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News Story #1

After almost 100 years, a longstanding archaeological mystery has finally been solved; the true purpose of a conch shell that was excavated in 1931 has been revealed.

The conch shell was originally found in the lower French Pyrenees in the cave of Marsoulas occupied in ancient times by Magdalenians, inhabitants of Western Europe over 12000 years ago. The shell was initially thought to be quite unremarkable; the discoverers presumed that the conch shell was merely used as a drinking cup for ceremonies. However, a team of researchers led by Carole Fritz, an archaeologist at the University of Toulouse in France, recently discovered evidence that the shell was actually used as a musical instrument, providing a unique perspective on the culture of ancient Magdalenians. Their findings were published in the February 2021 edition of the journal Science Advances.

With the help of technology, Fritz's team found multiple signs that the shell had been heavily doctored to fit a mouthpiece. Using image-enhancing software and photogrammetry techniques to spot details not easily observed without technology, the researchers determined that the outer ridge of the shell had been removed. They also found traces of an adhesive around the opening of the shell that may have been used to attach the mouthpiece to the shell. Using CT scans, they saw that two additional holes had been carved out in the interior of the shell, likely to secure the extension of the mouthpiece inside the shell.

To test the theory that the shell was used as an instrument, Fritz's group enlisted the help of a musician. A member of Fritz's group, historian Gilles Tosello of the University of Toulouse, explained the process by saying, "Is it possible to have an idea of the sound produced by the shell? We tried to solve this question by an exceptional experiment. We asked a musician to try to play with the artifact, as it is, in its state of conservation." The musician was able to produce three, high quality notes remarkably similar to the tones that contemporary musicians refer to as C, C sharp, and D. This strengthened the researchers' belief that the shell was used as a musical instrument.

Another member of Fritz's team, chemist Philippe Walter of Paris' Sorbonne University, produced a 3-D printed model of the shell based on the images received from the image-enhancing software. Notably, the original shell had traces of red pigment on the insides that hinted to the existence of art on the interior of the shell that had been worn away. With his model, Walter was able to restore patterns on the inside of the shell, about which he said, "the shell was decorated with the same patterns as the cave art of Marsoulas". Fritz herself said this about Walter's restoration: "the shell is very important to understand how prehistoric people considered song and music a symbolic practice".

Although conch shell horns are not unheard of, this particular shell is now the oldest conch shell horn known to humans. This gives us an insight into musical and cultural aspects of prehistoric Magdalenian culture that future studies or discoveries may expand upon.