BARKER, G.B. AND THOMPSON, N.S. RECONCILING GENIC AND DEVELOPMENTAL DARWINIANS:GUESS WHAT? THEY ARE BOTH RIGHT!

I. Evolutionary theorists have divided themselves between two warring groups, genic Darwinians developmental Darwinians.

A. The war of words between the two schools has often been acerbic, with each accusing the other of some form of intellectual bad faith

1. The genic Darwinians have accused the developmental Darwinians of handwaving, i.e., assailing genic selection without any plausible alternative mechanism,

2. and the developmental Darwinians accuse the genists of "bean bag" genetics, ie. holding a theory of evolution that over emphasizes the evolution of independently assorting heritable traits.

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B. Genic Darwinians focus on the heritable trait as the unit of analysis:They understand

1. evolution as the trait by trait adaptation of organisms to changing environmental conditions and

2. natural selection of alternative heritable traits as the driving force in evolution.

C. Developmental Darwinians focus on Developmental and ecological systems as the unit of analysis. They understand

1. evolution as a happenstance ridden historical process that features neither progress nor adaptation, and

2. natural selection of alternative developmental pathways as one of several forces that effects evolution.

II. Both schools are happy to call themselves Darwinians because natural selection plays a role in both.

A. Natural selection is differential reproduction of alternative heritable types.

B. But Darwin was totally lacking a plausible account of inheritance, and so the two schools are free to project different models of what mediates differential parent/offspring interaction,

1. genes for the Genic Darwinians

2. developmental pathways for the developmental Darwinians.

III. Research findings would seem to support the developmental Darwinians in this disagreement.

A. Findings in contemporary genomics and evolutionary/developmental biology strongly dramatize the web-like relation amongst the genes and between the genes and environmental triggers.

B. Such web-like relations are so complex as to cast doubt on the whole idea of genetic inheritance i.e.,

1. to cause us to doubt that parents resemble their children differentially or

2. to cause us to doubt that genes have anything to do with that resemblance.

IV. But theoretical coherence would seem to support the possibility of a genic account for at least some traits.

A. children do resemble their parents differentially. Thus we are either

1. led to come up with an alternative account of this inheritance, or

2. led back to the bean bag genetics of the genists.

B. Developmental theorists sometimes suggest that complexity theory can provide a substitute for genic darwinism in an account of evolution; however, a search in complexity theory did not produce a plausible alternative account for the resemblance between parents and offspring.

C. Thus, to the extent that some traits are inherited, some traits are available for selection in the "bean-bag" sense.

V. The Facts cited by developmentalists can be reconciled with the facts of inheritance by assuming that much of the complexity in the epigenetic system must be corrective and dedicated to maintaining the fidelity of the connection between parental traits and offspring.

A. Thus, while developmentalists are correct that the pathways that connect parental to offspring traits are amazingly complex, genists are correct that they can often can be characterized for the purposes of theory as simple one to one correspondences.

B. This conclusion strongly implies that to the extent that the genetic system is bean-bag like, that itself is an achievement of the developmental system that must be accounted for.

C. Such a conclusion would require selection for "genome fairness" above the level of the gene as suggested by David Sloan Wilson and others.