

'Gaia' offers provocative overview of revolution in biology

By BEN BOVA

Young writers are often surprised when they ask me what is the most important thing for an aspiring author to do and I answer, "Read." I suppose they expect some insider's secrets about how to craft a successful writing career. The truth is, reading is the most important thing that any of us can do, regardless of career. Not only does reading connect us to the racial memory of humankind, it also allows us to plug into the most current thoughts in the intellectual marketplace of ideas.

For example, the hottest scientific field going today is biology. Ever since James Dewey Watson and Francis H.C. Crick

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determined the double-helix structure of DNA, the basic molecule of our genetic heritage that resides in the heart of every living cell, biology has been undergoing revolutions that are both fundamental and intellectually thrilling.

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enormous changes in our lives. As killer diseases are cured and human life spans elongated, even greater changes are on their way.

"From Gaia to Selfish Genes:

Selected Writings in the Life Sciences" (MIT Press, \$17.50, 273 pp.) is a marvelous overview of the breathtaking ideas that are sweeping the field of biology. Edited by science writer Connie Barlow, this book is rich with the writings of James Lovelock, Lewis Thomas, Lynn Margulis, Arthur Koestler, Douglas Hofstadter, Edward O. Wilson and many others.

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Lovelock presents the concept of Gaia, the idea that the entire planet Earth is a single, self-regulating biological entity—a planetary being, if you will. We humans are merely a small part of it, and a disruptive part at that.

Margulis and her son, Dorian Sagan, present *Microcosmos*, the concept that multicelled creatures are actually mergers among earlier single-celled creatures. Although that may sound like ivory-tower theorizing, the powerful idea behind this concept is that cooperation in

nature is much more important and pervasive than competition. Instead of the "fang and claw, each against all" school of thought, modern biologists are showing that nature's way is more often cooperation, symbiosis, "e pluribus unum." Editor Barlow states that when she started thinking about this book, "I had not an inkling that biology could be this big, this open, this profound." It is. And it's exciting, too.

Incidentally, Margulis and Sagan's original book, "**Microcosmos: Four Billion Years of Microbial Evolution**" (Touchstone Books/Simon & Schuster, \$10, 298 pp.), has been reissued in paperback. First published in 1986, it is already regarded as a seminal book in its field.

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