

# THE DEVELOPMENT OF CHORDOPHONES IN INDIA

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Dr. B.C. Deva

The study of musical instruments and their history holds many clues to music 'evolution' in general. But it is a matter of regret that unitary thinking is rare, and organology (or any other area for that matter) has been an isolated pocket. After all, the music of a society is greatly influenced by the instruments available to it; conversely, the instruments appear and disappear to suit the musical idioms of an age and country. Since it is the urge and the motivation of the human mind that change society (and hence its music) it is necessary to search for the causes of organological and musical developments in the minds and bodies of men (Deva, 1967).

Instruments have had profound effects on the ideas and concepts of musicology. They have also served to establish various theories and helped in making definite statements; and it is, perhaps, doubtful if there could have been a stable musicology without instruments. I may here draw particular attention to the definition of scales by means of the flute in 1st cent. A.D. (Narada) and the studies of *sruti*-s with harps in the *Natyasastra* and the *Ratnakara*. The string lengths for our musical scales have enormous psychological significance that has not yet been grasped by most of us (Deva, 1967). I even hazard a guess that the theory of *discrete sruti*-s is due to polychords and that of *mela*-s due to monochords. Indeed it seems to me that much confusion in medieval musicology arose due to the mixing up of these two flows of music: one based on polychords and the other on monochords.

Polychords are defined here as those having *one string for one note*. Many strings (hence the name) are necessary for producing a melody: e.g., harps, lyres, dulcimers, psalteries, harpsichord, piano and so on. Monochords are those wherein a whole melody (or a *raga*) can be played on one string. To this class belong the *gintang*, *tuila*, *ekantri*, *alapini*, all lutes like *sarode*, Karnatak *vina*, zithers like *kinnari* and *Rudra vina*, and bowed instruments (not the bowed harp) (Deva, 1973). These monochords are so versatile in producing *gamaka*, giving the drone and following the voice that it has been said by our ancients, "Goddess Sarasvati herself lived in the *ekantantri*"



(not the *ektar*). Analogous to polychords we have organ pipes, pan pipes (and harmonium). Comparable to monochords are flutes, oboes (*nagasvaram* and *shehnai*) and the human voice. It is, I think, the last—that of being close to human voice and the psychophysiological capacity to sustain a melodic foundation—that has made monochords pre-eminently suited to Indian music.

In the birth and growth of monochords, the earliest we have to take note of are the *gintang*, the *tlaipi* of the Lakhers in Assam, the bamboo zither of the Bondo in Orissa, the *ronja gontam* of the Reddis in Andhra and such others. Notice that they are all tribal, and of the east-south-east belt of India.

This zither is an idiochord: that is the body and the 'string' are made of the same material: in this case, bamboo. The instrument consists of a short bamboo tube, the thick skin of which is spliced into two thin strips without completely detaching them from the body. They are raised at both ends by means of thin bamboo ledges. At the middle of the instrument there is a kind of a 'rider' bridge which can be slid along the bamboo spliced 'strings'. Just beneath this rider a hole is cut in the tube itself making it a very effective resonator. The strings are struck with a bamboo stick (Fig. 1).

I propose to show that this could have been the progenitor of all dulcimers, psalters and zithers; quite possibly of lutes.

Before we go on to further discussions, it may be suggested that the act of striking, as here, might have also given rise to stroking (sliding) as in *ekatantri* (which used the *kamrika*), *gottuvadyam* and *vichitra vina* which now use an ebonite or glass slider. It is possible—I am speculating—that even bowing might be extended stroking. Striking, of course, is today used in polychords like *santur*, *dendung* and *kharram*; and in lutes like *khaddi vadyam* and *gettuvadyam*.

## Polychords

A number of '*gintang*'-s can be tied together, parallel to one another, forming a kind of raft. Naturally, the size of such a raft would be quite big. But, if, instead of large bamboo sticks, smaller shoots or cane are used what we have are portable rafts. Of this kinds are the *dendung* and the *kharram*.

*Dendung* is such a set of stick zithers made of cane. A number of cane zithers are tied together. The 'strings' pass over bamboo ledges and are beaten with thin bamboo sticks; it is therefore a dulcimer. (Fig. 2).

The *kharram* of Assam on the other hand, is made of a set of bamboo zithers tied parallel to one another. It is also larger in size than the *dendung*.



The *kharram* is, however, not struck but strummed with fingernails; it is, therefore, a psaltery. (Fig. 3).

In both *dendung* and *kharram*, every one of the constituent zithers is single 'stringed.'

A set of bamboo zithers placed side by side and struck is known in Indonesia. This is the *gumbeng* or *bumbang* and may have upto eight 'strings'. The strings even bear a 'rider' called the *sivil*, very much as in the *gintang*. What is most interesting is the fact that in the Hindu-Javanese literature of the 14th Cent. it was referred to as the *guntang*! Obviously, a very close ethnomusical and linguistic relationship is indicated. (Kunst, 1949).

The next step that might have been taken was to make these instruments heterochords. The *gintang*, *dendung* and *kharram* are all homo or idio chords, that is, the body and string are of the same material. The bamboo splice could have been replaced by spun grass, spun cotton or silk, animal gut or metal wire. This gives a heterochord. And when the bamboo raft is replaced by a wooden board or box the transformation produces psalteries like *svaramandal* and *qanun* and dulcimers like the *santur* (and *satatantri vina?*). The *svaramandal* could have grown out of the *kharram* type and the *santur* out of the *dendung* type.

### Monochords

Perhaps, the earliest sophistication was in increasing the length, and the development of plucking, stroking and fingering techniques. Good illustrations of this are in the Halebid temple (Karnataka, 12th Cent.) and in Somanathapura (Karnataka) temple of the 14th cent. A dansuese is shown holding a longish stringed instrument with two strings. A 'bridge' at each end is visible, as even the rider in the centre; and there are no frets. The right fingers are plucking and the left ones stopping the strings. There do not seem to be any gourds. Noteworthy is the manner in which it is held: *across the body*, which position continues later into the *jantar*, the *kinnari* and the *Rudra vina* even till today (Fig. 4). It is possible that it was the *nakuli* of our earlier writers: at least, the basic form. *Nakuli* is referred to in *Sang. Rat.* VI. 110; *Vadya prakas*, 18th cent. (and others) and has been discussed by Misra (1973) who infers that its was a two stringed harp, and the Taralekars (1972) who give it as a lute with two strings. In the absence of detailed description, one guess is as good as another!

The *Sangita Narayana* also speaks of an *ardha veena*, (*ardha*-half, incomplete) as it did not have a resonator. (Ramakrishna Kavi).<sup>\*</sup> It was probably only a drone-cum-rhythmic accompaniment. Sometimes even today we do meet such an instrument like the *sura sotta* of the southern peninsula.

<sup>\*</sup> The extant versions of the book contain no reference to this.



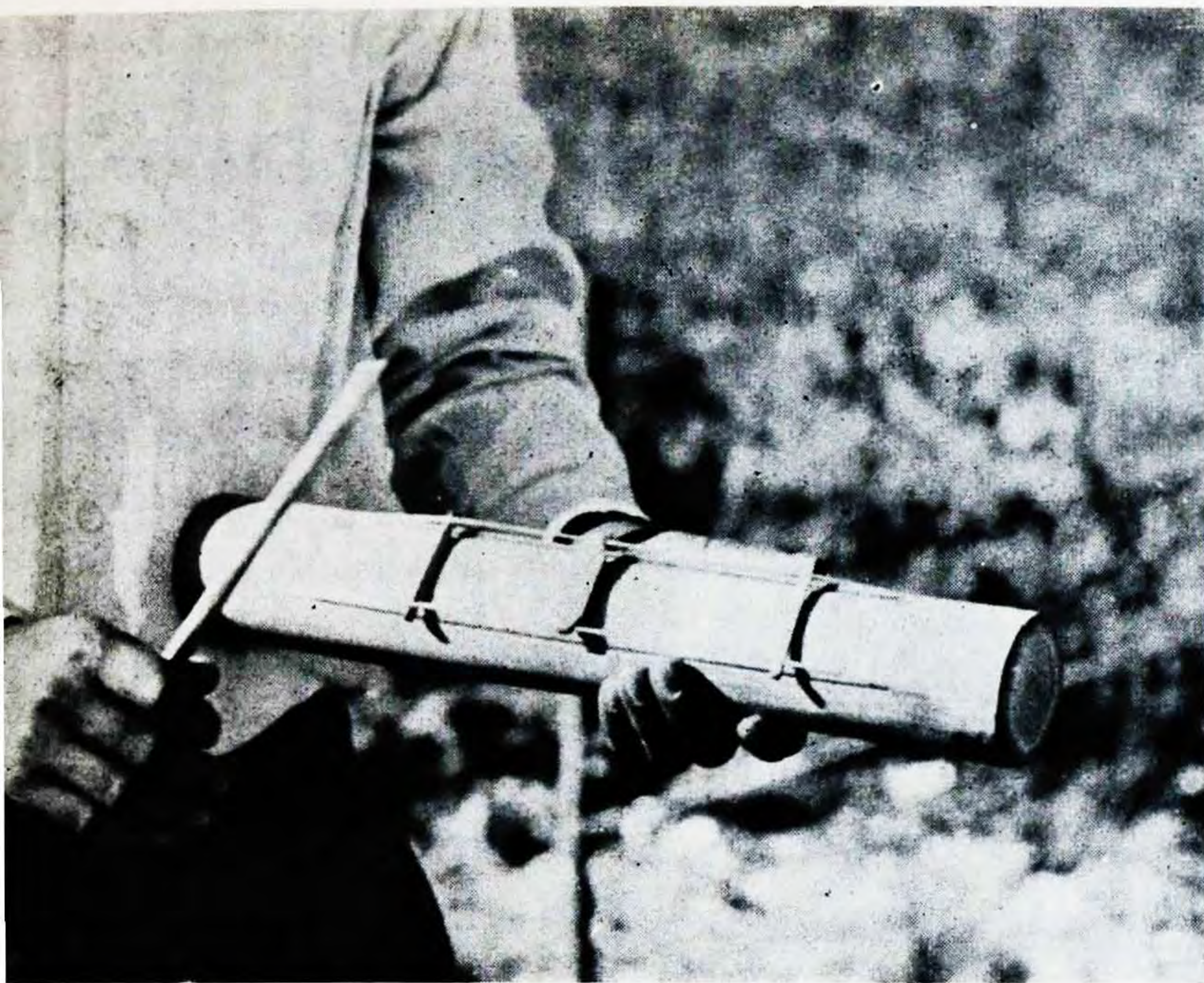


Fig. 1. Gintang

Fig. 2. Dendung

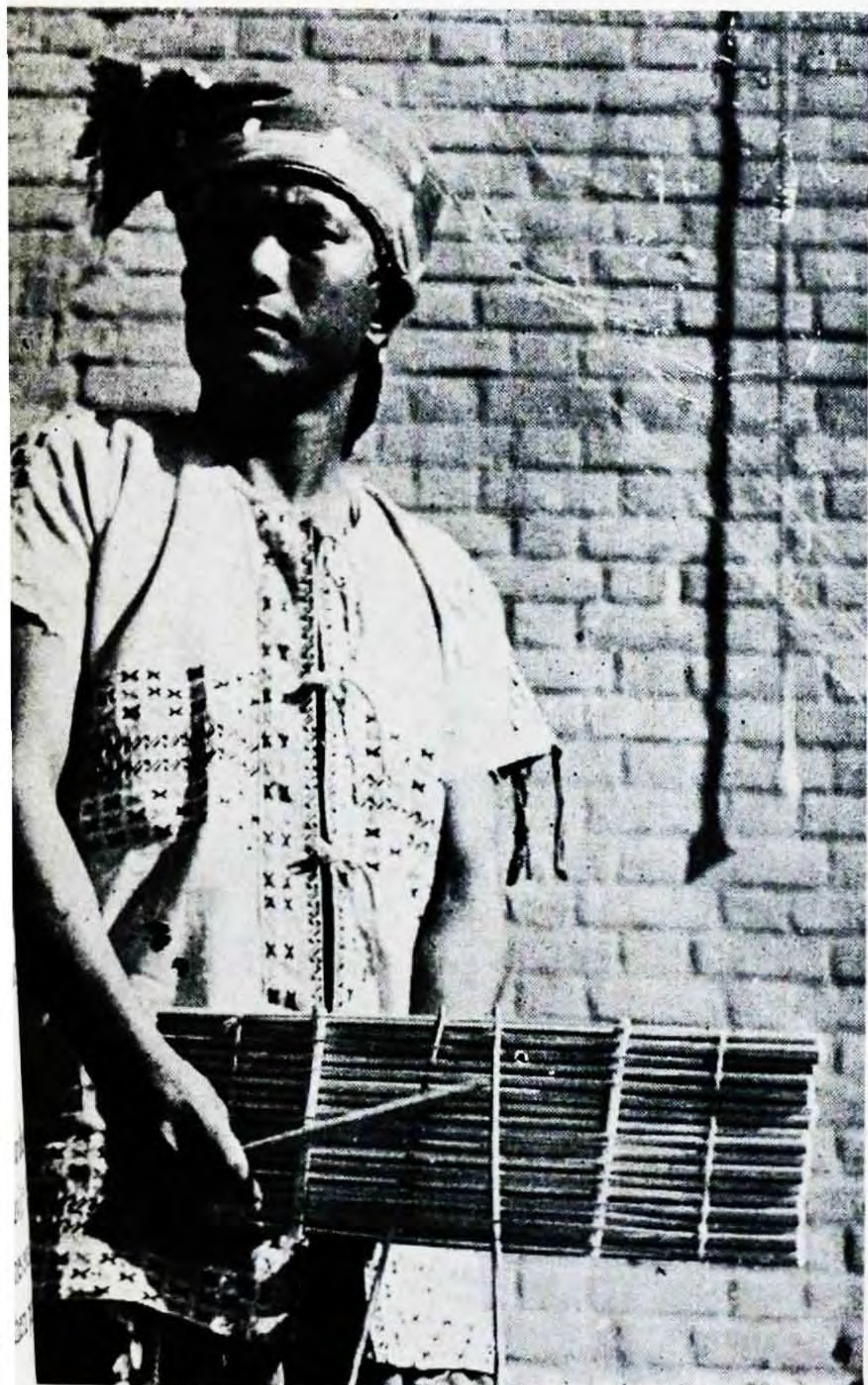


Fig. 3. Kharram







Fig. 8a. Tuila, Orissa



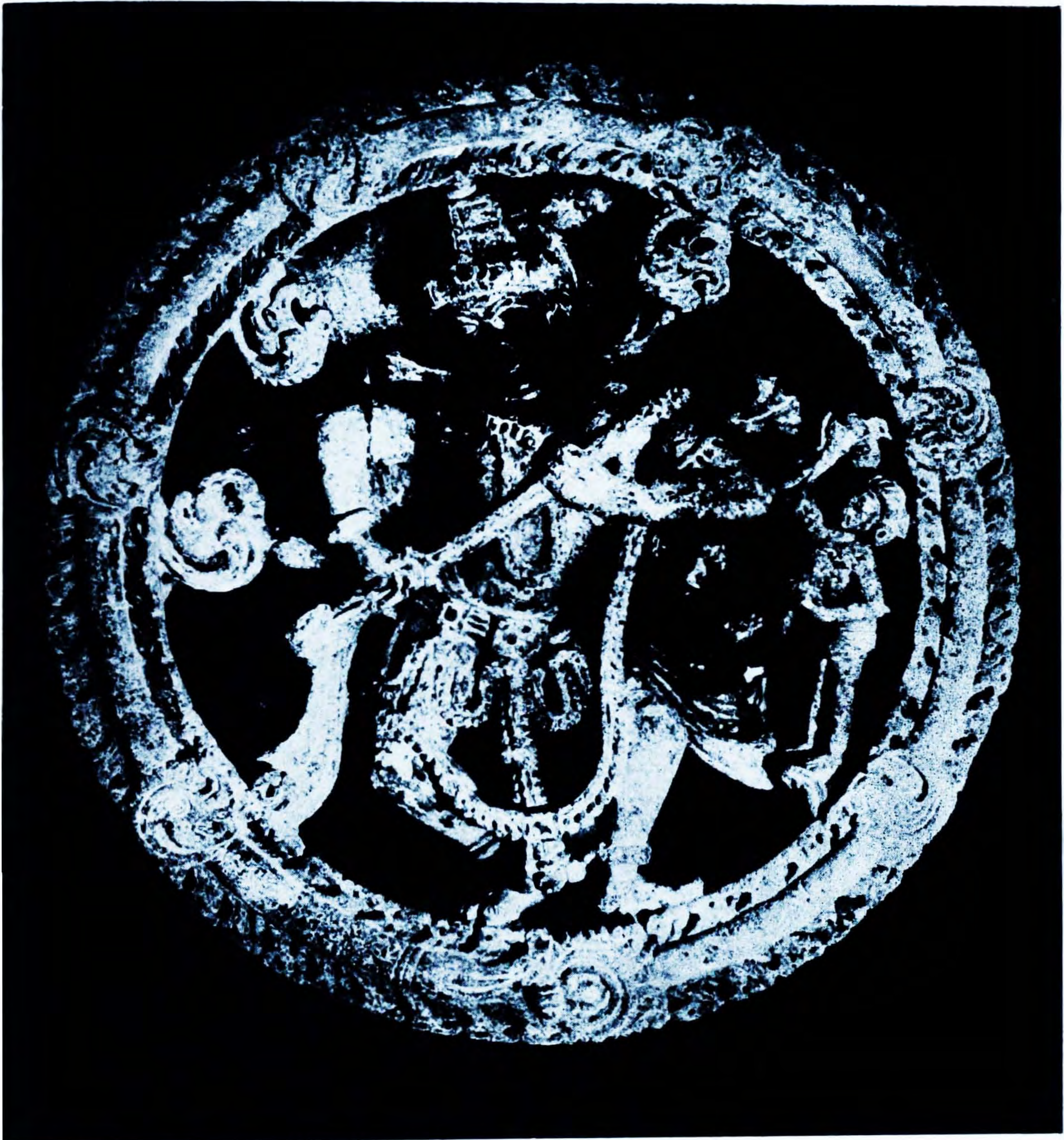


Fig. 8b. Alapini (?) vina, Lakshmidēvi Temple, Duddagaddavalli Karnataka  
note end-bridge in this and vina in Fig. 11





Fig. 9. Eka tantri with the Kamrika, Ajanta

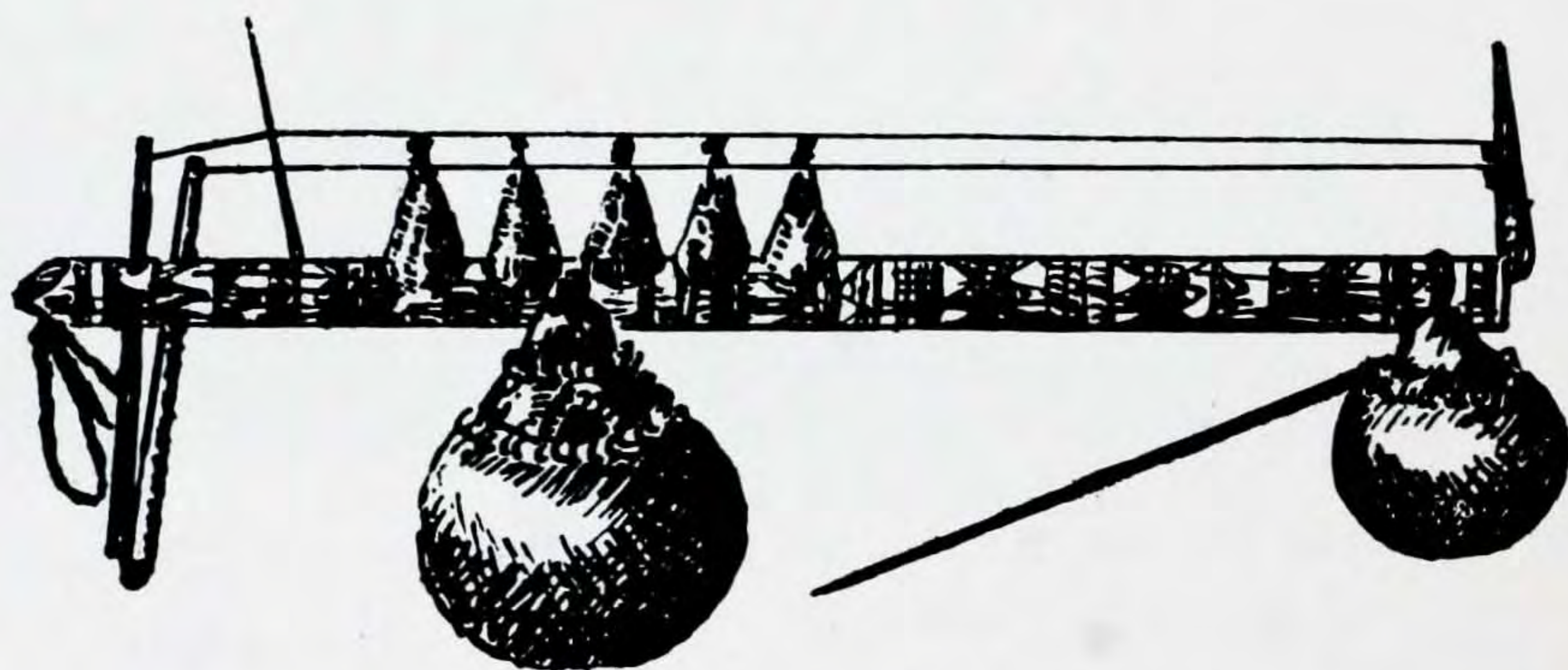


Fig. 10. Memarajan (after Elwin)



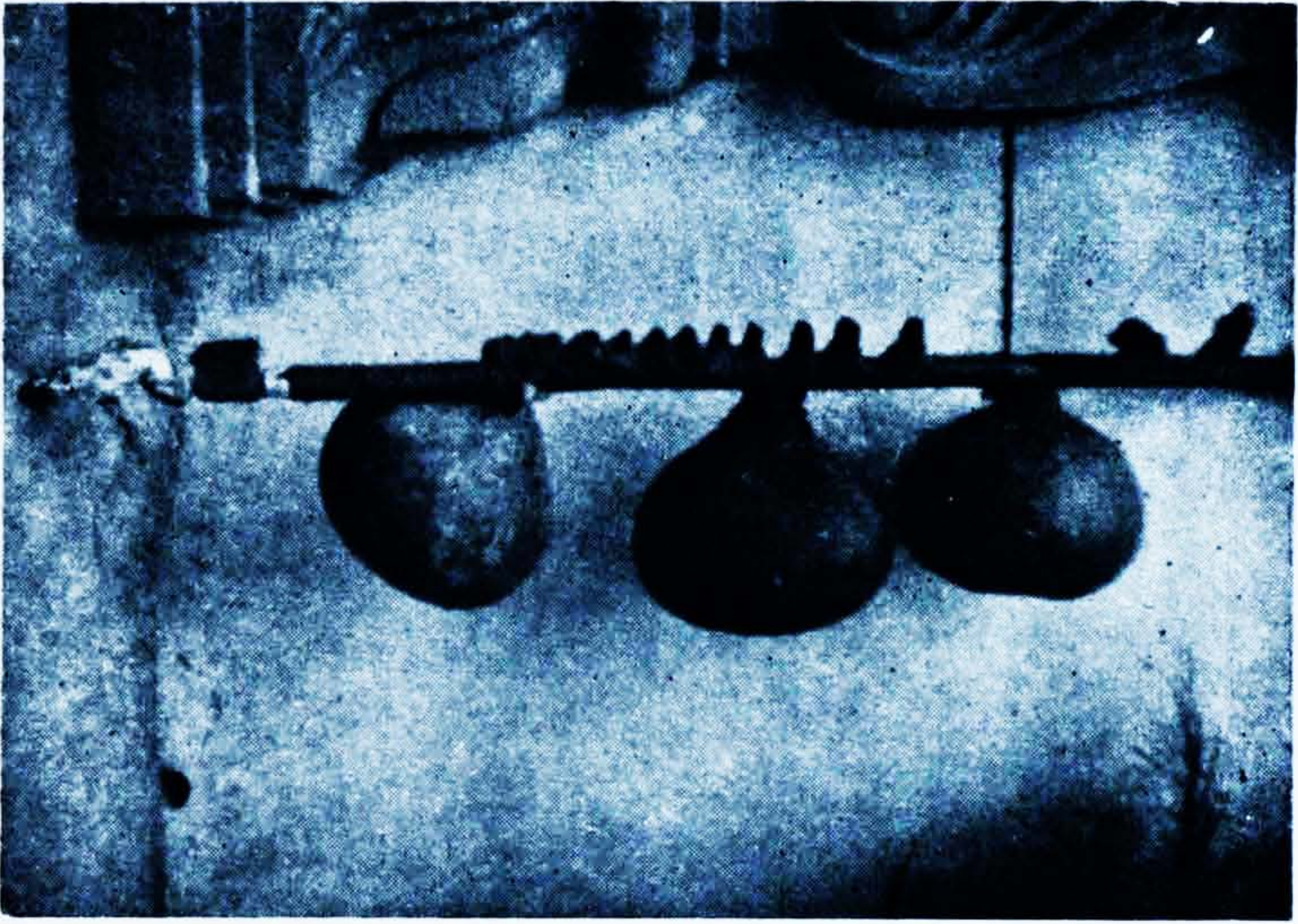


Fig. 11. Kinnari, Karnataka



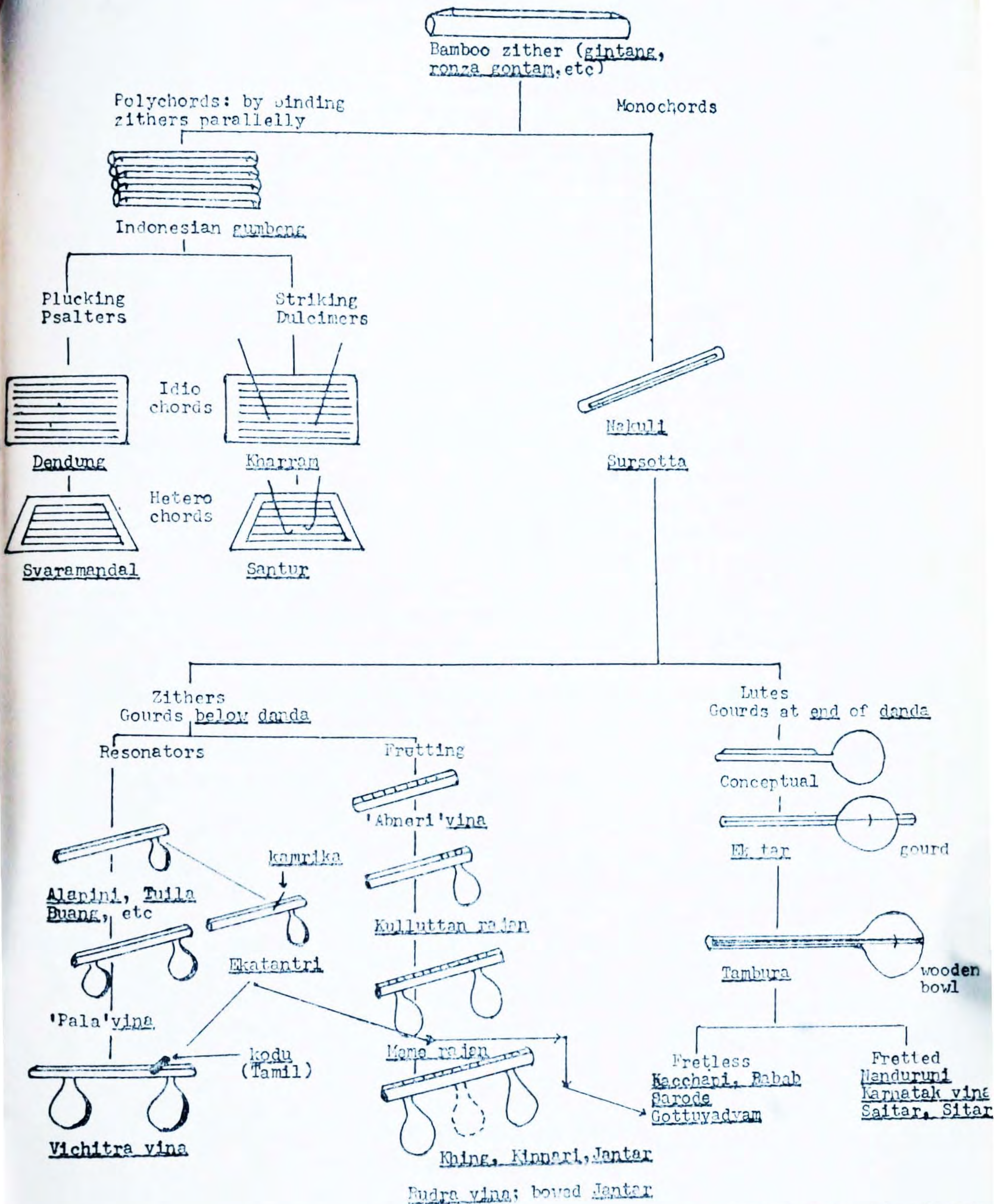
Fig. 12. Abneri vina, fretted, without gourds





Fig. 13. Single-stringed vena with broad frets. Note partial fretting of finger-board and end bridge, Chennakesar Temple, Belur. (Photos of sculpture, courtesy Archaeological Survey of India)





Scheme of probable development of stringed instruments, except harps and lyres, in India. The scheme is diagrammatic and not to scale. From the *eka tantri* there are two branches—one to the *vichitra vina* (a zither) and the other to the *gottu vadyam* (a lute).



### Addition of resonators

This is a process that has taken place in almost all stringed instruments. The addition of resonators naturally makes the sound louder and adds further qualities to the sound. Before the advent of Helmholtzian resonator—the one where the upper plank has one or two holes, as in the *tambura* and the *Karnataka vina*—the simplest process would have been to just tie a full or half a dried fruit. And what can be more natural than attach a gourd or pumpkin?

A very simple example is the *kuranrajan* of the Savaras who live on the borders of Orissa and Andhra. (Fig. 5). (Elwin, 1955). Note that it is used to keep time and key; and that the resonator has a *cut end*. This finds greater use in the *tuila* to which we will turn later.

Another equally interesting example is the *buang* of the Santals. Indeed, it is in a way even more simple than the *kuranrajan*, though constructed similarly and bigger in size. A noteworthy fact is the use of the word *buang*. In one of the places our party visited, a Santal dancer had tied a rubber strip (taken from a lorry pneumatic tube) across the mouth of an earthen pot and was twanging it to the rhythm of the dance. When asked what its name was, the boy replied, '*Buang*'. Perhaps, the name was onomatopoeic and the *buang* had only a rhythmic function—not even an integrative one. (Fig. 6) (Deva, 1973)

A simple dance-cum-rhythmic instrument is the *nune-guddalavani-burra* of Andhra. It is a small bamboo tube of about 60 cm. length. A resonator is tied at the centre *below* the bamboo. The gourd is opened out at the bottom. (Fig. 7).

The *chonku* of Gujarat is another example. The *ektar* of the same kind has two gourds but no frets and is again not a melodic instrument.

The instruments so far mentioned had no melodic function at all; they were drones and/or rhythmic in function.

We now come to a few others which are melodic. The *nakuli* was already noted. There are a few with single gourds which draw our attention.

The simplest of these is the *tuila*, a simple monochord of Orissa (Deva, 1976). Here again note that the gourd has been cut and pressed against the chest. Note also the playing position: *across the chest* (Fig. 8a).

Belonging to the same family are two very important zithers: the *alapini*, without or with frets. (Fig. 8b) (Taralekars, p. 40-41) (The *alapini* seems to have been also called *aghati* by some). (p. 49). This zither also finds references in Somesvara's *Manasollasa*, Parsvadeva's *Sangita Samaya Sara*,



Nanyadeva's *Bharata Bhasya*, Sarangadeva's *Sangita Ratnakara* (13th), Raghunatha's *Sangita Sudha*, *Vadya Prakas* of Vidyavilasi Pandit (1780), *Yantra Kos* of S.M. Tagore (19th). Sculptural examples of what may be the *alapini* may be found in the Western temple, Charbhanga (W. Bengal), Harsatmata temple, Abneri (Rajasthan, 8th cent.), Adbhuthnath temple, Nagda (Rajasthan, 15th cent.), the dancing Siva idol from Band (Allahabad Museum), Jattasankar temple, Chittor (Rajasthan), Mallikarjun temple, Pattadakallu (Karnataka, 7th Cent. A.D.), Hoysalesvara, Halebid (Karnataka, 12th cent.). Closely related to the *alapini* was the *dandi* which name seems to stem from the use of a bamboo fingerboard (*danda*). It occurs in *Sangita Parijata*; and a fairly detailed account is given in *Sangit Sar*. But the most poetic description of it is by Basava, the Veera Saiva poet-saint-minister of Karnataka. Here, the word used is *dandige* which also finds mention often by Purandara Dasa, (16th cent). From the descriptions available there seem to have been two types of *dandi vina*: *anibaddha* and *nibaddha*. (*Sangit Sara*). The first was probably fretless and the second with gut-'frets' to show scale positions.

*Ekatantri* is another very important *vina*. Obviously, it had only one gut string, was fretless, and had one gourd. The important point is that the stopping of the string was done by sliding a small bamboo cylinder (*kamrika*) along the string. This, evidently, is the origin of the techniques now used in the *vichitra vina* and the *gottuvadyam*. Indeed, by attaching another gourd to the *ekatantri* we can produce a primitive *vichitra vina*, the earlier type of which could well have been the *sar (svar?) vina* mentioned by Abul Fazl of Akbar's court. (Abul Fazl). The most noteworthy fact of *ekatantri* is that it had the *jiva* of bamboo fibre which is the first evidence of the beginnings of *jivan* or *juari* used in today's *tambura*. Most significant is the statement of Nanya, 11th cent. A.D. that Sarasvati Herself lived in the *ekatantri* as it produced all possible *sruti* differences and *gamaka*-s; these are pregnant words indicating the emergence of finger-board instruments (Deva, 1967).

Most probably the earliest *ekatantri* was the *ghosaka* of Bharata. Nanya refers to it as the *Brahma vina*. It was also called the *Adi vina*. These names are pointers to the great importance of the *ekatantri*, perhaps the earliest sophisticated monochord in Indian music and musicology. Other references are Haripala's *Sangita Sudhakara*, 12th cent. and *Sangita Ratnakara*, (13th cent.)

Visual evidence of the *ekatantri* is available from Ajanta onwards. (Fig. 9).

It is this class of monochords which seems to have been the mother of all zithers in India, by the addition of resonators and bridges. Whether, such *vina*-s could also have produced lutes has to be carefully considered and we may look into this at the end. Sarngadeva says definitely that the *ekantantri*



is the origin of all *vina*-s. We may understand the word *vina* used by him to mean zithers only.

Gourds—full or cut—have been added to the *ekatantri* class which, as was discussed, could be derived from bamboo idiochordic zithers. While the earlier *vina* might have had one gourd, as for instance the one seen in Ajanta, and Sobhanesvara temple of Bhuvanesar (medieval) and some Rajput miniatures, two and even three resonant bodies are tied below the *danda* as in the *kinnari*; also in the *ektar*-s of Gujarat.

One *vina*, without frets, but with two pumpkins (?) has been noticed in Pala sculptures, 10th cent. (Taralekars, 1972): for the nonce we shall call this the "Pala *vina*," Evidently, this still continues in the present day *vichitra vina*.

Fretted zithers with two or more gourds are, of course, more common. The *kinnari*-s of various types have had usually two resonators; the smaller type (*laghu kinnari*) for example (Sarngadeva). But the *brhat kinnari* described by him had three pumpkin resonators, which type is sometimes seen even today amongst the tribes of Andhra and Karnataka. The line of development from *gintang*, *jantar* and *kinnari* gives us the modern *Rudra vina*. *Jantar* is, again, mentioned by Sarngadeva; *kinnari* by Matanga (?), Nanyadeva (11th cent), Somesvara (12th cent.), Sarngadeva (13th cent.). It is of interest to note that the instrument *kinnari* found in the south is similar in name and structure to *khing* of Kashmir.

Sculptural and pictorial material on this are available in Belur (12th), Vastupala temple, Girnar (13th), Minakshi temple, Madurai (17th), Kumbhakonam (17th), Mira temple, Eklingji, Vasisthesvara temple, Tanjavur, Rameswaram temple, Triloknath temple, Mandi.

### Fretting

Two kinds of fretting are met with.

One is a set of guts tied at places along the fingerboard. They might have served as indicators of note positions in the beginning and later on developed into moveable 'frets'. These can be seen in today's *rabab* and the *saitar* of Kashmir. In the former it is often only three or four 'positions' tied; in the latter, there are 'frets' of gut right along the fingerboard. It is this latter type that could have given us the moveable frets of the *sitar* and *surbahar*, by tying metal frets with guts.

The second type are fixed frets. Very simple arrangement is found in the *kullutan rajan* (Milward) and the *memerajan* (Elwin). (Fig. 10). Both these have four to six frets fixed to the *dandi* by means of wax. Note again the position of holding the *memerajan* which is exactly that of *tuila*, *ekatantri*,



*kinnari*, *jantar* and *Rudra veena*. Once more it is easy to visualise the placement of frets onto a *gintang* to produce more sophisticated music. The refinement of *memerajan* naturally leads to the *kinnari*, the *jantar*, and then onto the *Rudra veena* (used in North India). (Fig. 11).

There is a solitary example, however, of a zither with frets but without gourds, and that is from the Harsat mata temple, Abneri (8-10th cent.) (Fig. 12). It is very much a direct descendent of the '*gintang*'. A lady is shown playing a single stringed instrument, with about ten fixed frets. There are no special resonators. The string is being plucked (or struck?) by a *kona* and pressed with the fingers.

Another interesting example is an instrument with broad flat frets, running along a part of the *dandi* (Fig. 13).

A fretted bowed *jantar* has also been noticed in Madhya Pradesh.

Here, I must draw attention to a common falsification of "*tritantri*" evolving into the *sitar*, just because of linguistic resemblance. Probably, the *tritantri* was a *zither*, whereas the *sitar* is a *lute*.

### The bridge

Here again, the evidence of the bamboo '*gintang*' having been the parents of all later zithers is very suggestive. Before we go into further discussion there are two facts worth noting:

(a) The zithers all carry a bridge at the *end* of the *danda*, unlike the lutes which have bridges on the plank or skin covering the resonator.

(b) As far as is known to the present writer, there is no definite counterpart in Samskrit of the words *ghoda*, *ghudach*, *kudirai* (all meaning 'horse') which are now used to denote the bridge. The nearest we can get to is *kakubh* which literally means, among other things, a "peak", a "summit", a "hump", "having elevation"—which is a very apt description of the bridges of *vina-s*. It also refers to the tree *Terminalia Arjuna* (the *arjun* tree); quite possibly the 'bridge' we are going to describe was made of it. *Kakubh* also referred to "a crooked piece of wood at the end of the lute" and also "a part of the Indian lute called the belly (a wooden vessel covered with leather placed its neck to render the sound deeper)." (Monier-Williams). The second meaning—evidently referring to a resonator—seems not to be in order as other words were used for this part of the *veena*.

These facts may mean that at some very early stages the bridge and the string-holder *might have been one*. It may be noticed in the *kullutan rajan* and *memerajam* that while at one end there are pegs, the other has a crooked



piece of wood (part of a branch), bent, holding the string. This can be seen also in the *buang*. In all these, it is a wooden piece, inserted into the bamboo *dandi*. In the case of the *tuila* which has no pegs, this part is fixed to the main *dandi* and not merely inserted. This, I think, is the origin of the end-bridge; it could also have served also as the *tardan* or *langar*. Otherwise it is not easy to understand why no word to indicate a bridge (*kakubh* apart) was coined while there is, however, a word for the nut or ledge: *meru*.

From this developed the wide bridge so characteristic of our *vina*-s. The early ones were made of wood, covered with a piece of metal (*patrika*) which is still the case with the southern *vina* today. Over this and under the string was placed the *jiva* now used in the *tambura*.

A few sentences—more of a speculative nature—on the relation of 'gintang' to lutes may be added. It is possible to think of a lute being constructed by inserting one end of the zither *into* a gourd. The construction of a wooden resonator in imitation of a gourd, perhaps due to non-availability of the latter, can give us all the lutes. But this requires careful thinking.

The scheme given here summarizes these ideas.

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