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Altri autori (Persone)	LengelerJoseph W DrewsG (Gerhart) SchlegelHans Gunter <1924->
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Nota di contenuto	Biology of the Prokaryotes; Contents; 1: Bacteriology Paved the Way to Cell Biology: a Historical Account; 1.1 New Concepts and Experimental Approaches Paved the Way for Progress; 1.2 Observations and Speculation Lead to the First Concept of the Existence of Living Infectious Agents; 1.3 Bacteria are Members of a New, Large Group of Independent Organisms; 1.4 The Introduction of Solid, Defined Media and Pure-Culture Methods Marks a True Revolution; 1.5 The New Bacteriological Methods Proved that the Causative Agents of Infectious Diseases are Bacteria 1.6 Studies on Fermentation Founded Bacterial Physiology and Biochemistry1.7 Lithoautotrophy Is the Ability of Bacteria to Obtain Energy from the Oxidation of Inorganic Compounds and Carbon from Carbon Dioxide; 1.8 Light-Dependent Processes such as Phototaxis, Light-Induced Energy Transduction, and Photoassimilation of Carbon Dioxide Took a long Time to be Understood; 1.9 Dinitrogen Fixation Is

Unique to the Prokaryotes; 1.10 The Analysis of Anabolic and Catabolic Metabolism Lead to the Discovery of Substrates, Products, Apoenzymes, and Coenzymes, and, in the end, of Metabolic Pathways
1.11 Studies on Inclusion Bodies and the Structures and Functions of Cell Envelopes Revealed the Organization of the Bacterial Cell1.12 Bacterial Adaptation was Well Recognized Before the Genetic Approach Revealed the Basis of Molecular Mechanisms of Regulation; 1.13 Studies on the Metabolic Types of Bacteria Revealed Their Functions in the Biosphere; 1.14 The Goals and Methods of the Classification of Bacteria Have Changed; 1.15 Bacterial Viruses (Bacteriophages) Were Detected as Lytic Principles
1.16 Studies on Heredity in Bacteria Provided the Decisive Principles and Concepts for the Promotion of Modern Biology Including Gene Technology1.17 Epilogue; Section I: The Prokaryotic Cell; 2: Cellular and Subcellular Organization of Prokaryotes; 2.1 Prokaryotes, Though Small, Contain all Structural Elements Necessary for Survival and Multiplication; 2.2 Cellular Structures Can Be Made Visible or Identified by Numerous Methods; 2.3 Prokaryotes May Occur as Single Cells or as Cell Associations
2.4 The Structural Components of Prokaryotic Cell Envelopes Are Organized as Barriers and Interfaces2.5 The Setup of the Intracellular Structures Reflects the High Degree of Organization in the Prokaryotic Cell; 2.6 Cell Appendages Serve for Locomotion and Cell Recognition; 2.7 Bacteria May Form Spores and Other Resting Cells; Section II: Basic Prerequisites for Cellular Life; 3: Substrate-Level Phosphorylation; 3.1 ATP Synthesis Is Coupled to Exergonic Reactions; 3.2 The ATP Yield Is a Function of the Free Energy of the Driving Reaction
3.3 Coupling of ATP Synthesis to Glucose Degradation Requires C-C Cleavage and Subsequent Oxidation

Sommario/riassunto

Designed as an upper-level textbook and a reference for researchers, this important book concentrates on central concepts of the bacterial lifestyle. Taking a refreshingly new approach, it present an integrated view of the prokaryotic cell as an organism and as a member of an interacting population. Beginning with a description of cellular structures, the text proceeds through metabolic pathways and metabolic reactions to the genes and regulatory mechanisms. At a higher level of complexity, a discussion of cell differentiation processes is followed by a description of the diversity of prokaryo