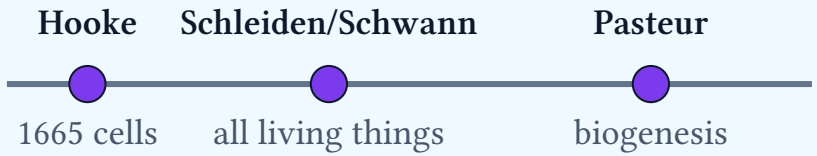
Science 10

Unit C: Cycling of matter in living systems

Cell theory and spontaneous generation

Pasteur’s experiment

- Air entered Pasteur’s swan-neck flask, but dust and microorganisms remained trapped in the curved neck.
- The sterile broth stayed clear until it contacted trapped particles.



Cells come from cells

- Pasteur showed that cells arise from existing cells under the tested conditions, and sterile broth stayed clear of new life.
- Broth exposed to air stayed clear until it contacted particles carrying existing cells.
- Air is distinguished from dust-borne microorganisms and the conclusion matches the experiment.

Key terms

cell theory

The model that organisms are made of cells, cells are the basic unit of life, and cells come from existing cells.

spontaneous generation

The rejected claim that living organisms routinely arise from non-living matter.

biogenesis

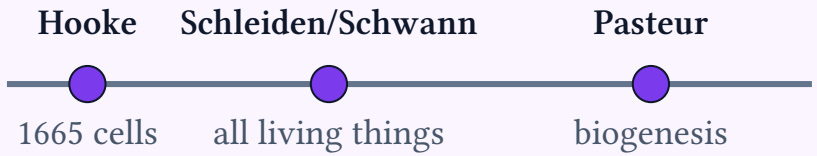
The principle that living cells arise from existing living cells.

controlled experiment

A test in which relevant variables are controlled so competing explanations can be compared.

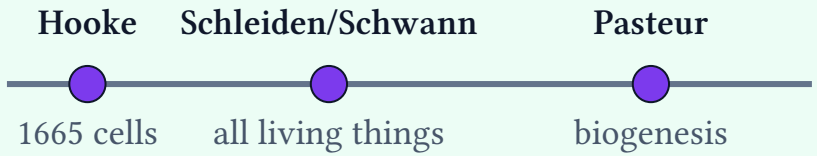
Cell theory timeline

- Hooke, Schleiden, Schwann, and Pasteur each added an observation this theory still uses.
- Viruses and prions lack cells of their own but depend on cells, so they sit at the edge of the theory.



Claim and evidence

- Identify Pasteur’s claim, one observation, and the reasoning linking them.
- A complete answer separates air from microorganisms carried on dust, and the conclusion matches the experiment.



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