

City Talk



DRUMS ROLL EFFECTIVELY THROUGH THE CENTURIES

Completing my series on musical instruments I beat on the drum, which has the longest history – it is mentioned in records thousands of years before any other instrument – and is played in every part of the world.

Belonging to the group of percussion instruments, which produces sounds when its membrane is struck that is then magnified in a sound box, drums were in ancient times used not for music but for communication.

The ability to transmit sounds many miles away made them especially useful. War drums were also common as they were able to give commands and instructions to soldiers, well before megaphones were used to transmit voices over distance.

Nowadays, drums in music groups are played extensively in opening ceremonies of festivals as the loud beats can quickly draw attention.

In its simplest form, a drum is made by stretching a piece of animal skin over a wooden cylindrical box. The skin is made taut by strings tied over the box to produce different pitches. In general, the tighter or the smaller the skin membrane, the higher will be the pitch of sound when the skin is struck.

Hands were used originally to strike the membrane, but as the sound volume required became greater, wooden sticks were used to provide a larger striking force.

Once set, each drum has only one pitch. Different sound effects are produced by striking a different part of the membrane – and even the edge or side of a drum – by various types and sizes of drumsticks with different forces and rhythm.

Using a classic example, just by listening to the familiar rhythm from a single drum we know that there is lion dance nearby, a popular performance at Chinese festivals and ceremonies.

For music that requires different



Nuts and bolts

Edmund Leung

itches a series of drums are needed. The first drumming variety probably started in Africa, where different types of drums were played to produce more than just rhythm and beats and were for a whole music piece.

In an orchestra, a standard set of timpani has four drums that cover the pitch range required by a great majority of the repertoire.

The American drum set that we often see in musical bands has a more sophisticated assembly.

The bass drum, tom-toms and snare drum are quite different in sizes, and cymbals are also set next to the drums so a player can use them together. The bass drum and a pair of cymbals called the hi-hat are played by foot pedals.

The modern drum set no longer uses wood as material for making boxes. This is as boxes fabricated from synthetic materials have much lower weight but much stronger structure to withstand a higher tension force, so that the membrane can vibrate at higher frequencies to provide the variety of tones which make rich and melodious drumbeats.

Moreover, the boxy drums can now be replaced by small pads that generate and amplify comparable sound through electronic means. Hence, the heavy and complicated drum set can be substituted with a simple array of pads that occupy less space and can be transported easily.

Vibrations are a natural phenomenon. A judicious array of vibrations makes harmonious music, but the theory of physics and the application of technology to fabricate instruments of consistent high quality provide excellent opportunities for enjoyment.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye and ear over features and forces in modern life

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