

Chimeras and Consciousness: Evolution of the Sensory Self

Edited by Lynn Margulis, Celeste A. Asikainen, and Wolfgang E. Krumbein

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Reviewed by Erik L. Bond, College of the Atlantic

Chimeras and Consciousness is a collected effort by a diverse group of scholars, professionals, and other experts to demonstrate the truth of Ian McHarg's statement (as quoted by Rico in the book's final chapter) that "The Earth is indivisible" (p. 264). The "Chimeras" of the title are not a particular creature or discipline, but an allusion to the beast of myth: a seamless integration of diverse traits into an inextricable and unique whole. The living and non-living worlds, the book suggests, as well as consciousness, knowledge, technology and culture, are all parts of such a beast. The book entreats us to reunite these concepts in our minds, and offers its assistance by highlighting the "chimerizations" that led to and are found in the world all around us. This volume treks through diverse territories — from microbiology to zoology, psychology to ecology, philosophy, physics, cybernetics, art, and more — leaving a trail of theoretical breadcrumbs that lead the reader from one chapter to the next.

In the early chapters, we begin to see an important theoretical component that runs throughout the book: chimerization as an evolutionary and complexifying force. The opening chapter on viruses introduces the concept of interaction-fueled diversity: "...viruses, though not 'selves,' are still fundamental to genetic fusions across disparate taxa lineages and in the origin of sensation in cells and organisms, particularly in the integration of free-swimming bacteria as they become trapped as organelles" (p. 21). Later, chapter sixteen expands to explore cross-species fertilization as a possible cause of sudden, single-generation evolutionary leaps. The example of animals with radically different larval and adult stages is discussed, such as *Luidia sarsi*, a five-pointed starfish that develops from a swimming, bilaterally symmetrical larva. When the juvenile reaches the appropriate developmental stage, it emerges from the larva and the two part ways, going on to live as separate entities for months (p. 194). Vickers and Williamson explain that this is an example of the "larval-transfer hypothesis," wherein these traits "evolved by the merger of genomes of two animals that hybridized to produce one animal with a larva....Both genomes are expressed together, but sequentially, during development" (p. 194).

Though the chapters address the full range of chimerization's complexifying influence, the "consciousness" subject of the title receives focused treatment. Various chapters track

the phenomenon across the biotic world, starting with how "lower" organisms — those we don't ordinarily associate with consciousness — exhibit legitimate forms of awareness. Both prokaryotes and eukaryotes, though their equipment and behaviors can be quite different, sense their surroundings in a variety of ways, detecting threats and allies, sustenance and environmental changes, and responding appropriately (p. 48). Many of them form communities that aid survival by displaying collective behaviors not found in the individual: "Multicellular superorganisms (communities) generate in their constitutive elements (individual bacteria) new traits and behaviors not explicitly stored in the genes of the individuals....They maintain integrity and generate morphological change by sharing interpretations of chemical cues" (p. 57).

Groups that are more than the sum of their parts are a running theme, ranging from bacterial colonies to human families and other social units. In chapter seven, Lassiter examines Bowen Theory, which studies how individual people are unavoidably and often unconsciously participants in emotional-instinctual systems (such as the family). Participation in these systems generates systematic behaviors in the individual that contribute to the larger group's function (of reproduction) (p. 74). Lassiter contends that Bowen's four major pressure-response behaviors for relationship management (distance, capitulation, conflict, and involvement of a third) are found not only in non-human animals, but all throughout the biotic world (p. 85).

At the largest, global level, *Chimeras* takes many cues from Lovelock's scientific Gaia hypothesis, which proposes that the biotic world's constant interactions within itself and with the abiotic environment form a regulatory system that maintains conditions suitable for life (p. 92). As a result of this (literally and figuratively) "global" perspective, the book explores diverse realms of chimeric theory. In chapter nine, the discussion of endogenous biological rhythms (e.g. - circadian, etc.) examines how cyclical patterns in nature (lunar, solar, terrestrial, etc.) have shaped the development of life. Chapter ten suggests that biotic influences on temperature, moisture retention, alkalinity, and other abiotic factors have helped to modulate Earth's plate tectonic activity (p. 127). And chapter eleven discusses how light and pigment (color) have shaped development from bacteria to the highest trophic levels.

There is an impetus for theory application throughout *Chimeras*. One chapter (eighteen) discusses the implications of a hypothetical field of medicine conscious of human health as the product of multi-genomic symbioses (p. 207). Other chapters challenge the scientific, academic, corporate, and other establishments to reinvent their *modus operandi* to respect an emerging understanding of the world's interconnec-

tivity. In the concluding chapter, Rico (an artist) unpacks the ways that modern communication has created chimeras of culture, art, technology, and other fields. He impels us to recognize the “magnitude of uncertainty to be navigated” into the future, and hints of the chimeric potentials that may await: “We anticipate artistic-scientific informatic concepts and tools to implement sustained innovation that includes us humans in the rest of nature, from which we came and to which we will always belong” (p. 266).

The many authors and several editors of this volume have put together an interdisciplinary text, and it demands investment from its audience. The reader must be familiar with (or willing to learn) at least the fundamental concepts and vocabulary for a spectrum of disciplines. While it might not be appropriate for beginner students or for strictly mono-disciplinary courses (unless excerpted), scholars of Human Ecology and those concerned with the origins, nature, and future of consciousness will find a wealth of challenging perspectives and creative concepts within its pages.