Re: Addressing Scientific Reductionism

Source: http://sci.tech−archive.net/Archive/sci.bio.evolution/2006−03/msg00389.html

- *From*: dkomo <dkomo871@xxxxxxxxxxx>

- *Date*: Mon, 27 Mar 2006 13:46:21 −0500 (EST)

Robert J. Kolker wrote:

> dkomo wrote:
>
> > Moreover, in a book I've just recently slogged through, _The Plausibility of Life_, such modular organization has been strongly selected by evolution because it greatly facilitates the process of viable phenotypic variation. Organisms are modular because they can evolve more easily if they are. A small amount of genetic change can result in big changes in organism characteristics. No need for Darwinian gradualism.
>
> Now that is quite fascinating. That could very well account for punctuated equilbrium. It is interesting to note there is much more to (possible) evolutionary mechanisms than the sculptoring and culling done by natural selection.
>
> I am beginning to understand why thinkers like Dennett consider the theory of evolution the greatest thing since sliced whitebread.

Yes, the book contains many interesting and, I think, important ideas. Its emphasis is on how variation in organisms is generated, amplified and channeled, rather than how natural selection works. The reason I used the word "slogged" is that it is a tough read for the biological non−specialist because it uses a stiff jargon laden prose style. The intended audience seems to be fellow professionals in evolutionary biology, the two authors apparently trying to get their new theories accepted, rather than trying to make themselves understood by an audience of the hoi polloi. [I notice my own prose style gets a bit stiffer after I read a book like that. But then I read some of the posts in this newsgroup, and I feel relieved.]

Here are some of the key ideas discussed: facilitated variation, exploratory behaviors, conserved core processes, compartmentation, deconstraint, weak regulatory linkages, evolvability, somatic adaptability, phenotypic plasticity, robustness, the Baldwin effect, etc.

Summary of the key theme of the book:

"In the final phase, observable today, facilitated variation plays out. The internally constrained processes, with their adaptive capacities for weak linkage, exploratory behavior, compartmentation, robustness, and flexibility, by various regulatory means are used in manifold combinations with other processes, and in different parts of their adaptive ranges. Evolvability increases, and phenotypic radiations occur. Conservation of core processes is strengthened as the processes and components are repeatedly reslected with each selected trait they participate in generating, each trait being a new combination."

−−Kirschner and Gerhart, _The Plausibility of Life_, p. 259

−−dkomo@xxxxxxxx

.