

Sound Effect of Bells, Conch Shells and Gongs in Environment Purification- A Review

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ABSTRACT

In Hinduism sound plays a very important role at worship places (homes or temples) the major emphasis is through chants, music, religion and spirituality. In addition to chants musical instruments such as bells, conch-shells and gongs are also very commonly used to enhance the spiritual experience of the devotees during the worship. It is known that sounds of these instruments along with chanting during the prayer would enable the wandering mind of the devotees to focus on the worship rituals. In this paper the significance and sound effect of these instruments have been shown for environment purification. The sound produced by bells, conch-shells and gongs does not create any other side effect and doesn't require any chemicals and/or electricity consumption which clearly indicate that the Vedic concept of sound production is more useful and fruitful for the human beings and for the whole environment.

Keywords: Bells, Conch-shells, gongs, sound effect, environment, microorganisms, etc.

1. INTRODUCTION

Sound effect plays an important role in worship spaces in all cultures and religions of the world. This is natural as sound effect deals with one of the senses of perception [1]. In Hinduism, sound effect is of major importance in various aspects of life viz. spirituality, culture, religion, art, science, etc. and plays a very important role in worship spaces (homes, community halls and temples). The Vedas, foundational literature of Hinduism, are the collection of mantras chanted with precise sound effect characteristics [2]. It is for this reason tradition has been very efficient in transmitting the Vedic chanting from master to disciple [3]. In addition to Vedic chants (vocal), bells, conch-shells and gongs are also very commonly used to enhance the spiritual experience of the devotees during the worship [4]. This paper presents sound effects of these instruments individually as well as collectively. Figure 1 shows typical Bell, Conch-Shell and Gong instruments used. This paper also discusses the significance of these instruments and their contributions in environment purification.



Figure 1: Typical hand bell, conch-shell and gong

2. SIGNIFICANCE

Bells

A bell is an important part in most Hindu worship (pooja) and prayers. It is observed that a well-designed bell would produce long strains of the sound 'OM.' Usually the bell is rung before the actual pooja begins. A bell is also rung in a Hindu worship, during the waving of camphor light in front of the deity, while bathing the deity and while offering food. The sound made from a well-designed bell is deep and sonorous. The bells used in Hindu temples are usually made of five metal alloys. The five metals used are gold (Au), silver (Ag), copper (Cu), iron (Fe) and Zinc (Zn). As a result, when you ring the bell, harmony is created between the left and right lobes of the brain, bringing you in a state of calm. The sound touches the seven chakras of the body and completely relaxes our body. The aura of calmness created by the sound, allows the power of concentration in the brain to increase and become stronger. This environment so created puts you in a state of trance that takes calmness and worship to another level. It prepares you for the prayer you are going to start, wakes you up and puts you in a state of awareness about prayer, so you can get lost in the mantras for a moment and absorb maximum spiritual gain.

Bells have a symbolic meaning as well. The curved body of the bell represents Ananta. The clapper or tongue of the bell represents Saraswati, the goddess of wisdom and knowledge. The handle of the bell represents Prana Shakti – vital power and is symbolically linked to Hanuman, Garuda, Nandi (bull) or Sudarshana Chakra [4].

Conch-shells

Conch-shell is a musical wind instrument that is made from a seashell, one of several different kinds of very large sea snail. The clear and beautiful sound of the conch-shell is an integral part of daily life in many societies, where it is used for communication and religious rituals. In Hindu religion, conch-shell is of great importance and symbolizes luster, brilliance and purity. Its tonal sound provides auspicious beginning of an event. In many Hindu temple rituals, conch-shells are sounded to announce the beginning, the end and arrival of the deity. It is used both as a musical instrument and as a container for holy water. In the studies it is observed that sound from conch-shell has a loud and sharp tonal quality. It is not possible to sound or play the naturally available conch-shell in their original form. In order to play the conch-shell, a pointed tip of its closed end is cut off to open the cavity, and then it is played by blowing into that end through vibrating lips. When the frequency of the lip vibrations matches a resonance frequency of the conch shell cavity, a clear tone is produced. By adjusting lip tension and blowing speed, different frequencies can be produced by skilled players, as like on any brass wind instruments [4].

Finger-in effect of sound spectrum in Conch-shell Measurements were also carried out to study the effect of player inserting the fingers at the mouth (large open end) of the cavity of a conch-shell as similar to hand-in condition of French horn. It is observed that inserting the finger in mouth of conch-shell shifts the fundamental frequency to lower value as expected. The shifting of fundamental frequency is due to increase of effective duct length of the cavity of conch shell.

Gongs

A gong is a musical instrument that takes the form of a flat, circular metal disc which is struck with a mallet. Gongs are made mainly from bronze or brass but there are many other alloys also in use. Gongs are struck/hit by a metal (iron) or wooden hammer after repeated intervals to get sound of same pitch. In Hindu temples, gongs are sounded during the worship and they are sounded along with other musical instruments such as conch shells and bells [4].

3. SIMULTANEOUS SOUND EFFECT

During worship at Hindu temples, in a community hall and even in a worship room at individual house, usually all the instruments described above are simultaneously sounded along with Vedic chanting during the pooja. Studies have measured the sound spectra of all the three instruments played along with Vedic chanting. It was observed that the measured spectra of all the three instruments and vocal chanting are combination of individual frequencies of the Bell, Conch-Shells and Gong, The sound spectra from these sources and the various spaces have clearly show that various dominant resonance frequencies are spread out in the active hearing range. The perception of pitch is known to depend on both spectral and temporal characteristics. It is to although observed that there are positive and beneficial effects of chants and music on human beings [5-9].

4. EFFECT OF SOUND ON MICRO-ORGANISMS

Microorganisms are capable to change the environment by metabolic activities. Their activity involves many reactions which may participate in metabolic formations [10 & 11]. The microorganisms are directly affected by the temple environment and the environment has an influence on the various microbial populations. In the temple or at home the presence of several offering materials is critical for microbiological growth and their metabolic activities [12]. Mostly microorganisms are capable to adjust themselves in the environmental change [13]. Microorganisms like bacteria, viruses or fungi as well as airborne toxins passed from one victim to the next through the air, without physical contact. Types of airborne pathogenic microorganism are listed in Table-1.

Table 1: List of airborne pathogens[14]

S. No	Airborne Pathogen	Disease	Status	Source
1	VIRUS	disease, anemia, Colds, flu, chickenpox, hemmorhagic fever, monkeypox	Contagious	Humans, birds, Rodents
2	BACTERIA	whooping cough, pneumonia, bronchitis, opportunistic, infections cavitory, pulmonary	Contagious / Endogenous / Non contagious	Humans Environmental
3	ACTINOMYCETES	Nocardiosis, pulmonary mycetoma	Non contagious	Environmental
4	FUNGI	allergic alveolitis, humidifier water, aspergillosis, cryptococcosis, onychomycosis, sporotrichosis	Non contagious	Environmental

The moment you ring that bell, conch shells or gongs they produce sharp but lasting sound which lasts for minimum for seven seconds in echo mode which is good enough to touch your seven healing centers or chakras of your body. The moment sound is produced your brain is emptied of all thoughts. Invariably you will enter state of Tran's state where you are very receptive. This Trans state is the one with awareness. The vibration caused due to this ringing is said to be so loud that it kills and destroys all the microbes and other harmful microscopic insects that falls on the path of this vibration created [15 & 16]. This is done in temples and at worship places with an aim of keeping the premises clean and sparkling.

It is therefore said that any place where the bells are ringing on a regular basis, the air and environment there remains pure and clean. This is also the reason why you feel calm and peaceful while entering the temple. Ringing of the bells, conch shells and gongs also eliminates all the negative energy and opens doors for a more positive and brighter future for you [17].

The cleaning of environment using sound waves which are generated by bells, conch shells and gongs are more economical and don't create any secondary environmental problems and health issues [14].

5. CONCLUSION

In addition to Vedic chants musical instruments such as conch-shells, bells and gongs are also very commonly used to enhance the spiritual experience of the devotees during the worship. In many studies, evaluations of sound characteristics of these instruments have been done and the

results indicate that the traditional bell, conch-shell and gong sound in temple premises and at homes are scientific based concept which are economical, easily operable and very safe for removing the microbial contaminations. It does not create any other side effect and doesn't require any chemicals and/or electricity consumption which clearly indicate that the Vedic concept of acoustics is more useful and fruitful for the human beings and for the whole environment.

6. RECOMMENDATIONS

To purify the environment at homes following should be adopted

1. The use of the bells, conch-shells and gongs should be on regular basis and if possible in morning as well as in evening.
2. The ringing of the bells or the gong should be for at least 5 minutes in continuation and with full energy.
3. The ringing of the bells and the gong should be at all the places and not in front of the Diety only.

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