

# Antikythera mechanism: Researchers find clues to an ancient Greek riddle

November 30 2014

---



The ancient Antikythera relic rescued from a shipwreck. Credit: Giovanni Dall'Orto

(Phys.org)—An ancient Greek astronomical puzzle now has another

piece in place.

The New York Times [reported](#) the new evidence today in a story about research by James Evans, professor of physics at University of Puget Sound, and Cristián Carman, history of science professor at University of Quilmes, Argentina.

The two researchers published a paper advancing our understanding of the Antikythera Mechanism, an ancient Greek [mechanism](#) that modeled the known universe of 2,000 years ago. The heavily encrusted, clocklike mechanism—dubbed the "world's first computer"—was retrieved from an ancient shipwreck on the bottom of the sea off Greece in 1901. The new work is [published in the \*Archive for History of Exact Science\*](#).

After several years of studying the mechanism and Babylonian records of eclipses, the collaborators have pinpointed the date when the mechanism was timed to begin—205 B.C. This suggests the mechanism is 50–100 years older than most researchers in the field have thought.

The new work fills a gap in ancient scientific history by indicating that the Greeks were able to predict eclipses and engineer a highly complex machine—sometimes called the world's first computer—at an earlier stage than believed. It also supports the idea that the eclipse prediction scheme was not based on Greek trigonometry (which was nonexistent in 205 B.C.)—but on Babylonian arithmetical methods, borrowed by the Greeks.

Far more conjecturally, this timing also makes an old story told by Cicero more plausible—that a similar mechanism was created by Archimedes and carried back to Rome by the Roman general Marcellus, after the sack of Syracuse and the death of Archimedes in 212 B.C. If the Antikythera mechanism did indeed use an eclipse predictor that worked best for a cycle starting in 205 BC, the likely origin of this

machine is tantalizingly close to the lifetime of Archimedes.

Evans and Carman arrived at the 205 B.C. date using a method of elimination that they devised. Beginning with the hundreds of ways that the Antikythera's eclipse patterns could fit Babylonian records (as reconstructed by John Steele, Brown University) the team used their system to eliminate dates successively, until they had a single possibility.

The calculations take into account lunar and solar anomalies (which result in faster or slower velocity), missing solar eclipses, lunar and solar eclipses cycles, and other astronomical phenomena. The work was particularly difficult because only about a third of the Antikythera's eclipse predictor is preserved.

Evans and Carman first presented their ongoing research at a Netherlands conference in June 2013, stimulating debate among their peers. The new online paper will appear in the journal's January 2015 hard copy edition.

Provided by University of Puget Sound

Citation: Antikythera mechanism: Researchers find clues to an ancient Greek riddle (2014, November 30) retrieved 27 April 2024 from <https://phys.org/news/2014-11-antikythera-mechanism-clues-ancient-greek.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.