

SOUND TREATMENT

In the mid-'70s the foundation was laid for two major classes of surround sound — the 'Dolby Stereo' for video programmes and cinemas and 'Concert Hall Ambience' for music at home.

For instance, most of us are great bathroom singers. The moment we step out of this tiled domain, our voices suddenly seem to dry up and fall flat in front of our faces.

What causes this illusion of a good sounding voice? Believe it or not, it is the acoustical character imparted to our voice by the highly reflective tiled surfaces in the bathroom.

Multiple reflections of the sound

classical music are not only paranoid about who is conducting but also in which hall the orchestra is being played. Imagine the Boston Symphony playing at Chowpatty!

Whatever our idea of a musical heaven, the use of electronics can simulate the you-are-there feeling. In most environments only a small part of the music comes to us directly. The rest of it goes everywhere else. If we are in a concert hall, it would go to the ceiling, the side walls, the rear of the stage. It would be bounced off and complexly reflected. This part of the reflected sound which we hear is called the ambient sound. The nature of the ambient sound varies from one concert hall to another, from a cathedral to a stadium to a pub. The ambient sound when heard along with the direct sound, completes our hearing experience.

If electronics can vary the nature of the ambient sound, it would

The home as a concert hall

C SANJIV MALVI discusses surround sound, the classic case of a profound illusion

We've already looked at cinema sound and seen how cinema is not just a visual experience but can be an audio treat as well. This time, we'll look at something closer to home — Concert Hall Ambience. Concert Hall Ambience technology has developed towards bringing the environment of a concert hall, a cathedral, a pub and even a stadium to our living room thus creating the you-are-there-feeling. This technology takes into consideration the study of 'psycho-acoustics' which deals with the perception of sound by the brain.

To understand more about the basis of surround sound, we need to realise that as much as the human brain is intelligent and clever, it is naive. It can easily be fooled into perceiving what is not. This lays the foundation for the realm of illusion to take over. Surround sound is a classic case of profound illusion. It is based on the perception of sound by the brain. In simple terms, the human hearing mechanism transfers sound signals to the brain, which in turn interprets them. Interestingly enough, if two identical notes of sound are received by the brain within a time span of 40 milliseconds, the resultant sound is interpreted as a warmer, fuller, more subliminal note. If the time interval is greater than 40 milliseconds, then the brain would perceive the sound as an echo.



Graphic: Nana Shivalkar

we originally made come back to our ears, each reflection reaching our ear at a slightly different time. This seemingly complex process helps the otherwise mediocre voice to be perceived by us as a richly resonant sound form.

The case of the bathroom is evidence enough to show us how music is sculptured by the acoustical character of the space wherein we hear it. Different places have their own aural character. We associate a particular style of sound with church music — what with the pipe organ and the chorus in a cathedral. A musical performance at NCPA and at Chowpatty will sound poles apart. One will be rich and bodied, the other thin and scrawny. Connoisseurs of

automatically vary our hearing experience. In normal stereo playback, the ambient sound is reproduced by the same speakers that reproduce the direct sound. This has the effect of chaining the musicians and the ambient sound to the front wall. If, as in surround sound, we could reproduce the ambient sound from separately placed speakers, it has a magical effect. The ambient sound seems to gleefully run circles around us, the musicians seem to emerge out of the speaker boxes, their chains having been cut. They seem almost to serenade us.

With a flick of a switch we can dissolve the walls of our living room and convert it to a large concert hall — and not even the landlord can object to it.