Black Death: A Plague Revisited

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A burial site for those killed during the Black Death was recently uncovered in Farringdon, a historic borough of London. Excavators came across the mass grave during a routine dig for Crossrail, a new urban railway system. The 25 uncovered bodies have provided scientists the opportunity to learn more about the disease that devastated fourteenth century Europe.

Black Death, the name given to a plague epidemic that eventually killed at least a third of London’s population, was most virulent between the years of 1348 and 1350. During this time, King Edward III ordered emergency burial facilities to be constructed outside city limits. Bodies arrived at a rapid pace, averaging one every five minutes. The depth of burials, distribution of skeletons and presence of fourteenth century pottery at the Farringdon site indicates that it is one such mass grave.
Don Walker, an osteologist at the Museum of London Archeology who specializes in skeletal analysis, describes the dig as a major breakthrough. “The skeletons discovered at Crossrail’s Farringdon site provide a rare opportunity for us to study the medieval population of London that experienced the Black Death. I was amazed at how much information you can get if you combine the archeological evidence, the osteological evidence and microbiological evidence,” Walker said following the find.

A multidisciplinary team is using the unearthed remains to construct a more comprehensive picture of London’s medieval population. The archaeological team first investigated the osteological, or skeletal, evidence. Analysis of bone structure at Farringdon demonstrates a high rate of back damage amongst the buried, hinting that they performed intensive manual labor throughout life. Many of the bodies found seemed to be malnourished. A few of the victims were also covered in lacerations, supporting the theory that London descended into a period of violence and lawlessness following the original epidemic outbreak.

The tattered and bruised bodies indicate that this gravesite was not reserved for the elite. It was where London’s laborers were laid to rest.

“Historical documents suggest the burial ground was established for poor strangers. There is no doubt that the individuals buried here were not the wealthy class, and they are representing the typical Londoner,” explained Jay Carver, Crossrail’s lead archeologist.

Next, the team turned their attention to the microbial evidence. At least four of the skeletons’ teeth still held traces of the plague’s pathogen, Yersinia pestis bacterium, which could help scientists map its DNA. This gene analysis could end the debate over the Black Death’s infection mechanism.
The most widely accepted explanation of plague’s transmission involves fleas and rodents acting as hosts of the pathogen. However some, including scientist Tim Brooks, say that it was a pneumonic disease.

“As an explanation for Black Death on its own right, [the rat-flea theory] simply isn’t good enough. It [the black death bacterium] cannot spread fast enough from one household to the next to cause the huge number of cases that we saw during the Black Death epidemics,” said Brooks, who explained his theory in a documentary entitled Secret History: The Return of the Black Death, released April of 2014.

Should Brooks prove correct, it would mean that humans, not rodents, acted as vectors for Yersinia pestis. With symptoms characterized by coughing and chest pain, the disease would have quickly proven fatal, killing the majority of victims within thirty-six hours of infection.

Although both the bubonic and pneumonic plagues are largely identified as diseases of the past, recent cases have brought them global attention. In July, a man was killed by the bubonic plague in Gansu, China. News of his death sent 151 community members into quarantine. The same month, two people contracted the pneumonic strain after coming in contact with an infected dog in Colorado. They were treated with antibiotics and made quick recoveries.

The plague is thought to infect an average of seven people in the United States a year, making the Crossrail research all the more relevant.

As of June 2014, a team of forensic scientists has been working to locate more of the mass grave by conducting a detailed survey of the area surrounding the initial discovery. The search for answers on the Crossrail grounds will continue to intensify until the full extent of this ancient cemetery is determined.

“This is probably the first time in modern archaeological investigation that we have finally found evidence for a burial ground in this area which potentially contains thousands of victims from the Black Death and potentially later plague events as well,” said Carver.

This feature was written under the guidance of Science Writing Mentor Susan Swanberg.