Feb 7, 2012

1) Info on Early Experiments

Warm-Up

Briefly describe the experiment Redi used to try to change peoples ideas of spontaneous generation.

The Slow Death of Spontaneous Generation

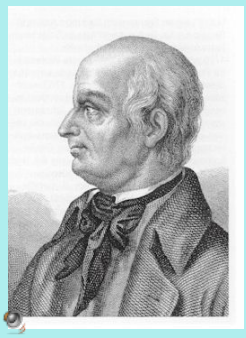
- Spontaneous generation is also known as the theory of abiogenesis.
- Redi's experiment in the 17th century was re-examined by John Needham about one century later.
- Needham observed that meat broth left unsealed soon changed color and gave off a putrid smell.
- Tiny microbes of mold and bacteria were discovered in the broth using microscopes, but their origin was unclear.

Needham's Experiment

- Boiled loosely sealed flasks containing meat broth for a few minutes to kill the microbes.
- Solutions appeared clear after boiling.
- After a few days, the broth appeared cloudy, and was examined under the microscope.
- Needham concluded that the microbes had come from nonliving things.

Spallanzani's Experiment

- About 25 years later, Spallanzani repeated Needham's experiment, but boiled the flasks longer, and sealed them completely.
- Conclusion: No microorganisms were found; abiogenesis did not occur.
- Objections: Once again, air (the "active ingredient") was missing.



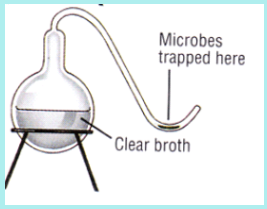
Pasteur's Experiment

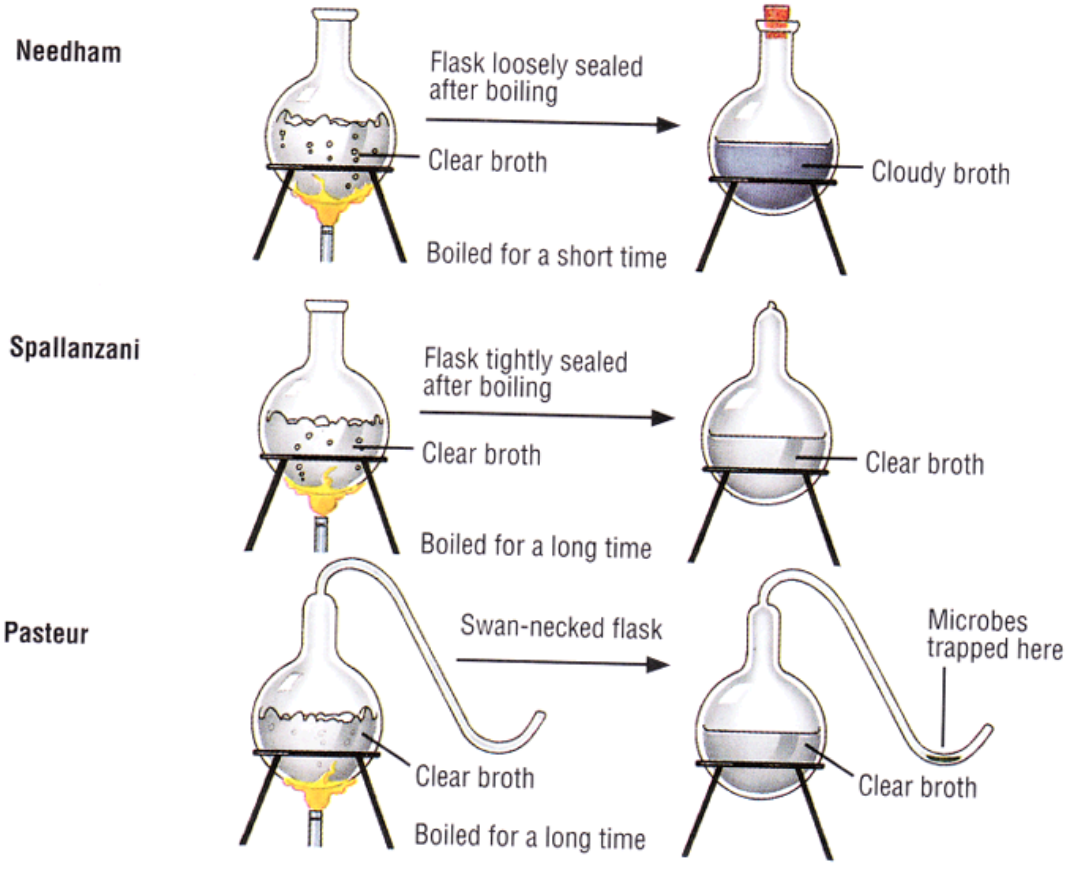
- 1864: Pasteur used a special swan-necked flask.

- Broth was placed inside, and boiled for a long time to destroy the microbes.

- Air was able to pass into the flask, but the microbes were trapped in the curve of the flask's neck.

- Broth remained clear; microscopic examination confirmed his prediction.





Read **pages 10,11** and answer the following questions

1. How did the work of John Needham cause a resurgence of the theory of abiogenesis?

2. How did Spallanzani improve upon Needham's experiment?

3. Why were Needham's supporters cautious about accepting Spallanzani's results?

4. Explain how Pasteur refuted the theory of spontaneous generation.

Attachments

Biology 112 Lesson 2- Early Scientists.notebook

1.1 Intro to Spontaneous Generation.notebook

Course Outline.notebook

The Basics of Biology What Is Life.asx