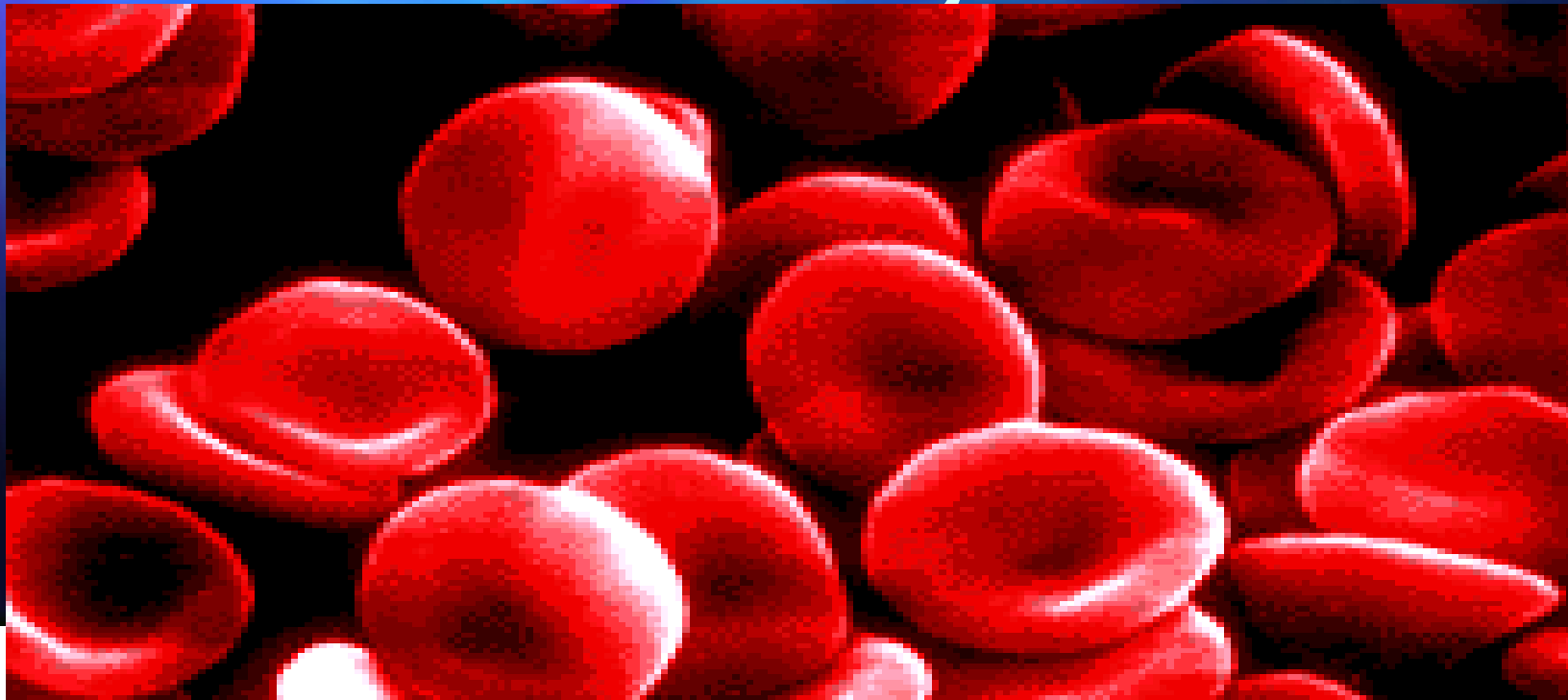


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The Cell Theory



# Some Random Cell Facts

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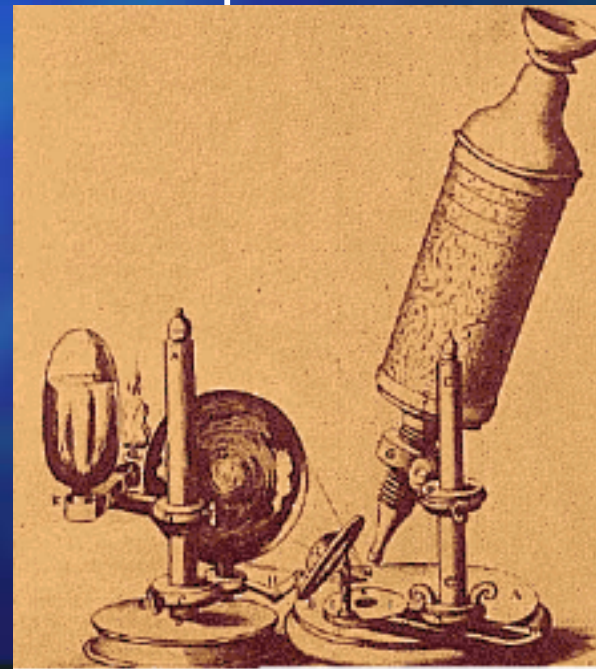
- The average human being is composed of around 100 Trillion individual cells!!!
- It would take as many as 50 cells to cover the area of a dot on the letter “i”

**WOW!!!**

# Discovery of Cells



- 1665- English Scientist, Robert Hooke, discovered cells while looking at a thin slice of cork.
- He described the cells as tiny boxes or a honeycomb
- He thought that cells only existed in plants and fungi



# Anton van Leeuwenhoek



- 1673- Used a handmade microscope to observe pond scum & discovered single-celled organisms
- He called them “animalcules”
- He also observed blood cells from fish, birds, frogs, dogs, and humans
- Therefore, it was known that cells are found in animals as well as plants





# 150-200 Year Gap???

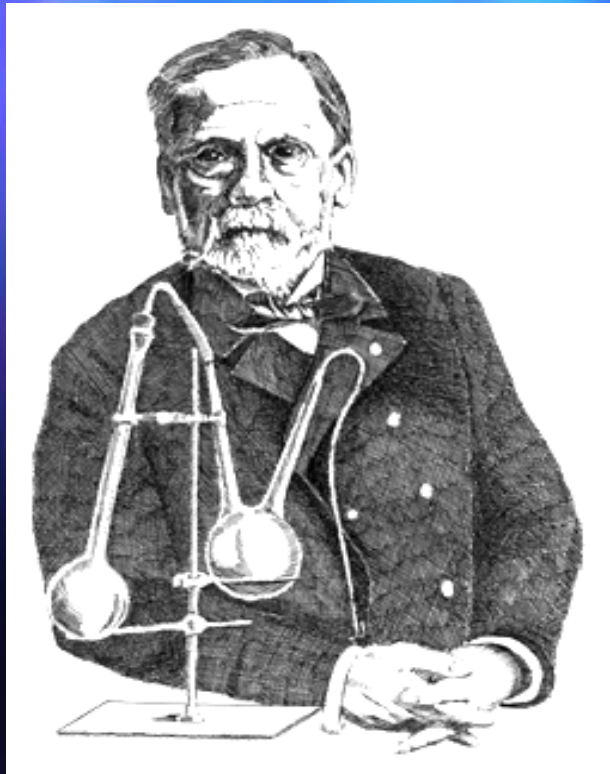
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- Between the Hooke/Leuwenhoek discoveries and the mid 19<sup>th</sup> century, very little cell advancements were made.
- This is probably due to the widely accepted, traditional belief in Spontaneous Generation.
- Examples:
  - Mice from dirty clothes/corn husks
  - Maggots from rotting meat



# 19<sup>th</sup> Century Advancement

- Much doubt existed around Spontaneous Generation
- Conclusively disproved by Louis Pasteur

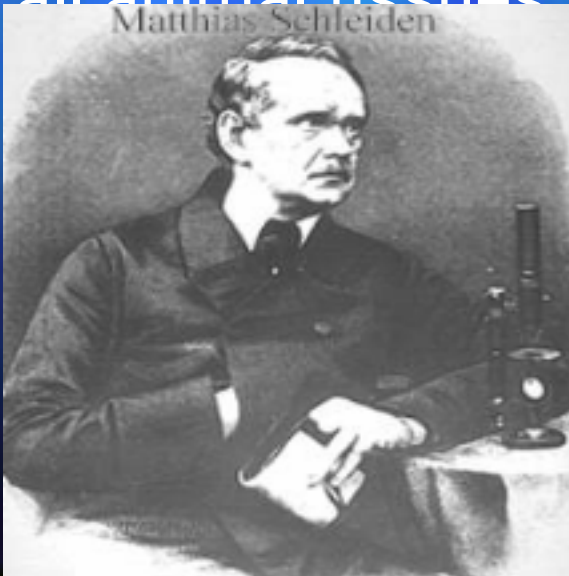


Pasteur: Ummm, I  
don't think so!!!



# Development of Cell Theory

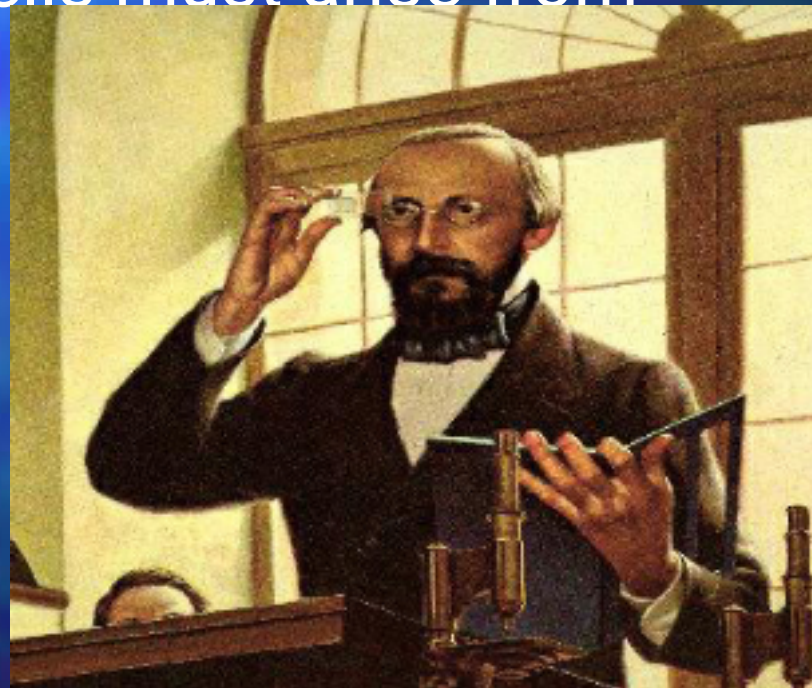
- 1838- German Botanist, Matthias Schleiden, concluded that all plant parts are made of cells
- 1839- German physiologist, Theodor Schwann, who was a close friend of Schleiden, stated that all animal tissues are composed of cells





# Development of Cell Theory

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





# The Cell Theory Complete

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- The 3 Basic Components of the Cell Theory were now complete:
- 1. All organisms are composed of one or more cells. (Schleiden & Schwann)(1838-39)
- 2. The cell is the basic unit of life in all living things. (Schleiden & Schwann)(1838-39)
- 3. All cells are produced by the division of preexisting cells. (Virchow)(1858)

# Modern Cell Theory

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- Modern Cell Theory contains 4 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 & 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)



# How Has The Cell Theory Been Used?

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- The basic discovered truths about cells, listed in the Cell Theory, are the basis for things such as:
  - Disease/Health/Medical Research and Cures(AIDS, Cancer, Vaccines, Cloning, Stem Cell Research, etc.)

# Some Parting Thoughts

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- It is amazing to think that the cells that make up our bodies are just as alive as we are. Humans are just an intricately designed community of cells, which must work together to survive



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