Mini-model of Stonehenge reveals how voices would have carried in original ancient monument

July 12 2019, by Bob Yirka

Credit: CC0 Public Domain

A team of researchers at the University of Salford in the U.K. has revealed how voices would have sounded 4,000 years ago inside of the

Stonehenge monument. The group made a recording of their efforts and posted the results on SoundCloud.

Stonehenge is, of course, a monument built roughly 5,000 years ago by Neolithic people for unknown reasons—they left behind no written records. In modern times, the monument has become famous the world over, and attracts hundreds of thousands of tourists every year. The researchers explored what a human voice would have sounded like inside the monument during its heyday. To find out, they applied a modern technique that has been used to help architects build concert halls with optimal sound characteristics. The technique involves building a small-scale model of a building prior to construction and blasting sounds at it at 12 times their normal frequency in a sound chamber to overcome the size differences.

To replicate the technique for Stonehenge, the researchers 3-D printed each of the stones and used them to make silicon molds that were then filled with a plaster-polymer mix. Each of the stones was painted and then placed in its original position within the monument. The result was a 1:12 scale model of the original monument—the tallest model stone was just 60 centimeters.

Next, the team subjected the model to sound tests in a sound chamber, producing a sound profile for the monument. They then applied the sound profile to the recorded voice of a team member. The researchers claim the voice in the recording sounds like it would have were the team member to have stood in the center of the monument while speaking all those years ago. They note that despite large spaces between the stones, a person's voice would have reverberated around the monument, producing an echoing effect. They also suggest it is not likely that the people who built the monument knew what impact it would have on a speaker's voice, but point out that it seems likely they would have taken advantage of the impressive acoustics.

> Professor @trevor_cox from @SalfordAcoustic Research Centre recreated sounds from the #StoneAge as sounds passed through a 1:12 scale model of #Stonehenge, to determine how sound would have carried across all of its stones in 2200 BC. https://t.co/x0oCW1NH9m
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> — Salford Uni News (@SalfordUniNews) July 11, 2019

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