



Let's  
study!

# The Cell Theory

Prepared by:



# Lesson Objectives

At the end of the lesson, students are be able to:

01

Define cell theory and its basic principle

02

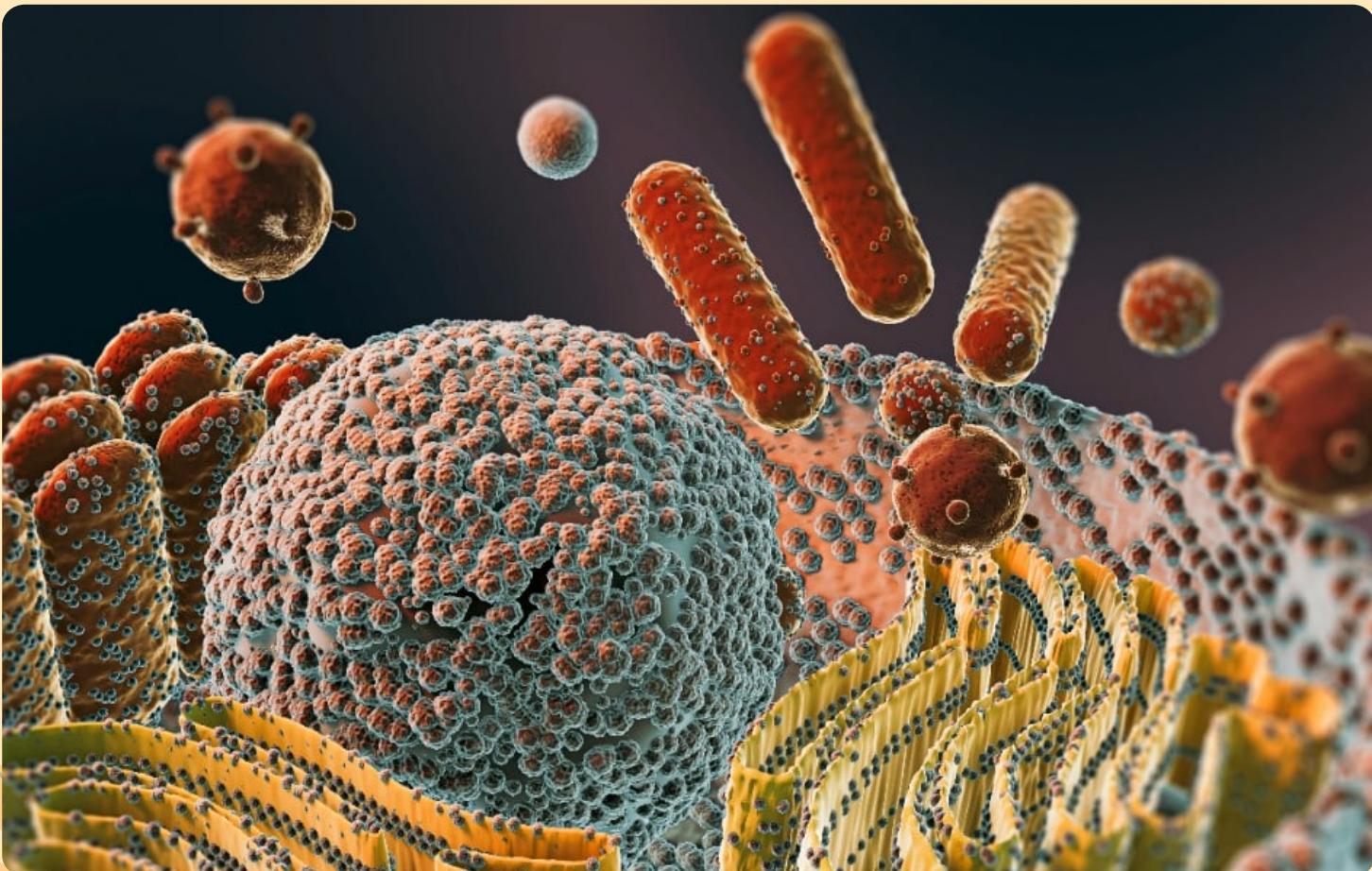
Explain the fundamental concepts of cell theory and their importance in understanding the structure of living organisms.

03

Identify the major contributors to the development of cell theory and describe their experiments or observations.

# The Basic Unit of Life

# CELL



A Cell is the fundamental structural and functional unit of all living organisms. It is the smallest unit of life and has the ability to replicate independently, forming the basis of life processes.

# STUDY OF CELL

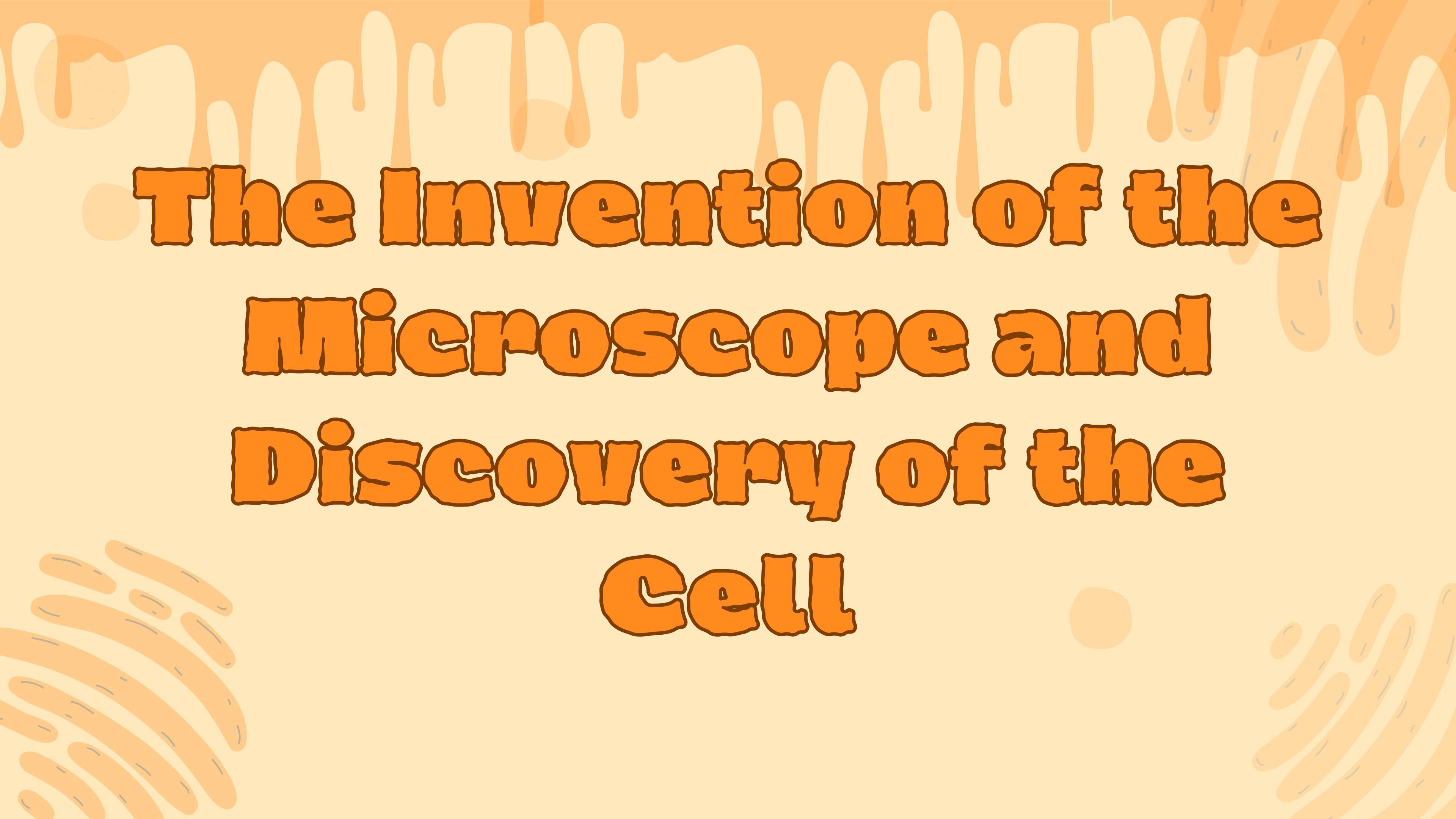


The study of cells, known as **Cell Biology**, investigates cells' structure, functions, and interactions within organisms, examining how they contribute to tissue and organ formation and their significance in health and disease.

# MICROSCOPE



The microscope is an instrument used to view objects that cannot be seen by the unaided eye. It can magnify the size of very small objects



The Invention of the  
Microscope and  
Discovery of the  
Cell

- Romans had already invented and experimented with glasses during the first century.
- They discovered that small objects become larger when viewed through this glass sample.



The word lens is derived from the Latin word lentil, because it closely resembled the shape of the lentil bean.

- Around 1595, the first compound microscope was invented by Zacharias Janssen (1580–1638)



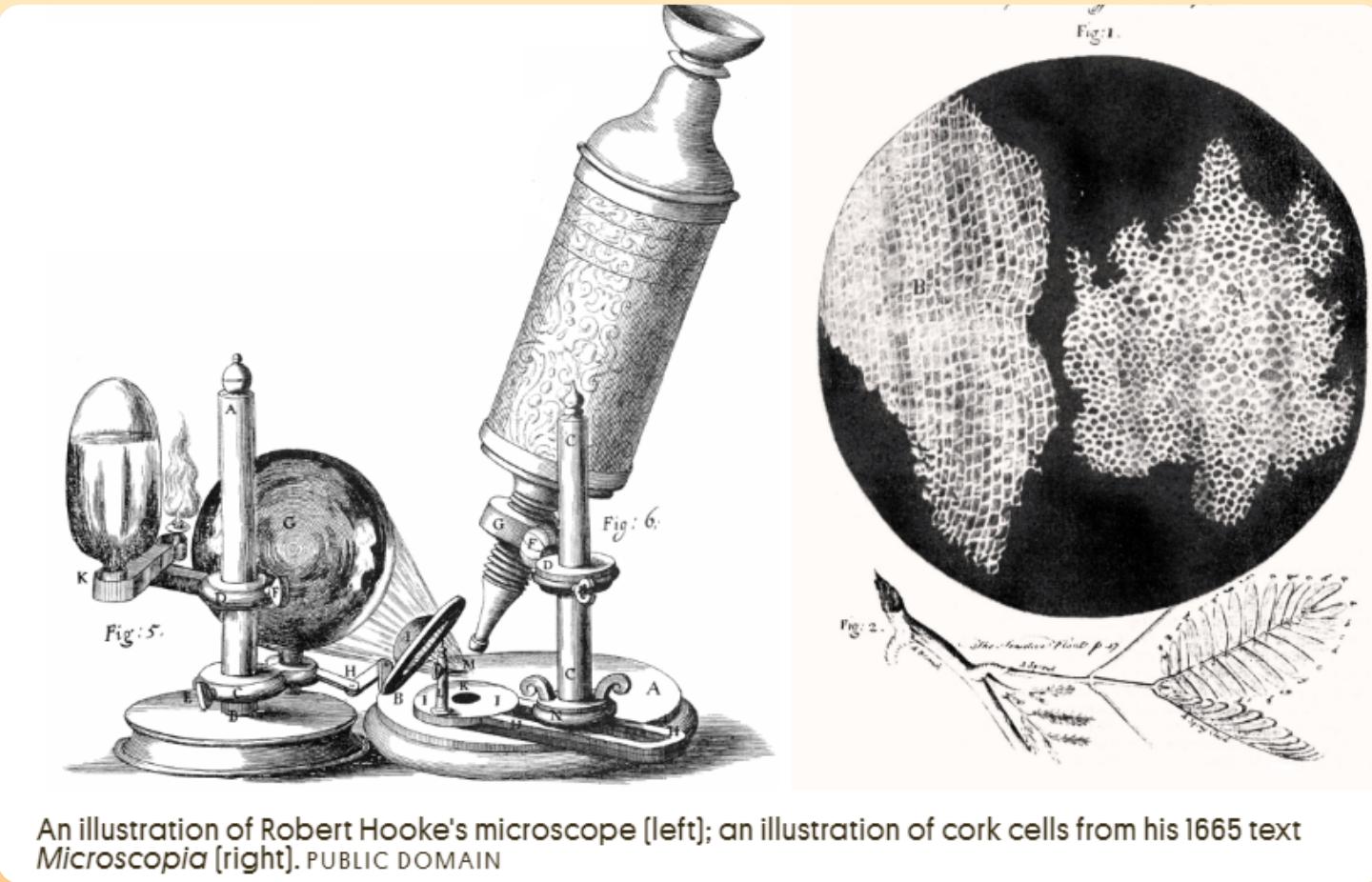
- They made these microscopes by placing several lenses together, and discovered that objects were further enlarged upon viewing.



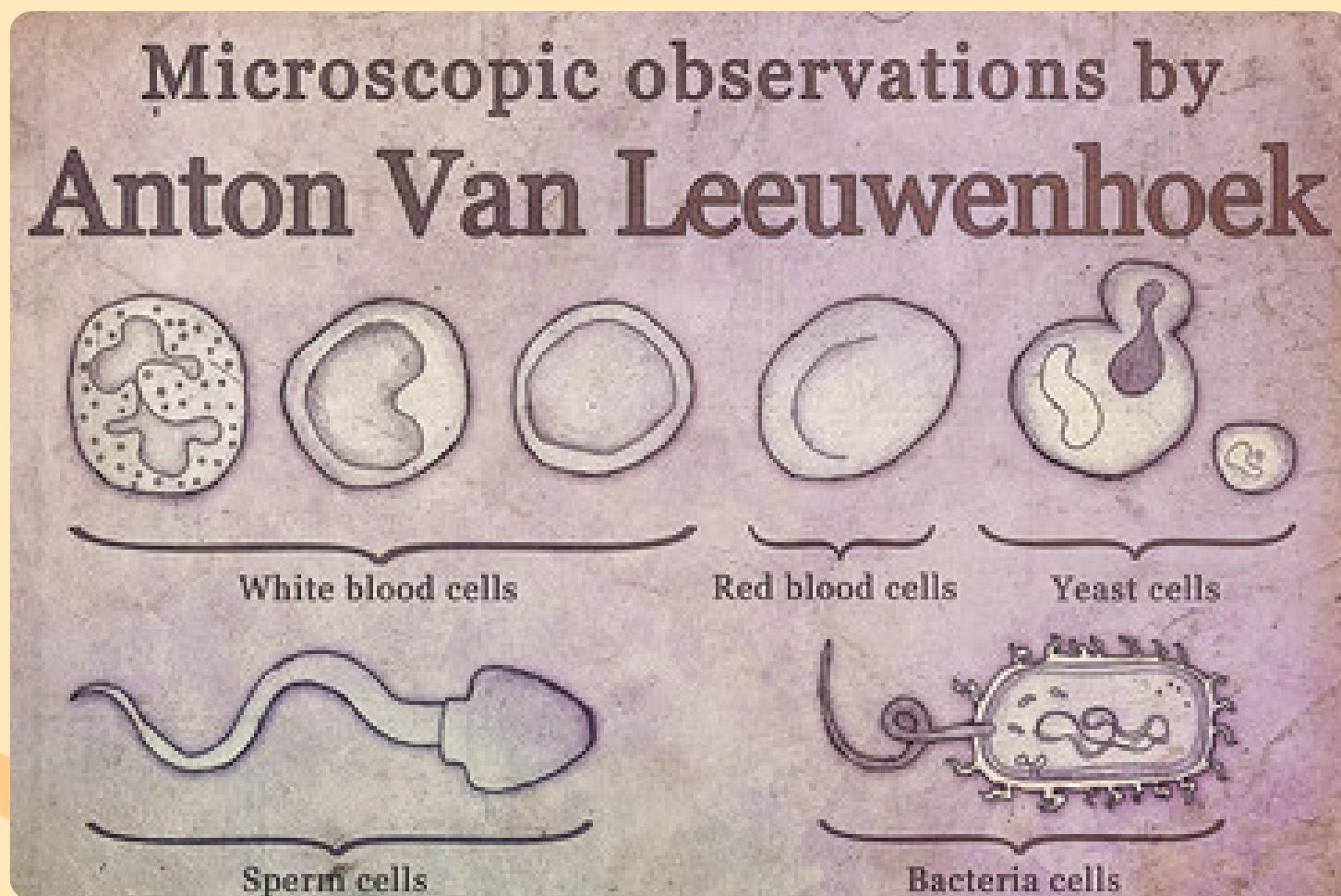
# The Discovery of Cells

# ROBERT HOOKE

Hooke discovered many tiny pores that he named "cells". This came from the Latin word "Cella". He described the cells as tiny boxes or a honeycomb. He thought that cells only existed in plants and fungi.



# ANTON VAN LEEUWENHOEK



Using a handmade microscope, Leeuwenhoek observed single-celled organisms in pond scum. He called them “animalcules” He also observed blood cells from fish, birds, frogs, dogs and humans.

# MATTHIAS SCHLEIDEN



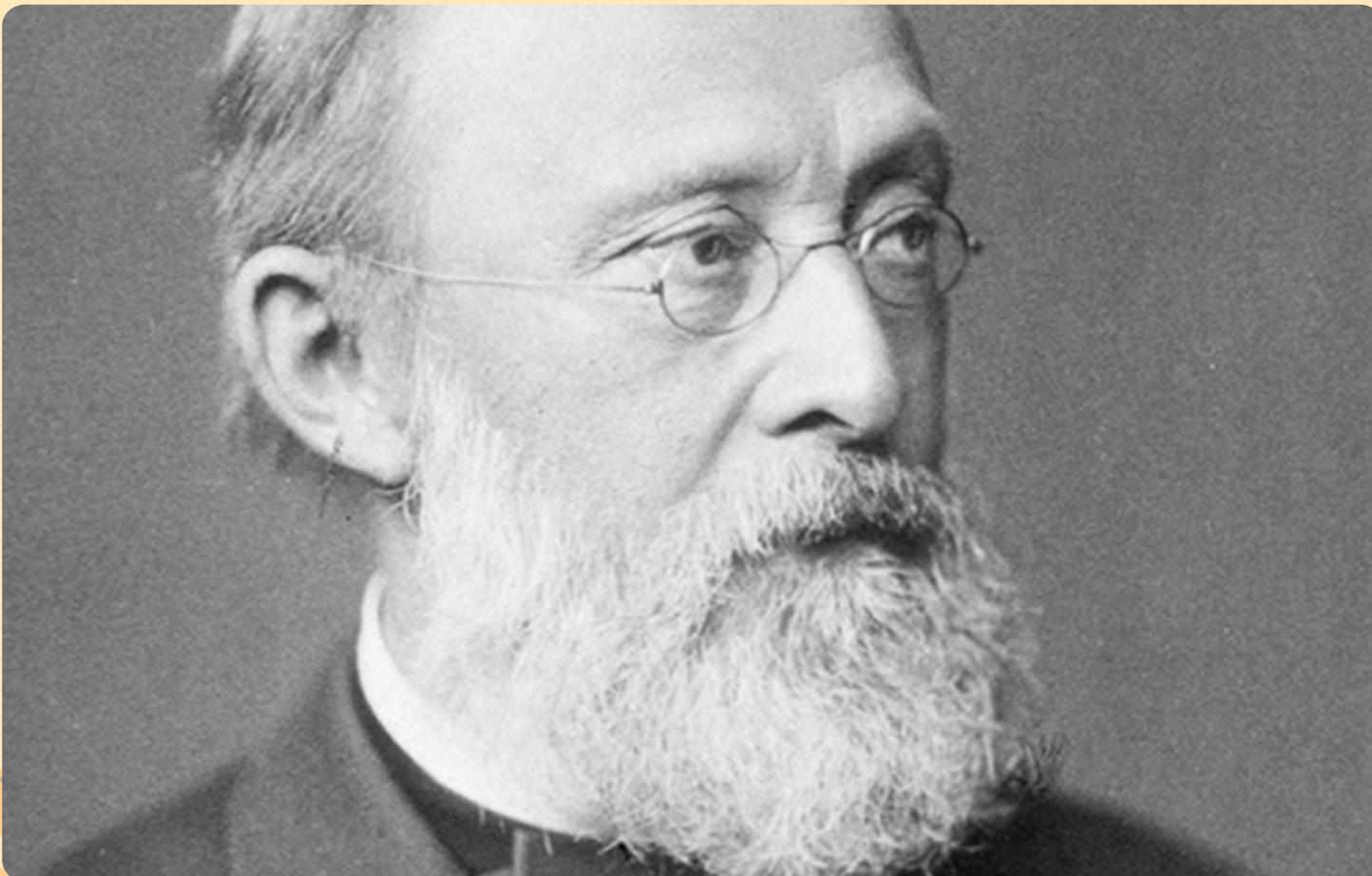
1838– German Botanist,  
Matthias Schleiden,  
concluded that all plant  
parts are made of cells.

# THEODOR SCHWANN



1839– German physiologist, Theodor Schwann, who was a close friend of Schleiden, stated that all animal tissues are composed of cells.

# RUDOLF VIRCHOW



1858- Rudolf Virchow, German physician, after extensive study of cellular pathology, concluded that cells must arise from preexisting cells.

# **ROBERT REMAK**



**Prove the idea of cell  
division by hardening the  
cell membrane**

# Cell Theory

THEIR RESEARCHES BECAME THE BASES OF THE CELL THEORY.

- ALL ORGANISMS ARE COMPOSED OF ONE OR MORE CELLS .
- CELL IS THE BASIC UNIT OF LIFE IN ALL LIVING THINGS.
- ALL CELLS ARE PRODUCED BY THE DIVISION OF PREEEXISTING CELLS.

# **Modern Cell Theory**

**MODERN CELL THEORY CONTAINS FOUR STATEMENTS, IN ADDITION TO THE ORIGINAL CELL THEORY:**

- **THE CELL CONTAINS HEREDITARY INFORMATION (DNA) WHICH IS PASSED ON FROM CELL TO CELL DURING CELL DIVISION.**
- **ALL CELLS ARE BASICALLY THE SAME IN CHEMICAL COMPOSITION AND METABOLIC ACTIVITIES.**
- **ALL BASIC CHEMICAL AND PHYSIOLOGICAL FUNCTIONS ARE CARRIED OUT INSIDE THE CELLS (MOVEMENT, DIGESTION ETC)**
- **CELL ACTIVITY DEPENDS ON THE ACTIVITIES OF SUB-CELLULAR STRUCTURES WITHIN THE CELL (ORGANELLES, NUCLEUS, PLASMA MEMBRANE ETC)**



# That's All!