

Lawless Biology

I agree with the recommendation that we label as theories all ideas of broad scope within biology (Kugler, May, 2002) because this is consistent with current practice in biology. Explanations that organize many observations are proposed directly as theories (e.g., Hubbell, 2001) and their fate depends on their ability to generate meaningful future research. Hypotheses are derived from a theoretical framework. A successful theory leads to many novel hypotheses and novel observations about the natural world. In our laboratory classes, we also teach that hypotheses generate predictions for a specific experimental context.

Theories and hypotheses are fundamental to current research in biology. What then about laws and principles? To my knowledge, researchers do not claim the new results give rise to new laws. The only recently formulated law I have seen is Stigler's law of eponymy that, "No scientific discovery is named after its original discoverer" (Stigler, 1999, p. 277). With tongue firmly in cheek, Stigler demonstrates that he was not the first to notice this "law."

I propose that we recognize that laws and principles are old overstatements of continuing heuristic value. By heuristic value, I mean that we think they are worth mentioning in a general biology class. By old, I note that most laws were discovered before the Great Depression and most principles in the decades following it. For example, in the 1920s the logistic model for population growth was advanced as a law of population growth (Kingsland, 1995). Competitive exclusion is labelled a principle