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# Scientific Revolution: The Ground-shaking Discoveries Of Anton Van Leeuwenhoek

## The Ground-Shaking Discoveries of Anton von Leeuwenhoek

### Abstract

This dissertation explains the importance of the microscope, as long as Anton von Leeuwenhoek, a self-taught scientist, who will bring major impact with his studies. The topic was chosen as relevant to scientific revolution. This dissertation evaluates the technological advancement of Leeuwenhoek, a prodigy to science.

A herculean invention impactful enough to the world generations to come: the microscope. Anton von Leeuwenhoek would be the first person in history to perfect this evolutionary device; he is also the first to see microbiological life with the naked human eye. Through his passionate characteristics, Leeuwenhoek brings the microscope to perfection and makes indescribable discoveries; this sets the foundations of science, making the world able to understand and improve upon biology.

### About Leeuwenhoek

On October 24, 1632, a new life is born in the Netherlands. He is named Anton von Leeuwenhoek. This man can be described as a curious person with a burning passion for science. As he says, "... my work, which I've done for a long time, was not pursued in order to gain the praise I now enjoy, but chiefly from a craving after knowledge, which I notice resides in me more than in most other men. And therewithal, whenever I found out anything remarkable, I have thought it my duty to put down my discovery on paper, so that all ingenious people might be informed thereof." He does not do his work for clout, but for the better of other beings. The clout he receives is not motivation for his work, but just a huge pat on the back that he humbly appreciates after the results of his work. With this said, his works come straight from his heart, given his all. When tasks are completed with true passion the outcomes are indescribable. So, it is no surprise that the dedicated, ardent, and hardworking Leeuwenhoek is the root that introduced the evolutionary discoveries still being used today. He is able to leave the Earth on August 26, 1723 with the satisfaction of knowing he fulfilled his purpose.

### The Microscope

Historians still argue today on who invented and introduced the world's first microscope circa 1590. The main suspects of this creation are either Hans Lippershey or Zacharias Janssen. However, regardless of who is credited for the invention itself, the fact is that Leeuwenhoek is the first who perfected this technology, making it relevant to the world. He would grind lenses, while making simple microscopes, leading him to build microscopes that magnified over two-hundred times. He makes around five-hundred microscopes during his practice; only these microscopes were greater than any other colleague at the time would create. Leeuwenhoek's microscopes were both clearer and brighter than his colleagues'. This way, life was able to be

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truly observed. Leeuwenhoek absolutely perfected this device.

Discovery. Upon laying his eyes on this never-before seen life, the scientist hires an illustrator to draw the written descriptions of his written descriptions. Leeuwenhoek needs to share this ground-breaking news with the world. Starting in 1673, he starts writing letters to the Royal Society of London. His first letter was about his observations on bee stings. A letter dated September 7, 1674 speaks of the green charophyte alga he sees in a sample of lake water. He uses these letters to communicate his discoveries. A few famous discoveries of this amazing man include the protozoa, bacteria, sperm cells, and the blood flow in capillaries. The protozoa is a term for “eukaryote”, which is a single-celled organism. They fit in the kingdom rank of the hierarchy. Bacteria is a cell lacking a nucleus. Sperm cells are the male gamete, which form an embryo through a process. Capillary blood flow describes the movement of the blood from the arteries, to the capillaries, and finally to the veins. Leeuwenhoek is known as the “Father of Microbiology” for a reason.

Present-Day Relevance. Leeuwenhoek’s discoveries using his microscope are needed for present-day studies. For example, Knowledge of the prokaryote and eukaryote is a necessity with medicinal studies. Prokaryotes do not have a nucleus, meanwhile eukaryotes do. Viruses are prokaryotes, meaning they do not have a nucleus, therefore, they are not alive. Further, they cannot be killed. Treatments for viruses do not kill the virus, but make the virus itself not able to virally reproduce. Knowing how to kill the nucleus in a eukaryote is major too, as it can prevent and kill cancer. Treatments for prokaryotes and eukaryotes are extremely different, so the discovery of the single-celled nucleus is crucial. Sperm discovery is another relevant source of knowledge. Imagine a couple that is unable to have children. They go to a fertility appointment. The doctor breaks the news that the husband’s sperm count is low. The understanding of this gamete and its structure is needed in order to higher the chances of the couple getting pregnant. Being knowledgeable on the flow of blood is necessary when considering how oxygen is carried through the body, the removal of waste, and even how a body fights off diseases. The microscope caused medical knowledge to advance greatly.

Movement. Anton von Leeuwenhoek is a man who positively impacted the world with his microscope, accommodated by his discoveries. Without his touch on the world, modern society would be in a very dark place. (Powell, 2019)

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