Journal Club Question Set

A bacteriophage for *B. anthracis*
Philip B. Cowles
J Bacteriology
1931, p 161-166

1. Can you derive the 'lytic principle' of a bacteriophage? What does 'lytic principle' mean?

2. You know how to find a phage by enrichment culture and direct plating. Read the methods on page 161-162 carefully and draw a flow-chart/picture of their phage hunting methods. (Hint: It starts with sewage, it ends with plaques. What's in the middle?) Bring your drawing to class and we will compare/contrast to our methods.

3. Lab math: Page 164 describes "Duplicate dilutions of organisms were made by adding 0.5cc of an eighteen-hour broth culture of *B. anthracis* to 4.5 cc of broth and making 0.5 cc. transfers through ten tubes. One-tenth cubic centimeter of potent bacteriophage was then added to each tube of one series, while the other series served as a control."
    a) What does this mean, what process is the author describing here?

    b) Can you draw it?

Relating this article to the novel Arrowsmith, written by Sinclair Lewis

4. This article was written in 1931, and Sinclair Lewis published Arrowsmith in 1924.

    a) What was the status of microbiology/virology and phage therapy around this time?

    b) Martin Arrowsmith's research mentor Max Gottlieb teaches a microbiology course where students work with *B. anthracis* spores and he infects a rat during class to illustrate a fatality result. *B. anthracis* is now categorized as a Biosafety level 2/3 organism requiring containment. Were any microbiology practices portrayed well from the perspective of safety?