



CONTACT: Donald Lehr – The Nolan/Lehr Group / +1 (212) 967-8200 / mob +1 (917) 304-4058
dblehr@cs.com / www.templetonprize.org

Reflections on Books and Selected Publications by Marcelo Gleiser

Marcelo Gleiser's five English-language books (US, UK, and Australia/NZ) have been published in 12 foreign languages: Chinese, Czech, Dutch, French, German, Italian, Japanese, Korean, Portuguese Brazil, Portuguese Portugal, Russian, and Thai. His ten books published only in Brazil are listed below the English-language books, followed by a selection of recent publications for a general audience.

Summary: The overarching theme in my books is simple: science is a product of our capacity for wonderment and awe as we confront the mystery of creation. At its core, we find the same seed that moves the religious spirit: to cope with our most profound existential questions. Humans are peculiar creatures, curious animals capable of imagining the infinite, at once exhilarated and perplexed by what we don't understand. My life as a scientist is one of devotion: devotion to my fellow humans, to our rare planet, to the mystery that surrounds us and that inspires us to want to know.

- **[The Dancing Universe: From Creation Myths to the Big Bang](#)**. Dutton-Penguin, New York, 1997. Companhia das Letras, São Paulo, 1997. Reprint: Dartmouth College Press, 2005 (distributed by the Chicago Distribution Center, a division of the University of Chicago Press). Received 1998 Jabuti Award, the most distinguished literary prize in Brazil.

In this book, I tell the history of humankind's view of the cosmos from pre-scientific creation myths of different religious cultures to the expanding universe of modern cosmology. From a detailed investigation of creation myths, I conclude that there are only five possible answers to the question of Creation. *The Dancing Universe* is, in essence, a cross-disciplinary cultural history of cosmological thought, where I explore the common threads that originate with the religious question of Creation and their influence on scientific thinking from pre-Socratic Greece to Kepler, Newton, Einstein, and beyond. This framework gives me the opportunity to expand on the core ideas of physics and astronomy, as they evolved from the 17th century onwards. I explore, in particular, the philosophical and religious roots of scientific thinking and the personal and ideological dramas of the key players, from Kepler's Platonic Christian God to Einstein's abstract religious notion of the mysterious as the inspiration for research in fundamental science. The book concludes with a classification of 20th-century cosmological models of the Universe which, I argue, reproduce the same conceptual structure as creation myths, the five categories I call "archetypes of creation." I explore the concept of the First Cause and how science is unable to explain the origin of the Universe in any final sense. I also make the important point that while the essential difference between creation myths and scientific models is one of methodology, as scientific models rely – eventually – on their testability, the curiosity that moves humans to ponder fundamental questions of origins is universal.

- [**The Prophet and the Astronomer: Apocalyptic Science and the End of the World.**](#) W. W. Norton, 2002. Companhia das Letras, São Paulo, 2001. Received 2002 Jabuti Award.

This book complements *The Dancing Universe*, examining “end-of-the-world” ideas in different religions and in astronomy and physics. In essence, it is an exploration of time and loss. Covering three thousand years, it offers a comparative cultural history of apocalyptic ideas from religion to modern science. I make the case that past and present eschatological religious thinking often references strange patterns or phenomena in the skies as portents of “end-of-times.” (Comets, solar and lunar eclipses, meteor showers, planetary alignments, auroras...) Such imagery has inspired past and present scientists to apply their equations to reconstruct Biblical events (e.g. Edmond Halley and his theory that the Flood was due to a cometary impact at the Caspian Sea) and mass extinctions (the modern theory that an asteroid impact in Mexico caused the end of the dinosaurs), and, more broadly, to predict the future of the Earth, the solar system, and the universe. Following their roots in religious eschatological thinking, many astronomers and physicists play the role of modern “prophets of doom,” devising possible “end of the world” scenarios based on cutting-edge science. The book examines the odds for the end of life on Earth by asteroid or comet impact, the end of the sun as an ordinary star, the end of other stars that become black holes, and the future of the Universe as a whole, given current cosmological knowledge.

From *The Prophet and the Astronomer* (page 58): “Science may not offer eternal salvation, but it offers the possibility of a life free from the spiritual slavery caused by an irrational fear of the unknown. It offers people the choice of self-empowerment, which may contribute to their spiritual freedom. In transforming mystery into challenge, science adds a new dimension to life. And a new dimension opens new paths toward self-fulfillment.”

- [**A Tear at the Edge of Creation: A Radical New Vision for Life in an Imperfect Universe.**](#) Free Press, New York, 2010. Editora Record, Rio de Janeiro, 2010. Letras e Expressões, Lisbon, 2011. Reprint: Dartmouth College Press, 2013 (distributed by the Chicago Distribution Center, a division of the University of Chicago Press).

This book offers a critique of the unrelenting quest for a Theory of Everything in the physical sciences, proposing, instead, an alternative worldview where the creative force in the Universe, from the origin of matter to life and humankind, comes not from perfection and symmetries, but from imperfections, asymmetries, and imbalances. I argue that science needs both to make sense of the world and our place in it. I use this general framework to examine the origin and evolution of life on Earth and how it is contingent on our planet and its very rare properties. Using data from astronomy and the search for other life-harboring worlds, I propose what I call “humancentrism,” an anti-Copernicanism doctrine that restores the centrality of humanity in the cosmos. Not, of course, in a geometric sense, but in a moral, life-preserving sense: we humans matter because we are unique in the Universe. If there are other intelligences, they are far-removed. The book tries to answer the existential angst that many have when pondering the smallness of human life in the enormity of the Universe, elevating the need for preserving life and our planet at all cost as the central unifying narrative of our time.

- [**The Island of Knowledge: The Limits of Science and the Search for Meaning.**](#) Basic Books, New York, 2014. Editora Record, Rio de Janeiro, 2014. Temas & Debates, Lisbon, 2014.

This is, first, a book on epistemology, about how much we can know of the world through science. Second, it is a book about humankind’s endless search for meaning, and how the big questions of existence feed this quest. The metaphor of the island of knowledge, which I developed independently (and found many parallels with other thinkers), represents my view of science as an ongoing, self-correcting, and necessarily incomplete narrative of how humans attempt to make sense of the world around them. These are points that I had alluded to already in *The Dancing Universe*. In *The Island of Knowledge*, I propose that it is our attraction to the mysterious, our awe and wonderment with the unknowns and unknowables of existence that feed our curiosity and creativity. To be human is to wonder, and to live is to celebrate this capacity for wonderment every day with a refreshed sense of discovery. Science is one of the approaches we use to describe the portion of

reality we can sense and measure, and it has given us a spectacular view of the world, from the tiniest particles to the Universe as a whole. But there are others. There is a necessary incompleteness of knowledge, and we do well as humans to adopt a multicultural, pluralistic outlook on the world and its many challenges. It is the persistence of the mysterious that draws us on. The closing chapter, Awe and Meaning, summarizes this point.

- [The Simple Beauty of the Unexpected: A Natural Philosopher's Quest for Trout and the Meaning of Everything](#). ForeEdge-University Press of New England, Lebanon, New Hampshire, 2016 (distributed by the Chicago Distribution Center, a division of the University of Chicago Press). Editora Record, Rio de Janeiro, 2016. Received 2017 Jabuti Award (2nd place).

Disguised as the story of my personal quest to learn how to fly fish in parallel with my travels as a professional scientist and writer, this book is, in reality, a manifesto for the sacredness of life and our personal search for meaning. A friend once called it a very highbrow self-help book, echoing the old goal of philosophy as a path to the "good life." Its "dramatic arc" is that of the humble apprentice in search of mastery of a difficult art, one that requires much practice and frequent immersions in a realm different from ours – the watery world of trout. I make the parallel between the act of fly fishing and the practice of science, both using tools to explore worlds beyond our reach, often with uncertain results. As I become more proficient as a fisherman, I also realize how violent the practice is. This realization, which matures slowly, brings about a complete change of outlook, one that resonates with the doctrine of *humancentrism* that I had presented in my two previous books. We must celebrate life in all its manifestations, and understand our cosmic role as guardians of our rare planet and its resources. The narrative brings together some of my main ideas on science and its relation to religion and spirituality, exploring our attraction to the mysteries that lie beyond our reach.

From *The Simple Beauty of the Unexpected* (page 84): "If choices in life are based on how easy and safe they are, life will be easy and safe: a boring, half-dead existence... I wanted the passion, the adventure, the uncertainty. You go for the big fish not knowing if you'll ever catch one. Every cast holds a new promise. It is true that most of the time you catch nothing; you make mistakes, the fish escapes. But if you are persistent, if you keep the fire burning in your belly, sooner or later you'll see the rewards. Not necessarily by catching the big fish, but by the fishing itself. We grow by doing. We live by doing. With every cast, the line goes farther and you get closer to yourself. That was a key discovery for me, to live a life of meaning."

Books Published in Brazil Only

- [Retalhos C3smicos: Ensaios sobre a natureza da ci4ncia e da ci4ncia da Natureza](#) [Cosmic Patchwork: Essays on the Science of Nature and the Nature of Science]. Companhia das Letras, 1999.

A collection of my essays published in the Brazilian newspaper, *Folha de S3o Paulo*, from September 1997 to December 1998.

- [O Livro do Cientista](#) [The Book of the Scientist]. Companhia das Letras, 2003.

A children's book.

- [Micro/Macro: Reflex3es sobre o Tempo, Espaço e o Homem](#) [Micro/Macro: Reflections on Time, Space, and Man]. PubliFolha Editions, 2005.

An anthology of 380 texts written for the Brazilian newspaper, *Folha de S3o Paulo*.

- [A Harmonia do Mundo](#) [The Harmony of the World: A Biographical Novel of Johannes Kepler]. Companhia das Letras, 2006.

A fictionalized retelling of the life and work of the seventeenth-century German astronomer Johannes Kepler, my first (and so far only) novel.

- [Poeira das Estrelas](#) [Stardust]. Editora Globo, 2006.

The companion volume to the 12-part documentary series I wrote and anchored for TV Globo, Brazil.

- [Cartas a um Jovem Cientista](#) [Letters to a Young Scientist]. Editora Campus-Elsevier, 2007.
- [Micro/Macro 2: Mais Reflexões sobre o Tempo, Espaço e o Homem](#) [Micro/Macro: More Reflections on Time, Space, and Man]. PubliFolha Editions, 2007.

A collection of texts written for the Brazilian newspaper, *Folha de São Paulo*, from 2004 to 2007.

- [Mundos Invisíveis](#) [Invisible Worlds]. Editora Globo, 2008.

The companion volume to the 10-part documentary series I wrote and anchored for TV Globo, Brazil.

- [Conversa Sobre a Fé e a Ciência](#) [Conversation on Faith and Science], with Frei Betto. Editora Agir, 2011.

A transcript of my dialogue with Frei Betto, the Brazilian Roman Catholic priest, writer, and philosopher.

- [À Escuta do Infinito: Estamos Mais Perto de Deus?](#) [Listening to Infinity: Are We Closer to God?], with Cardinal Gianfranco Ravasi. PUCPRESS, 2018.

A transcript of my dialogue with Cardinal Gianfranco Ravasi, President of the Pontifical Council for Culture.

Recent Publications

[Meaning in a Silent Universe](#). The New Atlantis, 2015.

[The One and the Many: The Search for Unity in Nature](#). Ann. N.Y. Acad. Sci. 1361, 58-62 (2015)

[We Have Pushed Physics Too Far](#). Nautilus, 2017.

[Cosmic Metaphysics: Being vs. Becoming in cosmology and astrophysics](#). HTS Theological Studies 73, 2017.

[How Much Can We Know?](#) Nature Vol. 557 pg. S20, 2018.

[The Blind Spot](#) (with Adam Frank and Evan Thompson). Aeon, 2019.

#