Stories of life in the cosmos

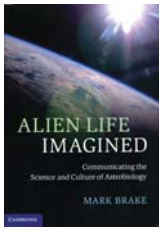
Alien Life Imagined
Communicating the Science and Culture of Astrobiology

Mark Brake
Cambridge U. Press, 2013. $45.00
(280 pp.). ISBN 978-0-521-49129-7

Reviewed by Phillip F. Schewe

Extraterrestrial life has been discovered many times over the centuries, at least in the fictional sense, and that is the main subject of Mark Brake's *Alien Life Imagined: Communicating the Science and Culture of Astrobiology*. My praise for the book will wax and wane since the text is, by turns, eloquent and tedious, expansive and tendentious.

The problem begins with the fact that the title is at war with the subtitle. *Alien Life Imagined* fairly describes the larger part of the book, which is a history of what we would now call science fiction—make-believe stories about distant worlds or philosophical speculation about such worlds and their possibly intelligent inhabitants. By contrast, the subtitle, *Communicating the Science and Culture of Astrobiology*, hints at a history of a scientific field. That history can usefully include such milestones as the advent of spectroscopes—which helped us determine that atoms in the stars are much like atoms on our planet—a development that Brake handles well, and the beginnings of the systematic telescope searches, at radio and IR wavelengths, for extraterrestrial intelligence.



Those two looks—the fictional and the scientific—at alien life get very unequal treatment in the book. The history of the fictional side is long; the astrobiological search for life is short. Brake can't exactly be blamed for that; telescopes and spectroscopes are relatively recent inventions. But a curious thing happens: In Brake's eagerness to buttress his liking for the fictional accounts, he lends a sort of scientific standing to what is no more than poetic or philosophical speculation. For example, the ancient atomistic view, best encapsulated in Lucretius's poem *De rerum natura* (*On the Nature of Things*) from the first century BCE, holds that there are no gods and that everything in the world consists of atoms moving about in a void, occasionally coalescing into material bodies but otherwise free from any teleological imperative.

Brake is not content to praise that materialistic view. He must also criticize alternative hypotheses made by other philosophers, such as the idealism of Plato, as being suffocating; he adds that "in the hands of the medieval Church, [such] ideas were effectively used to hold back modern science, including astronomy and biology, for two thousand years." He makes that argument as if what he calls the "more enlightened" atomistic views of Lucretius or Democritus were something more than just rival philosophical opinions unsupported by scientific evidence.

Brake in general favors materialism, atheism, and what he calls "pluralism," the idea that many other stars support planets and that living creatures, including species with intelligence, abound in those remote solar systems. In Brake's history, any philosophy that doesn't encourage pluralistic speculation is oppressive: "The finite geocentric cosmos endorsed by the Church was a black amalgam of Platonic philosophy, Aristotle's cosmology, and Christian dogma." About Aristotle's outlook, Brake goes so far as to use the adjectives "lifeless" and even "toxic."

That's a drastically limited view of Aristotle. Brake is repeatedly critical of Aristotle's influence on the medieval Roman Catholic Church. But Aristotle's presence in the curricula of Europe's first colleges—a presence fought for strenuously by Thomas Aquinas—was precisely what led, only a few centuries later, to the first stirrings of secular learning and debate, and ultimately to the Renaissance and the flowering of modern Western culture, including science. Aristotle, not Lucretius, was the backbone of that fledgling European university system. When Lucretius's fine poem made its reappearance, the debating-society culture of Florence, Paris, and Oxford was ready for him. Thank you, Aquinas. Thank you, Aristotle.

Brake performs a good service in chronicling the science fiction efforts of Johannes Kepler and Christiaan Huygens, better known, of course, for their scientific achievements, and of Bernard de Fontenelle and Cyrano de Bergerac, witty literary figures but not scientists. Brake also sets aside his stern partisanship for pluralism to handle well several writers who wavered on the subject. One is William Whewell, a 19th-century science historian. Another is Richard Proctor, a Victorian astronomer and science popularizer, the Carl Sagan of his day. Brake provides a vivid account of the complicated, fascinating career of Alfred Russel Wallace, who, after arriving at a natural selection theory comparable to Charles Darwin's, had much to say about pluralism, spiritualism, and the possible origins of life.

No book of finite size can include everything. But considering the wide-ranging title and subtitle of Brake's book, I wish there had been more. For example, except for a brief excursion into Islamic culture, Brake restricts himself largely to European ideas of pluralism, so we never hear of what the Maya, or the Khmer, or the Ming thought about life on other worlds. Furthermore, except for a brief look at the extrasolar-planet-hunting mission *Kepler*, we encounter very little true astrobiology. I expected to read here about what newspapers routinely report nowadays—stories about rills on Mars or prospective spacecraft missions to Europa.

Philosophical and literary speculations through the years have furnished rich veins of thinking about life out there in the cosmos. But even now we don't have any actual specimen, not a single Martian bacterium, to support the idea of astropluralism. I look forward to the day when we do.

Phil Schewe is the director of communication for the Joint Quantum Institute at the University of Maryland in College Park. He is the author of *Maverick Genius: The Pioneering Odyssey of Freeman Dyson* (Thomas Dunne Books/St. Martin's Press, 2013) and *The Grid: A Journey Through the Heart of Our Electrified World* (Joseph Henry Press, 2007).