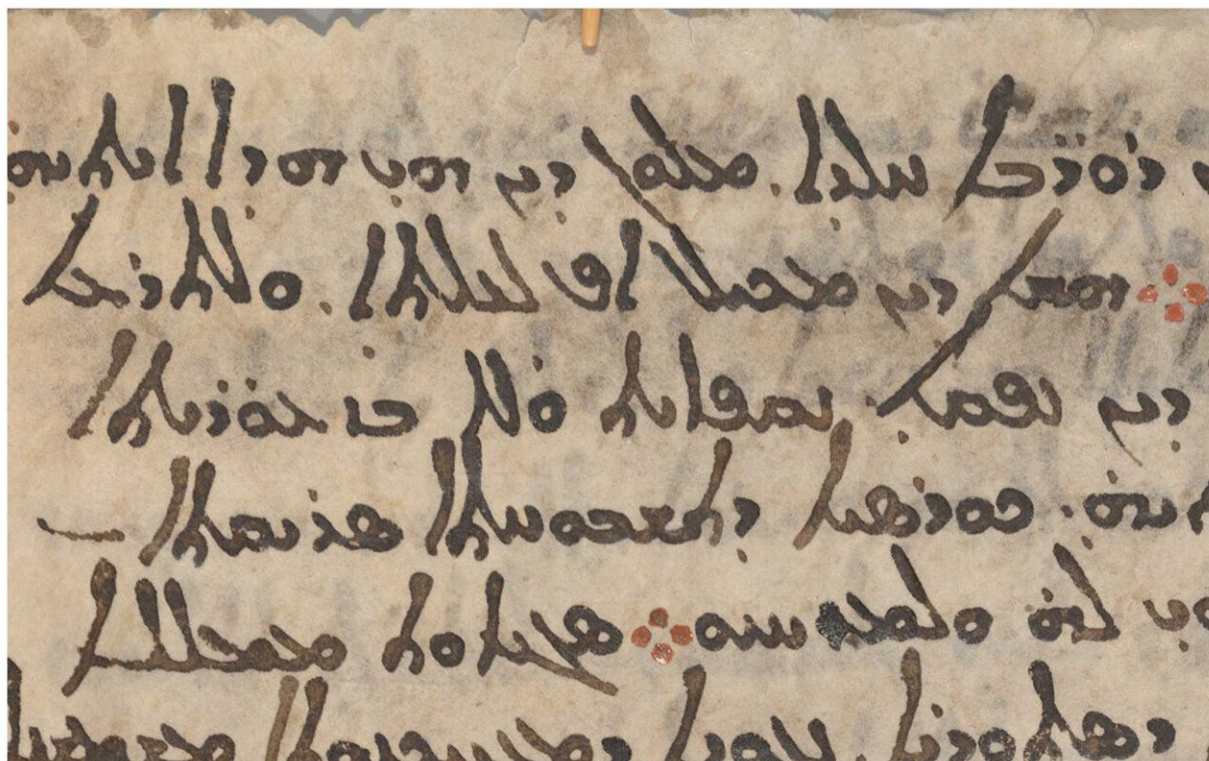# Hipparchus's map of the stars may finally have been found

October 20 2022, by Bob Yirka

Detail of f. 53v, beginning of the first column of undertext (Syriac overtext in dark brown, and faint traces of a few letters of the undertext). Credit: Museum of the Bible Co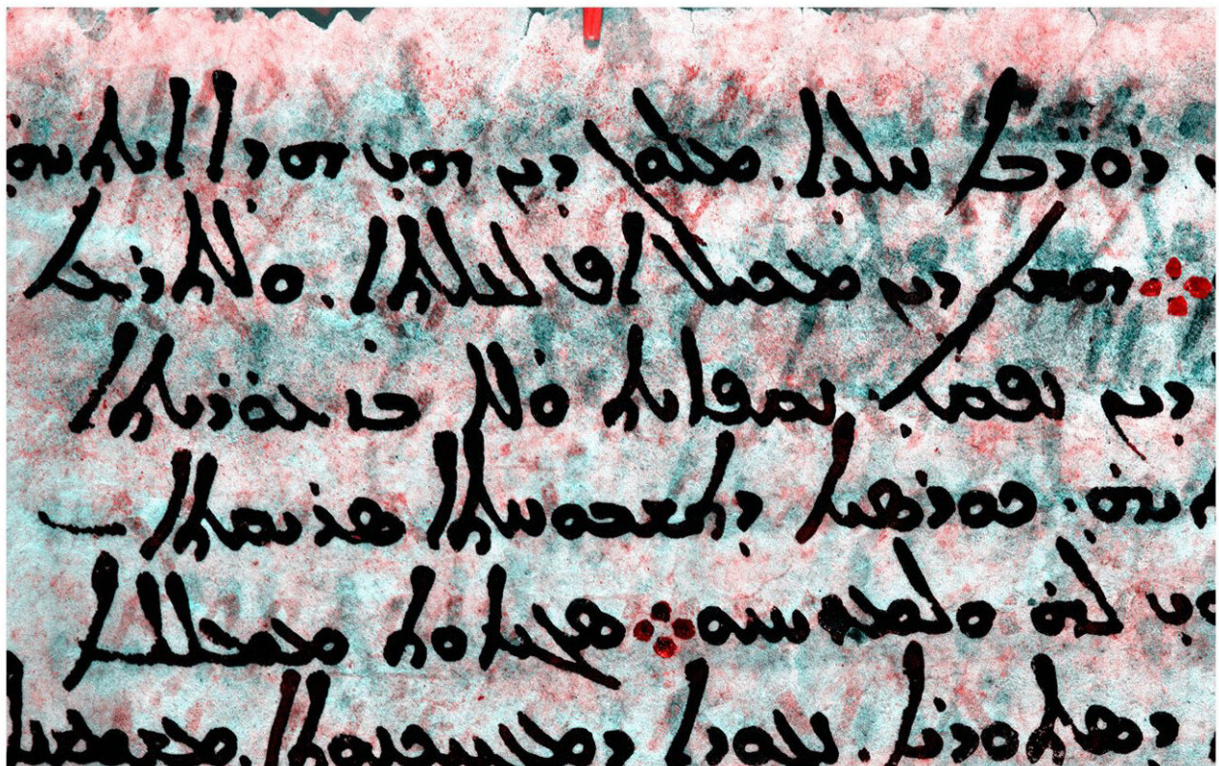llection. All rights reserved. © Museum of the Bible, 2021. *Journal for the History of Astronomy* (2022). DOI: 10.1177/00218286221128289

A trio of researchers from CNRS, UMR, Tyndale House and Sorbonne

Université, respectively, have found what might be the famous Hipparchus's map of the stars. In their paper published in *Journal for the History of Astronomy*, Victor Gysembergh, Peter Williams and Emanuel Zingg describe a palimpsest manuscript that was found at the Greek Orthodox St Catherine's Monastery on the Sinai Peninsula, and what they believe it describes.

Historians have long believed that a catalog of the stars was created long ago by early Greek astronomer Hipparchus—his catalog was believed to represent the earliest map of the stars. But lack of physical evidence of such a map has left the record for creation of the earliest star map to Ptolemy. In this new effort, the researchers believe they have found part of the catalog that Hipparchus created sometime between 162 and 127 BCE.

The work began with study of a palimpsest manuscript that was
originally found at the Greek Orthodox St Catherine's Monastery and is
now owned by the Museum of the Bible in Washington, D.C. The team
noted that the material on which the text had been printed was written
over text that had been scraped away, allowing for reuse—a common
practice during the period. Intrigued, one of the team members asked a
group of students to see if they could make out any of the prior text. One
of them, Jamie Klair, found what appeared to be a line of text that had
previously been seen in work by Eratosthenes, an astronomer.
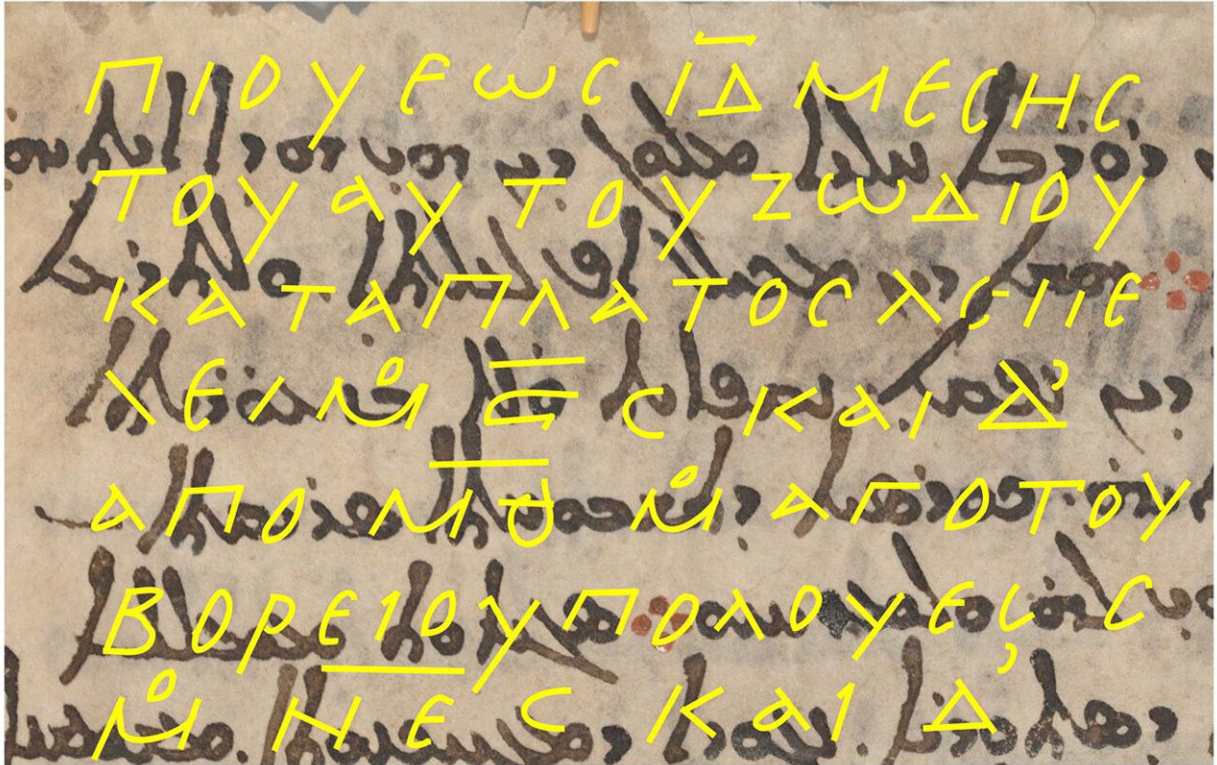
Detail of f. 53v (yellow tracings based on full set of multispectral images). Credit: Museum of the Bible Collection. All rights reserved. © Museum of the Bible, 2021. *Journal for the History of Astronomy* (2022). DOI: 10.1177/00218286221128289

Next, convinced that the subtext may have importance, the manuscript was sent to Early Manuscripts Electronic Library, where it was scanned using a variety of lighting techniques. The researchers were able to recover most of what had been erased. The overwritten text described the positions of several constellations and other star positions. By using precession (the amount of Earth's wobble), the team was able to ascertain not only the precision of the star coordinates but the dates that the measurements had been taken. They found the coordinates to be quite precise—more so than the work by Ptolemy. And the date that the

mapping had taken place was 129 BCE.

The researchers conclude that their evaluation of the manuscript very strongly suggests it was created by Hipparchus and that it represents the oldest star map known to exist.

More information: Victor Gysembergh et al, New evidence for Hipparchus' Star Catalogue revealed by multispectral imaging, *Journal for the History of Astronomy* (2022). [DOI: 10.1177/00218286221128289](#)

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