

Spontaneous Generation vs Biogenesis

Spontaneous Generation

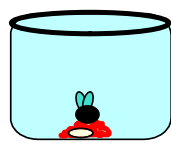
The idea that living things could come from nonliving material. (Frogs come from mud, etc.)

This was a classical idea, from ancient times. Several scientists tried to disprove the idea of spontaneous generation. It took a long time for people to stop believing in it!

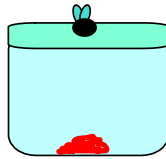
1688 - Francesco Redi



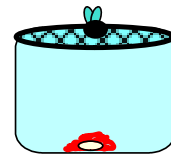
1626 - 1698



Open Jar with Meat



Sealed Jar with Meat



Screened Jar with Meat



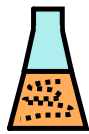
Redi: Maggots only appear when flies can lay their eggs on the meat. Maggots come from flies, not meat.

Public Response: If the meat doesn't have fresh air, it can't generate life!

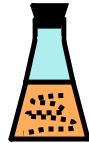
1768 - Lazzaro Spallanzani



1729 - 1799



Open



Sealed



Boiled & Sealed

3 Flasks with Beef Broth

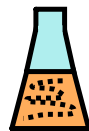
Spallanzani: Air is not an issue. Bacteria only comes from bacteria. It doesn't magically appear in broth!

Public Response: Boiling destroys the life-giving properties of broth, so it couldn't generate bacteria!

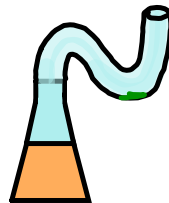
1864 - Louis Pasteur



1822 - 1895



Boiled & Open



Boiled & Open

2 Flasks with Beef Broth

Pasteur: Neither the air nor the boiling is an issue. Bacteria come from bacteria!

Public Response: ...! Okay, you win. Spontaneous generation isn't real.

Biogenesis

The idea that living things come from living things of the same kind. (Frogs come from frogs.)