SOUNDS, SONGS AND MUSIC OF SOUTH INDIA

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Introduction

Music has been a cultivated art in India for the last 3000 years. The chant is essential element of the Vedic ritual. Reference in the later Vedic literature, the Buddhist pictures and the Brahmanical epics show that it was highly developed as a secular art in the centuries preceding the beginning of the Christian Era (Coomaraswamy, 1968).

It has been established that Indian Music did not come from Greece or Thrace or from outside, but it evolved itself from small beginnings in the Rig Vedic period during the Indus Valley Civilisation. There was an intimate fusion of Asian and Dravidian music and this slowly infiltrated Eastward to Java, Bali and Sumatra and Westward to Iran, Egypt and Greece. It has been established from Archeological discoveries at Mohanjadaro and Harappa that human society and civilisation which existed prior to Vedic period used instruments like the Veena or Been (Adyanthaya, 1965).

Music in India belongs to the 'Melody system' as contrasted with Western or European system which is described as hormonic system. In the melodic system there is a basic note called the 'Drone'. This is the fundamental note and is continuous and present constantly throughout the rendering. On this basic note are superimposed other notes, one note following another in a regulated sequence or pitch, rhythm and timbre and maintaining a concordant relationship with the basic notes.

In Indian music we use seven notes called 'Swaras' each of which rises in pitch by definite steps. The height between the steps is measured by the ratio of the pitches and is called 'interval'. The interval between the first and the eighth is two, or in other words, the eighth step has double the pitch of the first. It blends with the basic note completely to form one unit. Thus the whole series of Swaras from the first to the eighth is called an 'Octave'. The.components of the Octave are as follows: 'Sa', 'Ri', 'Ga', 'Ma', 'Pa', 'Dha', 'Ni', 'Sa' and as stated above the first and the eighth are acoustically one and the same.

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Purpose of the study

We were interested in the various South Indian musical instruments in common use and desired to have spectrographic analysis of the musical sounds from these to know .whether there were anything special about them. Musical sounds were recorded in magnetic tapes and later analyzed at the Department of Advanced Studies in Linguistics at Annamalai University, Annamalai Nagar. We were able to have an idea of the distinguishing features of each instrument.

Our interest embraced the 'Rock-cut-Musical Pillars' for which South Indian temples are famous (See Figures).

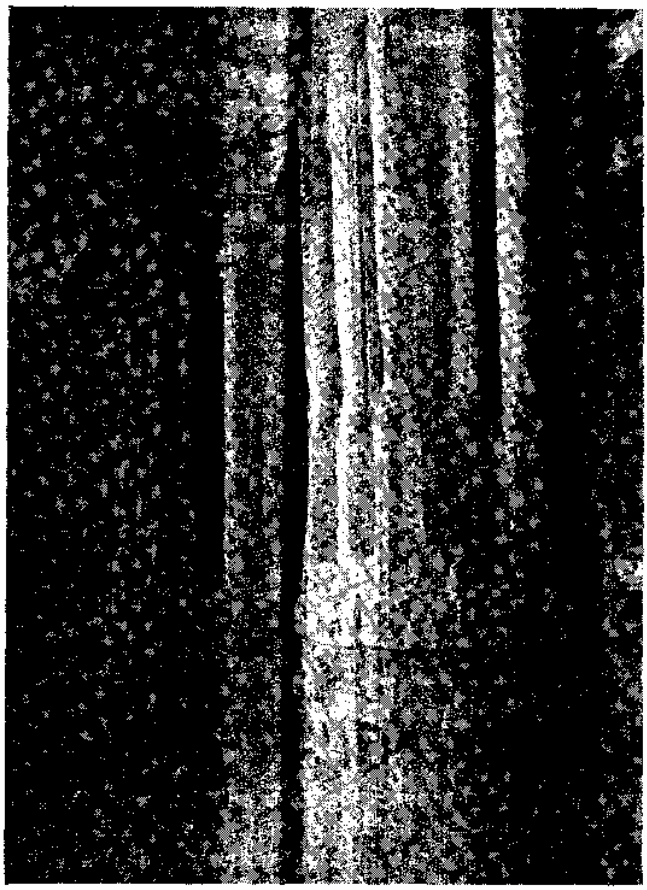


FIG. 1. Musical Pillars

Methodology

A comparative spectrographic Analysis of different instrumental musics of same notes of a song was done. The song beginning with the notes Thamaraipootha Thadagamadi' was played on the following instruments individually: 1. Nadaswaram, 2. Veena, 3. Clarionet and individual recordings were made on the tape. The tapes were later subjected to Spectrographic analysis. The spectrograph has a recording system which records a song for a duration of 2.4 seconds. There is a stylus in the Spectrograph which records on a electrically sensitive paper which is fixed over a rotating cylinder. The spectrographic paper is one foot long and for one complete rotation it takes 2.4 seconds. The frequency increase is represented by the increased height in the recording paper. The depth and the length of the recording shows the intensity and duration of the material being analysed. Here in our song the notes 'Thamaraipootha' were analysed both by narrow and wide bands. The spectrograms, both narrow and wide bands of different instrumental music of the same notes of the given song were compared. The results obtained are given under the heading results.

Our next interesting work concerns the spectrographic analysis of sounds emanating from the famous Rock-cut-musical pillars (Fig. 1 and 2) of Meenakshi temple, Madurai, Nellayappar temple, Tinneveli and the temple at Sucheendram.

It is said that these Rock-cut-musical pillars are hewn out of monolythic blocks of stones which have in them some metalic elements. The rock-cut-musical pillars are hewn in different shapes and different heights to give out the exact swaras or notes of Indian music. The swaras are produced when these pillars

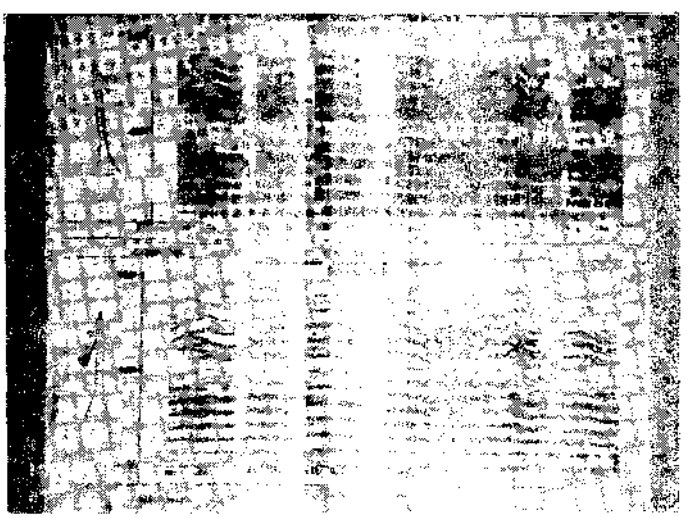
FIG. 2

are struck with a wooden hammer or with knuckle. The swaras produced from these .pillars were tape recorded and were subjected to spectrographic both in narrow and wide bands. The frequency and intensity of the sounds produced from the pillars vary according to the shape, thickness and the height of the pillars. The results of the spectrum analysis of sound of musical pillars were given below.

Our interest was roused by 'Mridhangam' the Indian drum instrument as it is acclaimed to possess certain distinct characteristics in emitting soiinds. The tape recorded sounds of Mridhangam were subjected to spectrographic analysis and the results, derived are given below

Results

Nadhaswaram: A wind-cum-reed ir-truroent is found, on analysis both in wide and narrow bands, to possess a wide range of frequencies upto 8000 cps. (Fig. 3). The intensity pattern is seen in the wide band as a thick shade of darkness.



FIG, 3,

Clarionet: The clarionet interestingly enough shows a similar pattern to the Nadhaswaram in both bands but the frequency is confined to 4000 cps. (Fig. 4). The intensity pattern in wide band is only slightly less than that of Nadhaswaram.

Veena: Veena is a very ancient string instrument. The sound emitted is of low frequency and intensity is also much less. (Fig. 5).

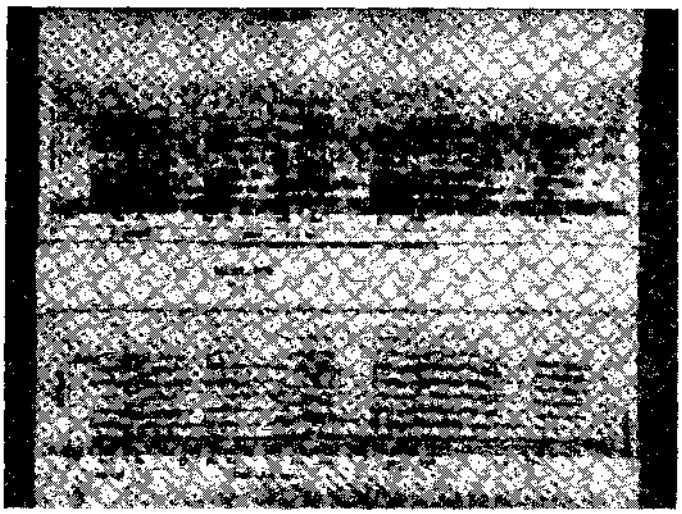


FIG. 4

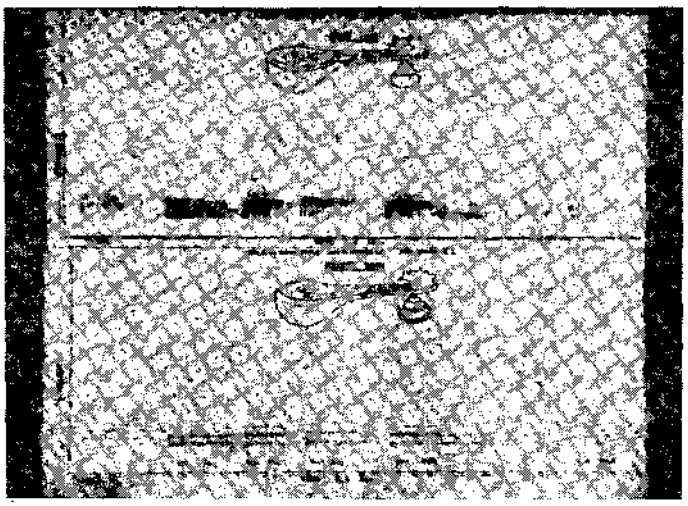


FIG. 5

Rock-cut-Musical Pillars: Rock-cut-musical pillars found in Madurai, Tinneveli and Sucheendram temples uniformly give the same details on spectrographic analysis in both wide and narrow bands (Figs. 6 and 7). Even though it has a spread of frequencies upto 8000 cps, the predominant ones are those of low frequencies.

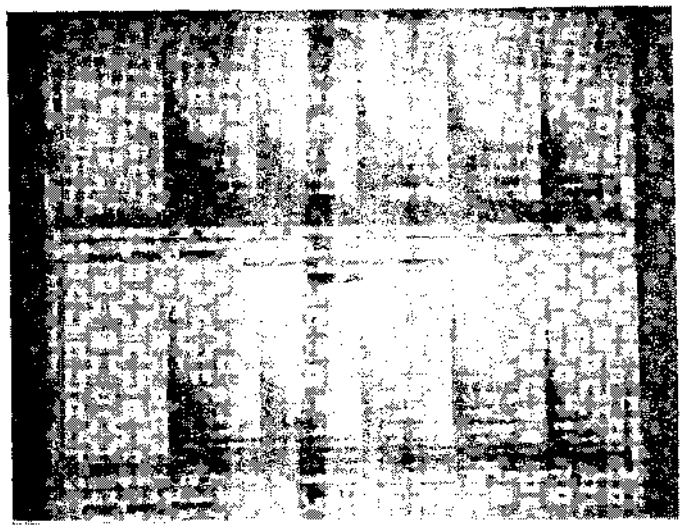


FIG. 6

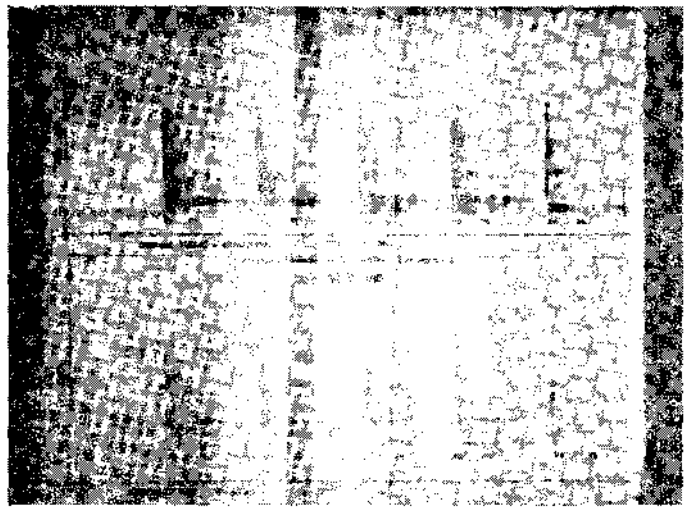


FIG. 7

The last analysis concerns Mridhangam, the Indian drum instrument. It is reputed to give out 'hormonic overtones' not possessed by any other drum instrument in the world (Ramakrishna 1970). We, however, examined spectrographically the sound of Mridhangam. We were surprised to note that the pattern was not always a hormonic one. A few hormonic patterns did appear mixed with what

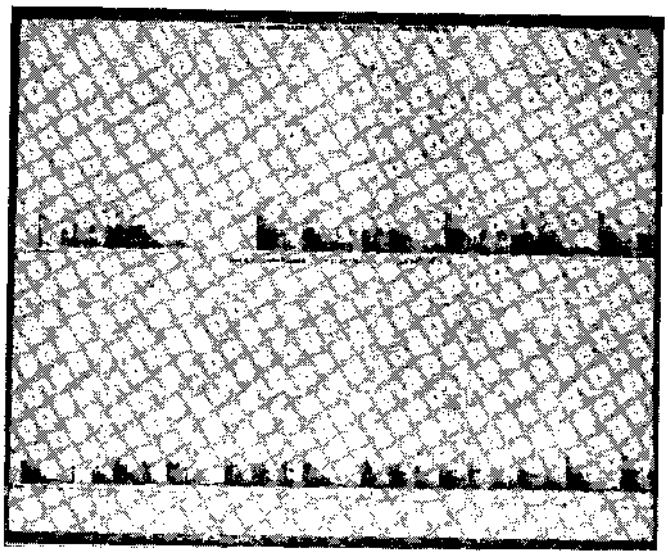


FIG. 8

one calls as the pattern of noise (Fig. 8). This was confirmed by workers at the Centre for Advanced Studies in Linguistics, Annamalai University.

I am sure more work has to be done on this.

Summary

The Spectrographic analysis of sounds of common musical instruments of South India and musical pillars of South Indian temples have been analysed The spectrograms reveal characteristic patterns peculiar to the instruments.

Acknowledgement

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