Understanding Science and Scientific Methods:

An Overview for Lawyers

SUMMARY – 24 October 2005

Class on 17 October 2005 Covered 3.a.i. on the Syllabus

I. Bendectin and the Daubert (1993) Decision

A. What is Scientific Knowledge and when is it reliable? – (F & H p.1) --

1. Observation, Experiment, Explanation, Prediction -- Goal --

Universal Laws

2. Inductive Reasoning and Creative Leaps

3. Textbook example is Physics: F=MA, e=Mc^2,

\[ F(\text{gravitation}) = F_g = G \frac{m_1 m_2}{r^2} , \text{ etc. Interlocking, Universal Laws.} \]

4. To be scientific knowledge it must be:

a. Falsifiable –

   i. To be scientific a theory must make predictions concrete enough to be proved wrong if the claim is in fact not true.

   ii. You cannot prove a negative – You cannot prove that UFOs do not exist

   iii. Non-falsifiability plagues psychiatric work and pop psychology.
b. Reliable – *reliability* refers to the reproducibility of data. A reliable test can be repeated under identical circumstances and yield the same results.

c. Valid – *Validity* refers to the Theory in question

i. Logical Consistency – logically coherent – does the theory interlock with other theory. Qualification – *no purely Logical System can be complete.*

ii. Agreement of a theory with experiment