ROBERT KOCH, PREVENTION OF DISEASE

Louis Pasteur 1865  (P 11) Demonstrated that spoilage of wine was due to abnormal microorganisms. Then asked by French gov to study PEBRINE: (pa-breen) another disease of silkworms, caused by a protozoan. Could be halted by identifying diseased worms, removing and destroying.

Davaine 1850 observed little thread-like bodies in blood of anthrax-killed animals

Henle proposed that diseases might be directly caused by microorganisms. His student, Koch: (p 13) (1843-1910) First to demonstrate bacillary agent to be the cause of anthrax (coal, burning coal, from pustules & carbuncles in affected livestock) Rival of Pasteur.) His teacher, Henle, suggested criteria by which a bacterium may be said to cause a disease now called Koch's postulates:

Koch's Postulates (p 14) (in study of etiology of anthrax)
1 All diseased individuals display putative pathogen. (microscopic examination found bacillus in blood of all animals with anthrax)
2 Obtain PP in pure culture: single colony-isolated on solid media. (Koch devised single colony isolation on cut potato.)
   a Walter Hesse's wife suggested using agar to solidify media.
   b Petri developed a shallow dish for culture.
   c Loeffler developed nutrient broth and stains.
3 Cause disease by injecting pure culture into healthy animals
4 Isolated same PP from animals experimentally diseased.
Identified Bacillus anthracis as etiological agent.

Viruses:
IvanovskoyeBeijerinck 1884 Showed that tobacco mosaic disease was caused by "filterable" agent (Passed thru a Chamberland porcelain filter (i.e., not bacteria) therefore called virus.

Prevention, Cure of Disease: Vaccination, therapeutic agents:
Edward Jenner 1798 (p. 17) Saw peasants do this in Turkey. Inoculated susceptible person with pus from cowpox lesion, conferred resistance to Small Pox. Vaccination comes from vache, cow in French.

Pasteur 1880 Cultured chicken cholera repeatedly, it lost its virulence but could still confer immunity when injected. Attenuated [towards thinness] strain = vaccine

Erlich 1910 Searched for "magic bullet" would poison pathogen but not patient. Developed salvarsan, an arsenic compound against syphilis.