

Challenging Darwinism: Expanding, Extending, Replacing

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The Modern Evolutionary Synthesis was articulated in the 1930s and 1940s claiming to unify all biological fields by integrating natural selection with genetics. Over the past thirty years new empirical discoveries as well as advances in theory have led to calls to "expand" the modern synthesis by allowing natural selection to operate at various levels of the biological hierarchy, or to "extend" it to incorporate fields previously shunted aside, such as developmental biology. Some even have called for "replacement" with a post-synthesis form of Darwinism, or even with a version non-selectionist enough to count as post-Darwinian. These possible outcomes will be assessed in the context of viewing Darwinism as a research tradition, exploring how selection and self-organization might be related in complex evolving developmental systems, and arguing that the evolutionary theory of the future likely will be Darwinian, although in new and unexpected ways.