Biology 446, Unsolved Problems, September 10, 2012

Your name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Please rank the relative importance of following in causing Watson's discovery of the**

**structure of DNA.**

A) Watson knew about Avery's discovery that DNA carries genetic information.

B) Watson had read Schrödinger's and Delbrück's conclusion that low mutation rates would not be possible if genes were encoded by conformational folding of molecules;

In other words, mutations must require breaking covalent bonds?

C) He had read Pauling's (much earlier, ~1940) theoretical paper which argued that some analogy to photographic positives and negatives, molds and templates, etc. is the only possible explanation of self-duplication of molecules.

D) Watson knew about "Chargaff's Rules" of DNA base ratios.

E) Watson didn't tell Chargaff about Schrödinger's idea, Pauling's positive-negative theory, or Avery's discovery. (Or maybe he tried to, but Chargaff wouldn't listen?)

F)  Bragg persuaded the editors of Nature to publish Watson and Crick's manuscript without sending it to referees, as was required for 99.9% of manuscripts submitted.

G) Bragg didn't require that he be a co-author on the paper (as about 3/4 of lab directors do).

H) Watson was shown Rosalind Franklin's data, without her knowing about it.

I) Franklin wasn't shown any of Watson's data.

J) Watson had been locally famous as a "Quiz Kid" on the radio when he was a child.

K) Watson started college when he was 15; and earned a PhD (with a trivial thesis) when correspondingly very young.

L) Watson desperately wanted to feel superior to everybody, and some Nobel Prize worthy discovery was his only chance to justify his egotism.

M) Watson despised and feared nearly everyone around him, and needed to create some justification for his extreme egotism.

N) People around Watson were nevertheless very kind to him, and mostly forgave his misbehavior.

O)  The intellectually stimulating atmosphere of Cambridge, perhaps the most intense in the world.

P) The March of Dimes (Polio research charity) paid Watson's expenses, although his research wasn't really about polio.

(Which is a good argument that basic research can produce very big advances in Medicine. But this isn't discussed enough, either in Watson's book, or by his critics.)