Study of well-known microbiologists and their contributions through charts and photographs.

Anton Van Leeuwenhoek.[1632-1723]

- Anton van Leeuwenhoek invented the first practical microscopes and used them to become the first person to see and describe bacteria.
- Leeuwenhoek was borne in Holland on October 24, 1632.
- He was a draper and owned a small goods shop in delft Holland.
- As a hobby he used to grind glass and make lenses.
- He fixed his lenses placing them between 2 silver or brass plates riveted together.
- At the shop, magnifying glasses were used to count the threads and inspect the quality of cloth.
- He was inspired and taught himself new methods for grinding and polishing tiny lenses of great curvature, which gave magnification up to 275x(275 times the subjects original size), the finest known at that time.
- With this microscopic Leewenhoek observed observed a variety of things mainly out of curiosity, hair fibres, plant structure, insect, crystals , a variety of fluids such as pond water blood etc.
- Scarping from own teeth and transparent tail fins of fish.
- He examined blood and discoved some tiny microbes that are nothing but erythrocytes.
- Leewenhoek greatest claim to frame in the field of microbiology was his discovery and distription of microbes, which he called animalcules.
- Leewenhoek had been corresponding with a british royal society and used to send communications regarding his microscopic observation.

Louis Pasteur:[1822-1895]

- Louis Pasteur was born in the village of Dole, in France on December 27, 1822.
- He had a humble origin and Pasteur was originally trained as chemist but later switched over to medicinal research.
- For his innumerable contributions in the field, he is also known as the **Father of Microbiology**.
- He is renowned for his discoveries of the principles of **vaccination**, microbial fermentation and pasteurization.
- The following are his contribution:

✓ Tartaric acid, an organic compound is formed by 2 types of crystals which could be separated microscopically.

✓ Discovery of microbial fermentation.

✓ Disproving the theory of spontaneous generation.

✓ Discovery of aerobic microbes.

✓ Work on silk worm disease.

✓ Work on Anthrox and Rabies disease.

✓ Pasteurization[Partial killing of micro-organism]

- In recognition of his path breaking discoveries, a special institute- The Pasteur institute, was built for him by public support.
- Pasteur died in Paris on September 28, 1895
- His tomb is in the Basement of the institute in Paris.

Robert Koch[1843-1910]

- Robert Koch was born on December 11 1843, in Germany.
- He took his medical degree in 1866, Began practicing, but switched over to microscopic studies which engaged him full time.
- He was the German bacteriologist who discovered the bacteria that causes anthrax, septicaemia, tuberculosis and cholera, and his methods enabled others to identify many more important pathogens.
- Robert Koch's main contributions are:

✓ Germ theory of diseases – work on Anthrax Bacillus.

✓ Discovery of Tuberculosis bacilli.

✓ Koch introduced the method of making smears of Bacteria on glass and staining them with Annelin dyes.

✓ Plate method for isolating pure cultures.

✓ He died on may 27, 1910.

Joseph Lister[1827-1912]

- Joseph Lister was born in England on April 5 1827.
- Lister obtained his degree in 1852 and then went on to become professor, of surgery at Glasgow and later at the Kings college ‘london’.
- He was the first person to isolate bacteria in pure culture (Bacillus lactis) using liquid cultures.
- Lister’s contribution towards surgery are many.
- His major contributions are been in preventing wound infection after surgery by following antiseptic methods.
- Lister choose carbolic acid soaped dressing to cover the wound of compound fractures which usually caused inflammation, wounds healed.

Edward Jenner[1749-1823]

- Edward Jenner an English Physician who had suffered the pain of variolation at his younger age.
- He invented vaccination.
- He developed a scientific and far safer method to small pox immunization. His work is based on his observation on milk mainly those who often contracted cow pox, were remarkable resistance to small pox.
- In 1786 Jenner inoculated a boy with material got from the lesion of milk maid who was attacked by cowpox. After taken from a infected patient suffering from pox. But the boy did not get the disease, this made him to concluded that this process of inoculation leads to immunity against small pox .Later it was Louis Pasteur who coined the term vaccine for such process of prophylaxis in honour of Edward Jenner who prepared the 7^{th} vaccine for cow pox.[vacca cow]-**Latin word.**
- Thus the process of vaccination was introduced by Jenner and according to the WHO, Jennerian vaccination, has eliminated a small pox from the human population, in a double quick time.
- Lister developed a routine for the use of carbolic acid during operation which came to be known as “Listers antiseptic system”.

Alexander Fleming[1881-1955]

- Flemming a British bacteriologist received noble prize in 1945 for the discovery of Penicillin.
- He discovered lysosome.

  -An enzyme present in body fluids such as saliva and tears that has a mild antiseptic effect.

  That was the first of his major discoveries.
- He discovered the first wonder drug namely penicillin from penicillium.[a fungus].
- On September 3, 1928, shortly after his appointment as professor of bacteriology, Fleming noticed that a culture plate of *Staphylococcus aureus* he had been working on had become contaminated by a fungus.
- later identified as *Penicillium notatum* (now classified as *P. chrysogenum*), had inhibited the growth of the bacteria.
- At first fleming thought *Penicillin* is enzyme, but it turned out to be antibiotic. This was the first antibiotic discovered.
- In june 1929 fleming published a paper in the British journal of experimental pathology, in this paper, Fleming wrote " Penicillin may be an affective antiseptic for injection into areas infected with Penicillin sensitive microbes".

Martinus W Beijirnck

- Martinus Willium Beijirnck a dutch was born on 16th March 1851 in Amsterdum Netherlands.
- Beijerinck was the first to recognize that viruses are reproducing entities that are different from other organisms.
- His greatest contribution to the field of microbiology was the development of the enrichment culture technique in 1888.
- He also discovered new types of bacteria from soil and described biological nitrogen fixation (the conversion of nitrogen gas into ammonium, a form usable by plants).
- He isolated *Bacillus radicicola* and prove that it forms nodules on roots of leguminous plants[later called Rhizopus].
- In 1904 he discovered the phenomenon of bacterial sulphate reduction a form of anerobid respiration.
- He's considered as the founder of the field of environmental microbiology as well as virology.