
Louis Pasteur And The Discoverance Of Germ Theory

Imagine a world without medicine. Those who became ill were given days to live until the disease completely overtook their bodies. Their organs began to shut down, eventually killing the person suffering from this disease. This was the world before the year 1860. People were unaware of germs. A germ is defined by Webster as, an organism, that causes disease. The effects of germs on the lives of all people resulted in widespread outbreaks of cholera, the black plague and smallpox. The discovery of germs led to what is now called the most spectacular medical advancement of the 19th century. Louis Pasteur is credited with the discoverance of germ theory. It is through his many experiments that germ theory became the innovative phenomenon it is. Germ theory is an important part of European history because it was discovered that certain diseases are caused by the invasion of the body by microorganisms and have since helped lead to the creation of vaccinations and antibiotics.

Before the discoverance of germ theory apothecaries, herbalism and tradition dominated the medical field. In the medieval times, many people thought that by opening the vein the disease would find a way to seep out. Bloodletting was used to treat a wide range of diseases, and was practiced defensively and therapeutically. It became a standard treatment for almost every illness. People began to cut themselves with pieces of lead, resulting in lead poisoning which killed the person faster than the disease itself. Apothecaries would often create elaborate potions and sell them for very high prices. This led to people becoming bankrupt because they were trying to cure themselves. The desire for better medical treatments has been around for along time; however, because all the hocus pocus people believed led them to further harm. Dealing with disease prior to germ theory only proved bigger and worse problems. These treatments were often unsanitary and led to furthering the illness. The unsanitary conditions in medical centers led to the emergence of gangrene. Gangrene began to dominate in hospitals, taking both the lives and limbs of many European people.

A broader look at medicine before 1860 can be described as chaotic and unhelpful. The medical field needed to figure out what caused disease before they could begin to tackle the task of treating it. Until the mid-nineteenth century, the life expectancy worldwide was age twenty. Fever was by far the main cause of childhood death, killing many more than war and famine. There were many types of fever, but the physicians could hardly come up with accurate descriptions and a proper diagnosis until the rise of the clinical sanitation in Parisian hospitals during the time of the French Revolution. A common argument between all physicians was whether disease was intrinsic or extrinsic. Many doctors including Antoine Lavoisier came to the conclusion that disease was in fact intrinsic. John Snow, however, failed to realize that fevers were contagious. The rise in curiosity about medicine led to Louis Pasteur's formal experiments

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that led to the discoverance of germ theory.

Louis Pasteur was born into a humble, Catholic, French home. He was described as an average student, who loved fishing. After a bumpy road to earn his masters of science, Pastur became a professor and a chemist on the side. However, his occupation quickly changed. In 1848 when he was appointed the chemistry chair at The University of Strasbourg. Although this was the beginning of Pasteur's work, it is classified by historians and scientists as "some of the most renowned work in scientific history". After finishing his research on particle called tartrates, Pasteur decided to expand his research and began to investigate fermentation. He wrote about alcoholic fermentation and discovered that fermentation is simply the decomposition of the yeast particles. The dicoverance of beverage contamination led Pasteur to the idea that microorganisms that infect animals and humans cause disease. From this discovery he proposed the idea that microorganisms can get into the body, causing harmful infections. It was due to this discovery that Joseph Lister was able to create antiseptics and perform clean and sanitary surgery. Pasteur has a lasting legacy because of his remarkable breakthroughs in medicine, vaccination and fermentation.

The idea of germ theory came about through formal experiments of Louis Pasteur. Pasteur began his experiments on milk and alcoholic beverages. The main idea of germ theory was to test and see at what temperature microorganisms are alive and become harmful to the human body. Following his fermentation experiments, Pasteur showed that the skin of grapes are natural source of yeasts, and sterilized grapes never ferment. He took grape juice from under the skin of a grape with a sterilized needle and covered the grapes with sterilized cloth. Both experiments could not produce wine in sterilized containers. These ideas contradicted the previously accepted spontaneous generation ideas. This being the supposed production of living organisms from nonliving matter, as inferred from the apparent appearance of life in some supposedly sterile environments. Pasteur went on to perform many experiments that disproved spontaneous generation. By disproving spontaneous generation, Louis Pasteur proved to scientists his germ theory was worth believing.

Robert Koch began to study *Bacillus Anthracis* which is more commonly known as anthrax. This disease was originated in ancient Egypt and Mesopotamia areas. First, Koch chose to study was the effect of the anthrax disease on farm animals. Koch collected anthrax bacteria from farm animals that had died of the disease and used them to infect healthy mice. He also carried out an experiment, using the same method but substituting the anthrax with blood from healthy cows. The mice infected with the disease developed anthrax and died, but the mice that were not infected with the bacteria remained healthy. Koch had hard evidence that anthrax bacteria caused the disease. He then began to produce pure samples of anthrax bacteria this showed that the bacteria itself was strong enough to cause a disease on its own. The results of this experiment by Koch proved to be consequential for previous ideas about microbiology. While

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Koch aided Pasteur in many ways, he also was able to find even more specific bacteria in his own experiments. Through the creation of Koch's Postulates, he was able to find the bacteria that causes Tuberculosis, and took the lives of many in the 19th century.

The effects of germ theory were both short and long term. The short term effects were big and very immediate. The Anthrax germ often dominated herds of cattle, and the cholera disease overtook the water wells in cities. The realization that bacteria caused disease helped lead to the earliest forms of vaccinations. By 1881, Pasteur had come up with the first anthrax vaccination. The key to Pasteur's vaccine was potassium dichromate. This ingredient in the vaccine, would prove a higher national health rate and began a decrease in cholera breakouts around cities. However Pasteur became jealous of another scientist researching the same things. This caused him to give a misleading account of how to prepare the vaccination and cleverly left out the key ingredient of potassium dichromate. The short term effects were vast, yet the long term effects are much greater. Because of Louis Pasteur and his germ theory, scientists were able to discover penicillin, antibiotics and the spread of sanitation outside of Europe.

The legacy of Louis Pasteur is lasting. Across the world there are streets named after him, and a lasting institute, researching how to make better and more efficient vaccines. Without Pasteur and his desire for sanitation, many sicknesses and bacteria would not have been discovered and could still be affecting people today. The theory of Pasteur has lasted up until today and are still the underlying theory to biomedicine. Pasteur was bold and thorough in his research and for this reason we remember him for the great scientist he was and the incredible affects his astute realizations continues to have on society.

Works Cited

- "Diseases Caused by Microorganisms." Wikipedia, Wikimedia Foundation, 28 Sept. 2016, en.wikipedia.org/wiki/Diseases_caused_by_microorganisms.
- Gaynes, Robert P. Germ Theory: Medical Pioneers in Infectious Diseases. ASM Press, 2011.
- "Science Museum. Brought to Life: Exploring the History of Medicine." Home, broughttolife.sciencemuseum.org.uk/broughttolife.

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