

INTRODUCTION TO MICROBIOLOGY

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MICROBIOLOGY

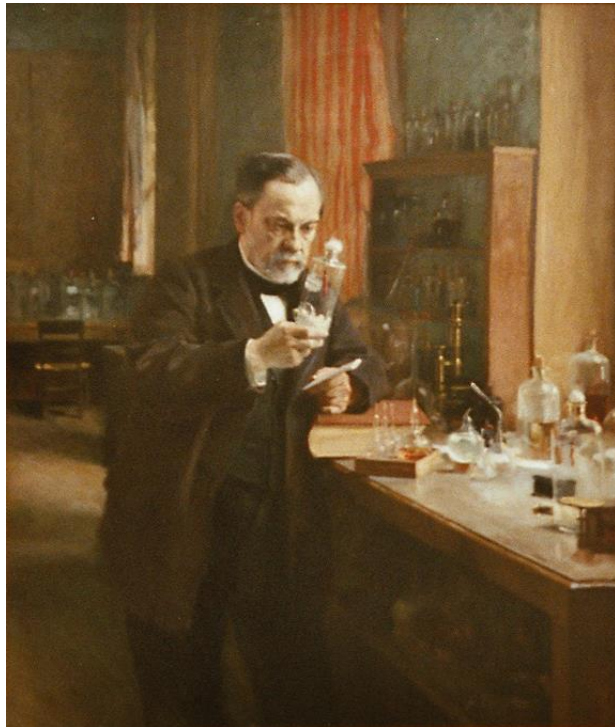
- Branch of science related with botany and zoology.
- Science of microorganism (organism of minute size).
- Father of microbiology - **ANTON VAN LEEUWENHOEK.**



LINKED BRANCHES

- INDUSTRIAL MICROBIOLOGY

Father- Louis Pasteur



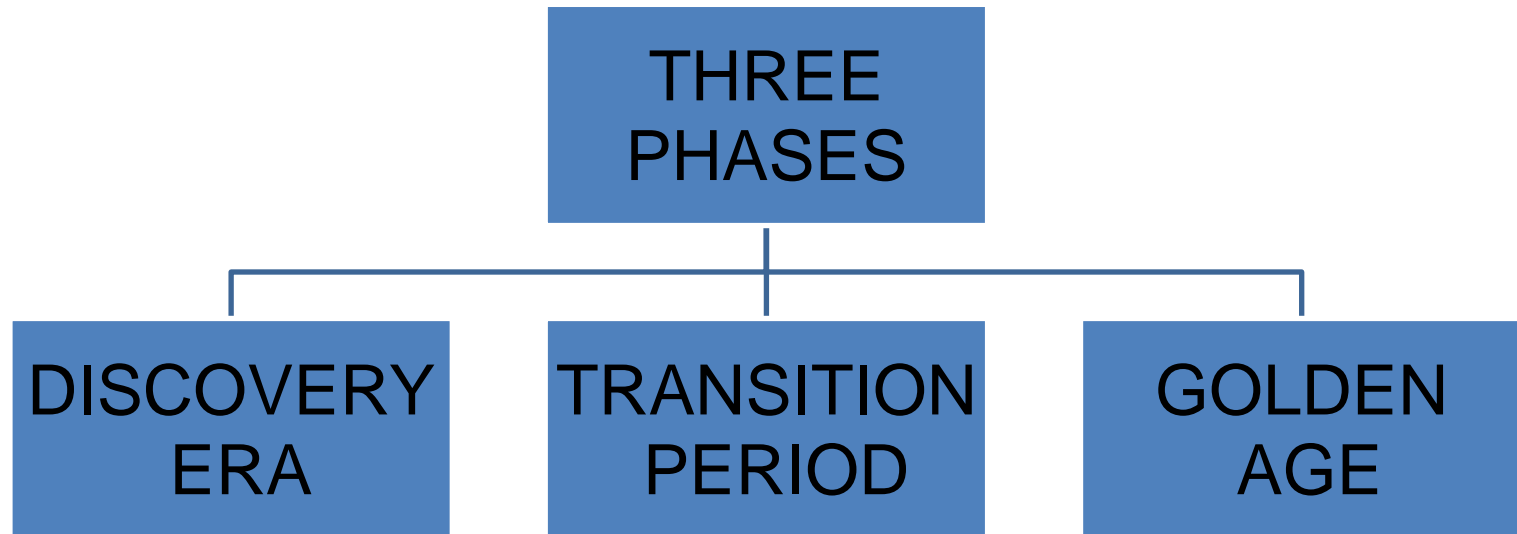
- MEDICAL MICROBIOLOGY

Father- Robert Koch



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HISTORY OF MICROBIOLOGY



DISCOVERY ERA

Major contributors : Marcello Malpighi & Anton Van Leeuwenhoek.

- Malpighi – Described the cells of brain and kidney tissues. Professor of Bologna University. Described the breathing system of insects.

ANTON VAN LEEUWENHOEK

HIS CONTRIBUTIONS

- First one who introduced term microbes.
- Looked microbes firstly in rain water & then in pond water.
- Tested tissue samples, cells, fluids, his own blood and scrapping from his own teeth.
- Experimented on lots of environmental aspects.

TRANSITION PERIOD

- Abiogenesis : According to this concept it was believed that life comes from non-living material. Supported by Vanhelmont and John Ray.
- Biogenesis : According to this concept it was believed that life comes living material. Supported by Francesesco Redi, John Needham, John Tyndall, Nicholas Appert, and Louis Pasteur.

GOLDEN AGE

- Period between 1860 to 1910.
- Two major contributors: -‘Louis Pasteur’ and ‘Robert Koch’.
- Peak period in upcoming of this branch of science.
- Brings about many experimental inputs in the field.
- Lots of new things are made explored in this period.

LOUIS PASTEUR

- Briefed that microbes are the agents that bring about chemical changes.
- Supported the concept of biogenesis
- Demonstrated that air contains micro-organisms.
- Introduce the term **Fermentation.**
- Explained Swan-Necked flask experiment

FERMENTATION

- Natural chemical process that involves the breakdown of protein albumin and conversion of grape juice to wine.
- Grape juice + Yeast + Heat → **No wine**
- Grape juice + Yeast + Bacteria + Heat → **Sour wine**
- Grape juice + Yeast + Bacteria + Heat → More Yeast added + incubation period → **Good wine**

SWAN NECKED FLASK EXPERIMENT

- Explained that air contains micro-organisms.
- Thus air can contaminate food.
- Used round bottom flask and swan necked flask.

ROBERT KOCH

- Contributed a lot in the field of medicines and drugs .
- Briefed that germs can be transferred from one organism to other.
- Also worked on Anthrax disease.
- Demonstrated germ theory of disease-
KOCH'S POSTULATE.

KOCH'S POSTULATE

- Observed pathogenic organisms from a dead animal in a tissue sample.
- Isolate them in pure culture.
- Inoculate them in other healthy animal.
- Found that healthy animal with same symptoms of the disease .
- And identify that germs can be transferred from one to the other.

END OF GOLDEN AGE

- Fransco-Prussian war separated Pasteur and Koch.
- France and Germany undergo unification.
- Louis become symbol of French achievements and Koch, the German counterpart.
- Professional rivalry arises.
- Cross justifications of inventions made the moves slower.

Don't worry
It's over



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