**Lithophones, Ringing Stones.**

Stones have been ‘sounded’, used in ritual and in musical contexts for millennia. Lithophones, tuned stones constructed as pitched musical instruments, have also been constructed. We decided to create a geological time series of stones from across Scotland and explore their acoustic qualities. This time series spans an unimaginable time-frame, from 3 billion years ago in Precambrian strata to Tertiary and Quaternary rocks. Just as the light of stars takes ‘light years’ to arrive here, in the stones we hear the deep ancient resonance of the planet, and can resonate with it. We intend to create the sound of geological time as it has lain dormant in the Scottish landscape.

The zig-zag route of our fieldwork, gathering stones, crossed the six major fault lines of the geology of Scotland, starting from the oldest Outer Isles Thrust/Moine Thrust of Lewisian rock and granite, coming south crossing the Great Glen Fault, extracting and collecting each rock type.

Stones exist in different states. Natural and unweathered stones are still attached to the earth. Weathered stones have become detached and transformed by the elements. We called these ‘natural’ and ‘honed’ stones we continued the honing process with a set of the natural stones. This entailed experimentation in cutting, drilling, hanging and striking the stones with stone itself, wood and metals. We explored aspects of sound resonance and amplification by striking the stones with various materials in the Silo and recording their sounds. These can be heard in samples below.

We constructed a ‘Sound Installation’ a Natural Stone Lithophone, which hung the first time series of natural stones, and also hang a series of ‘honed’ stones taken from the natural series. These were played in performance by a percussionist, Alex Waber. With the digital feedback recording of Alaisdair MacDonald.

We were not attempting to produce a pitched/tuned Lithiophone as a musical instrument. We attempted to sound a time series of natural stones, amplify their qualities for performance and feel their vibrancy. We are not the first project to try to make art with stones via a constructed ‘lithophone. An example of sounding stones by Marten Bondestam can be found here: https://youtu.be/TOmel9EtL-E. Our project therefore sits as it were historically between the archaeological discovery of the use of stones for sounding and the later contemporary fashion for the building of tuned instruments made of stone. This history is relevant.

As Neil MacGregor, sometime Director of the British Museum pointed out, “for a million years the sound of making hand-axes provided the percussion of everyday life”. The Ringing Stone of Tiree in Scotland and other such stones have been found to ‘ring;’ when struck, and there is evidence that rocks have been systematically struck, the hammer indentations being visible, for their sound and resonance, possibly for ceremonial ritual, for communication, or as an early form of music. Rock gongs can be found in the landscape in parts of Africa, (Nigeria, Uganda, and Sudan) and India. Stones sound in landscape and also in enclosed spaces. There are speculations that some of the 34,000 year-old caves with hand drawings that some of these are positioned at nodal points in the cave structure to enhance the reach of any sound made at those points. Stonehenge has been thought to have been ‘sounded’ as part of its construction: <https://gizmodo.com/is-stonehenge-actually-a-giant-musical-instrument-1539942048>

Sixty years ago archaeologists unearthed sets of stones in Vietnam which were grouped by pitch. Some of these finds are 3,000 years old. Dan da, a tuned lithophone resembling a xylophones are still used in Vietnam. In Togo, Central Africa, small flat stones emitting different notes are laid on the ground and struck with another smaller stone in a ritual performance that relates to the change of seasons. Chime bars have been used in ritual and court music. These originate in China, known as bian q’ing and are made with marble and jade and suspended on a frame. We intend to follow this method of suspension on a forged metal frame. In these cases the pitch is determined by where the stone is struck with a hammer, thickness being a determining factor. Such stones may also be found in Korea and Japan. (insert Chinese illustration). The Vietnamese stones were researched by Mike Adcock and Ingrid Lund and their explorations can be found on lithophoes.com.

Stone instruments have been created in the UK. I have noted the Lake District slate as the material for a lithophone. In 1785 Peter Crosthwait collected rocks from Skiddaw that had resonant ringing qualities. Pieces of slate could be split and chipped to be tuned and then by covering with salt and tapping to find the place to which it runs the slate was then bored at that thinnest spot and suspended. His xylophone was followed by a larger instrument the ‘Rock Harmonicon’ built by Joseph Richardson over thirteen years and by William Till whose stone instrument toured the USA. The tuned slate of the Lake District which has been played by Evelyn Glennie. Two newly built lithophones were presented in 2010 in the former home of William Ruskin builtby Marcus de Mobray in Lakeland stone and by Kia C.Ng. The latter uses some electronic sensors which enhance its qualities. We intend to experiment with these possibilities with untuned natural stones. Some tuned lithophones introduce quarter and eighth tones and these have been exploited by Jesse Stewart using only marble. Contemporary international activities can be found on-line at lithophoes .com. The sounds produced by Pietro Pirelli by touching, scraping, sawing, plucking and striking stones can be heard by the link below, and the experience of listening to these sounds and the playing can be approached in similar ways to that described as an engagement with Reich’s Drumming, which I describe above – that is how we allow these sounds to resonate in or bodies. <https://youtu.be/p5Q5bW3bYMM>.

Stones are not only implicated in sound and resonance by being struck, but also by constituting spaces in which sound travels, reverberates and echoes. The architecture of Romanesque Churches, with flat solid walls, produces surfaces and volumes are designed to amplify, spread and maintain sound. Stone is often the material that constitutes exceptional acoustic environments, as in Greek amphitheatres and in the Silo in which we will perform. We are therefore exploring stones sounded in landscapes and in acoustic spaces themselves made of stone.

We are exploring the acoustic resonance of natural stone and working with the honing of those stones to amplify their qualities. Only then will they take their place in an installation.

Below are some further links to stones being sounded.

<http://steinklang-musik.ch/>

www.lithophones.com/index.php?id=45

https://www.leeds.ac.uk/ruskinrocks/Linton%20room%20posters/Panel%206.pdf

<https://www.youtube.com/watch?v=e7I5fg2UyjE>

<https://www.youtube.com/watch?v=u8fqnipmUPA>

<https://www.bellperc.com/collections/gong-tam-tam-hire/products/thai-gong>