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"2. Dominant role of generalized solidarity in the life of prokaryotes""
 a) Mutually-supportive associations among different prokaryotic cells in local communities"; "b) Scope and importance of gene exchanges between different prokaryotic cells: A general way of solving problems and adapting to temporary changes"; "3. The prokaryotic entity forms one planetary biologic system or superorganism"; "CHAPTER III: ORIGINAL, NON-DARWINIAN EVOLUTION OF PROKARYOTES"; "1. Ways in which errors in the division of the earliest cells could be prevented or compensated for"
 "2. Variety and diversification inside the early prokaryotic clone""3. Prokaryotic cells evolved together towards both high specialization and complementarity"; "4. The appearance of the prokaryotic cell wall and of transformation"; "5. Small replicons became the most efficient basic elements of a prokaryotic global communication system"; "6. The prokaryotic superorganism (or biologic system) as a unique type of clonal entity; there are no prokaryotic species"; "7. Role of prokaryotes in the origin and subsequent evolution of eukaryotes"
 "8. The prokaryotes started as and remain the most influential biological factor in the development and the maintenance of our biosphere""CONCLUSION"; "REFERENCES"; "INDEX"; "A"; "B"; "C"; "D"; "E"; "F"; "G"; "H"; "I"; "K"; "L"; "M"; "N"; "O"; "P"; "R"; "S"; "T"; "V"; "X"

Sommario/riassunto

Prokaryotes are profoundly original, highly efficient microorganisms that have played a decisive role in the evolution of life on Earth. Although disjunct, taken together their cells form one global superorganism or biological system. One of the results of their non-Darwinian evolution has been the development of enormous diversity and bio-energetic variety. Prokaryotic cells possess standardized mechanisms for easy gene exchanges (lateral gene transfer) and they can behave like receiving and broadcasting stations for genetic material. Ultimately, the result is a global communication system based on the prokaryotic hereditary patrimony, by analogy, a two-billion-year-old world wide web for their benefit. Eukaryotes have evolved from the association of at least three complementary prokaryotic cells, and their subsequent development has been enriched and accelerated by symbioses with other prokaryotes. One of these symbioses was responsible for the origin of vascular plants which transformed vast sections of the continental surface of the Earth from deserts to areas with luxuriant, life-supporting vegetation. All forms of life on our planet are directly or indirectly sustained and enriched by the positive contribution of prokaryotes. Sorin Sonea and Léo G. Mathieu have been professors at the Department of Microbiology and Immunology (Faculty of Medicine) at the Université de Montréal. They have long been advocates of the ideas presented in this book.
