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Nota di contenuto	Frontmatter -- Contents -- Introduction -- General Principles of Biological Hierarchical Systems -- Chapter 1. Pattern versus Process and Hierarchies: Revisiting Eternal Metaphors in Macroevolutionary Theory -- Chapter 2. Lineages and Systems: A Conceptual Discontinuity in Biological Hierarchies -- Chapter 3. Biological Organization from a Hierarchical Perspective: Articulation of Concepts and Interlevel Relation -- Chapter 4. Hierarchy: The Source of Teleology in Evolution -- Chapter 5. Three Approaches to the Teleological and Normative Aspects of Ecological Functions -- Information and Energy in Biological Hierarchical Systems -- Chapter 6. Why Genomics Needs Multilevel Evolutionary Theory -- Chapter 7. Revisiting the Phenotypic Hierarchy in Hierarchy Theory -- Chapter 8. Multilevel Selection in a Broader Hierarchical Perspective -- Chapter 9. Systems Emergence: The Origin of Individuals in Biological and Biocultural Evolution -- Ecology and Evolution: Neither Separate nor Merged -- Chapter 10. Unification of Macroevolutionary Theory: Biologic Hierarchies, Consonance, and the Possibility of Connecting the Dots -- Chapter 11. Coming to Terms

with Tempo and Mode: Speciation, Anagenesis, and Assessing Relative Frequencies in Macroevolution -- Chapter 12. Niche Conservatism, Tracking, and Ecological Stasis: A Hierarchical Perspective -- Chapter 13. The Stability of Ecological Communities as an Agent of Evolutionary Selection: Evidence from the Permian-Triassic Mass Extinction -- Chapter 14. Hierarchy Theory in the Anthropocene: Biocultural Homogenization, Urban Ecosystems, and Other Emerging Dynamics -- Conclusion. Hierarchy Theory and the Extended Synthesis Debate -- Contributors -- Index

Sommario/riassunto

The natural world is infinitely complex and hierarchically structured, with smaller units forming the components of progressively larger systems: molecules make up cells, cells comprise tissues and organs that are, in turn, parts of individual organisms, which are united into populations and integrated into yet more encompassing ecosystems. In the face of such awe-inspiring complexity, there is a need for a comprehensive, non-reductionist evolutionary theory. Having emerged at the crossroads of paleobiology, genetics, and developmental biology, the hierarchical approach to evolution provides a unifying perspective on the natural world and offers an operational framework for scientists seeking to understand the way complex biological systems work and evolve. Coedited by one of the founders of hierarchy theory and featuring a diverse and renowned group of contributors, this volume provides an integrated, comprehensive, cutting-edge introduction to the hierarchy theory of evolution. From sweeping historical reviews to philosophical pieces, theoretical essays, and strictly empirical chapters, it reveals hierarchy theory as a vibrant field of scientific enterprise that holds promise for unification across the life sciences and offers new venues of empirical and theoretical research. Stretching from molecules to the biosphere, hierarchy theory aims to provide an all-encompassing understanding of evolution and-with this first collection devoted entirely to the concept-will help make transparent the fundamental patterns that propel living systems.