



Bacterial Biogeochemistry: The Ecophysiology of Mineral Cycling

By Tom Fenchel, Henry Blackburn, Gary M. King

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Bacterial Biogeochemistry, Third Edition focuses on bacterial metabolism and its relevance to the environment, including the decomposition of soil, food chains, nitrogen fixation, assimilation and reduction of carbon nitrogen and sulfur, and microbial symbiosis. The scope of the new edition has broadened to provide a historical perspective, and covers in greater depth topics such as bioenergetic processes, characteristics of microbial communities, spatial heterogeneity, transport mechanisms, microbial biofilms, extreme environments and evolution of biogeochemical cycles.

- Provides up-to-date coverage with an enlarged scope, a new historical perspective, and coverage in greater depth of topics of special interest
- Covers interactions between microbial processes, atmospheric composition and the earth's greenhouse properties
- Completely rewritten to incorporate all the advances and discoveries of the last 20 years such as applications in the exploration for ore deposits and oil and in remediation of environmental pollution

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Editorial Review

Review

"The authors of this book have succeeded with such a synthesis by creating a current, accurate and lucid review of bacterial biogeochemistry. The 10 chapters of this book describe, in logical order, the myriad of biogeochemical reactions in soils, aqueous systems and the atmosphere that are mediated by prokaryotic organisms. Throughout each chapter the fundamentals of microbial processes are presented in a way that allows for easy extrapolation to applied problems, including environmental concerns. This book would serve as a valuable resource for all those, students to professionals, who require an accurate, current, yet broadly based review of this rapidly evolving discipline."

--SGM QUARTERLY

From the Back Cover

During most of the Earth's existence, bacteria were almost exclusively responsible for the biogeochemical cycling of elements. In the extant biosphere, biological transformations of matter are still dominated by bacterial activity and many important biogeochemical processes (including methane production and consumption, and nitrogen fixation) are exclusively carried out by bacteria.

Bacterial Biogeochemistry is the expanded and revised Second Edition of **Bacteria and Mineral Cycling**. It is the new definitive treatment of this subject, written by world-renowned experts.

The new edition provides a detailed treatment of:

- * Microbial processes in different types of habitat
- * Element cycling on a global scale
- * Bacterial metabolism in the environment
- * Microbial symbiosis
- * Decomposition of soil
- * Food chains
- * Nitrogen fixation
- * Assimilation and reduction of carbon, nitrogen and sulphur
- * Bioenergetic processes
- * Characteristics of microbial communities
- * Spatial heterogeneity
- * Transport mechanisms
- * Microbial biofilms
- * Extreme environments
- * Evolution of biogeochemical cycles
- * Interactions between microbial processes
- * Atmospheric composition
- * the Earth's greenhouse properties.

This book is the essential reference for all those studying or actively involved in the fields of microbiology, ecology, limnology, soil science, geochemistry, plant nutrition, marine microbiology, microbial metabolism, bioremediation, environmental restoration communities and for those pursuing global change.

About the Author

In 1986, Tom Fenchel was the recipient of the Ecology Institute Prize and the Huntsman Medal for Excellency in Oceanography. He is an honorary member of the Society for General Microbiology and is a Professor of Marine Biology and the Director of the Marine Biological Laboratory at the University of

Copenhagen in Denmark. He has authored and co-authored several books and has published about 120 original and review papers on microbial ecology, marine biology and population biology. He holds a Ph.D and a Dr.Sc. from the University of Copenhagen and is a member of the Danish Royal Academy of Sciences and of the Royal Swedish Academy of Sciences.

Gary M. King has received the Distinguished Service Award from the Natural Council of Maine, the President's Creative Achievement Award from the University of Maine, and the Graduate Research and Teaching Award from the College of Science at the University of Maine. He was a Fulbright research fellow in Denmark from 1988-1990 and was the Chief Scientist/Aquonaut Team Leader for the "Aquarius" missions 88-2 and 89-2 and Hydrolab 84-5. He received his Ph.D with honors from the University of Georgia, is a professor of Microbiology and Oceanography at the University of Maine, and has published more than 80 papers in refereed scientific journals.

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