

Contents

<i>Preface</i>	vii
<i>Acknowledgements</i>	ix
PART I Hierarchy in Concept	
<i>Structural Hierarchies: A Challenging Class of Physical and Biological Problems</i> Lancelot Law Whyte	3
<i>The Metaphysics, Epistemology and Methodology of Levels</i> Mario Bunge	17
<i>Foundations for a Scientific Theory of Hierarchical Systems</i> M. D. Mesarović and D. Macko	29
<i>Notes on Hierarchy in Concept</i> Five Primary Questions – Lancelot Law Whyte Comments on the Use of the Term Hierarchy – Robert Rosen Closure, Entity and Level – Albert Wilson Hierarchy: One Word, How Many Concepts? – Marjorie Grene	51 52 54 56
PART II Inorganic Hierarchical Structures	
<i>Structural Hierarchy in Inorganic Systems</i> Cyril Stanley Smith	61
<i>The Mystery of Structure in the Universe</i> E. R. Harrison	87
<i>A Possible Mechanism for the Origin of the Sequence of Cosmic Bodies</i> Michele Kaufman	99
<i>Hierarchical Structure in the Cosmos</i> Albert Wilson	113
<i>Notes on Inorganic Hierarchical Structures</i> Dimension as Level – Robert Edward Williams Overlap in Hierarchical Structures – Paul J. Shlichta	135 138

PART III Organic Hierarchical Structures

<i>Historical Aspects of the Concept of Organizational Levels of Living Material</i>	147
Chauncey D. Leake	
<i>Physical Conditions for Primitive Functional Hierarchies</i>	161
Howard Pattee	
<i>Hierarchical Organization in Automata Theoretic Models of Biological Systems</i>	179
Robert Rosen	
<i>Theorems on Boundaries in Hierarchical Systems</i>	201
John Platt	
<i>Hierarchy, Entitation and Levels</i>	215
Ralph W. Gerard	
<i>Notes on Organic Hierarchical Structures</i>	
Structure and Function in Living Systems — Herbert Gutman	229

PART IV Hierarchy in Artifact

<i>Hierarchical Aspects of Computer Languages</i>	233
Fred M. Tonge	
<i>Structure in Error-Correcting Codes</i>	253
R. W. Lucky	
<i>Notes on Hierarchy in Artifact</i>	
Comment on Patterns in Social Events — Margoroh Maruyama	279
Levels and Integrated Entities — Bill Wells	282
Hierarchy: The Problem of the One and the Many — Ronald G. Jones	284
<i>Forms of Hierarchy: A Selected Bibliography</i>	287
Donna Wilson	
<i>Epilogue</i>	315
<i>Index</i>	317