



Seven Wonders of the Microbe World

Black Death

COMM

It was the invention of the microscope in 1683 which allowed Dutchman Antonie van Leeuwenhoek, to discover Microbes.

Using his own homemade microscopes, the so called Father of Microbiology was the first to observe and describe single celled organisms which he originally called animalcules.

Today, less than 5% of all known microbes cause disease but back in the 14th century, the bacterium microbe that causes bubonic plague, or the Black Death as it was also known, became the deadliest microbe of them all.

Black Death is spread by the microbe *Yersinia Pestis* invading and growing inside rats, fleas, cats, dogs, farm animals and humans. It thrives at around 37° Celsius - the exact temperature of a healthy human body.

CHARLES

The way in which Black Death works is rather gruesome. The micro-organisms divide inside the flea – it causes a blockage in the stomach of the flea – and then the flea gets hungry and the starving flea goes after a human being for a drink of blood. And in the process of trying to drink the blood it regurgitates the microbes into the blood stream of the unfortunate Black Death victim.

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In the victim's blood stream, the invading microbe is detected by the body's immune system which launches white blood cells in defense. But instead of the bacterium being killed, it multiplies inside the cell. Eventually the white blood cell dies and the *Yersinia Pestis* bacteria flood out stronger than before. More white blood cells attack but now *Yersinia Pestis* is powerful enough to paralyse them

CHARLES

It starts off with a sneeze and a fever – it's a bit like flu. And perhaps the person who got it didn't think there was much wrong with them. But then you start to get these black lesions on your skin, called buboes, in fact that's how the disease got its name, Black Death. And these buboes appear under your armpits, in your joints. It's excruciatingly painful. These people are forced into bed. Eventually these buboes begin to exude a puss from inside them and you die a slow, excruciating death, maybe over many days and very, very few people recovered from the disease.

TOM

The major fourteenth century outbreak of the Black Death originated in Mongolia around 1330 and quickly spread along trade routes through Asia and into Europe.

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In just four years, from 1347 to 1351, the plague killed about 75 million people worldwide, including one-third of the entire population of Europe.

CHLOE

It reached England in the summer of 1348. Church records show that between 1348 and 1350, around 40% of the English population died.

CHARLES

Black Death was a very egalitarian disease. Everyone from the poor to the rich was affected and even Princess Joan, King Edward the third's favourite daughter was killed by Black Death

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It affected young and old, men and women, rich, poor and the clergy, in rural and urban settings alike.

CHARLES

One of the interesting social implications of the Black Death is that church leaders were not able to provide any explanation for how this disease was caused and as a result the authority of church leaders began to be eroded and people began to question whether they should even listen to religious leaders at all and some people have even said that the English Reformation was caused by the Black Death.

COMM

With whole villages abandoned, a new class of entrepreneurs began to take over neighbouring lands left idle, spending their newly acquired wealth on distinctive buildings and memorials. Ties to land and landlord were breaking up. From Yersinia Pestis, and the Black Death, a new social order was emerging.

Black Death was undoubtedly one of the world's most deadly microbiological invasions

CHARLES

In their ignorance people tried all sorts of ways to fend off Black Death, such as using pouches of sweet smelling herbs, but of course in the end none of these things would save them

Ring a ring o' roses
A pocket full of posies
Atishoo, atishoo.
We all fall down...