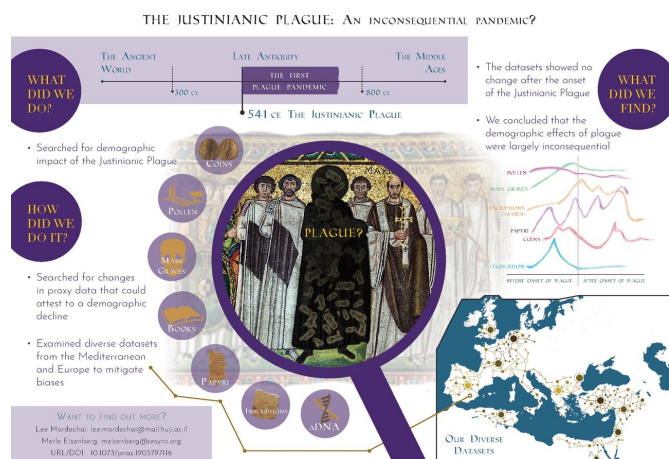


Justinianic plague not a landmark pandemic?

2 December 2019, by Merle Eisenberg



plague was a key moment in [human history](#) that killed between a third and half the population of the Mediterranean world in just a few years, as is often claimed, we should have evidence for it but our survey of datasets found none."

The research team, which collaborated through the CCHRI, examined contemporary written sources, inscriptions, coinage, papyrus documents, pollen samples, plague genomes, and mortuary archaeology.

The researchers focused on the period known as Late Antiquity (300-800 CE) that included major events such as the fall of the Western Roman Empire and the rise of Islam—events that have been sometimes attributed to plague, including in [history](#) textbooks.

"Our paper rewrites the history of Late Antiquity from an environmental perspective that doesn't assume plague was responsible for changing the world," said Merle Eisenberg, also a SESYNC postdoctoral fellow, member of the CCHRI and a co-author on the paper. "The paper is notable because historians led this PNAS publication, and we asked historical questions that focused on the potential social and economic effects of plague."

The team found that previous scholars have focused on the most evocative written accounts, applying them to other places in the Mediterranean world while ignoring hundreds of contemporary texts that do not mention plague.

"While plague studies is an interdisciplinary, demanding field of study, most plague scholars rely solely on the types of evidence they are trained to use. We are the first team to look for the impacts of the first plague pandemic in very diverse datasets. We found no reason to argue that the plague killed tens of millions of people as many have claimed," said co-author Timothy Newfield, another co-lead of the CCHRI who is now an assistant professor of

A graphical abstract showing highlights of the research presented in the article: "The Justinianic Plague: An Inconsequential Pandemic?" Credit: Elizabeth Herzfeldt-Kamprath, SESYNC

Researchers now have a clearer picture of the impact of the first plague pandemic, the Justinianic Plague, which lasted from about 541-750 CE.

Led by researchers at the University of Maryland's National-Socio Environmental Synthesis Center (SESYNC), the international team of scholars found that the [plague's](#) effects may have been exaggerated. They examined diverse datasets, but found no concrete effects they could conclusively attribute to the plague. Their paper appears in the December 2 issue of the *Proceedings of the National Academy of Sciences (PNAS)*.

"Our article is the first time such a large body of novel interdisciplinary evidence has been investigated in this context," said lead author Lee Mordechai, a postdoctoral fellow at SESYNC, and co-lead of Princeton's Climate Change and History Research Initiative (CCHRI). He is now a senior lecturer at Hebrew University of Jerusalem. "If this

history and biology at Georgetown University. "Plague is often construed as shifting the course of history. It's an easy explanation, too easy. It's essential to establish a causal connection."

Many of these datasets, such as agricultural production, show that trends that began before the plague outbreak continued without change.

"We used pollen evidence to estimate agricultural production, which shows no decrease associable with plague mortality. If there were fewer people working the land, this should have shown up in pollen, but it has failed to so far," said co-author Adam Izdebski, a member of CCHRI who is now a research group leader at the Max Planck Institute for the Science of Human History and an assistant professor of history at Jagiellonian University.

Even some of the most well-known effects of large epidemics, such as changes in burial traditions, follow existing trends that began centuries earlier.

"We investigated a large dataset of human burials from before and after the plague outbreak, and the plague did not result in a significant change whether people buried the dead alone or with many others," said co-author [Janet Kay](#), a lecturer in the Council of the Humanities and history and the CSLA-Cotsen Postdoctoral Fellow in Late Antiquity in the Society of Fellows at Princeton University. She contrasted that with the Black Death, a plague that took place about 800 years after the Justinianic Plague. "The Black Death killed vast numbers of people and did change how people disposed of corpses," she said.

The researchers also used available plague genomes to trace the origin and evolution of the plague strains responsible for outbreak, which certainly killed people across Eurasia—how many people is the question.

Co-author Hendrik Poinar, a professor of evolutionary biology and director of the Ancient DNA Centre at McMaster University, added: "Although tracing the origins and development of the plague bacterium is crucial, the presence of the pathogen does not in itself mean catastrophe."

More information: "The Justinianic Plague: An inconsequential pandemic?" by Lee Mordechai, Merle Eisenberg, Timothy P. Newfield, Adam Izdebski, Janet Kay and Hendrik Poinari appears in the Dec. 2 issue of the *Proceedings of the National Academy of Sciences*, [DOI: 10.1073/pnas.1903797116](https://doi.org/10.1073/pnas.1903797116)

Provided by University of Maryland

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