Name: Block:

Poisoner's Handbook **- background info** (http://viewpure.com/mNfYGDAqFvQ?ref=bkmk)

Toxicology is a branch of chemistry that focuses on the adverse effects on chemicals on living organisms. An even more narrow branch of toxicology is called "forensic toxicology", and it focuses on using what we know about toxicology to solve crimes. This field has only existed for about 100 years. Alexander Gettler has been called the "father of forensic toxicology in America". He was employed at the Office of Chief Medical Examiner of the City of New York between 1918 and 1959. His work not only included scientific discoveries that furthered the field of toxicology; it also had very important effects on society. His work led to big improvements in public health and safety, and also led to chemical evidence being accepted in court.

The movie *Poisoner's Handbook* is a historical documentary that covers several of the interesting cases Gettler worked on, as well as some of the effects on society at the time. I hope that you enjoy the movie and that it gives you an idea of how understanding chemicals, at the level of atoms and bonds, can have a huge impact on society and daily life.

Poisoner's Handbook **- Questions to answer as you watch**

1. Solving the murder of Fremont and Annie Jackson
   - What observations led Gettler to hypothesize that cyanide poisoning was the cause of death?

   - Was there cyanide present in the Jacksons' stomachs? _____ How did Gettler know?

   - Was there cyanide present in the Jacksons' lungs? _____ How did Gettler know?

   - The jury decided to acquit the fumigator responsible for the cyanide poisoning of the Jacksons. Why wasn't Gettler's testimony about the cyanide in their lungs sufficient to convict them?

2. Solving the murder of Mrs. Creighton
   - In the case of Fanny Creighton, how did Gettler determine that Mrs. Creighton was not murdered by arsenic poisoning?

3. Understanding methanol poisoning during Prohibition

- Ethanol, the alcohol in alcoholic beverages, has the chemical structure CH_3CH_2OH. Methanol, the alcohol made from distilling wood, has the structure CH_3OH. Why is methanol so much more toxic than ethanol?

4. Discovering that leaded gasoline was toxic

- Gettler studied the body of a man who worked at a factory producing gasoline with tetraethyl lead added. How did Gettler determine there was lead in the man's brain?

- How was the concentration of the lead determined?

5. Solving Frederickson's death

- How did Norris know, just from looking at the body, that Frederickson had died from carbon monoxide poisoning?

6. Understanding denatured alcohol

- What is "denatured" alcohol?

- Why is denatured alcohol used in industry instead of regular ethanol?

7. The case of women working at the watch factory

- Several women who had worked with paint containing radium experienced anemia, bleeding, bone degeneration, and then died. At first, no one believed that radium could be the cause of the illness and death. Why not?

- Why does radium accumulate in bones?

8. Solving the Gross family's deaths

- How did Gettler determine that the chemical in Gross's cocoa was copper, not thalium?