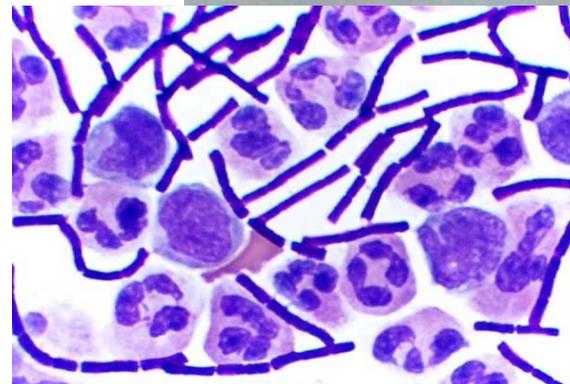
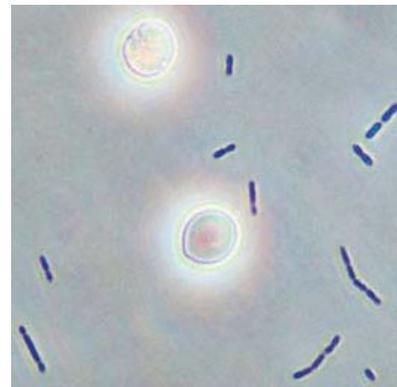


# ROBERT KOCH, PREVENTION OF DISEASE

rvsd 20 July 1992, 6/28/93, 8 July 1994, 5 July 1995, 8 July 1996, 8 July 98, 5 July 2000, 3 July 01, 8 Jan 02, 3 July 02, 9July04, 08July05, 6July08, 8July11, 24Sept12

Black 6<sup>th</sup>: p 8-21, Bauman 2<sup>nd</sup>: 11-22, Bauman 4<sup>th</sup>: 11-22

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|----------------------|------|--|
| <b>Louis Pasteur</b> | 1865 | (P 11) Demonstrated that spoilage of wine was due to abnormal microorganisms. Then asked by French gov to study <b>PEBRINE</b> : (pa-breen) another disease of silkworms, caused by a protozoan. Could be halted by identifying diseased worms, removing and destroying.   |
| <b>Davaine</b>       | 1850 | observed little thread-like bodies in blood of anthrax-killed animals  |
| <b>Henle</b>         |      | proposed that diseases might be directly caused by microorganisms. His student, Koch:  |
| <b>Robert Koch</b>   | 1876 | (p 13) (1843-1910) First to demonstrate bacillary agent to be the <b>cause of anthrax</b> (coal, burning coal, from pustules & carbuncles in affected livestock) Rival of Pasteur.) His teacher, <b>Henle</b> , suggested criteria by which a bacterium may be said to cause a disease now called <b>Koch's postulates</b> : |



## 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:

- |                                 |      |  |
|---------------------------------|------|--|
| <b>Ivanovsky&amp;Beijerinck</b> | 1884 | Showed that tobacco mosaic disease was caused by "filterable" agent ( <b>Passed thru a Chamberland porcelain filter</b> ( <i>i.e.</i> , not bacteria) therefore called <b>virus</b> ). |
|---------------------------------|------|--|

## PREVENTION, CURE OF DISEASE: vaccination, therapeutic agents:

- |                      |      |   |
|----------------------|------|---|
| <b>Edward Jenner</b> | 1798 | (p. 17) Saw peasants do this in Turkey. Inoculated susceptible person with pus from cowpox lesion, conferred resistance to Small Pox. <b>Vaccination</b> comes from <i>vache</i> , cow in French. |
| <b>Pasteur</b>       | 1880 | Cultured chicken cholera repeatedly, it lost its virulence but could still confer immunity when injected. Attenuated [towards thinness] strain = vaccine  |
| <b>Erlich</b>        | 1910 | Searched for " <b>magic bullet</b> " would poison pathogen but not patient. Developed salvarsan, an arsenic compound against syphilis.  |
| <b>Flemming</b>      | 1928 | (P 21) (1881-1955) Noted inhibition of Staphylococcus growth on plate contaminated with <i>Penicillium notatum</i> . Discovered penicillin.   |

