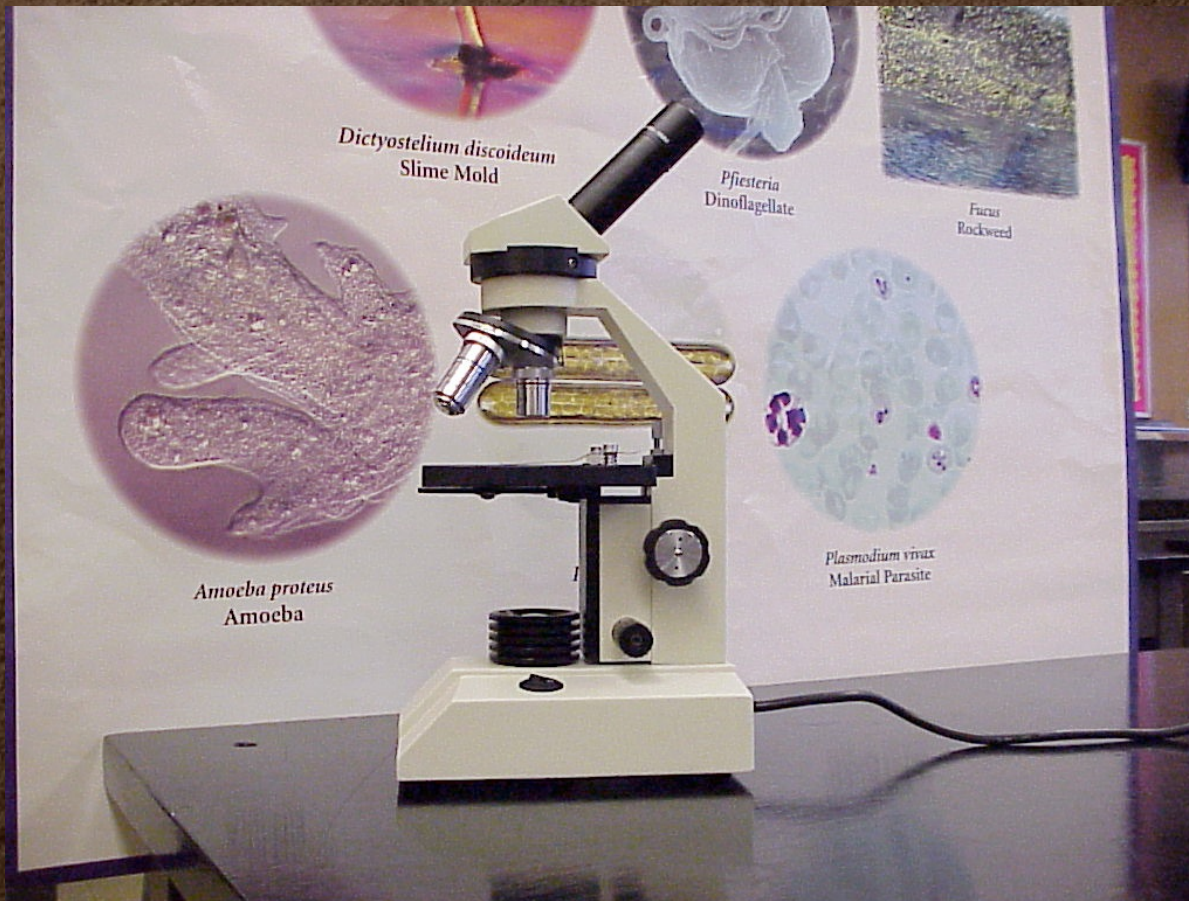


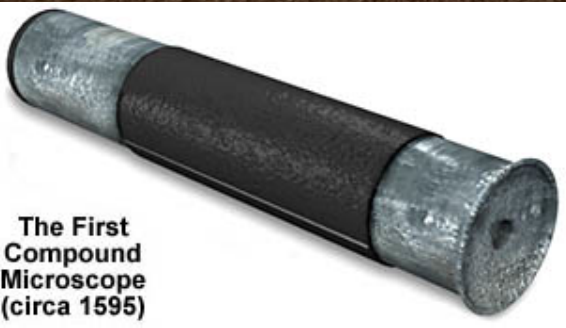
Microscopes



Student Microscope



Microscope History



The First
Compound
Microscope
(circa 1595)



Hooke



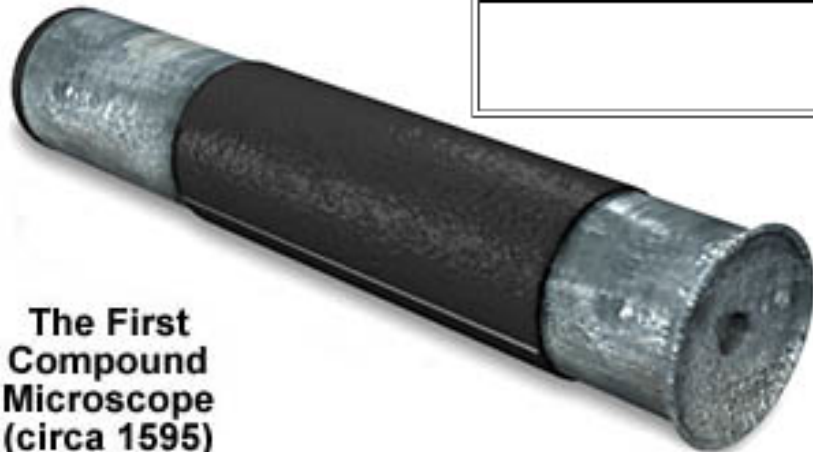
Leeuwenhoek

Hans and Zacharias Janssen, ~1590, Dutch Eyeglass Makers, Inventors



Credit for the first microscope is usually given to Zacharias Janssen, pictured at the left, in Middleburg, Holland, around the year 1595. Since Zacharias was very young at that time, it's possible that his father Hans made the first one, but young Zach took over the production.

The first compound microscopes produced by the Janssen's was simply a tube with lenses at each end. The magnification of these early scopes ranged from 3X to 9X, depending on the size of the diaphragm openings.



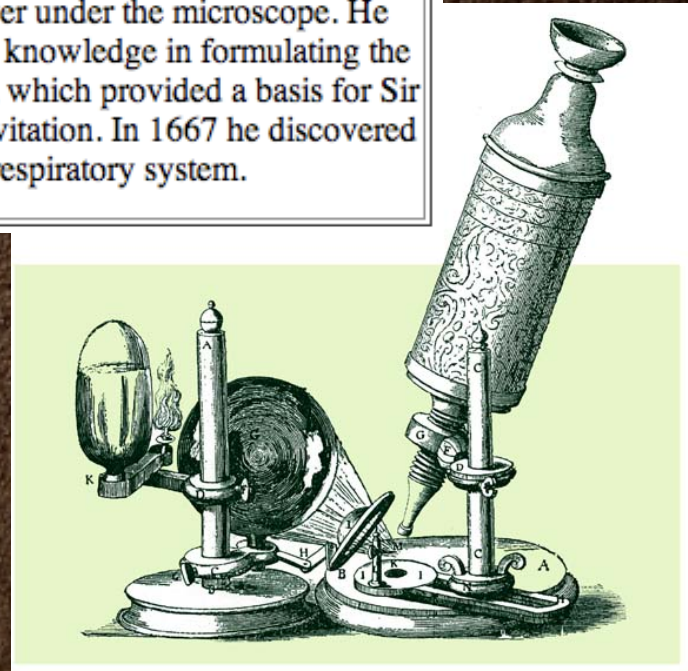
**The First
Compound
Microscope
(circa 1595)**

Robert Hooke, 1635-1703, English Chemist, Mathematician, Physicist, and Inventor



Hooke's remarkable engineering abilities enabled him to invent and improve many mechanical devices, including timepieces (for which he invented the spiral spring), the quadrant, and the Gregorian telescope. Perhaps even more intriguing than his actual inventions are the devices he designed but never built: he anticipated the invention of the steam engine, and as early as 1684 he described a working telegraph system.

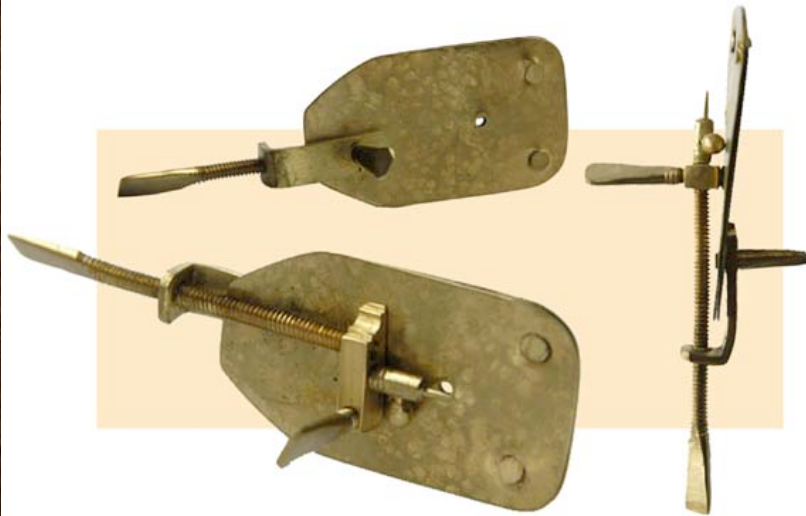
Hooke balanced his inventions with more pure research. Hooke improved on early compound microscopes around 1660. In *Micrographia* (1665), he coined the word cell to describe the features of plant tissue (cork from the bark of an oak tree) he was able to discover under the microscope. He put his extensive mathematical knowledge in formulating the theory of planetary movement, which provided a basis for Sir Isaac Newton's theories of gravitation. In 1667 he discovered the role of oxygenation in the respiratory system.



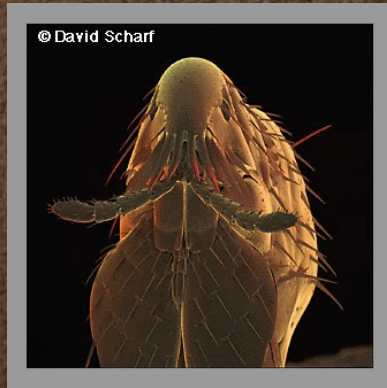
Anton van Leeuwenhoek, 1632-1723, Wine Assayer, Surveyor, Cloth Merchant, Minor Public Official, and Inventor



Leeuwenhoek was a man with many talents, his most important attributes were creativity, power of observation, and ingenuity. Leeuwenhoek was a common man without any fortune or formal education, so he had to work for a living. Leeuwenhoek made simple (one lens) microscopes. He was not the first person to build a microscope, but the microscopes that he did build were the best ones for that time period. Leeuwenhoek was the first person to describe bacteria (from teeth scrapings), protozoans (from pond water), helped to prove the theory of blood circulation. He gained much of his inspiration from reading Hooke's *Micrographia*.

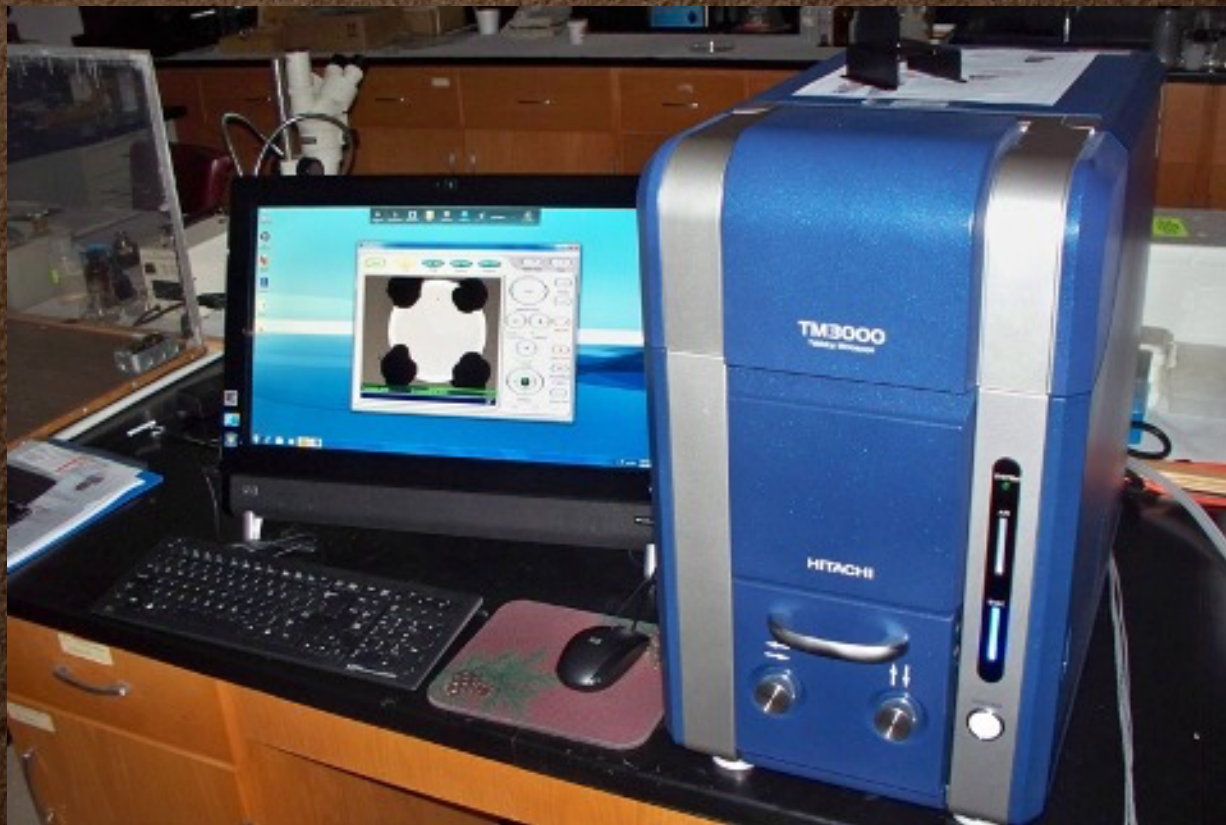


Electron Microscope



- Invented in 1931, an electron microscope is a type of microscope that uses electrons to illuminate a specimen and create an enlarged image. Electron microscopes have much greater resolving power than light microscopes and can obtain much higher magnifications. Some electron microscopes can magnify specimens up to 10 million times, while the best light microscopes are limited to magnifications of 2000 times.

Hitachi Tabletop Scanning Electron Microscope



What do these next electron microscope pictures look like or remind you of?





UWO CrossBeam
Mag = 150 X

EHT = 3.00 kV
WD = 6.5 mm

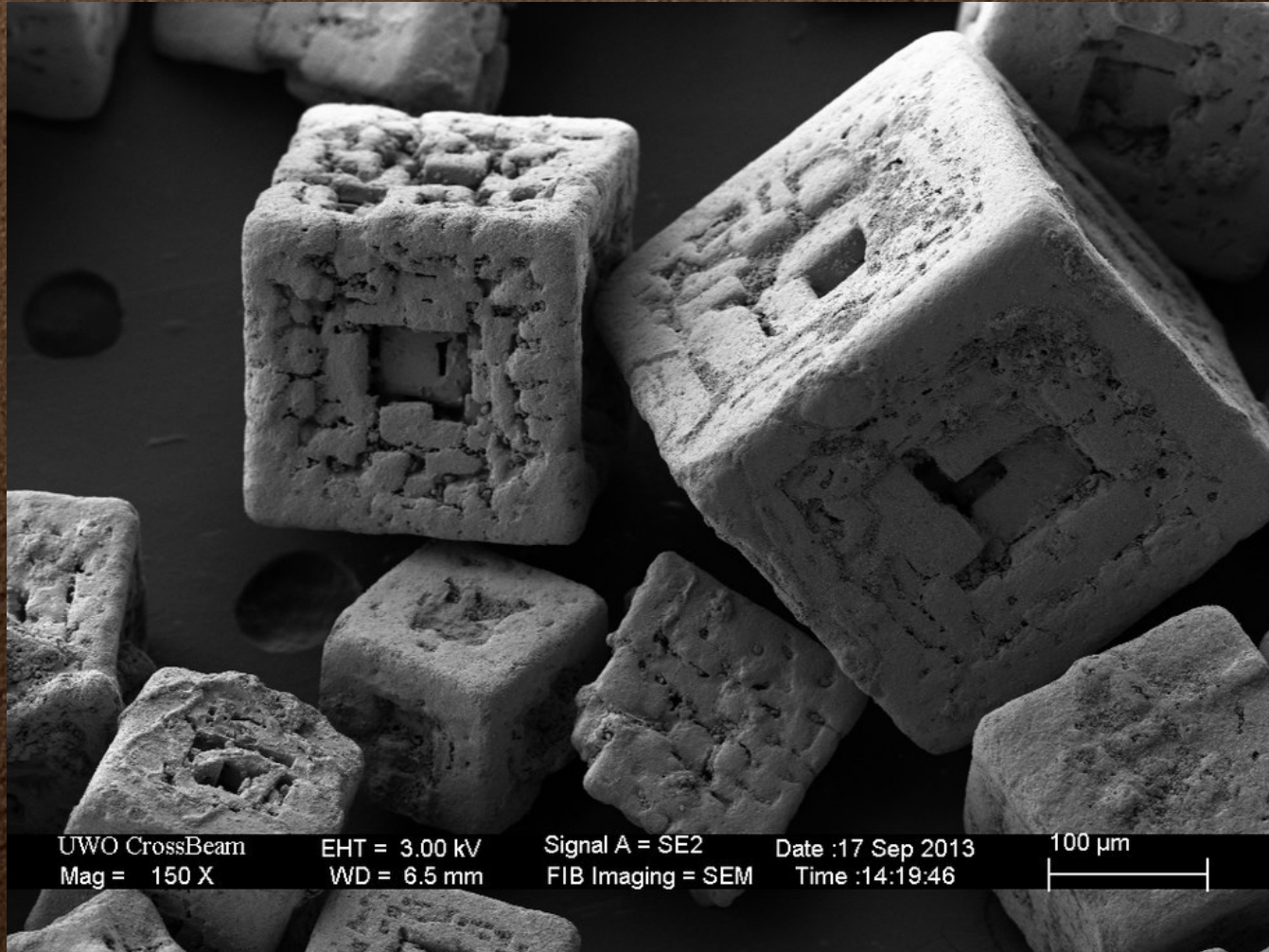
Signal A = SE2
FIB Imaging = SEM

Date :17 Sep 2013
Time :14:19:46

100 μ m



Table Salt

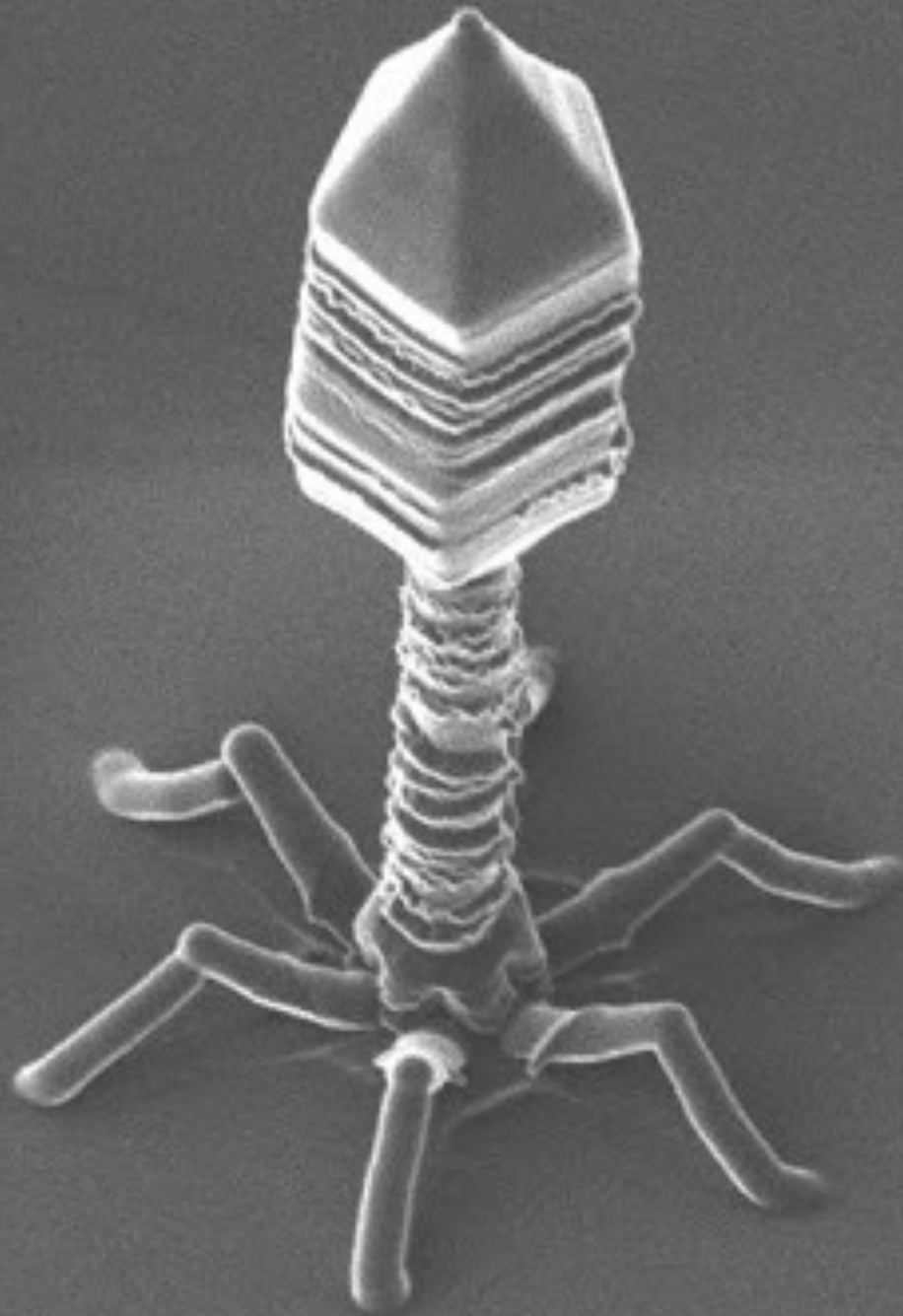


200um

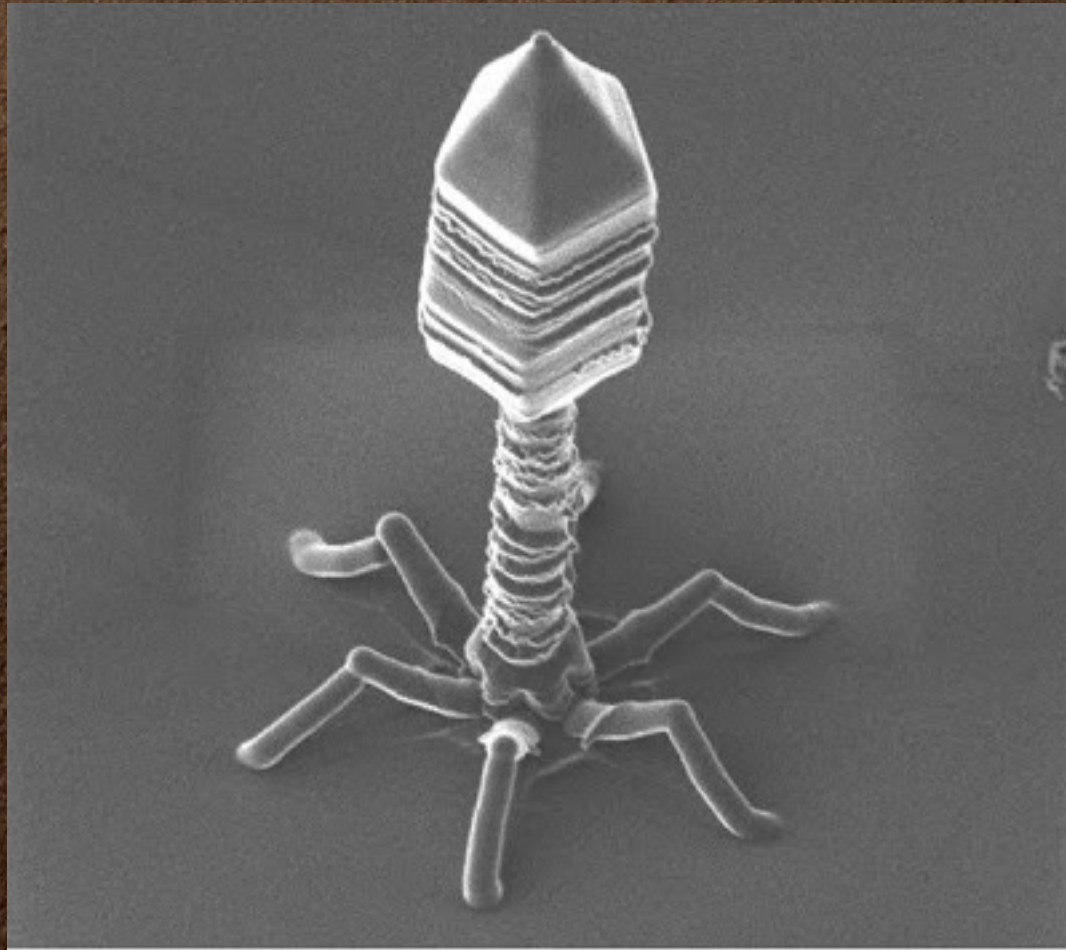


Woven silk fibers





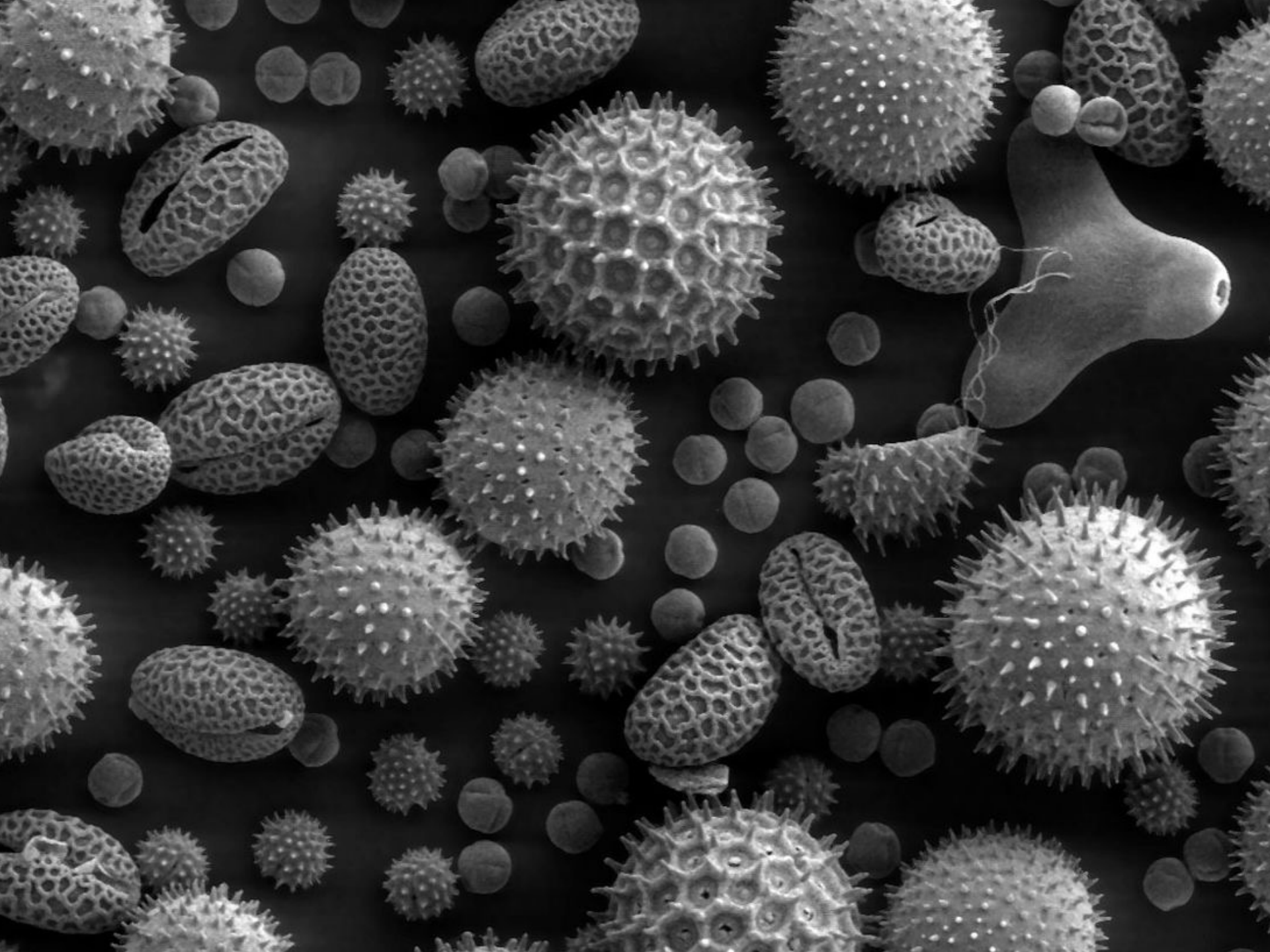
Bateriophage virus



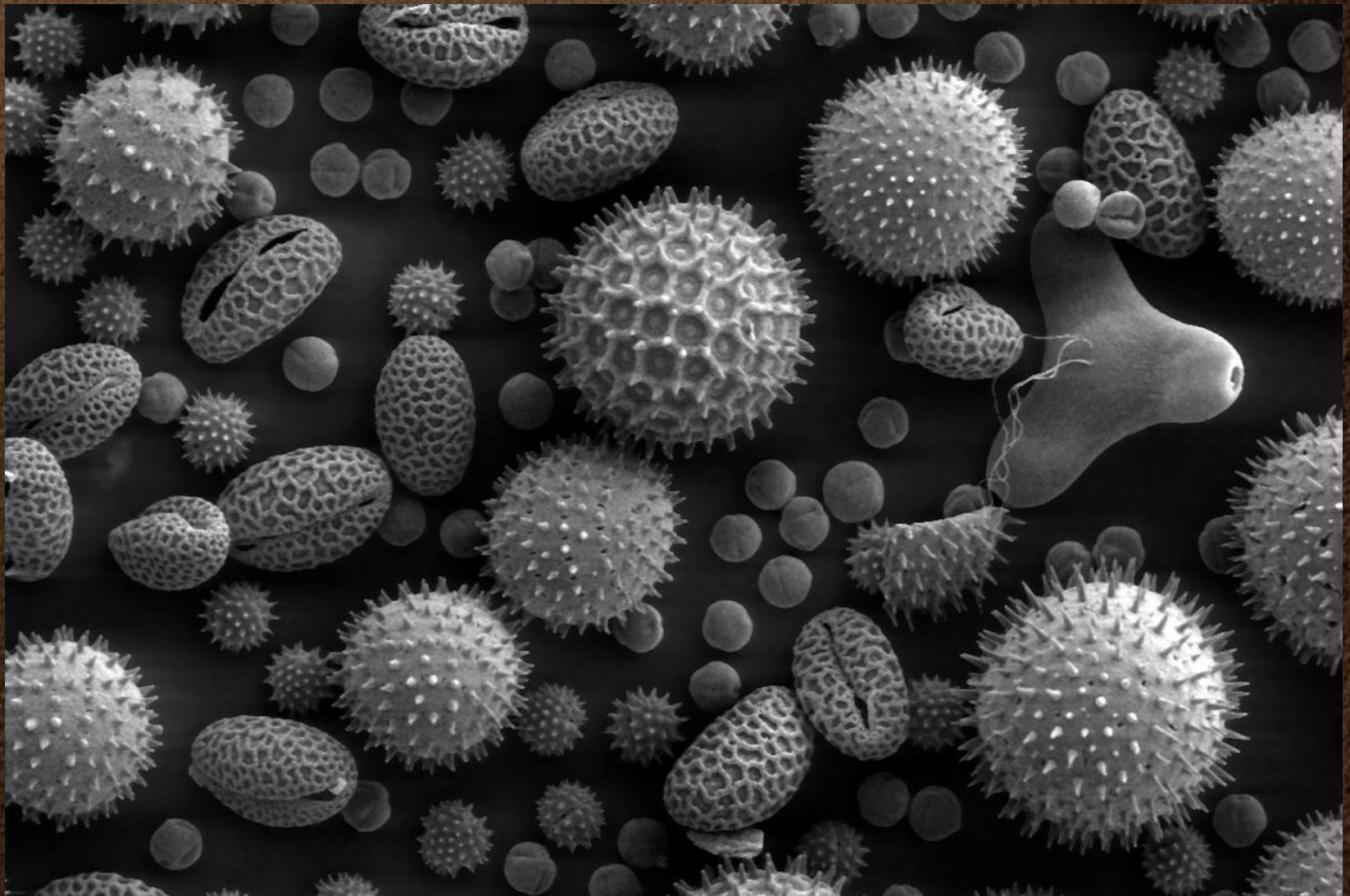


Housefly head





Pollen grains





Ant head



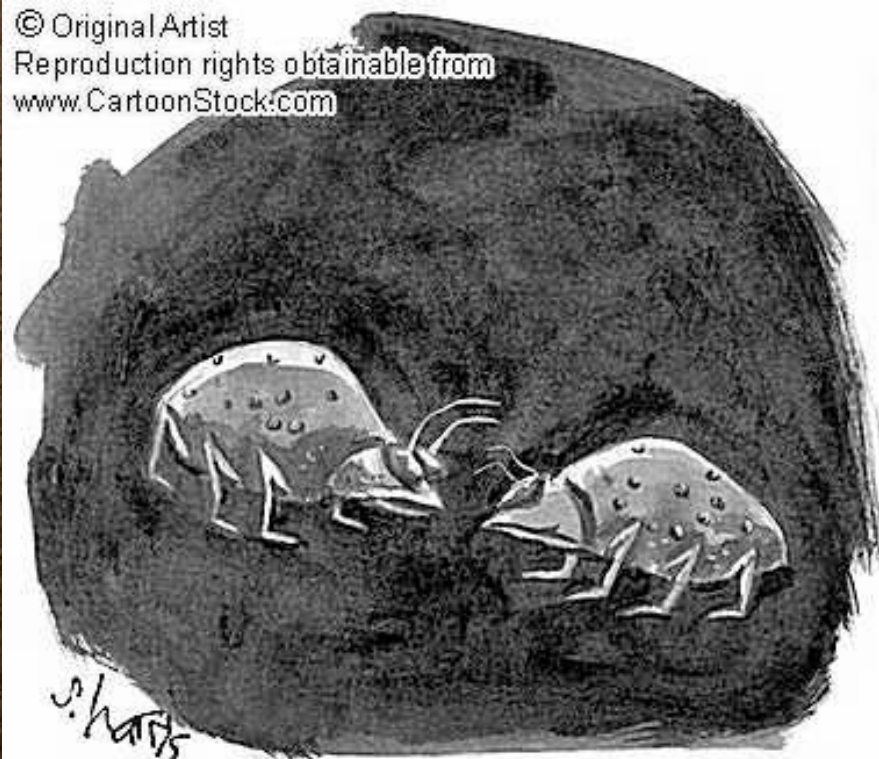


Dust mite



Microscopic Humor

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"YOU'LL FIND THAT WHEN YOU'RE SEEN ON A MILLION-VOLT ELECTRON MICROSCOPE, YOU REALLY WANT TO LOOK YOUR BEST."