BBC Bitesize

Mmmmm... Germ Theory. The delectable idea that disease is caused by microorganisms invading the body. We literally get infested! It's gross but it's true, though people didn't always believe it.

Even by the start of the 19th century, people had all sorts of crazy ideas about where disease came from. Such as the theory of miasma, which claimed that diseases were caused by foul-smelling air. No, no, no - not that kind. And the theory of spontaneous generation, which stated that life basically arose from, erm, nothing.

These views started to change when two mighty microbiologists, fuelled by national rivalry, entered into a battle to become the first person to prove where disease came from. Enter: Louis Pasteur of France, and Robert Koch of Germany.

It was the Frenchman who landed the first punch. Pasteur was the first to challenge old barmy beliefs, hypothesising that germs caused disease, and not vice versa. He of milk pasteurising fame was able to prove that milk went off, and not just because... err, well it just did, but because of bacteria in the air.

Pasteur went on to argue that this same bacteria could cause disease. To describe these ideas, he coined the phrase 'Germ Theory.' But someone was hot on Pasteur's heels...Oh ja!

About a decade after Pasteur had first concocted Germ Theory, Koch took the next step, by, erm, making rodents sick. He isolated anthrax bacteria and injected it into healthy mice, who then became ill, proving that the bacteria was the cause. This was Pasteur's Germ Theory in practice, and, quite literally, in the bodies of cute little mice.

Awwww.

The rivalry between Pasteur and Koch massively speeded up medical progress. Thanks to the Franco-Prussian war of 1870-1871, the two scientists' respective nations were fighting each other on the battlefield as well as in the lab, so their research was charged with epic significance. National pride was at stake and nobody wanted to lose the 'Battle of the Bacteria.'

Koch went on to find ways of staining, photographing, and therefore identifying different bacteria, disproving old ideas about all bacteria being the same. This pioneering work, which led to the identification of 21 disease-causing germs by 1900, earned Koch his status as 'the Father of Modern Bacteriology.'

Meanwhile, Pasteur was still beavering away. Or should we say... chickening away? His germ of an idea about... germs, had led him to study cholera in chickens. He found that when he injected an old culture of cholera bacteria into his birds, they fell ill, but did not die as expected. And from that point on they were resistant to fresh cholera injections.

This wasn't in itself a brand new idea, as a century earlier the father of the vaccination, Edward Jenner, had found that a small dose of cowpox could immunise against smallpox.

But what was ground-breaking was that Pasteur was the first person ever to create vaccines in a lab. This was a massive turning point in the fight against infectious disease, as it meant that vaccines could be manufactured, eventually on a mass scale.

In Britain, meanwhile, the likes of Tyndall, Roberts, and Cheyne were frantically translating and lecturing Pasteur and Koch's ideas. And, as a result, the ideas of Pasteur and Koch spread rapidly.

Soon, a new generation of young Pasteur-and-Koch disciples came to be known as the 'Microbe Hunters.' And their work was influential in its own right, inspiring new research and new findings.

Pasteur died in 1895 and Koch keeled over in 1910. But the fight against germs didn't stop...it'd only just started. They passed the bacteria baton on to even more doctors and scientists, who continued to study and combat all manner of diseases, from tuberculosis, to rabies, and even the pesky plague.

By the end of the 19th century, scientists were beginning to truly understand what caused disease and so much unnecessary death. So after all those intense, sweaty rounds in the metaphorical boxing ring,

Pasteur and Koch's gentlemanly tussle paid off. And they've both gone down in history as

heavyweight Champions of Medicine. Bravo boys, bravo.

Nice pants, by the way...