

FOREWORD

Five hundred years ago, Mauro Ceruti tells us, Europeans lived in a radically different world than they do today. It was a "closed" world, a world with seven "planets" (which included the Sun and Moon), a world barely 6,000 years old. In the transition from the medieval world to the 21st century, there has been a radical cosmic "decentering." Central to this process is the contribution of the theory of evolution. In this short and masterful book, Ceruti, one of the world's leading thinkers in the epistemology of science, outlines some of the key implications of evolutionary theory and how it changes our view of the world in which we live. His contribution is particularly important because he provides a desperately needed contextualization of the significance of evolution, from the history of civilization to cosmology and biology. Central to his presentation is the epistemological dimension, so often overlooked and yet so crucial if we are to understand the way that evolution changes the very way we think about the world, and which opens up a whole new universe of possibilities. Indeed, what Ceruti does in this book is provide an introduction to a *creative universe*, as well as the new way of thinking that is needed in order to understand such a universe.

The implications of the scientific revolution of the last 500 years has been abundantly addressed, and efforts to popularize the key

ideas are legion. What makes Ceruti's book special is the same trans-disciplinary perspective that made his previous works (Bocchi & Ceruti, 2002; Ceruti, 1994) such important contributions. The richness of his approach lies, among other things, in the combination of breadth and depth that he brings to the subject, and his historical and philosophical contextualization. Ceruti does not simply present us with a narrative of new "discoveries," theories, and speculations. Central to his work is uncovering the ways in which we *construct* our understanding of the world and of ourselves, and how different worlds emerge from the different constructions humans articulate in time and space.

He writes:

Charles Darwin's work is one of the deepest revolutions in the history of Western science and philosophy because its image of nature was a radical departure from the essentialist way of thinking, and initiated a mutation in our cosmological perspective.

For the pre-Darwinian biologist, the variations found in individuals of the same species were accidents, epiphenomena that did not affect the unitary and immutable nature of the species itself. If the variation was noticeably different from the characteristics that were considered normative, this was viewed as a sign of imperfection, and at times, of pathology.

After Darwin, variations came to be considered the most significant aspects of natural history. Their constant appearance, multiplication, and transformation have become signs of a history of nature in the real sense, a history that is deep and creative. In this history, even species are born and die. Everything that essentialist thinking considered essences or inalterable forms suffers a similar fate. What today are considered simple varieties of a species could, in the future, become distinct species. In the future, there may emerge reproductive, morphological, and behavioral barriers where now there are only differences in degree.

This is a change of immense significance. Before Darwin, a plan of creation establishes normative types, archetypes, immutable and eternal. Life conforms to the plan, forms are fixed, and any deviation is viewed as an aberration. It is as if a composer had written out a part for every instrument to play, and any deviation from the score is viewed as a wrong note—an unacceptable departure from the eternal harmony. In the evolutionary view, variations are not viewed *a priori* as imperfections. The evolutionary view has some interesting similarities to jazz, in this sense. In jazz the purpose of the performance is not to reproduce correctly the composer's vision, but to delight the audience with variations and innovations (Montuori, 2003). Likewise, in the new evolutionary view, "variations came to be considered the

most significant aspects of natural history." Rather than a fixed universe where difference is deviant, there is a constant interplay between change and stability, order and disorder, and an ongoing evolutionary process. The shift in thinking is dramatic, and the implications enormously far-reaching.

The implications for inquiry are also profound. Instead of essentialism of fixed forms there emerges a contextual, hierarchical, process view. Gone is the aspiration for a "God's eye view from nowhere," a complete integration of knowledge from a privileged perspective, the search for the Archimedean point (Ceruti, 1994) from which to pass judgment on creation. Echoing the work of Edgar Morin and his en-cyclo-pedic approach to complexity (Morin, 1992, 2008), Ceruti writes that

What emerges is a binocular view of becoming, a form of perspectival perception of processes and forms. In order to develop this perspective, it is necessary to dissolve a problem and learn an art. What needs to be dissolved is the problem of the comprehensive and panoramic synthesis, with a criterion for judgment that is acontextual and definitive, creating a synthesis of competing points of view, aiming to separate the essential from the inessential, the permanent from the transitory, the primary from the secondary. What we can learn is instead the art of shifting our viewpoint, circulating among points of view, and the expansion of the context in which initial oppositions are located. It is the art of the traveler who, in his journey lays down a path in walking, or the investigator of clues who immerses herself in the context and interrogates what she encounters to decide what point of view is most pertinent in that particular moment of her history.

The stress is on "*what point of view is most pertinent in that particular moment,*" and therefore shifts our aspiration from a kind of knowledge that is "good" once and for all, regardless of spatio-temporal, ecological, cultural, political, and other contexts, to a knowledge that is situated, not in a pantheon of eternal verities, but rather in the lived experience of human beings, with values, goals, contingencies, living and working in what Morin calls "an ecology of action." This is not abstract knowledge but knowledge that is embedded and embodied, knowledge that is not separated from praxis, and therefore escapes control of the knower once it is out in the world.

But does this kind of "relative" knowledge not plunge us right into the dreaded "nihilistic postmodernism," where anything goes, there are no general criteria for judgment, and knowledge is essentially what anyone says it is? This is far from Ceruti's view. Already in his

more technical discussion of evolution and epistemology, *Constraints and Possibilities* (Ceruti, 1994), we find an extensive discussion of an alternative to what Bernstein (1983) has called the "Cartesian Anxiety" of modernity, where, following our musical analogy, there either is a musical score for everybody to follow or cacophonous anarchy is loosed upon the world. Ceruti rejects the view of progress as a linear and inevitable historical process toward human betterment, but he does not jettison the aspiration for project altogether—on the contrary.

Progress has been thought of and experienced as imposed and predetermined by tendencies that were fixed for eternity, and have always been operational. What we are seeing now is a history characterized by the unpredicted and indeed unpredictable emergence of new contexts, new environments, and new coherences, due to the interaction and conflict of disparate and heterogeneous historical actors, different in nature and origin.

Humanity's present achievements were thought to be, and experienced as, inevitable. Now, we can see how great progress in the species and of human civilizations occurred through the encounter and the clash of themes, roots, and cultures which occasionally, fortuitously, were brought together and were able to hybridize in the minds of a few, or even in a single individual.

This does not point to a simple inversion in the traditional idea of gradual and cumulative progress of the forms of human knowledge. It is not, in other words, a pure denial of any sort of progress. On the contrary, renouncing parameters that are too linear and mechanical in order to understand humanity's journey can stimulate us to reflect on possible directions for development of the cultural experiences of human civilizations and the species as a whole.

The opening of possibilities, the loss of the belief in a single trajectory, does not have to lead to chaos and nihilism. Rather than a univocal, predetermined trajectory, what Ceruti opens for us is a vision of the virtually infinite potential of creativity in the universe, and in human civilization, and indeed of the creative nature of the universe itself. This recognition of the fundamental creativity of the universe, life, and humanity invites us to reassess who we are, where we are, and where we can go. It also brings with it a tremendous responsibility. The universe, our life, our civilization, are not determined. Just because history took certain turns does not mean that it *had* to take them. Our present condition was not inevitable. And therefore our actions, and the way we think about the world, and our future, represent a creative challenge to us all.

The creative potential of this condition of contemporary humanity will depend decisively on the capacity to listen, the capacity to let go of ancient models based on the opposition between truth and error. We find instead the possible emergence of a new coherence, a new condition of stability relative to human civilization: interconnected with what has gone before, but by no means a necessary and inevitable culmination or completion.

Evolution Without Foundations is a book that deserves to be savored. Rich with insights, it reflects a deep understanding of key challenges facing humanity today. Its implications are profound and far-reaching. Mauro Ceruti is a wise guide leading us to a new understanding of ourselves and our world.

Alfonso Montuori

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