The Light Microscope

Hooke’s Cell

In 1665, Robert Hooke published *Micrographia*, a book that illustrated highly magnified items that included insects and plants. This book spurred on interest in the sciences to examine the microscopic world using lenses but is also notable for Hooke’s observations of cork where he used the word “cell” in a biological sense for the first time.
The empty chambers of cork inspired Hooke to coin the term “Cell”

The father of Microbiology: van Leeuwenhoek
van Leeuwenhoek’s microscope

The Dutch tradesman Antonie van Leeuwenhoek used high power magnifying lenses to examine the parts of insects and to examine the quality of fabric in his drapery business. He began to experiment with pulling glass to generate lenses and developed a simple microscope to observe samples. Using a simple single lens with a specimen mounted on a point, he was able to identify the first microscopic “animalcules” (little animals) that will be later known as protozoa (original animals).

Though van Leeuwenhoek’s apparatus was simple, the magnifying power of his lenses and his curiosity enabled him to perform great scientific observations on the the microscopic world. He was ridiculed for fabricating his observations of protists at first. Ever the scientist, van Leeuwenhoek examined samples of his own diarrhea to discover *Giardia intestinalis*. While he did not make the connection of the causative nature of this microorganism, he described the details of the way this organism could propel itself through the medium in great detail.
Modern Compound Microscope

Unlike van Leeuwenhoek’s single lens microscope, we now combine the magnifying power of multiple lenses in what is called a compound microscope.
1. Ocular lens or eyepiece
2. Nose Piece/ Lens Carousel
3. Objective lens
4. Course Focus Knob
5. Fine Focus Knob
6. Stage
7. lamp
8. condenser
9. stage control
Using the Light Microscope

Microscopic World

Daphnia magna, the freshwater flea is a small crustacean (scanning magnification)
Low magnification of Daphnia magna
Protozoa. Top: Amoeba Center: Euglena Bottom: Paramecium

Scale

Credit: Jeremy Seto and derived from works by IgniX, Gringer, liver, Ninjatacoshell, Ali Zifan (CC-BY-SA)

- Discover more about scale and microscopy at this link [http://learn.genetics.utah.edu/content/cells/scale/](http://learn.genetics.utah.edu/content/cells/scale/)

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