Origin : Chapter Four - moderator : Andy Gardner

1. "HOW WILL THE struggle for existence, briefly discussed in the last chapter, act in regard to variation? Can the principle of selection, which we have seen so potent in the hands of man, apply under nature?"

It's easy to read the beginning of this book as a sort of heavily supported proof of natural selection. He begins to lay out his proof at the start of the summary of the chapter: "If under changing conditions of life organic beings present individual differences in almost every part of their structure… and if there be, owing to their geometrical rate of increase, a severe struggle for life at some age, season, or year" [I paraphrase] then individuals with useful variations will tend to survive and pass these characters to their offspring.

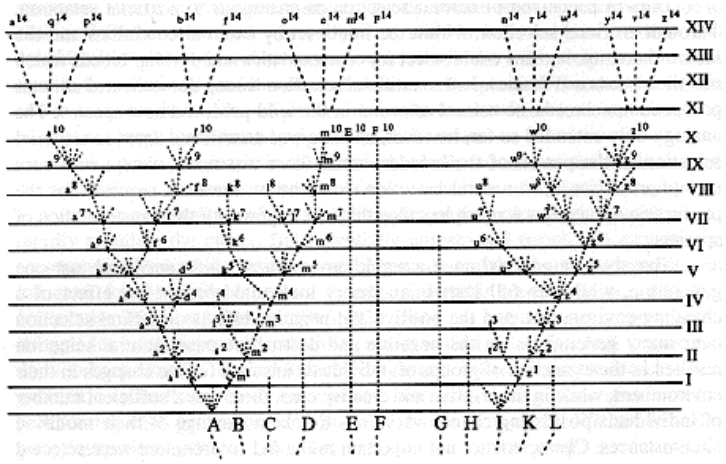
Inheritable Variability + Struggle for Existence = Natural Selection.

Is it this simple? (provided the antecedents mirror reality) Did Darwin think it is this simple?

What is the weakest element of Darwin's argument? Did Darwin consider this element?

Why spend so much time discussing the resultant effects this has on the patterns and complexity exhibited by life? Is this further support for natural selection?

2.



Is the complex, ramified, tree of life, which Darwin portrays so fully and elaborately, simply a resultant effect of natural selection's actions; or does its impact rival that of the selective mechanism?

Provided the generations stacked vertically could be any length—ten-thousand years or only one—why did Darwin choose to allow the lineages to go extinct, continue evolving in a "linear" fashion, or bifurcate? Do lineages always split into two? Is there any part of his theory that doesn't allow a polytomy?

3. Throughout this chapter, Darwin suggests many now major fields within evolutionary biology:

Speciation:

> "Although isolation is of great importance in the production of new species, on the whole I am inclined to believe that largeness of area is still more important…"

Coevolution:

> "I can understand how a flower and a bee might slowly become, either simultaneously or one after the other, modified and adapted to each other in the most perfect manner…"

Diverging versus stabilizing selection:

> "Natural selection might be effective in giving the proper color to each kind of grouse, and in keeping that color, when once acquired, true and constant."

These inferences certainly seem impressive. But how impressive are they? How much of this was truly novel, and how much came before *Origin* but fit well into his theoretical framework?