The first comprehensive explanation of a widely applicable but underappreciated mechanism of evolution operating at higher levels of organization than the individual.

In this important treatise, ecologists and evolutionary biologists John Damuth and Lev R. Ginzburg identify a specific evolutionary process in biology that they call *nonadaptive selection*. The idea is simple, but the implications are profound. *Nonadaptive selection*, as they use the term, is selection among biological entities (as is natural selection) but is based on the fitness effects of structural properties intrinsic to the entities under selection rather than on interactions between traits and a local shared environment. In other words, features of systems that evolve by nonadaptive selection do not adapt to local environmental conditions; rather, this selective process increases the long-term stability of the focal systems independent of local conditions.

Nonadaptive selection may be of particular value in explaining broad, persistent patterns in multispecies biological units where adaptive evolution may be weak or poorly defined. Examples include Damuth's Law, the equivalence of energy use among animal species across a wide range of body sizes; the ratio-dependent, or Arditi-Ginzburg, predation conjecture; the consistency of allometric scaling powers; the shortness of trophic chains; and the prevalence of certain types of three-species trophic structures across ecosystems. Damuth and Ginzburg see nonadaptive selection underlying patterns of ecological allometries, community structure, and species interactions, with some implications for macroevolution. Moreover, they find a surprising relationship between these nonadaptive processes and biological laws. They do not advocate the reorientation of any existing research programs but present nonadaptive selection as an additional conceptual framework that may be useful to add to ecology and evolution.

"A total intellectual and scientific pleasure. Damuth and Ginzburg have made a case for connection among a diverse set of phenomena that have resisted our understanding. More importantly, they've made new phenomena make more sense just by naming a process. *Nonadaptive Selection* is one of the most original and important books on evolution and ecology to come out in the last twenty years."
CARL SIMPSON, University of Colorado Boulder

JOHN DAMUTH (1952–2024) was a senior research scientist in the Department of Ecology, Evolution, and Marine Biology at the University of California, Santa Barbara. **LEV R. GINZBURG** is professor emeritus in the Department of Ecology and Evolution at Stony Brook University. Among his books are the coauthored *How Species Interact* and *Ecological Orbits*.

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