability. It gives a very shrill note and is used in temple processions, receptions and public amusements. It is used in martial music and also for signals. It is even now the custom for village watchmen to blow the horn at sunset and at stated hours of the night. When high officials or persons of dignity come to a village, the horn-blowers at the village gate and blow their horns with tremendous effort by way of welcoming them. Madras and Nepal are noted for their horns. In Nepal we come across snake-shaped horns and horns with a serpent's or tiger's head as orifice.

S-shaped Horns (Pl. III. figs. 10, 11, 12.). - Nos. 10 and 11 consist of four pieces, while No. 12 consists of six pieces. These S-shaped horns, like the Kombu, which is crescent shaped are used in temple processions, receptions and public amusements.

Two high S-shaped horns of silver, formerly in the establishment of the Tanjore Rajahs are even now to be seen in the Tanjore Palace.

(c) Folk Instruments.

- | | |
|-------------------------------|--------------------------|
| 1. Shepherd's flute 25, a, b. | 3. Nedunguzhal 27, a, b. |
| 2. Reed Dulcimer 26. | 4. Maguḍi 28. |

Shepherd's flute (Āyar kuzhal in Tamil) (Pl. III, fig. 2) - Compared with the concert flute, this is shorter in length, but the cross-section is greater. The thickness of the wall of the bamboo is also greater. There is a mouth-piece resembling that of a clarinet and the number of finger-holes is eight. The tone is low and sweet and has a charming influence upon the sheep when played by the shepherds in the valleys by the side of hills. This is the common pastoral instrument of the shepherds and cowherds.

Reed dulcimer (Pl. III, fig.3) - A series of short hollow reeds closed at one end are fastened together as shown in the illustration. The reeds are of graduated length and the open ends are on the same level. Each reed gives a different note. This is based on the principle of the organ. The shorter reeds give notes of higher pitch and *vice versa*. The instrument is held in the right hand or the left hand in such a way that the longer reeds are to the left and the shorter one towards the right and played.

Nedunguzhal (Pl. III, fig. 4) - This is the long flute of the rustic folk pierced with a few finger-holes. It gives a low sound.

Maguḍi (Pl. III, fig. 5) - Called *Punji* in the north. It is used mostly by snake-charmers and jugglers and sometimes by mendicants. The instrument consists of a bottle gourd, into the bulbous end of which are inserted two canes - their interior ends being cut so as to form reeds. One pipe gives the drone note while the other is pierced with finger-holes for playing music. Wind is blown through the hole pierced on the top of the neck of the gourd. The parts of the instrument are fastened together by means of black was. Sometimes the instrument is blown by the nostrils and on this account it is called as *Nāsa Jantra*. The *Maguḍi* is called *Bhujanga svaram* in the *Kāmikagāmam*. Sculptures of performers on the *bhujanga svaram* can be seen in the temples at Rameswaram and Tirukkalikundram.

The *magudi* is graduated to the *Hanumatoḍi* scale (a scale of komal of or flat notes) and the *Punnāgavārālī rāga*, a derivative of this scale is played. This rags allures the serpents and makes them come out of the dark holes underneath and dance before the player. The instrument has a characteristic tone.

C. - PERCUSSION INSTRUMENTS.

(a) Concert Drums.

- | | |
|-----------------------------|-------------------|
| 1. Mridangam 29, | 4. Taval 32. |
| 2. a and b. Tablā and Bāya. | 5. Kanjira 33, a. |
| 3. Dolak 21. | |

Mridangam (Pl. V fig.1). - This the classical drum of India is met with in all South Indian music parties, *Kathā Kālakshepams*¹ and *Bhajanams*². The name literally means "Clay-body", and most probably the shell was originally of clay. Brahma is said to have invented it to serve

¹ *Kātha Kālakshepam* - A religious discourse given to the accompaniment of music. The principal performer is called the "*Bhāgavatar*". A *Katha kalakshepam* party consists of the *bhagavatar*, two vocal accompanists called *upagāyakas*, a person playing the drone, a *mridangam* player and a time-keeper.

² *Bhjana* is a peculiar religious institution in India. Here groups of people gather together for the purpose of congregational worship on festival days and other sacred days. Songs in praise of God are sung on such occasions to the accompaniment of sweet instrumental music. When songs are sung by the leader and the musicians present, the audience derive spiritual (solace) by listening to them (*saravanam*). But when *nāmaavalis* are sung the entire congregation join in singing.

an accompaniment to the dance of Mahādēva after his victory over Tripurāsura. Ganēsa was the first to play the instrument. This is the drum for chamber music and is an indispensable accompaniment to both vocal and instrumental music in South India. Mridangam solos given in concerts are a real treat to the ear. Drum-playing is a great art in India and the like of this is not to be seen in other countries. It requires years of practice to attain proficiency in playing the mridangam.

The body is bored out of a single block of wood. Jack-wood or red-wood (*Alangium decapitalum*) is used. The shape of the body might be likened to two bottomless flower-pots joined at their rims. Skins fastened to leather hoops and tightened by leather braces are stretched over the two heads. Small cylindrical pieces of wood (not seen in the illustration - but see fig.2-a Tabla) placed between the shell and the braces help in adjusting the pitch of the instrument.

The right-head of the mridangam (seen clearly in the figure) consists of three concentric layers of skin, the innermost being concealed from view. The outer ring is called *Mittu* (*Mittu tōl*) in Tamil and the inner ring *Chapu* (*Sāpu tōl*) in Tamil. Calf skin is used for the outer ring and sheep skin for the inner ring. In the centre of the right head is a permanent fixture of black paste. This circular layer, called variously as *Sōru*, *Karanai* and *Marundu* in Tamil is a composition of Manganese dust, boiled rice and tamarind juice or a composition of fine iron filings and boiled rice. This black paste called *chittam* in Tamil is applied on the inner skin (*Sāpu tōl*) in small grains and finally rubbed over for hardening with the polished surface of a hard stone. The paste is thickest in the centre and thins out towards the edges. It is this black ring that gives the fine characteristic tone to the mridangam.

The left-head consists of two rings only. The outer one is of buffalo skin and the inner one is of sheep skin. At the commencement of a concert, a paste of soojee and water or of boiled rice, water and ashes is temporarily fixed on the centre of this head and this paste is scraped off at the close of the concert. The quantity of this paste is so adjusted that the note given by the left-head is exactly an octave below the note given by the right-head.

As a rule, 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 6¼" to 7" and the left-head diameter from 6¾" to 7½". The right-head is tuned to the tonic note of the 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 the appropriate points, the pitch of the instrument is increased or decreased.

The instrument is played with the two hands, wrists and finger tips. Jati exercises are first learnt vocally and practised on a dummy instrument. Then only the practice on the mridangam commences with the mastering of preliminary beats and strokes. Even as a clever musician is able to show his creative skill in the field of music, so also an expert mridangam player is able to display his powers of creative skill by new permutations and combinations of jatis. The cross-rhythmical accompaniment provided by the mridangam player in Indian concerts is something unique. The rhythmical harmony provided by him considerably heightens the interest of a concert.

Pakhawaj, the corresponding instrument in Northern India, has smaller heads.

Tablā and Bāya (Pl. V, figs. 2-a and b). These two instruments take the place of the mridangam in Northern and Central India. They are used in theatrical music and in the Hindustāni music parties of North and South India. The tablās head corresponds to the right head of the mridangam and the baya's head to the left of the same. The shell of these one-faced drums is either of wood, metal or clay. Sometimes the bāya also is provided with a permanent fixture of the black paste - referred to under mrindangam. In such cases, the black ring instead of being on the centre as in the tablā and mrindangam will be found near the edge. Some bāyas are provided with tuning blocks.

The mridangam and the tablā are the two concert drums wherein there is provision for adjusting the pitch. They lend themselves admirably to all kinds of drumming finesse.

Dōlak (Pl. V, fig. 3). - This is a simpler drum found all over India. The shell is hollowed out of a solid block of wood. The braces are of twine or of thick cotton thread and pass through circular rings of metal near the middle of the shell. These rings aid in tuning. The two heads are plain. The instrument is played with the hand and a stick.

Tavil (Pl. V, fig. 4). - This is the drum used in the nāgasvaram band or the periya mēlam, It consists of a cylindrical shell hollowed out of a solid block of wood. The skins of the two sides are stretched over hempen hoops fastened to the shell and strained by means of leather thongs interlaced. A band of leather passing round the shell along the middle over the braces serves to tighten the instrument up to the desired pitch. The thickness of the wall of the shell varies from 1/8 to 1/10 of an inch. The right head is played by the right hand, wrist and fingers and the left head is struck with a stick held in the left hand. This is the drum used in out-door music.

Kanjira (Pl. V, fig. 5). - This is the cheap tambourine used in concerts and bhajana parties. This is also used by mendicants. Over one side of a circular wooden frame, 8 or 9 inches in diameter and about 3 or 4 inches deep, a piece of skin usually of varanus is stretched. The frame is provided with three or four slits containing pieces of metal strung together (seen on the right side). In addition, small clusters of ankle-bells (seen in the middle) are suspended from hooks fixed on the frame. These together give a pleasing and jingling accompaniment as the instrument is played.

(b) Temple Drums

- | | |
|-----------------------------|--|
| 1. Panchamukha vādyam. (73) | 6. Pambai. 38. |
| 2. Nagāra. *34 (77) | 7. Sūryapirai and Chandrapirai 39 a and b. |
| 3. Damārurum. 35 | 8. Timila. 69 |
| 4. Ūdukkai. 36, a, b, c. | 9. Idakka. (70) |
| 5. Davāṇḍai (37) | |

Panchamukha vādyam (Pl. X, fig. 2). - It is a huge five faced drum mounted on a special stand or kept in position on a four-wheeled carriage. It is used in temple music. The five faces are named after the five faces of Siva; Sadyōjātam, Isanam, Tatpurusham, Aghōram and Vamadevam. The shell is of bronze and from its top emerge five hollow cylinders. These cylinders are covered with skin. The drum heads are all on the same level. (In some specimens, the central head is at a slightly higher level than the peripheral heads). The diameter of the central face is slightly larger than those of the peripheral faces. The instrument is played with both the hands. It is played solo and also in conjunction with the suddha maddalam. The timber resembles that of the tablā tarang. The pitch of the faces is adjusted by tightening or loosening the squeeze of the skin at the region of the neck and below the rim. The panchamukha vadyam is referred

to as Kudapanchamukhi by Arunagirināthar. Pārasaivas are the privileged class of people who are entitled to perform on it.

Nagāra (Pl. VI, fig. 1). - This is the large hemispherical kettle-drum covered with hide and used in temples. The shell is of copper, brass or sheet-iron rivetted together. The diameter of the head is about 2½ to 3 feet. The skin is strained upon hoops of metal and stretched by leather thongs passing round the under side of the shell. The instrument is placed on a two-wheeled carriage, and drawn by a person who follows the procession of the deity. The player sits on the carriage and beats the drum with two curved sticks. Sometimes a decorated elephant carries this drum on its back, and goes in front of the procession.

Bigger varieties of this instrument, known as *Bheri* and *Dundubhi* were used in battle. The Indian epics make mention of these martial drums. The battle-drum was regarded with great veneration and capture of this drum by the enemy meant the defeat of the army.

Damārum (Pl. VI, fig. 2), - This is the pair of conical drums placed on a bullock and seen preceding every temple procession. The shell is of wood and the braces are of leather. It is played with two sticks, one curved and the other straight.

Udukkai (Pl. VI; fig. 3) - It is also called *Tudi* and *Iqaisurangu parai* on account of its shape. This is the hour-glass shaped drum laced with twine. A thin parchment is strained over the two faces. Right along the middle, passing over the twine threads is a thick tape, the squeeze of which tightens the braces, resulting in the sharpening of the tone. The effect of this is really interesting. The shell is of brass, wood or clay. The instrument is held in the left hand and played by the fingers of the right hand. It is used in all Mariamman temples and in the temples of village deities.

The sacred *Damaru*, the attribute of Siva is, of the same shape as the Udukkai but has a knot at the end of a string wound round the middle. When the instrument is rattled, this knot strikes, the two faces at the centre alternately. Natarāja, is represented with the damaru, in one of his four hands. The *budubuduke* of the gipsies and jugglers is a miniature damaru.

Davaṇḍai (Pl. VI, fig. 4). is a bigger udukkai. The shell is of wood and is laced with thick twine. The skin on the two sides is thicker. It is played with a stick. This is also used in Mariamman temples and in some old shrines.

Pambai (Pl. VI, fig. 5). - This is a pair of cylindrical drums each about one foot in length. The outer surface is coloured and painted with flowers. It is played with two sticks shown below in the figure. As in the *dolak* (Pl. V, fig. 3), the twine braces pass through metal rings which help in tuning.

Suryapirai (of the shape of the sun) and *Chandrapirai* (of the shape of the moon) (Pl. VI, fig. 6) are two interesting percussion instruments used in Mariamman temples and other temples of village deities. A thin parchment is strained over iron rings of the two shapes. The rings are connected to a handle with an extended arm. The two instruments are tied on the foreheads, of two persons and played with a stick. In the illustration, the one to the left is the *Suryapirai* and the other on the right is the *Chandrapirai*. These instruments called also *Sūryamandalam* and *Chandrāmaṇḍālām* are used in the temple at Kālahasti, South India.

Timila. - This is a two-faced drum and is largely used in the ritualistic music of the temples in Malabar. The resonator is of wood and is like a mortar in shape. It is suspended vertically near the waist and played on one side by the hand. A high degree of rhythmic technique has been developed by performers on this instrument.

Idakka. - From the point of view of instrumentation, the Idakka, is of great interest. It has an hour-glass shaped resonator. The resonator is of wood. The skin is not strained over the two faces. The skin mounted on a circular frame is just made to be in firm contact with two faces. There are strings tied on the circumference of the rings. By gripping the strings the performer is able to keep the skin in a state of tension. The instrument is played with a stick. One is able to produce not only the different notes with accuracy on this instrument but also able to play simple melodies extending over a compass of one octave. The dexterity of the performer lies in the fact that he is able to manipulate variations in pitch by tightening or loosening the grip to the required tension.

(c) *other drums.*

Dāsari Tappattai (Pl. IV, fig. 8). - This is the small tambourine used by the Pāṇḍārama and Dāsaris along with the Sēmakkalam and the conch. A piece of calf's skin is strained over a circular metallic frame sloping on both the sides. It is held in position between the stomach and the elbow of the left arm and played by the right hand fingers, the left hand proper, holding and striking the Sēmakkalam.

(d) *Gongs, Cymbals and Castanets.*

- | | |
|-----------------------|-----------------------|
| 1. Sēmakkalam. 40. | 5. Chilā. 44. |
| 2. Jālrā. 41. | 6. Kartāl. 45. |
| 3. Brahmatālam. 42. | 7. Kāshta tarang. 75. |
| 4. Tālam. 43a, b & c. | |

Sēmakkalam (Pl. IV, fig. 7). - This is the bell-metal gong used by the Dāsaris, mendicants, Pāṇḍārams, and the people of the Panichavan caste. Called also Sōmangalam from its moon-shape. It is used in temples also. A round stick (shown at the top of the figure) of the calotropis plant is used to strike the gong. In the month of Margazhi - the second half of December and the first half of January, it is a common sight to see the Pandarams, in the streets of South India going about asking alms, singing Tamil songs, and keeping time with the Sēmakkalam. This instrument is also seen in the Tirupathi Pilgrim's Procession.

Jālrā (Pl. VII, fig. 1). - The pair of metallic cymbals used for keeping time in music. They are of brass or bell-metal and are circular flat discs. The two discs are usually connected by a cord or cotton thread passing round their centres. The Jālrā is principally used in Harikathā Kalakshepams and Bhajana Parties. Mendicants also use it to keep time to their music. Even with such a simple instrument, there are skilled performers who are able to play all the difficult combinations of jatis and cope up successfully with even the expert mridangam performers in concerts.

Pāṇḍharpur Jālrās are famous for their fine tonal quality and are in great demand.

Brahmatālam (Pl. VII, fig. 2), is the pair of cymbals larger than the ordinary variety and is used in temple services. Called also *Biḥattālam*.

Tālam (Pl. VII, fig. 3) is the pair of small basin cymbals, the sweet tinkling of which goes very pleasingly with the soft music in a dance drama, dance party, Harikatha or Tevara Bhajana. This is heavier than the Jalra and generally only the edges are struck. The two cymbals are not connected; but at the back of each is a tassel of silk or wood serving as a handle. The *tālam* used in the Nāgaswaram band resembles the ordinary *Jālrā* but is thicker.

Chiplā (Pl. VII, fig. 4), - Two pieces of hard wood (black-wood or rose-wood) about six inches in length, flat on one side and rounded on the other are provided with slits into which are inserted metal pieces. Some ankle-bells are also suspended from hooks fixed at the two ends. The metal pieces and the ankle-bells together give a jingling accompaniment to the beats of the castanets. A brass ring is fixed on the back of each wooden piece for the fingers to pass through.

Karṭāl (Pl. VII, fig. 5), - Two circular wooden castanets used by the mendicants. The instrument is held in either hand and the faces are struck against each other.

Kāshṭa Tarang - This is a xylophone, Rectangular pieces of wood of progressively decreasing length are mounted on a frame. Each piece gives a separate note. These sonorous pieces of wood are struck by two sticks and played.

D. - MISCELLANEOUS INSTRUMENTS.

- | | |
|---------------------|--------------------------------|
| 1. Jalatarangam. 46 | 4. Pujāri Kai Chilambu 49 & b. |
| 2. Silambu. 47 | 5. Ghaṭam. 50 |
| 3. Salangai. 48 | 6. Moursing. 51 a |

Jalatarangam (Pl. VIII, fig. 1) meaning "water-waves" consists of 18 porcelain cups of distinct sonorousness arranged in a semi-circle before the performer. The empty cups when struck give notes of different pitch. Water is poured into the cups and played. The water in the cups serves the following purposes : -

- (1) To increase or decrease the pitch with ease, by removal or addition of water.
- (2) To give sustained note.
- (3) To enable the gamakas to be played by the sticks coming into contact with the water meniscus.
- (4) To give stability to the cups and prevent them from toppling over during play.

The tuning of the cups generally takes sometime. The cups are arranged in the increasing order to pitch from left to right. The cups are struck with two thin bamboo sticks. The *Jalatarangam* is a solo instrument. It is also used in orchestra.

It is an old instrument and is referred to as *udaka vādyam* in ancient literature. The art of playing on it was included amongst the *Chatushashṭi Kālas* (64 arts).

Silambu (Pl. VIII, fig. 2). This is a hollow circular ring of silver with metal pieces inside. It is worn on the legs. This along with the ankle-bells gives a sweet tinkling sound as the dancer sways to and fro. Also called *Kālchilambu* in Tamil, i.e., silambu worn on the legs.

Salangai or Ankle-bells (Pl. VIII, fig. 3), - Called also *Gejjam*, *Gejjai* and *kinkini*. This is between a musical instrument and an ornament. A thick cotton thread is passed through the rings of the ankle-bells and knots on this thread between these rings keep the ankle-bells in position. This is tied round the ankles of all dancers (male and female), bhāgavatars and some

actors. Amongst the processional dancing girls, the gejjai is held very sacred, for it is the symbol of their profession. Once a woman of this class is decorated with the gejjai, which is always a solemn ceremony, she cannot give up her profession. Even in bhajanas, before the commencement of the Divyanāma Sankirtana, the bhāghavatar is decorated with the gejjai by one of the senior devotees present. A special song is sung on this occasion. The untying of the gejjai marks the conclusion of the bhajana.

Ankle-bells and silambu are tied round the legs of cows on festival occasions like the Pongal. Every post-runner in India has a few bells attached to his little spear. Their tinkling may be heard for a very long distance as the runner passes along the villages.

Pūjāri Kaichilambu (Pl. VIII, fig. 4), - Inside an elliptical hollow metallic ring of about an inch, in thickness, are inserted thin metal pieces. Two such rings, one in each hand are held between the fingers and moved to and fro so as to serve as a rhythmic accompaniment. Very commonly used in Mariamman temples and in the temples of village deities.

Ghaṭam (Pl. VIII, fig. 5), - The mud pot is one of the ancient time-keeping instruments and is mentioned in the *Rāmāyana*. The mouth of the ghatam is open and some what narrow. When closed with a parchment, it becomes the pot-drum. Strong, durable and resonant pots for this purpose are made at Panruti and Mānāmadura in South India. The pot is played with the two hands, wrists and the ten fingers and nails. The mouth is pressed against the stomach so that when strokes are given, the air inside is set in vibration and gives a deep tone. A very high degree of speed in playing the different combination of jatis is possible on this instrument. Finger-strokes are given at neck, centre and the bottom of the outer surface, and the resulting tones in these positions also vary. Unlike other percussion instruments, the ghatam is not kept in the same position, during playing. Sometimes, the mouth faces upwards and sometimes away from the performer.

Moursing (Pl. VIII, fig. 6), (Jew's harp) - An elastic thin iron strip called the tongue is fixed to a circular iron ring as shown in the illustration. This strip projects a little beyond the ring at one end and at the other end is slightly curled. It passed right along the centre of the ring and between the two arms. The instrument is held in the left hand and the fork portion is held in the mouth. The curled end of the tongue is plucked by the forefinger of the right hand. The cavity of the mouth acts as a resonator. A skilled performer is able to play all the jati combinations with accuracy. When played along with the mridangam, the combined effect is delightful and pleasing.

2. TRIBAL INSTRUMENTS.

- | | |
|-----------------------|------------------------|
| 1. Villādi vādyam, 52 | 4. Puḷḷuvan kudam, 53. |
| 2. Tantipānai, 78. | 5. Villukoṭṭu, 54. |
| 3. Gummaṭi, 79 | 6. Viṇa kunju, 55 |

Villadi vādyam (Pl. IX, fig. 1), - A lacquered bow seven or eight feet long is fitted with a cord or strong leather. A few bells are suspended from the bow as shown in the illustration. The middle of the bow rests on a pot. Four or five persons sit on the floor before the bow and strike the cord in turn with short sticks made for the purpose. These sticks are shown on the side of the pot. Lads, who undergo a course of training in this art, are employed in the temples as singers and are paid handsomely.

Tantipānai (Pl. XI, fig. 2), is an interesting drum used by the rural folk. This is a pot drum with a metallic string inside. Formerly a gut was used in the place of the metallic string. Hence

the older name of the instrument, Narambu pōnai. Narakuṇḍa and Tantikunda are the earlier and later names of this instrument in Telugu.

A piece of goat skin is strained over the mouth of the pot. At the centre of the skin is a small hole through which the metallic ring in the centre of a button projects inside. To this string the ring inside is tied. In the place of the button sometimes a copper coin with a hole pierced in its centre is used. The string in this case will be tied to small piece of stick or knob and then made to pass inside through the hole in the coin and the skin. Thus the button, stick or knob serves the same purpose as the langar of the vīṇa.

Since the size of the button, stick or knob is bigger than that of the hole in the centre of the skin, it has no chance of slipping inside. Further they are kept in position by the tension of the string. The string passes through the centre of the inside and emerges out of the back through a small circular aperture. Emerging from the aperture, the string passes over the top of the post through holes drilled in the centre of three square pieces of wood and ends ultimately in a peg. The peg is inserted into a bigger piece of wood. This piece of wood supporting the peg is kept in position by being tied to a cotton thread passing round the neck of the pot. The wooden pieces on the outer surface of the pot are all kept in position by the tension of the string. By turning the peg, the pitch of the string can be adjusted to the required sruti or tonic note of the performer. Seven small metallic rings glide over the string inside the pot. When the instrument is played, these gliding rings vibrate along with the main string and the total effect is interesting and pleasing.

The instrument is held at a slight inclination to the vertical and played. The drum face is away from the performer. The inclination results in the gliding rings slipping to the end of the string near the aperture at the back and vibrate from near the nodal point. The performer just taps the button or the coin as the case may be in the centre of the drum face, with the middle fingers of his right hand and left hand alternately. He plays a beautiful series of jatis or rhythmical sequences. The mild strokes cause the string inside to vibrate. The cavity of the pot acts as a resonating chambers.

By using of strings of different gauges any pitch ranging from middle C to octave C, i.e. from madhya shadja to tara shadja can be got on this instrument.

The *Tanlipānai* is thus a compound musical instrument, serving the double purpose of a drone accompaniment and rhythmic accompaniment. This sruti-cum-laya vādyā produces a pleasing effect when played by experts.

This instrument is used by hill tribes to communicate messages to people down below. A drum language with code strokes is in vogue among them. The instrument is used also by Mālas.

Gummaṭi is a kind of pot-drum used in the Telugu districts. It is used by the rural folk to provide a rhythmic accompaniment during the singing of the well-known balled Bālanāgama Katha.

The pot is of the shape of the mud kūjā commonly used for keeping drinking water. At the bottom of this pot is a circular aperture of about two inches in diameter. The skin which covers the aperture at the bottom is stretched over a circular ring of iron. There are ten holes along the circumference, and through these holes cotton threads pass. These threads pass over the mud pot and are tied to another circular ring at the spout end. The drum face is thus held in a state of tension by these threads. The instrument is held in a horizontal posture and played.

The drum head on the right side is played upon by the fingers of the right hand. The cavity inside the pot acts as a resonating chambers. The occasional covering stroke on the open spout end, by the palm of the left hand gives the effect of a gumkāra.

Puḷḷuvankuḍam (Pl. IX, fig. 2). - This consists of a mud pot with a circular opening at the bottom. A vellum is stretched over the narrow mouth of the pot. A twine tied to the centre of the vellum of the outer surface passes through the pot along the hole at the bottom and passing through a slit in a wooden beam, ends in metal cup. The pot and the metal cup are kept in position as shown in the illustration. The twine is struck with a stick, the pot serving as a resonator. The twine is easily tightened by pulling the pot slightly away from the direction of the metal cup. This is used by the Puḷḷuvans of Malabar, a tribe of serpent-worshippers.

Villukoṭṭu (Pl. IX, fig. 5), - The spathe of arecanut or coconut palm is taken and small slits are made at the two ends. A bamboo stick with knobs at the two ends is inserted between the slits and the whole thing appears like a bow. This bamboo stick which is held rigidly between the two ends is struck with another stick, shown in the middle of the instrument.

Vīṇa kunju (Pl. IX, fig. 4) - A thin skin is strained over a shallow circular resonator. A finger-board of the shape shown in the illustration is attached to the resonator. A single string of fibre or twine, tied at the attachment passes over a bridge on the belly and over the narrow finger-board and is tied to the peg at the neck. It is played with a crude bow, shown separately on the right. Used by the Puḷḷuvans on the West Coast.

INSTRUMENTS OF THE KOTAS.

- | | |
|--------------------|--------------------------|
| 1. Kombu. 56 | 3. Tambattam 58a, b & c. |
| 2. Drum. 57 a & b. | |

The Kotas are the tribe of musicians, artisans, and farmers of Orissa and Tamil Nadu.

Kombu (Pl. IX, fig. 5) - For description see page 17.

Drum (Pl. IX, fig. 6) - This has a cylindrical wooden shell and resembles the *uḍa* used in temple rituals. Skin is stretched over both the faces and is tightened by leather braces which are clearly seen in the illustration. The instrument is played with two sticks shown on the top.

Tambattam (Pl. IX, fig. 7). - Here, the skin is strained over a circular frame by means of a net work of thin leather thongs. This network is concealed from view in the illustration. It is played with two small sticks. This network is concealed from view in the illustration. It is played with ten small sticks.

APPENDIX A.

Notes on recent additions to the collections.

1. *Jhamalika* - This is folk (stringed) instrument met with in Deccan and in Maharashtra. This instrument consists of a brass hollow cylinder, with two ends, and roughly 9" in diameter and 10" in length. To one of the ends, a skin is fastened with adhesive and in the centre of the stretched skin is a small opening from which a sheep's gut of about 18" length is attached. The free end of the gut passes through the hollow coming out of the open end. To the free end of the gut is attached a wooden baton of 8"-10" length and about 1" in thickness. (Pl. XIII, fig. 1).

The instrument is played in a sitting posture and also while standing. The hollow drum is held in the lap, and the wooden baton is stretched and held with the left hand, and at the same time the left below passing over the cylinder. The right index finger is used for plucking the stretched gut. By increasing the tension of the gut (thus indirectly the stretched skin), musical notes different pitch result. This instrument is usually used by the Maharashtrian beggar communities.

2. *Damarukam* - Sacredly attributed to Siva, and is described, *vide* page 21 (Pl. XIII fig. 2).

3. *Belgian Glass Drum*. - It is a glass drum resembling the Mridangam, but the barrel is made up of a hollow transparent chimney, barrel being typically like two bottomless flower pots joined together. The skins are fastened to cotton fibre hoops, and tightened by cotton string loops, which gives the required variations in resonance. The instrument is played by placing in the lap of seated individual, with both hands. The measurement of the barrel is about 21" in length and diameter is 9" at its broadest portion. This is an musical instrument of ornamental nature. (Pl. XII, fig. 1).

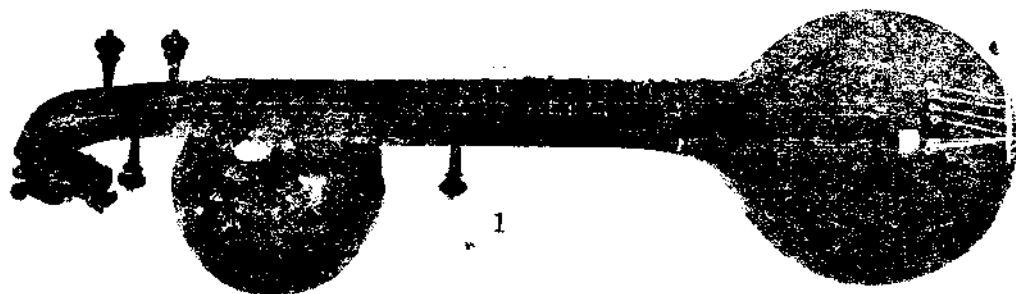
4. *Indramoo (Boomadu vadyam)*. - A hollow percussion instrument measuring about 6" in diameter and about 7" in length with two striking surfaces covered with sheep skin. The barrel is wound by a piece of cotton cloth. The instrument is used by street mendicants, begging with trained bullocks, all over India. (Pl. XII fig. 2)

5. *Temple drum*. - A large metal drum described on page 21. (Pl. XIV, fig. 1).

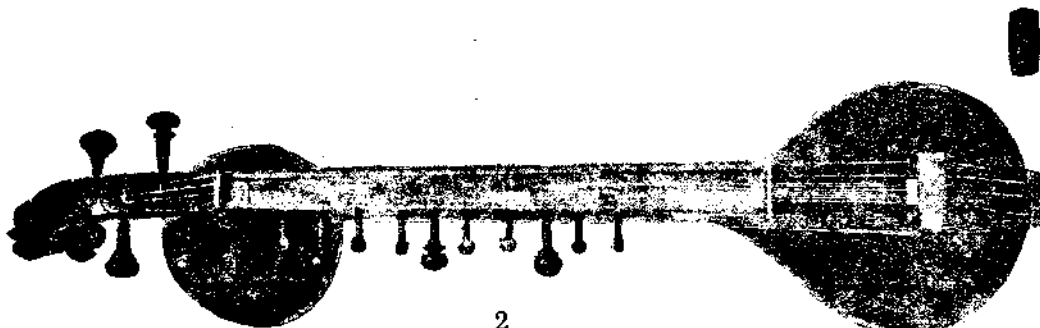
Attention is also drawn to the data furnished for case No. XI. *vide* page 8 of this catalogue. The following instruments have also been placed in this case : (1) Ottu; (2) Imitation moursing; (3) Bamboo flutes; (4) Reed Pipes and (5) Talam.

PLATE I

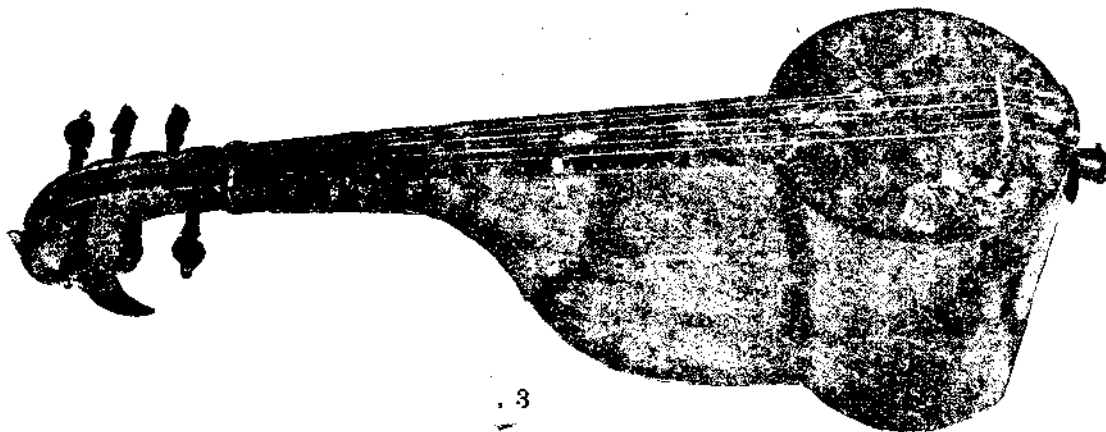
- 1 vina (Tanjore model).
2. Gōtuvādyam
3. Swarabat.
4. Big Sitar.
5. Small Sitar.



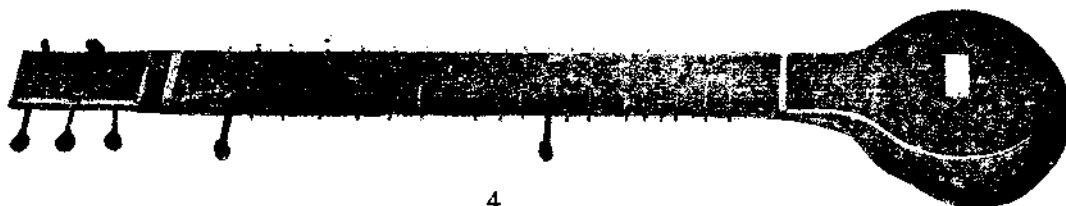
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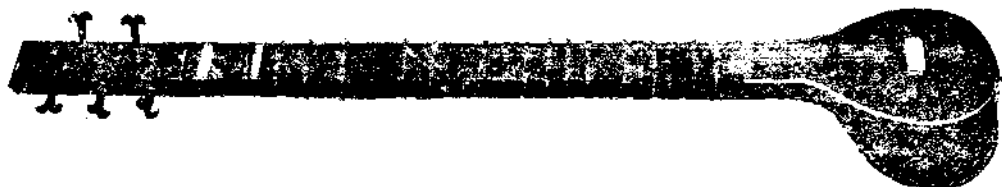


PLATE II

- 1 Tambura (Tanjore model)
- 2 Tuntina.
- 3 Tambura with a wooden shell and rest.
- 4 Ektār
- 5 Bālasaraswati
- 6 Sārangi

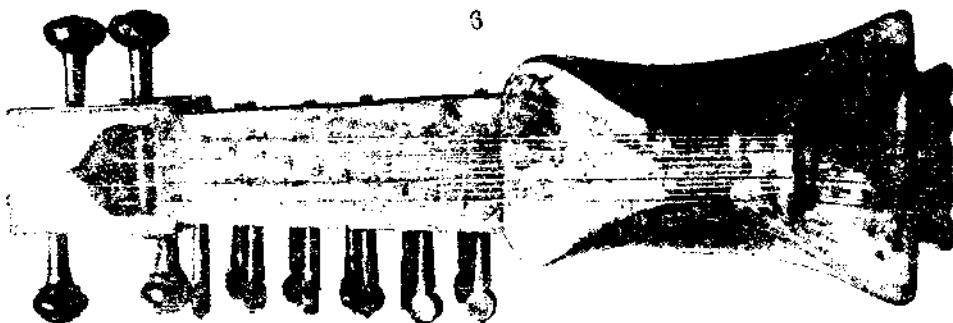
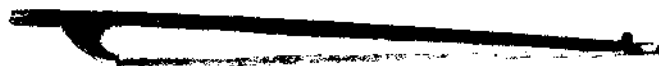
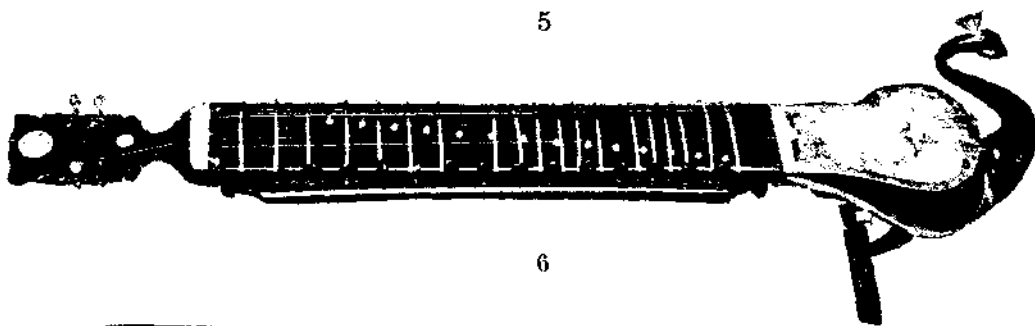
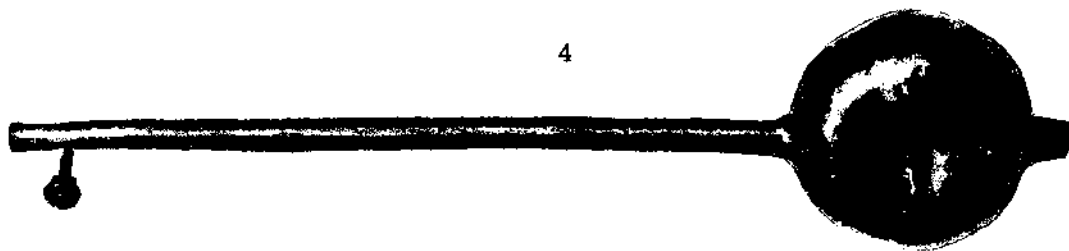
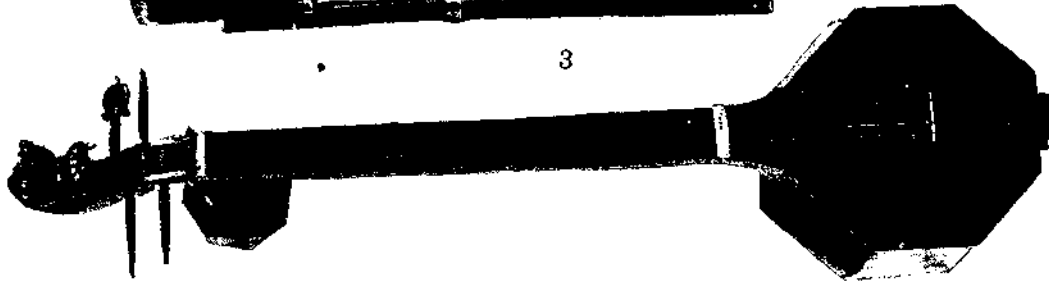
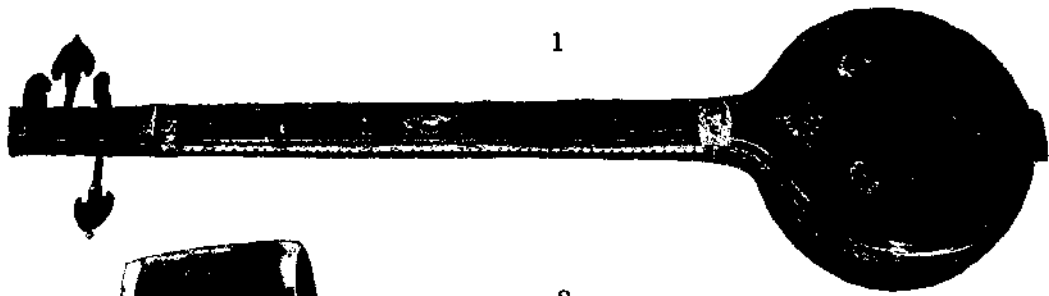


PLATE III

- 1 Concert Flute
- 2 Shepherd's Flute
- 3 Reed Dulcimer.
- 4 Nedunguzhal.
- 5 Magudi
6. Bhuri
7. Ekkalam
8. Tiruchinnam.
9. Kombu
- 10, 11, 12 S-shaped horns

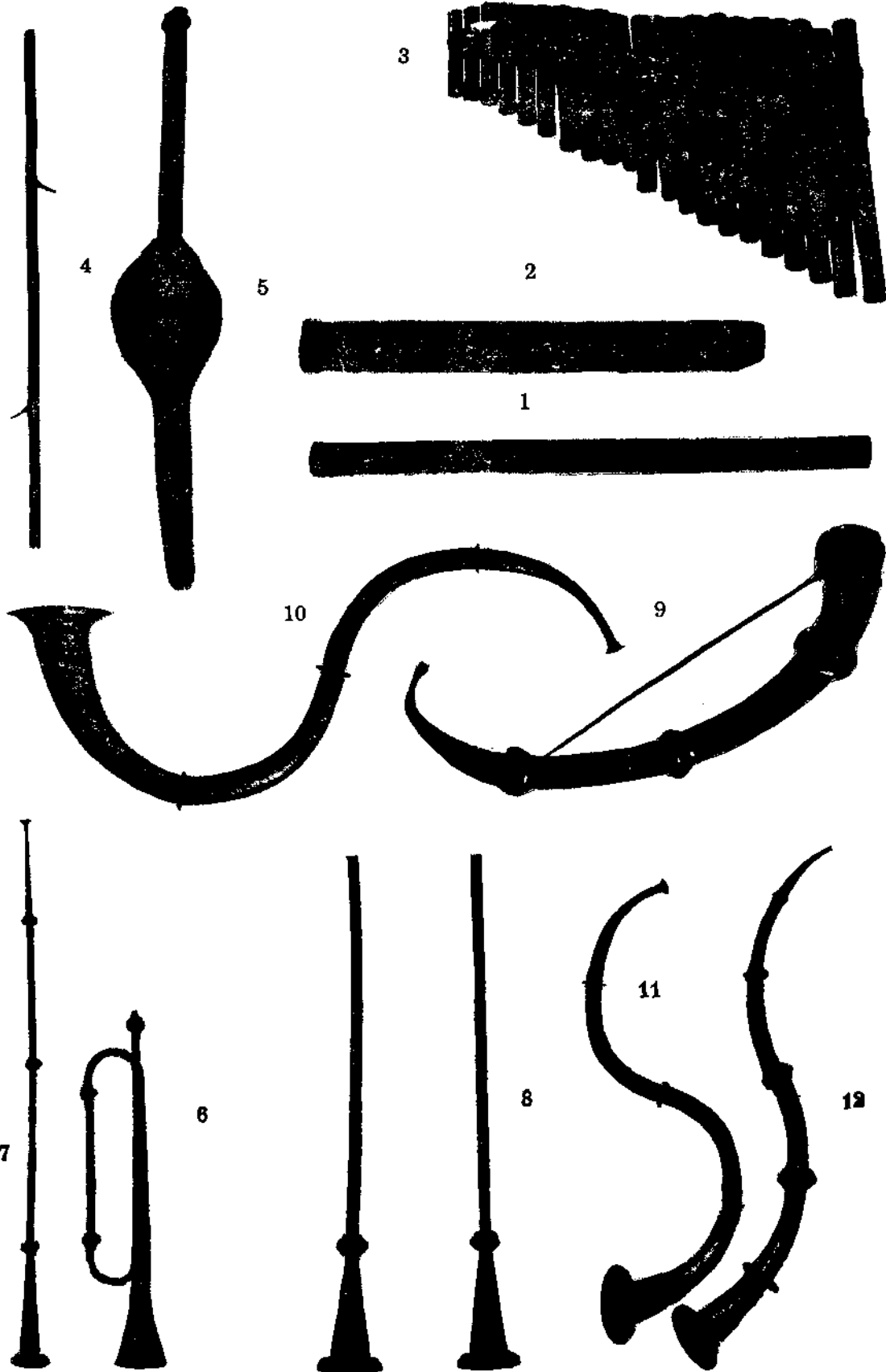


PLATE IV

- 1 Nāgaswaram.
- 2 Nāgaswaam (another variety).
- 3 Ottu.
- 4 Mukhavina.
- 5 Sanāi.
- 6 Kinnari.
- 7 Sāmakalam.
- 8 Dāsari Tappattai.

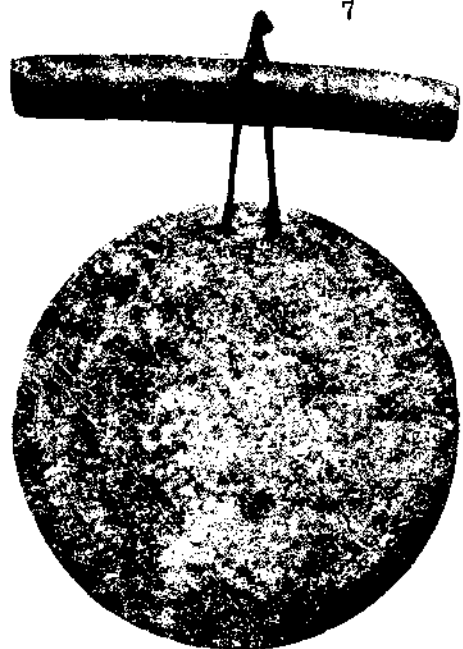
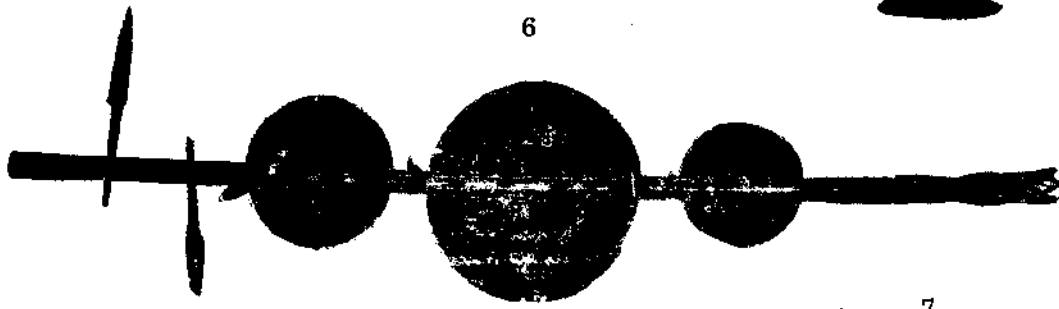
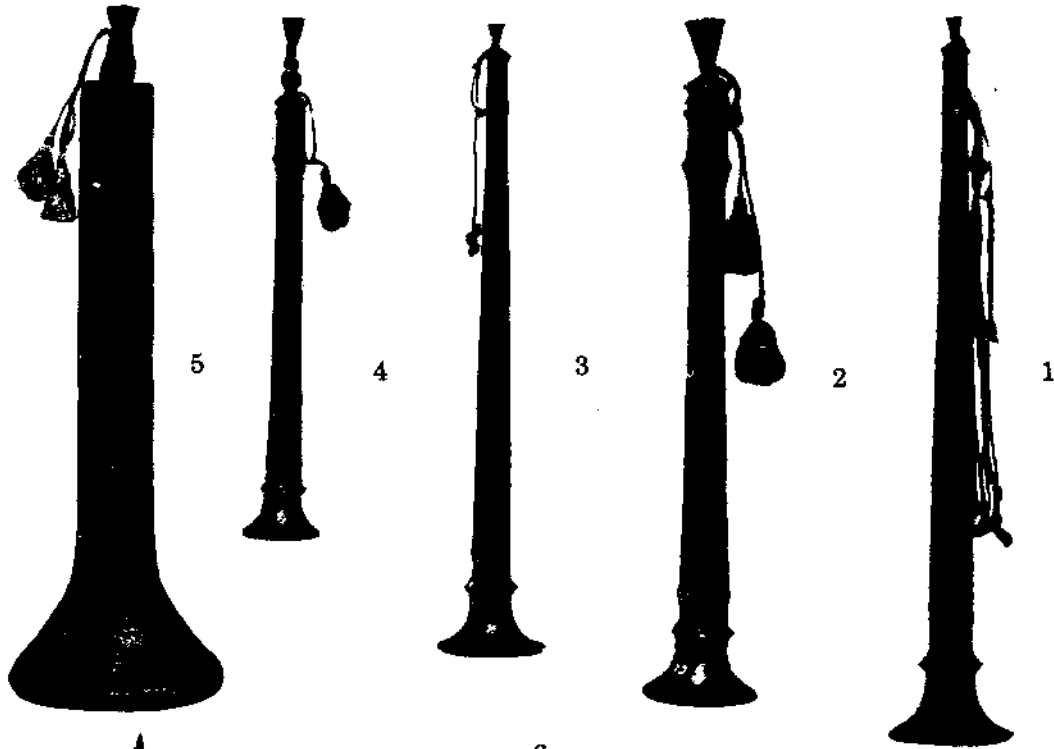
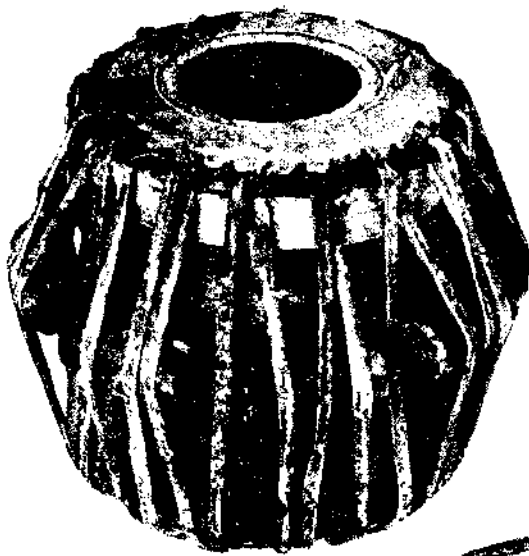
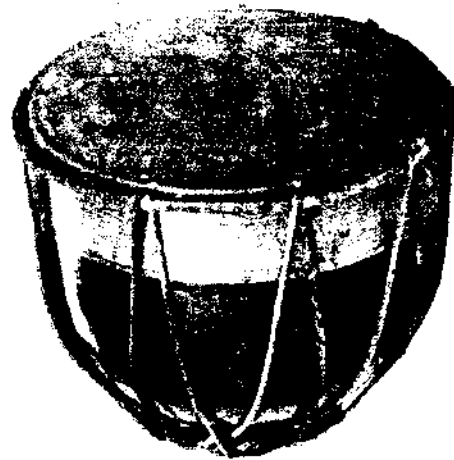


PLATE V

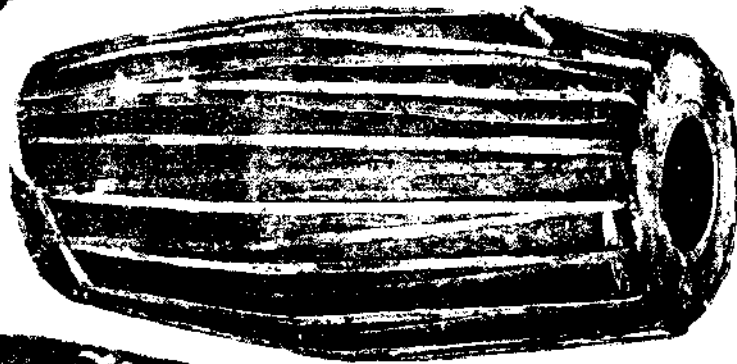
- 1 Mridangam.
- 2-a and b Tablā and Bāya.
- 3 Dolak.
- 4 Taval.
- 5 Kanjira.



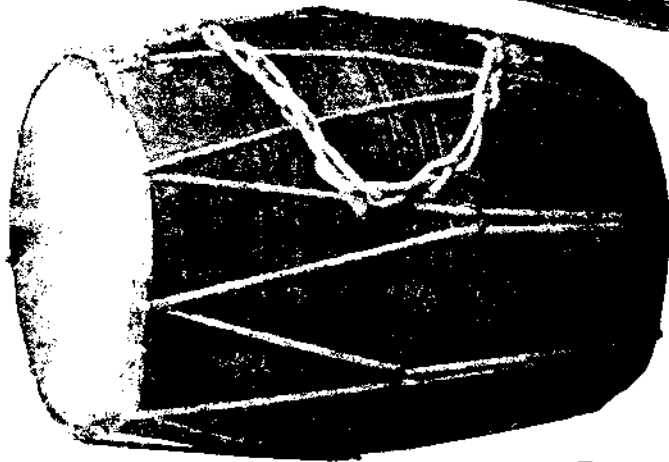
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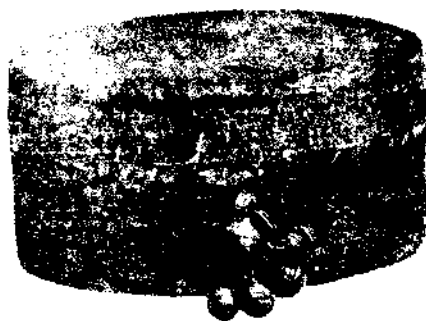
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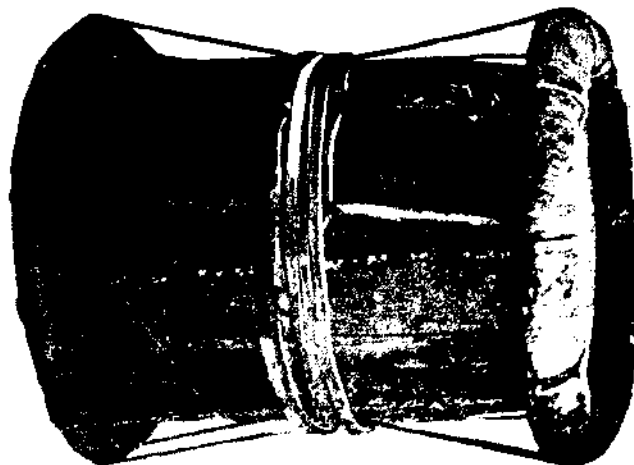
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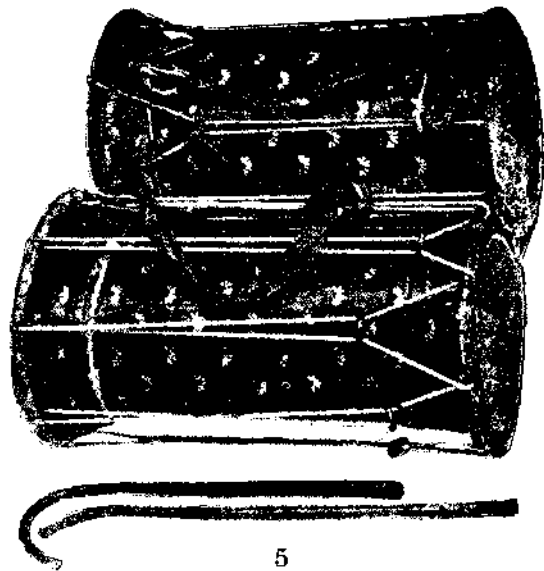
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PLATE VI

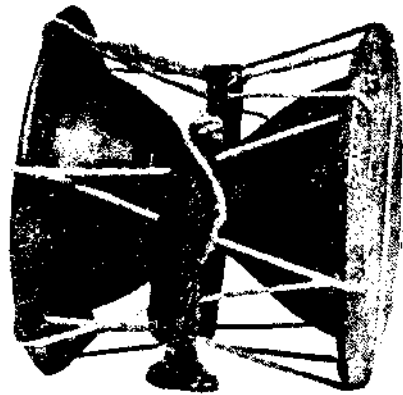
- 1 Nāgarā.
- 2 Damarum.
- 3 Udukkai (medal shell).
- 4 Davandai.
- 5 Pambai.
- 6 Suryapirai and Chandrapirai
- 7 Conch.



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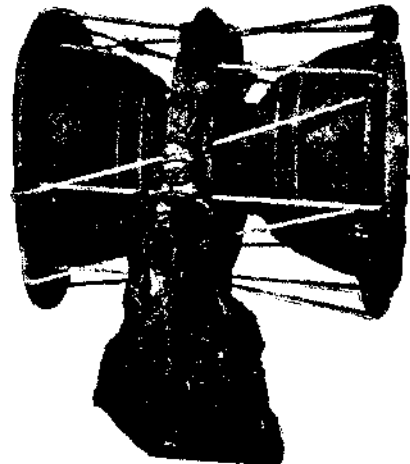


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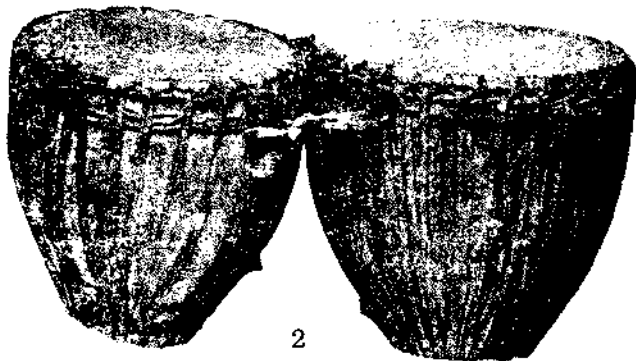


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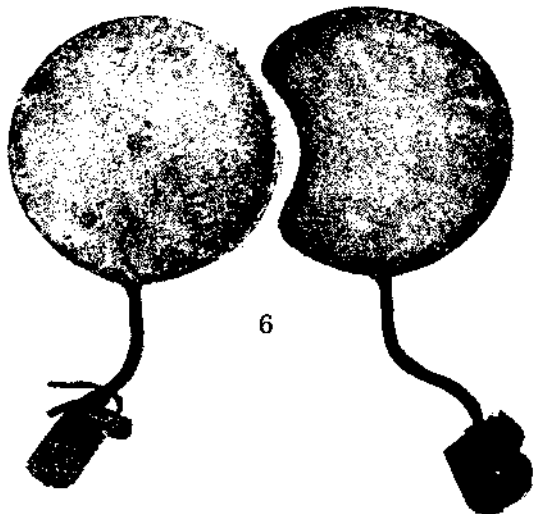
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PLATE VII

- 1 Jālrā.
- 2 Brahma Talam.
- 3 Talam,
- 4 Chiplā.
- 5 Kartal.

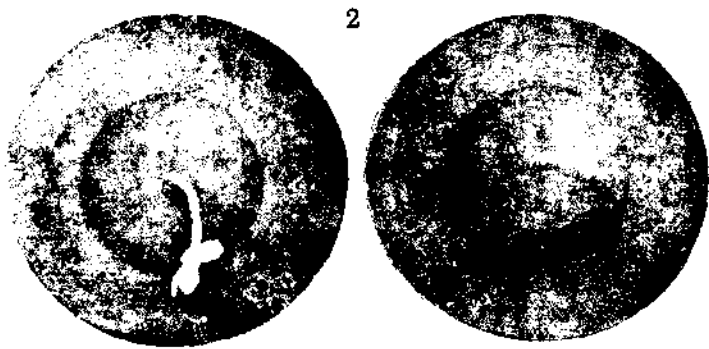
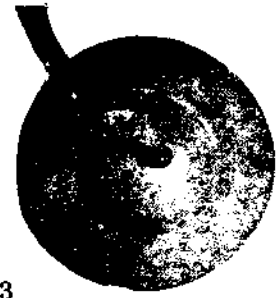
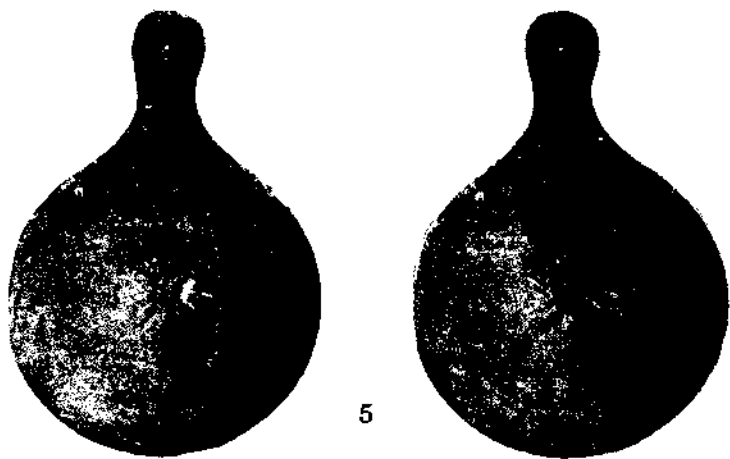
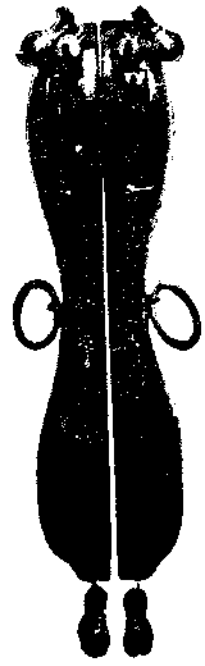
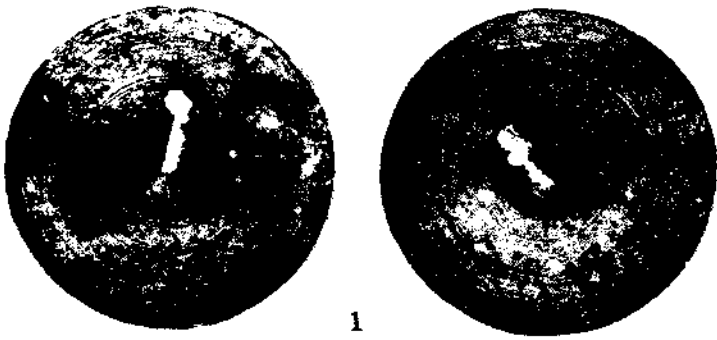


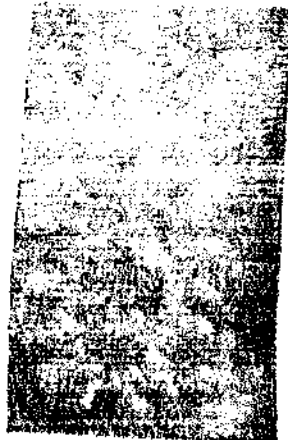
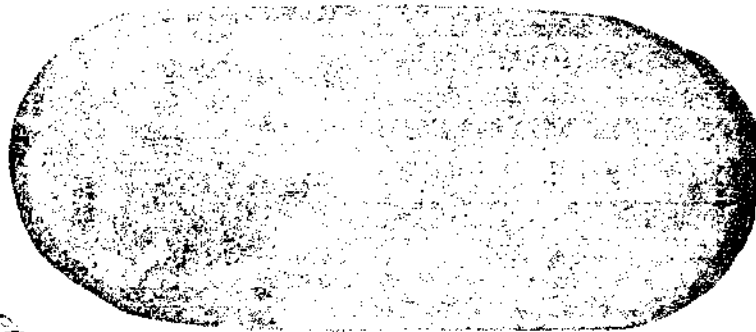
PLATE VIII

- 1 Jalatarangam.
- 2 Silambu.
- 3 Gejjai (ankle bells).
- 4 Pujāri kaichilambu.
- 5 Ghatam.
- 6 Moursing.

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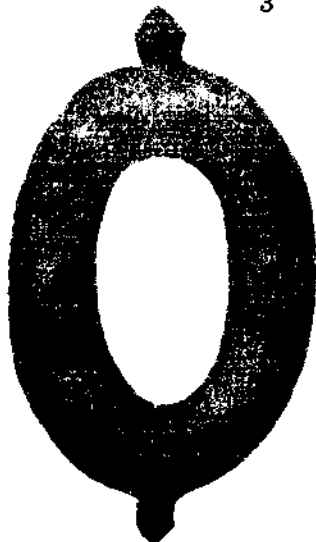


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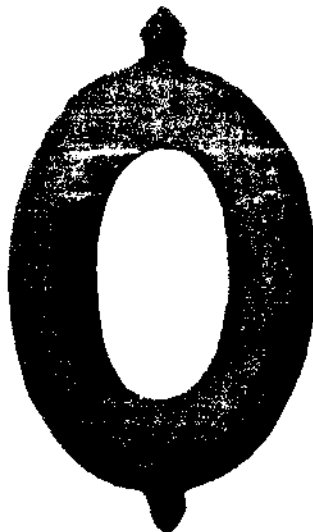


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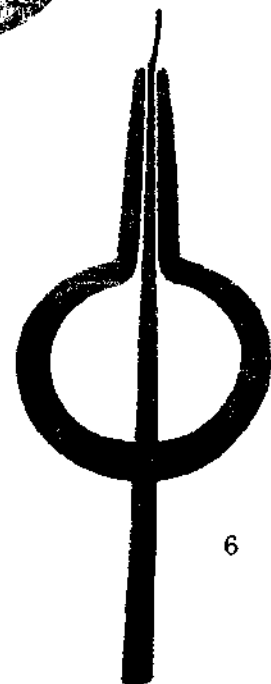
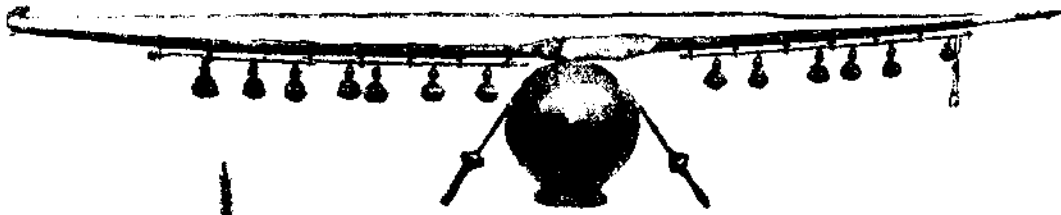
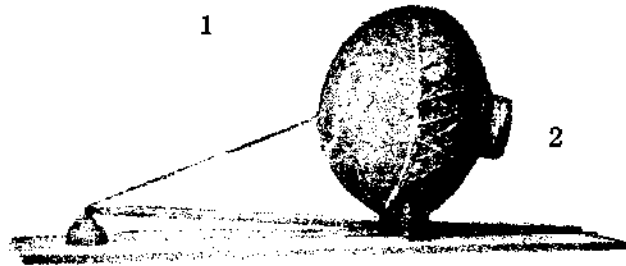


PLATE IX

- 1 Villadi vadyam.
- 2 Pulluvan kudam.
- 3 Villukottu.
- 4 Vina kunjū.
- 5 Kombu.
- 6 Cylindrical drum
- 7 Tambattam.



1



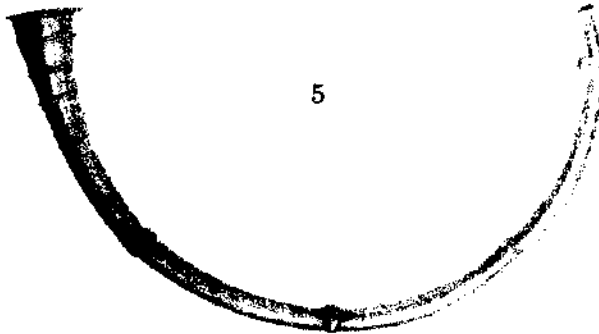
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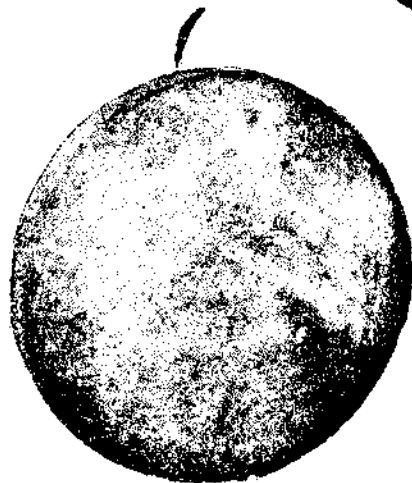


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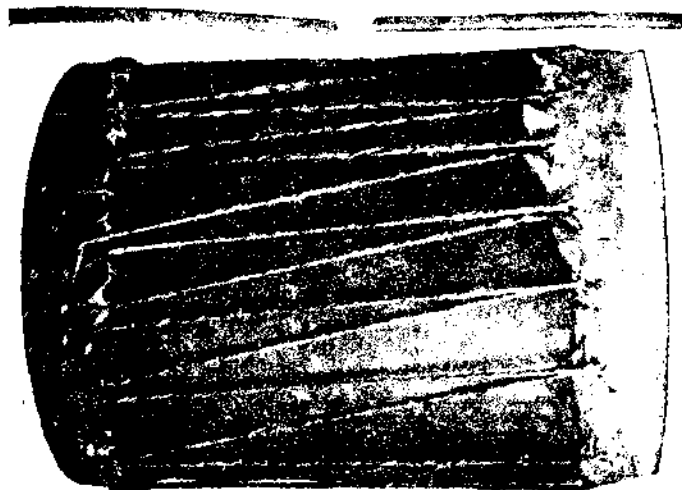


PLATE X

- 1 Burmese Sawn.
- 2 Panchamukha vadyam.



PLATE XI

- 1 Swaramandala.
- 2 Tānti pānai.
- 3 Nanduni.

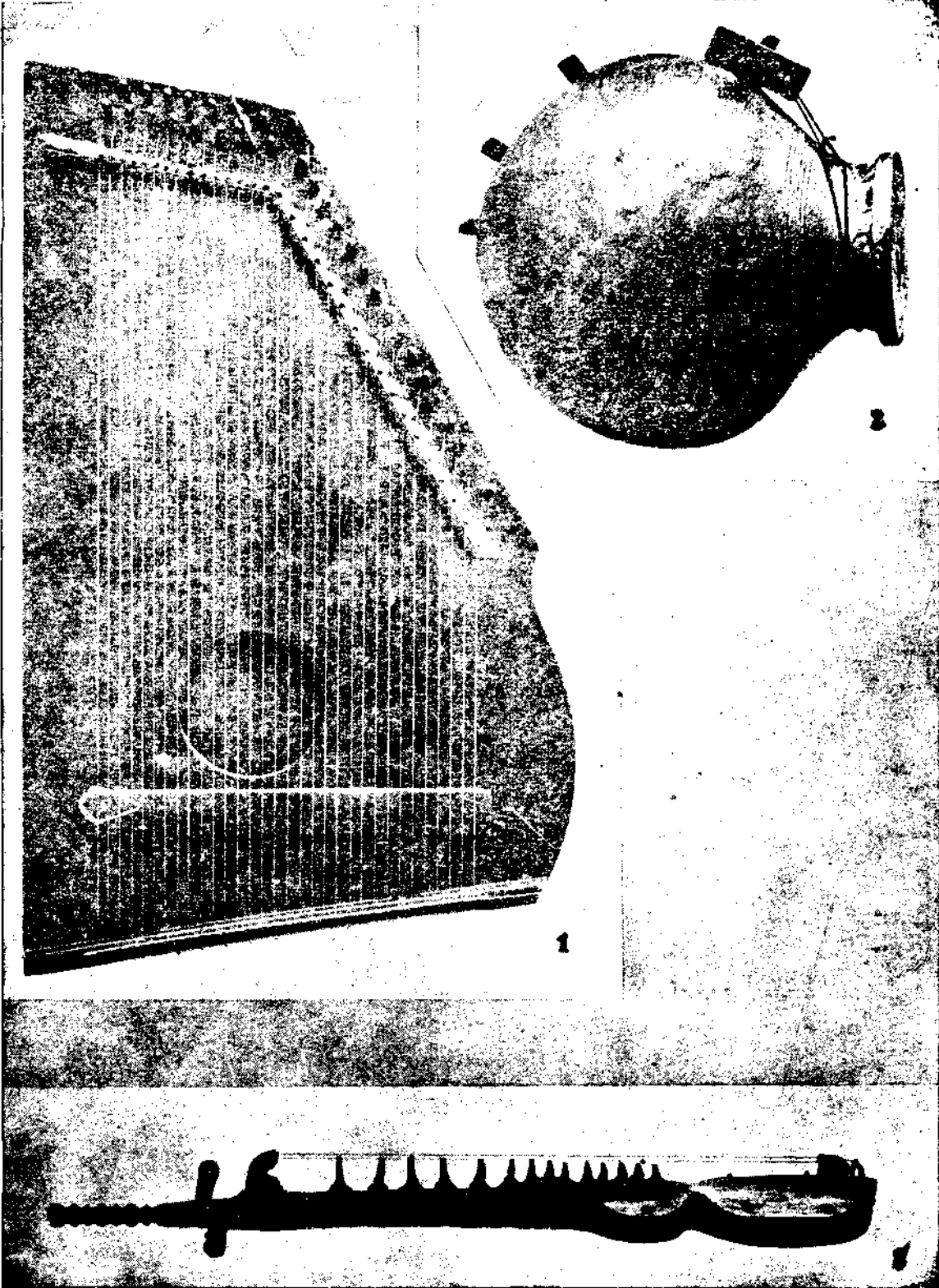
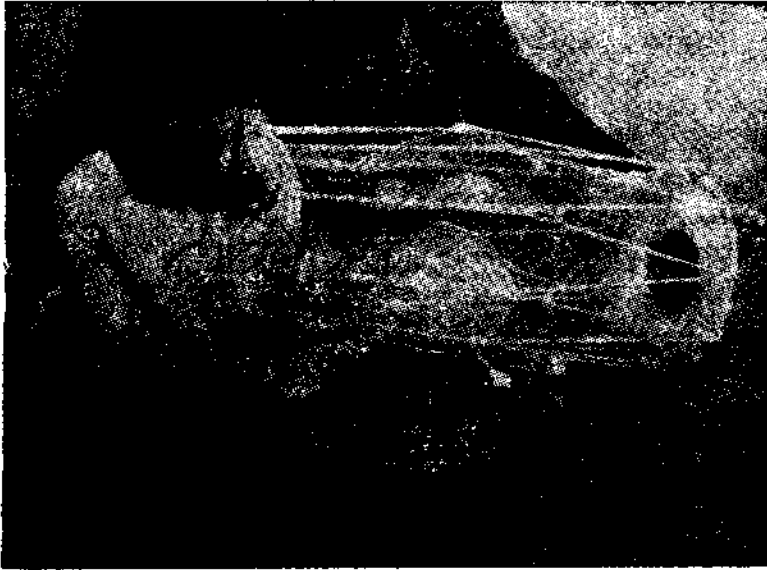


PLATE XII

- 1 Belgian Glass Drum.
- 2 Indramoo (or) Boomadu Vadyam.



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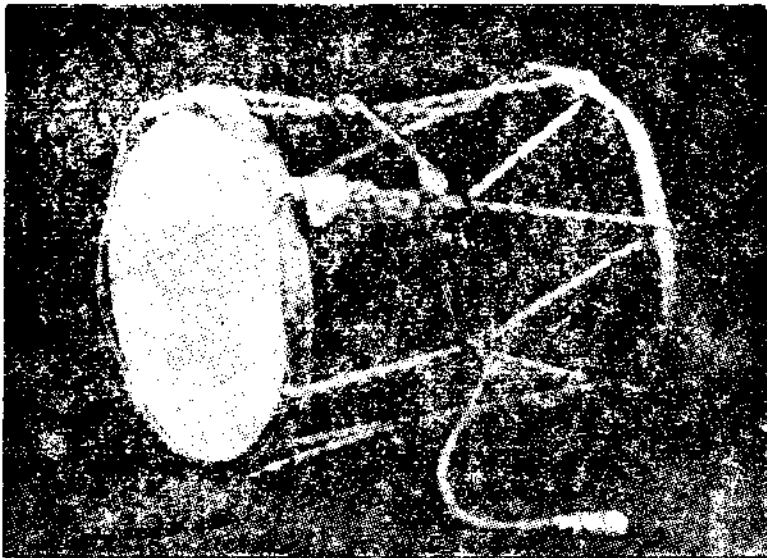
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PLATE XIII

- 1 Jhamlika.
- 2 Damarukam.



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