

LIVING A NON-ANTHROPOCENTRIC FUTURE

Gennady Shkliarevsky

ABSTRACT: The climate change is one of the most contentious issues discussed in the public arena today. Environmental activists argue that the climate change is not an act of nature or God but is a result of human actions. Environmental critics do not see the degradation of the environment as merely a result of wrongheaded or misguided policies. Their critique goes much deeper. For many environmental activists, this degradation reflects a fundamental flaw that is deeply rooted in our culture. They identify this flaw as anthropocentrism, or a worldview that assigns to humans and human values the primary place in the cosmic order. Their proposed solution is to reject this worldview and adopt a new egalitarian vision in which humans and the rest of nature will have equal value.

This article agrees with the view that anthropocentrism presents a real problem for our civilization. However, it takes a much broader approach to this problem that goes beyond the critique of environmentalists. First, it sees that the source of anthropocentrism lies much deeper than the environmentalists think. The source is the pattern in human thinking that emerged when early humans began to walk the face of earth. Early humans did not see the important role of the process of creation in the way they perceived, interpreted, and represented reality. The article explains the importance of the process of creation in the way we think. The article sees the source of anthropocentrism in the failure to recognize the importance of the process of creation and in the way this failure affects our thinking. It has resulted in a view of reality that is limited, exclusionary, and ultimately subjective. This failure has left humans no choice but to view reality through the prism of mental constructs that they create, which is the main source of anthropocentrism. Also, environmentalists see the problem of anthropocentrism primarily in its relationship to the environment. The article emphasizes that anthropocentrism is a broad phenomenon that affects many areas of our life.

Finally, the article examines major solutions that address the problem of anthropocentrism and offers their critique. It sees their principal common shortcoming in their exclusionary approach and outlines a new and inclusive approach.

KEYWORDS: Anthropocentrism; Ecocentrism; Climate change; The Judeo-Christian tradition; The process of creation; Social practice; Exclusion.

INTRODUCTION

Ever since the rise of civilization humans have strived to understand their role and place in the universe. Human relationship with nature is at the heart of this quest. There is a broad recognition that understanding this relationship is the key to solving numerous problems we face today, both as individuals and civilization.

Few other contentious issues discussed today are more relevant in this respect than debates on anthropocentrism. These debates have a long history. Over the last several decades the issue of anthropocentrism has become particularly intense in connection with what many regard as a major crisis of our civilization: climate change and the degradation of the environment. In his famous article “The Historical Roots of Our Ecologic Crisis” published in 1967, Lynn White fired the opening salvo in the debates that followed.

Much time has past since the publication of White’s article. The literature on anthropocentrism and its impact has grown immensely. Anthropocentrism and particularly its connection with the environmental crisis have become an important issue widely discussed in the public arena. Politicians, public figures, religious leaders, media personalities, and numerous activists have placed it in the center of the contemporary debates on the future of our civilization. The worldwide political mobilization and activism is a vivid illustration of how prominent this issue has become. Yet despite the enormous investment in time, energy, and resources, the problem that Lynn White formulated half a century ago remains unsolved. In her overview of what the environmental movement has achieved in the last several decades, Freya Mathews concludes:

Anthropocentrism persists as the moral axis of the West, and even in the heartland of conservation itself—as evidenced in the pages of conservation biology journals—a push to prioritise human interests over the interests of threatened species has recently found favour, in the name of ecomodernism.¹

In order to find a solution, one must understand the source of the problem. Major theoretical perspectives on anthropocentrism offer several explanations

¹ Freya Mathews, “Why Has Environmental Ethics Failed to Achieve a Moral Reorientation of the West?” Opinion. ABC Religion & Ethics. Australian Broadcasting Corporation, June 17, 2019; <https://www.abc.net.au/religion/why-has-environmental-ethics-failed-to-achieve-a-moral-reorient/11216540>.

that are in contention with each other with no definitive resolution in sight. The approach that this article takes is not to disprove current explanations. Rather, it will offer the way to bring them together in a broader frame that includes all of them as particular cases—that is, cases that are true under specific conditions or assumptions.

Based on their understanding of what the source of anthropocentrism is, the current perspectives also offer a variety of solutions for this problem. Unsurprisingly, there is much disagreement among their proposed approaches. A brief review of these approaches will help understand their merits and also their limitations. The article does not intend to side with any of the current solutions of the problem of anthropocentrism and will propose its own approach. The main thrust of this approach is to offer a frame that will be sufficiently broad to include these solutions and their differences as particular cases.

Although most of the current perspectives focus on climate change and the degradation of nature, some of them also point to other important effects of anthropocentrism: social divisions, economic slowdown, political tensions and conflicts, anaemic progress in science, various forms of oppression and domination, and much else. The article will take a broad approach. It will provide an assessment of all consequences of anthropocentrism, not just its impact on the environment.

Finally, all the current perspectives recognize that human-centered views and attitudes have a decisive influence in shaping our social practice. They all see the need for a new social practice as part of the solution. They also offer their versions of what this new social practice will be like. Their approach to this issue is more exclusive than inclusive of each other. The article totally agrees with the view that a new social practice is essential for the solution of the problem of anthropocentrism. It will outline its own version of this practice with the view to offer an inclusive approach.

THE PROBLEM OF ANTHROPOCENTRISM

Defining Anthropocentrism

As has already been pointed out, the issue of anthropocentrism remains very contentious and controversial. Even the view that anthropocentrism presents a

problem is by no means unanimously accepted. Although an overwhelming majority of the contributors to these debates share this view, there are dissenters who insist that anthropocentrism is intrinsic to human nature; it is ineluctable. They also argue that the source of our problems lies elsewhere—in the prevailing social relations of production, acquisitive instincts, or some other—and not in anthropocentrism.

Indeed, one would look in vain for a definitive attitude toward anthropocentrism in the vast body of contributions on the subject. There are those who advocate “hard” approaches. This broad perspective rejects the view that humans and their values should occupy a very special and primary place in the universe. Instead, it proposes to adopt a different view that sees equal value in all of nature and all its entities. The proponents of this perspective see the need to replace the anthropocentric worldview with what they define as ecocentrism.² Helen Kopnina and her co-authors are typical representatives of ecocentrism. They argue that anthropocentrism is at the root of the environmental degradation. Their language is uncompromising and harsh. Anthropocentrism is simply wrong. They view anthropocentrism as “a significant driver” in what they call “ecocide.” They describe the clash between anthropocentrism and ecocentrism as nothing short of a war—the war that, in their view, is necessary since anthropocentrism “cannot lead us to a sustainable future.”³

Others vie for a more moderate approach. They counter the harsh criticism of ecocentrists by arguing that the anthropocentric worldview, if properly understood, can be used for the benefit of both humans and nature. They propose a “soft” or “weak” anthropocentric approach to the environmental problems.⁴ Still others go even further in maintaining that as a broad organizing

² H. Rolston, III, *A New Environmental Ethics: The Next Millennium for Life on Earth* (New York: Routledge, 2012); P. J. Cafaro and R. B. Primack, (2014). “Species Extinction Is a Great Moral Wrong,” *Biological Conservation*, 170 (2014), pp. 1–2; E. Shoreman-Ouimet and H. Kopnina, *Culture and conservation: Beyond Anthropocentrism* (New York: Routledge, 2016).

³ Helen Kopnina, Haydn Washington, Bron Taylor, and John J Piccolo, “Anthropocentrism: More than Just a Misunderstood Problem,” *Journal of Agricultural and Environmental Ethics*, vol. 31, no. 1 (February 1, 2018), pp. 109–27; pp. 109 and 123; <https://doi.org/10.1007/s10806-018-9711-1>.

⁴ B. G. Norton, B. G. (1984). “Environmental Ethics and Weak Anthropocentrism,” *Environmental Ethics*, vol. 6, no. 2 (1984), pp. 131–148; A. Weston, “Beyond Intrinsic Value: Pragmatism in Environmental Ethics,”

principle of our practice, anthropocentrism is simply irreplaceable. They contend that anthropocentrism is natural and inevitable; that no other perspective but human perspective on reality is possible; and that anthropocentrism is even benign for the aim of environmental protection.⁵ In his article “Why ‘anthropocentrism’ Is Not Anthropocentric,” David Kidner concedes that considering anthropocentrism a key cause of environmental destruction may be “a reasonable first approximation.” However, his main argument is that anthropocentrism

. . . conceals more fundamental causes, disguising the effects of those emergent properties of the industrialist system which not only devastate and commodify 'external' nature but also colonize human being and enlist us as agents of industrialism.⁶

Kidner dates the beginning of the onslaught of “invasive industrialism” as early as the late medieval era.

Despite radical disagreements among the above perspectives, they are remarkably uniform in their definition of anthropocentrism. They all see anthropocentrism as meaning simply human-centeredness, or the worldview that assigns the supreme place to humans and human values in the universe.⁷ The definition provided in *Encyclopedia Britannica* is the template for practically all the current definitions:

Anthropocentrism, philosophical viewpoint arguing that human beings are the central or most significant entities in the world. This is a basic belief embedded in many Western religions and philosophies. Anthropocentrism regards humans as separate from and superior to nature and holds that human life has intrinsic value while other entities (including animals, plants, mineral resources, and so on) are

Environmental Ethics, vol. 7 (1985), pp. 321–339; W. Grey, “Anthropocentrism and Deep Ecology,” *Australasian Journal of Philosophy*, vol. 71, no. 4 (1993), pp. 463–475.

⁵ Norton, “Environmental ethics and weak anthropocentrism”; *Environmental Ethics*, Grey, “Anthropocentrism and deep ecology.”

⁶ David W. Kidner, “Why ‘Anthropocentrism’ Is Not Anthropocentric,” *Dialectical Anthropology*, vol. 38, no. 4 (2014): 465–80, p. 465.

⁷ Kopnina et al. Kopnina, Helen, Haydn Washington, Bron Taylor, and John J Piccolo. “Anthropocentrism: More than Just a Misunderstood Problem.” *Journal of Agricultural and Environmental Ethics*, vol. 31, no. 1 (February 1, 2018), pp. 109–27, p. 113, <https://doi.org/10.1007/s10806-018-0711-1>; J. Beever, “Anthropocentrism in the Anthropocene,” in *Encyclopedia of the Anthropocene*, edited by Dominick A. Dellasala and Michael I. Goldstein, (Oxford: Elsevier, 2018), pp. 39–44, <https://doi.org/10.1016/B078-0-12-809665-9.10454-9>.

resources that may justifiably be exploited for the benefit of humankind.⁸

Although definitions such as the one above are acceptable, I find them limited in one important sense. According to this definition, anthropocentrism is a view of reality. We view reality through the prism of our mental constructs. Our mental constructs are our creations and inevitably bear our human imprint. In other words, they are anthropocentric regardless of the fact whether our perspective focuses on humans or non-humans. In the title of his article published years ago Thomas Nagel asked a provocative question “What Is It Like to Be a Bat?”⁹ There is yet to be a definitive answer to this question. This is not to say that there is no difference in whether we focus our perspective on humans or not. It certainly does matter. This is simply to say that no matter what the focus of our perspective is, it is inherently anthropocentric if it relies on mental constructs that we humans create. A definition of anthropocentrism should recognize this fact and the current definition does not.

There is an additional benefit in the broad definition of anthropocentrism as a worldview that relies on constructs created by humans, rather than simply as one that assigns primacy to humans. There are many researchers who dispute that anthropocentrism presents a problem. Rather, they claim, the problem lies elsewhere: for example, in industrialism, capitalism, the ethics of individualism, the prevailing patterns of consumption, or something else. However, as one reads through their explanations, one wonders whether the reasons they see as sources of the abuse of nature are not fundamentally anthropocentric. The broad definition of anthropocentrism helps to resolve this controversy. The definition of anthropocentrism as the worldview that relies on mental constructs created by humans recognizes that the alternative reasons for the environmental degradation are also anthropocentric in nature. Industrialism and capitalism, for example, rely as much on mental constructs created by humans as the anthropocentric attitudes shaped by the Judeo-Christian tradition and perhaps even more so.

⁸ Sarah E. Boslaugh, “Anthropocentrism,” in *Encyclopedia Britannica*, <https://www.britannica.com/topic/anthropocentrism> (accessed September 5, 2021).

⁹ Thomas Nagel, “What Is It Like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4 (1974), pp. 435–50. <https://doi.org/10.2307/2183914>.

The Current Perspectives on the Origin of Anthropocentrism

As has already been mentioned, Lynn White was one of the first to draw attention to the moral roots of the mistreatment of nature by humans. He put the blame squarely on the Judeo-Christian tradition that, in his view, instilled the anthropocentric belief in the supreme position and role of humans sanctified in the sacred texts of this tradition. According to these texts, God willed humans to establish their dominion over nature. White considers Christianity to be the most anthropocentric religion the world has ever known. He calls the victory of Christianity over paganism “the greatest psychic revolution” in the history of Western culture that has profoundly changed every aspect of the life of Europeans: from their view of the cosmos to their daily routines. All aspects of European life have been dominated since then by “an implicit faith in perpetual progress” that was hardly known in pre-Christian Europe.¹⁰ In White’s view, the abuse of nature has inevitably followed from the attitudes instilled by the Judeo-Christian tradition.

White’s views on the roots of anthropocentrism did not go unchallenged. Shortly after the publication of White’s article, Richard Wright published his polemic against White. In an article entitled “Responsibility for the Ecological Crisis” Wright wrote:

. . . to lay the blame for the ecological crisis on Christianity is to misread history. The great damage this accusation may do is not in discrediting Christianity—I think that Christian faith will survive the attack—but in convincing some that the accusation is true, it puts the emphasis for action in the wrong arena. Christianity has become the scapegoat for human failure. . . . The successful strategy must recognize these basic human faults and appeal to other human interests. This must be the ecological strategy, and it has the added advantage of calling for the involvement of all ecologically aware individuals and groups, not just those who are religiously inclined.¹¹

Closer to our time, Ronald Simkins has noted that since the publication of White’s article the question as to whether religion warrants a more ecologically balanced treatment of the environment has often been answered in the negative.

¹⁰ Lynn White, “The Historical Roots of Our Ecologic Crisis.” *Science*, vol. 155, no. 3767 (1967), pp. 1203–7, p. 1205.

¹¹ Richard Wright, “Responsibility for the Ecological Crisis,” *BioScience*, vol. 20, no. 15 (August 1, 1970), pp. 851–53, p. 853, <https://doi.org/10.2307/1295493>.

Simkins disputes what he sees as “the common anthropocentric reading of the Bible.” He argues that the Bible is “the product of a theocentric worldview” in which humans may be singled out “for particular attention, but they are not separated out from the natural world in which they live.”¹²

Yet despite these challenges, the trend that White’s article has helped to set has retained its grip on the environmental movement. In a more recent time Bron Taylor and his co-authors conclude, for example, that “the greening-of-religion hypothesis” is unsupportable and the critique of Christianity initiated by White remains valid.¹³ They contrast the attitudes shaped by the Judeo-Christian tradition with attitudes that have survived in many indigenous traditions and religions that, in their view, “often foster pro-environmental perceptions.”¹⁴

The debates on the roots of anthropocentrism do not subside. The number of contributions continues to rise. Those who see the Judeo-Christian tradition as the main source of anthropocentrism stand their ground, trading arguments back and forth with their opponents, as the definitive solution remains elusive.¹⁵ Moreover the debates have branched off in new directions.

New contributions made since the 1960s have broadened the range of theoretical views on the origin of anthropocentrism. Some find that anthropocentric attitudes were well represented in pre-Christian civilizations of

¹² Ronald A. Simkins, “The Bible and Anthropocentrism: Putting Humans in Their Place,” *Dialectical Anthropology*, vol. 38, no. 4 (2014), pp. 397–413; p. 397.

¹³ Bron Taylor, Gretel Van Wieren, and Bernard Daley Zaleha, “Lynn White Jr. and the greening-of-religion hypothesis,” *Conservation Biology* 30, no. 5 (2016): 1000–1009. <https://doi.org/10.1111/cobi.12735>, p. 1000.

¹⁴ Bron Taylor, Gretel Van Wieren, and Bernard Daley Zaleha, “Lynn White Jr. and the greening-of-religion hypothesis,” *Conservation Biology*, vol. 30, no. 5 (2016), pp. 1000–1009, p. 1000, <https://doi.org/10.1111/cobi.12735>.

¹⁵ Jan Boersema, Andrew Blowers, and Adrian Martin, “The Religion-Environment Connection,” *Environmental Sciences*, vol. 5, no. 4 (December 1, 2008), pp. 217–21. <https://doi.org/10.1080/15693430802542257>; Michael T. Seigel, “Religion, Science, and Environment,” *Pacifica*, vol. 16 (2003), <file:///Users/Gennady/Downloads/vol16no1article5religion.pdf>; Ben Minter, “An Appraisal of the Critique of Anthropocentrism and Three Lesser Known Themes in Lynn White’s ‘The Historical Roots of Our Ecological Crisis,’” *Organization and Environment*, vol. 18, no. 2 (2005), pp. 163–76; Eileen Crist and Helen Kopnina, “Unsettling Anthropocentrism,” *Dialectical Anthropology*, vol. 38, no. 4 (December 2014), pp. 387–96, <https://doi.org/10.1007/s10624-014-9362-1>; Jennifer Gribben and Julie Fagan, “Anthropocentric Attitudes in Modern Society Halting Climate Change Will Require a Cultural Shift toward Eco-Centrism” (2016), <https://rucore.libraries.rutgers.edu/rutgers-lib/51505/#playback/MP4-1>.

Greece and Rome. Others point out that anthropocentric attitudes are characteristic for traditions other than the Judeo-Christian one and for cultures other than European. Still others challenge the idealization of indigenous cultures so popular among environmentalists who often romanticize the attitudes toward nature among indigenous populations.¹⁶

Students of ancient European cultures, for example, draw attention to the presence of anthropomorphic gods in the religions of Ancient Greece and Rome. The search for antecedents of the vision of humans as having a special status in the cosmos has led researchers to Aristotle, Presocratics, Pythagorians and other major Greek philosophers. Milan Ćirković, for example, locates the origin of a modern cosmological argument in Ancient Greece.¹⁷ Munamoto Chemhuru finds anthropocentric and non-anthropocentric environmental ethical thinking in ancient Greek philosophy, thus challenging the notion that environmental ethics is a new discourse born in the 20th and 21st century.¹⁸ Even folk tales that go well back to even earlier times also reflect the tendency of projecting human forms on nature.

Analyzing the pre-Colombian culture of American Indians and other traditional cultures, Dustin Penn concludes that the people who represent these cultures “are not the conservationists” that they are often assumed to be. The low ecological impact of these civilizations, in his opinion, is not “due to conservation practices per se, but simply their low population densities and inefficient technologies.”¹⁹ Paul Nadasdy concurs with Penn in challenging the notion of the ecologically noble Indian popularized in the environmentalist movement.²⁰

¹⁶ Deborah Bird Rose, “Arts of Flow: Poetics of ‘fit’ in Aboriginal Australia,” *Dialectical Anthropology*, vol. 38, no. 4 (2014), pp. 431–45.

¹⁷ Milan M. Ćirković, “Ancient Origins of a Modern Anthropic Cosmological Argument,” *Astronomical & Astrophysical Transactions*, vol. 22, no. 6 (December 2003), pp. 879–86, <https://doi.org/10.1080/10556790310001600871>.

¹⁸ Munamoto Chemhuru, “Elements of Environmental Ethics in Ancient Greek Philosophy,” *Phronimon*, vol. 18 (January 1, 2017), pp. 15–30, p. 15, <https://doi.org/10.17159/2413-3086/2017/1954>.

¹⁹ Dustin J. Penn, “The Evolutionary Roots of Our Environmental Problems: Toward a Darwinian Ecology,” *The Quarterly Review of Biology*, vol. 78, no. 3 (September 1, 2003), pp. 275–301, p. 278, <https://doi.org/10.1086/377051>.

²⁰ Paul Nadasdy, “Transcending the Debate over the Ecologically Noble Indian: Indigenous Peoples and Environmentalism,” *Ethnohistory*, vol. 52, no. 2 (April 1, 2005), pp. 291–331, p. 322, <https://doi.org/10.1215/00141801-52-2-291>.

Finally, the available evidence also shows that anthropocentric attitudes are not strictly speaking a phenomenon associated exclusively with the European or the Judeo-Christian context. Even countries that have experienced long periods of isolation from the European civilization and have not been influenced by the Judeo-Christian tradition, such as China or Japan, have faced and continue to face many environmental problems. Several studies exploring the historical roots of the ecologic crisis in China, for example, show that anthropocentrism clearly transcends both temporal and cultural boundaries.²¹

The growing body of literature on the roots of anthropocentrism has enormously expanded both the temporal and cultural boundaries of the origin of anthropocentrism. It helps us realize that the roots of anthropocentrism reach much deeper into human history than we thought back in the 1960s. We have also realized that anthropocentrism is not culturally or time specific; its presence in many cultures and in different time periods is now well documented. As a result of these realizations, anthropocentrism increasingly emerges as a universal phenomenon that is much more fundamental to human existence than we thought when the problem of anthropocentrism originally emerged.

The Source of Anthropocentrism

The broad definition that dislocates anthropocentrism from a particular time period or culture raises serious doubts as to what the current explanations see as the source of anthropocentrism. This definition suggests that anthropocentrism has many forms and manifests itself in a variety of ways. Despite their differences, all current perspectives on the origin of anthropocentrism have one feature in common: they all rely on mental constructs created by humans and that is what makes them also anthropocentric.

²¹ Mark Elvin, *The Retreat of the Elephants: An Environmental History of China* (New Haven: Yale University Press, 2006); Mark Elvin, and Ts'ui-jung Liu, *Sediments of Time: Environment and Society in Chinese History* (Cambridge; New York: Cambridge University Press, 1998); Robert B. Marks, *China: Its Environment and History* (Lanham, MD: Rowman & Littlefield, 2012); Elizabeth C. Economy, *The River Runs Black: The Environmental Challenge to China's Future* (Ithaca: Cornell University Press, 2004); Ajiang Chen, Pengli Cheng, and Yajuan Luo, *Chinese "Cancer Villages": Rural Development, Environmental Change and Public Health. Chinese "Cancer Villages,"* (Amsterdam: Amsterdam University Press, 2020) <https://doi.org/10.1515/9789048524570>; Ajiang Chen, "The Historical Roots of China's Ecologic Crisis," 2020, <https://rces.hhu.edu.cn/upload/article/files/bf/38/58202c284317a93fcb8bd409fba/6079f937-9535-46e5-a016-26c9c2aa254b.pdf>

The emphasis on the reliance on human constructs as the distinct feature of anthropocentrism raises some uncomfortable questions: Is it possible to approach reality in ways other than those that rely on constructs created by humans? Indeed, some researchers assert that there is no other way and that anthropocentrism is ultimately ineluctable. Mary Anne Warren opines in her book *Moral Status: Obligations to Persons and Other Living Things*:

In making judgments about the moral status of living things, we are not (or should not be) seeking to estimate their value from the viewpoint of the gods, or that of the universe. We are not gods but human beings, reasoning about how we ought to think and act. Our moral theories can only be based upon what we know and what we care about, or ought to care about. If this makes our theories anthropocentric, then this much anthropocentrism is inevitable in any moral theory that is relevant to human actions.²²

Warren and others suggest that the problem of anthropocentrism is irresolvable and all we can hope for is only to ameliorate its detrimental effects.

The assertion regarding the inevitability of anthropocentrism is merely an observation, not a clearly defined theoretical position. It does not really offer a rational justification as to why anthropocentric attitudes and views are inevitable. The basis for the assertion regarding the inevitability of anthropocentrism is a mere observation of how things have been so far and the recognition, totally unjustified, that they cannot be any other way.

Anthropocentrism is a worldview. It is not about how reality is but how we view and interpret reality; it is ultimately about our mental constructs because mental constructs make our perceptions, observations, and interpretations of reality possible. These mental constructs are our creations and in this sense they are anthropocentric. However, the process that we use to create our mental constructs is not our creation. Our mind did not create this process; on the contrary, this process creates our mind. In fact our mind is the most powerful tool of the process of creation.

The human mind is a product of the evolution. The evolution represents a succession of increasingly more powerful levels of organization of life, of which the human mind represents the most powerful one. The fact that this process has

²² Mary Ann Warren, *Moral Status: Obligations to Persons and Other Living Things* (New York: Oxford University Press, 1997), p. 43.

created the human mind, rather than the other way around, is well established and few people would dispute it. One of the most important empirical confirmations of this fact is the way we acquire the capacity to perform mental operations, or what we commonly refer to as the mind.

Newborns do not have this capacity when they are born. They are capable only of sensory-motor operations. However, by the end of their first year of life all children make a major step in their development: they construct mental images and can use them in performing mental operations. This critical development opens the path to increasingly more powerful mental operations, including symbolic operations. The capacity to perform mental operations is the main function of the human mind.

Jean Piaget describes this early development of the human mind in his study *The Origins of Intelligence in Children*.²³ The focus of this remarkable book is on the emergence of mental images. Mental images represent a new level of organization that does not exist at the time of birth. The emergence of this new level of organization is obviously a result of some process. Piaget focuses on this process. In doing so, he forgoes the traditional atomistic approach. Rather than attempt to explain mental images in terms of some fundamental building blocks with properties that define mental images, Piaget shifts the focus to the process that children perform in creating mental images. Piaget abandons the notion that the defining feature of mental images existed prior to their emergence. He looks at the process of emergence of mental images as an act that creates these properties. He does not base his search on some foundational assumption. He fixes his gaze on what children actually do, as the empirical reality that precedes the rise of mental images.

The defining feature of mental images is their permanence. Prior to the emergence of mental images, objects have only fleeting existence for the child. The child is aware of object only while the child is in direct contact with them. According to Piaget, the level of organization that sustains mental images emerges from the level of organization that sustains sensory-motor operations, such as audio, visual, olfactory, gustatory, and tactile. Conservation is the key to understanding this process. Sensory-motor operations are mere reflexes. As

²³ Jean Piaget, *The Origins of Intelligence in Children* (Madison: International Universities Press, 1998).

Piaget has observed, initially children indiscriminately perform these operations as a way of conserving them through repeated actions. Such indiscriminate applications of sensory-motor operations have no purpose but they do produce results. They make operations more stable and thus conserve them.

Conservation of sensory-motor operations results in the multiplication of their differences and the emergence of their combinations. For example, the visual perception of the object activates the audio function and vice versa. When the child hears mother's voice, the child starts turning his or her head searching for a familiar image. Because they include differences, these combinations of sensory-motor operations represent a new level of organization that is more powerful than the one from which it has emerged. This level of organization offers sensory-motor operations more possibilities, more degrees of freedom, and more opportunities to act and thus conserve themselves. The result is the emergence of permanent mental images. The object begins to exist for the child even when the child and the object are not in direct contact. Mental images reflect sensory-motor operations, but they do a lot more. They regulate and enrich sensory-motor operations with new possibilities, thus making them more stable and conserving them better. The rise of permanent mental images represents the developmental leap toward symbolic mental operations. It is an unintended and unsought for result of conservation of sensory-motor operations.

Although Piaget's intention was to explain the emergence of mental images, he made a discovery that had much broader relevance. He has discovered a process that results in the creation of a new level of organization that is more powerful than the one from which it has emerged. There is every reason to believe that this process also operates on other levels of organization in the human mind.

The use of the word creation is not an accident or a mistake; it is deliberate. I define creation as the emergence of something that has not existed prior to its emergence. I use this words in the sense in which we use it in relation to the various art forms, not in the religious sense of creation "ex nihilo." In this former sense, the word implies continuity and discontinuity that are both characteristic for an act of creation.

As one can see from the above description, the process of creation plays a singularly important role on our relationship with reality. It creates the level of

organization that sustains the human mind. Mental operations that the human mind performs create mental constructs that make perception, observation, and interpretation of reality possible. These constructs are our creations. When we rely on these constructs to formulate our perspective, this perspective will inevitably be anthropocentric. However, while these constructs are our creations and, therefore, are anthropocentric, the process we use in creating them is not. This process did not originate in the human mind. On the contrary, it created the mind.

Piaget has discovered a process that creates new levels of organization that are more powerful than those from which they have emerged. The evolutionary implications of this discovery are obvious.²⁴ After all, the evolution is largely about the rise of cascading new and increasingly more powerful levels of organization nested in each other *matryoshka* style.²⁵

Humans are part of reality; they are products of its evolution. The process of creating new and increasingly more powerful levels of organization is integral to the evolution. The evolution is the only source from which humans could have inherited the capacity to create new levels of organization.

Since the evolution of nature is part of the evolution of the universe, we can extend the observation about the broader relevance of the process of creation to the entire universe. Piaget has shown that the process that leads to the emergence of mental images originates in conservation. Conservation is ubiquitous throughout the universe and manifests itself at all levels of organization of reality.

²⁴ Piaget has examined the process of creation largely in the context of human mind. His efforts to extend his discovery to other contexts have been very limited. *Behavior and Evolution* is perhaps one of the few rare examples of such efforts. See Jean Piaget, *Behavior and Evolution* (New York: Pantheon Books, 1978).

²⁵ I have examined the process of creation in the context of both the evolution of nature and the evolution of the universe. Although the details in each context are very different, the fundamental pattern—conservation→combinations→creation of new and more powerful levels of organization—evolution remains the same. I would only add a few features to the pattern described by Piaget, although Piaget also mentions them in his work. These features include the creation of aggregations with subsequent differentiation of such aggregations that gives rise to differences. See Gennady Shkliarevsky, “Conservation, Creation, and Evolution: Revising the Darwinian Project,” *Journal of Evolutionary Science*, vol. 1, no. 2 (September 25, 2019): 1–30, <https://doi.org/10.14302/journal.2689-4602.jes-19-2990>; Gennady Shkliarevsky, “Revising the Cosmic Story,” *ArXiv:2012.12749 [Physics]*, December 23, 2020, <http://arxiv.org/abs/2012.12749>; Gennady Shkliarevsky, “The Universal Evolution and the Origin of Life,” SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, April 11, 2021, <https://doi.org/10.2139/ssrn.3824365>.

Its roots lie in the very nature of the universe. Our universe is very unique. It is all there is. Nothing can come into it from outside because there is no outside. Nothing can disappear from it because there is nowhere to disappear. Everything must be conserved. Without conservation the universe simply cannot exist. And conservation and creation are integral to each other.

Humans are not the source of this process of creation that precedes the rise of humanity. The nature of this process is, therefore, not anthropocentric. Moreover, the process of creation offers a point from which we can view reality, including the process of creation itself, without relying on human constructs and without falling into the trap of what Luhmann called “infinite regress.”²⁶

As has already been explained, creating combinations is central to the process of creation. The operation performed in creating combinations is essentially a form of equilibration. The increase in equilibrium is a natural result of equilibration. However, combinations also create a new and more powerful level of organization. The emergence of the more powerful level of organization results in disequilibrium that requires subsequently re-equilibration. As equilibrium grows, so does disequilibrium. This balance between equilibrium and disequilibrium regulates and sustains/conserves the process of creation. Regulation is essentially a reflective operation. It reflects the entire process that it regulates. Therefore, the point of balance between equilibrium and disequilibrium offers a possibility of observing the entire process of creation from a perspective that does not rely on human creations.

The above shows that the process of creation transcends human mind; this process is not our creation and therefore is not anthropocentric in its nature. Moreover, this process offers a possibility of observing reality from a position that does not rely on human constructs. Therefore, a perspective that uses the process of creation as its main organizing principle will not be anthropocentric.

Although the process of creation plays the central role in human relationship with reality, humans have paid relatively little attention to this process. It is peripheral to all major theoretical perspectives. We know little about it and study

²⁶ Niklas Luhmann, *Social Systems*. (Stanford: Stanford University Press, 1995), p. 479.

it even less.²⁷ Margaret Boden, one of the pre-eminent researchers in the field of creativity, draws the following conclusion in her influential book:

Our ignorance of our own creativity is very great. We are not aware of all the structural constraints involved in particular domains, still less of the ways in which they can be creatively transformed. We use creative heuristics, but know very little about what they are or how they work. If we do have any sense of these matters, it is very likely tacit rather than explicit: many people can be surprised by a novel harmony, but relatively few can explicitly predict even a plagal cadence.²⁸

The situation that Boden describes has not always been the case. In fact, many indigenous and ancient civilizations recognized the importance of the process of creation. For example, many pagan cultures recognized and venerated the creative powers of nature.

However, they viewed them as largely inaccessible to human understanding. These powers were in the domain of gods. The creative power of God is central to the Judeo-Christian tradition. Like pagan religions, the Judeo-Christian tradition recognizes God the Creator, but it also deems the process of creation as inaccessible to human understanding. Creation is a mystery that humans can approach only through faith, not reason. Despite the fact that pre-modern cultures recognized the centrality of creation in the cosmic order, they placed it outside the limits of human understanding.

The secular culture of modernity has marginalized religion. The mystery of creation has completely lost its appeal in the context of secularism and science with its emphasis on reason and rational analysis. Modern views and attitudes have reinforced the disregard of the process of creation described by Boden. But this pattern has emerged much earlier. It has existed since humans began to walk on the face of the earth. Early humans spontaneously and uncritically projected their own visions on reality. As a result of their projections, nature looked very much anthropomorphic. This early experience established a pattern whereby the process we use in creating our views of reality, while in plain view, remained largely outside of our frame of vision. Humans have failed to recognize the

²⁷ Gennady Shkliarevsky, "Understanding the Process of Creation: A New Approach." *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, vol. 22, no. 3 (October 31, 2017), pp. 1–13. <https://doi.org/10.7595/management.fon.2017.0021>.

²⁸ Margaret Boden, *The Creative Mind: Myths and Mechanisms*, 2nd ed. (London, New York: Routledge, 2004), p. 246.

importance of this process in their relationship with reality. As a result, human understanding of the process of creation has been and remains very limited.²⁹

Thus, one can see that, for one reason or another, our civilization has, for all practical purposes, ignored the process of creation. It has not devoted much time and energy to study and understand this process. The process of creation has been and remains peripheral in the frame of our practical interactions with reality and has been largely ignored. The view of reality that does not recognize and embrace the central role of the process of creation in the evolution of the universe and in our own existence is profoundly flawed; it is very partial and, consequently, subjective.

As a result of the failure to recognize the centrality of the process of creation, the only choice that humans have is to view reality through the prism of the constructs that they create and that are, for this reason, intrinsically anthropocentric. This failure is the source of anthropocentrism.

It is important to point out that the view of the source of anthropocentrism presented in this article does not deny the validity of the current perspectives. One can agree with those who see the Judeo-Christian tradition as anthropocentric. However, we must recognize that the anthropocentrism of this tradition lies much deeper than its recognition of the primacy of humans in the universe. The contemporary perspectives on the human-nature relationship, even those that displace humans from the central position in the cosmos, still rely on mental constructs created by humans and, for this reason, are no less anthropocentric. The explanation of the source of anthropocentrism offered in this article operates within the frame that is broad enough to include all perspectives as its particular cases, i.e., cases that are true under specific conditions or assumption.

Consequences of Anthropocentrism

Anthropocentrism is a broad phenomenon that has multiple effects, of which the degradation of nature is only one. There are many other consequences that follow from the adoption of the anthropocentric worldview. They may not always be as obvious as the degradation of the environment, but they are no less tangible,

²⁹ Shkliarevsky, "Understanding the Process of Creation."

insidious, and dangerous.

As has been pointed out, the process of creation plays the singularly important role in conservation and the evolution. Each new level of organization conserves the level from which it has emerged and marks a new advance in the evolution. The failure to recognize and embrace the process of creation in our practice disrupts conservation. Without conservation, all systems, including social systems, begin to disintegrate. Human history provides many examples of such catastrophic events when entire civilizations and cultures collapsed. The current turmoil faced by our civilization also reflects the disruptive processes of disintegration.³⁰

For all practical purposes, the failure to recognize and embrace the centrality of the process of creation excludes this process from our frame of vision and results in a view of reality that is profoundly flawed. The exclusion of the process of creation from our view of reality has a powerful effect on how we interpret reality and, consequently, how we act, or on our practice. The exclusion of the process of creation makes our social practice also exclusionary. We know from our experience the effects of the exclusionary practice. The exclusion of nature leads to the degradation of the environment. The exclusion of people results in domination, tensions, conflicts, and violence.³¹ The failure to embrace and understand the process of creation leads to exclusion and inequality that are so prevalent in our society. Social or political exclusion lead to rivalry as different perspectives and political agendas compete for dominance. The quest for domination inevitably results in conflicts and violence. Finally, the exclusion of ideas disrupts the process of creating new and increasingly more powerful levels of mental organization, which diminishes the range of our possibilities in solving the problems we face.

The process of creation works on inclusion. As a result of the failure to embrace the process of creation, we do not understand the importance of inclusion, particularly inclusion of differences. We fear differences. They appear to pose a threat to our own view of reality. We do not see differences as new

³⁰ Gennady Shkliarevsky, "Rethinking Democracy: A Systems Perspective on the Global Unrest," *Systems Research and Behavioral Science*, vol. 33, issue 3 (2016), pp. 452-470.

³¹ Gennady Shkliarevsky, "Overcoming Modernity and Violence," in Robert E. Tully and Bruce Chilton, eds., *Intolerance: Political Animals and Their Prey* (Lanham: Hamilton Books, 2017), pp. 225-41.

possibilities. Rather than embrace them as opportunities to create, we seek to shun and suppress them. The failure to see the value of differences makes us fear change and resist the evolution. Despite protestations to the contrary, we do not readily embrace change. We often experience changes in our culture and society as a loss of reality, not as something that gives us an expanded and more powerful view of the world.

There are few traumatic experiences that can compare to loss of reality, that is, situations when people get a feeling that they can no longer understand reality or interpret it correctly. For a consciousness that experiences such situation, reality becomes a void, an abyss devoid of any meaning, or worse, filled with negative meaning. Rather than address the real source of its fear, this consciousness tends to look for the cause of the fear outside itself: it develops the need to construct the enemy, to create a scapegoat on whom it can project its fears; and the most common reaction to fear is violence.³² The destruction of nature is not only a result of our ignorance; it is also a result of our fear and violence that this fear inspires.

Inclusion occurs in non-hierarchical interactions. There are two types of interactions in systems: hierarchical and non-hierarchical. Non-hierarchical interactions create new levels of organization. Hierarchical interactions optimize and conserve these creations. Both types of interactions are equally necessary important for ensuring the conservation and evolution of a system. The balance between the two types of interactions is essential. The failure to understand how the process of creation operates leads to the disruption of this balance and leads to the domination of one type of interactions over the other. Such domination hinders the evolution of a system and puts its survival at risk.

Our civilization does not observe the balance between hierarchical and non-hierarchical interactions. Hierarchies are the dominant force in our contemporary civilization. Many observers call this domination a “deficit of democracy” and see it as the source of numerous conflicts that plague our civilization today. In many ways, the domination of hierarchies is the reason why

³² For an interesting discussion of the phenomenon of demonization and scapegoating see Lori J. Ducharme and Gary Alan Fine, “The Construction of Nonpersonhood and Demonization: Commemorating the Traitorous Reputation of Benedict Arnold,” *Social Forces*, vol. 73, no. 4 (1995), pp. 1309–31. <https://doi.org/10.2307/2580449>.

we cannot come up with innovative solutions of the problems we face today.³³

Without embracing the process of creation and understanding the way it works, we cannot control this process. Such control is essential for ensuring the steady production of new and increasingly more powerful levels of organization that give rise to new ideas, approaches and solutions. Our environmental problems are also a result of the failure to control the process of creation.

Human civilization is a dissipative system. It takes inputs in the form of resources and produces outputs in the form of entropy. According to the Second Law of Thermodynamics, entropy production can never go below zero. In other words, entropy production constantly depletes available resources. Sustaining our civilization constantly requires new resources—not just larger quantities but qualitatively new resources. The creation of new and increasingly more powerful levels of organization offers new possibilities and new choices that provide access to qualitatively new resources. When we do not control the process of creation, we cannot ensure the steady production of new levels of organization. As a result, we begin to run out of resources.³⁴

Human creativity is by far the most important resource that we have. The creation of new ideas and approaches make possible an exponential growth of our production. Moreover, by contrast with other resources that depreciate, this resource appreciates when it is used. Due to the failure of controlling the process of creation, we underutilize this resource. The underutilization of human capacity to create leads to inefficiencies, losses and waste, which slows down progress and makes sustaining our civilization more difficult.

Finally, the failure to embrace and understand the process of creation results in perspectives on reality that are profoundly flawed. One such perspective is atomism. The atomistic perspective rests on a totally unwarranted assumption that some fundamental building blocks can explain all objects and their properties. This perspective leads researchers to a totally futile search for such fundamental building blocks. All attempts to find such fundamental building blocks have failed. The only result of this search is the growing realization that there are no fundamental building blocks or levels of organization. Each level of

³³ Shkliarevsky, “Rethinking Democracy.”

³⁴ Shkliarevsky, “Squaring the Circle: In Quest for Sustainability.”

organization conserves the level from which it has emerged and creates another level of organization that conserves it.

Dualism is another perspective that results from the failure to embrace and understand the process of creation. This perspective views reality in terms of binaries that are fundamentally opposed to each other, such as, mind/body, subject/object, and many others. Viewing reality in terms of such disconnected and irreconcilable binary opposites makes understanding reality very difficult, if not totally impossible. The dualist perspective has no rational justification. It is a result of the failure to embrace and understand the process of creation. There is ultimately no real contradiction between the subject and the object. This contradiction arises only when we exclude the process of creation from the relationship between the subject and the object. The object in this relationship is our representation of reality. Each new representation of reality involves changes in our mental operations. As we construct our representation of reality, we also construct our mind.

The above certainly does not exhaust all negative effects that result from the anthropocentric worldview. Anthropocentrism is a broad phenomenon that affects all aspects of our life. Pratyush Ranjan, while admitting his ecological bias, nevertheless recognizes other effects of anthropocentrism such as exclusion, inequality, race, cast, religion, gender, etc.³⁵ The failure to embrace and understand the process of creation has multiple effects. It shapes our perceptions of reality and, consequently, our actions in response to these perceptions. This broad view of anthropocentrism and its effects does not deny the main criticisms that are currently made against anthropocentrism. Rather, it provides a broad frame that makes possible to see multiple effects of anthropocentrism on our life.

SOLVING THE PROBLEM OF ANTHROPOCENTRISM

Critique of the Proposed Solutions

There is no shortage of proposals on how to approach the environmental crisis.

³⁵ Pratyush Ranjan, "A General Account of Philosophical Anthropocentrism (with Special Emphasis on Political Anthropocentrism) in the Anthropocene," *International Journal of Basic and Applied Research*, vol. 9, no. 5 (2019), pp. 1229–45; pp. 1229 and 1241.

They vary in their scope and focus. Many, but certainly not all, of these approaches focus on anthropocentrism as the main reason for the abuse of nature. As has already been indicated, a significant number of the proposed solutions emphasize other causes—such as capitalism, industrialism, or individualism. However, the distinctions they draw are more due to variations in defining anthropocentrism. The causes of anthropocentrism to which alternative solutions point are closely related to human decisions and for this reason certainly fit into a more general rubric of anthropocentrism.

The dominant trend among the proposed solutions emphasizes the need to change the prevailing values and attitudes toward nature. They call for environmentally conscious ethics that would recognize the intrinsic value of nature, animals, plants, and the Earth. The main perspectives that are part of this group include ecocentrism, deep ecology, and environmental ethics. Although these perspectives have different names, they are in many ways more similar than different.

Ecocentrism is perhaps the most influential among them. Its agenda rejects the traditional human-centered attitude toward nature and calls for ascribing an intrinsic value to non-human forms of life. Haden Washington defines ecocentrism as “the broadest term for worldviews that recognize intrinsic value in all life forms and ecosystems . . . including their abiotic components.”³⁶ In a similar vein, if not in exact words, Matthew Mausner describes deep ecology as “a movement and approach to living that pursues respect and compassion between people and all species.”³⁷

The main emphasis of ecocentrism and its cognate perspectives, such as environmental ethics or deep ecology, is on viewing nature as one integral whole. In their view, such approach reflects what they see as the “fundamental law of the integrity of the universe.” In accordance with this law “every component member of the universe should be integral with every other member of the universe and that the primary norm of reality and of value is the universe

³⁶ Hayden Washington, “Why Ecocentrism Is the Key Pathway to Sustainability (The Ecological Citizen),” p. 35, <https://www.ecologicalcitizen.net/article.php?t=why-ecocentrism-key-pathway-sustainability> (accessed September 5, 2021).

³⁷ Matthew Mausner, “Deep Ecology: What Is It and Why It Matters | The Interfaith Center for Sustainable Development,” July 9, 2021. <https://www.interfaithsustain.com/deep-ecology/>.

community itself with its various forms of expression.”³⁸

Environmental ethicists add another dimension to this view. For them, the main problem also reflects the fact that our secular civilization is too preoccupied with the current “here and now” and lacks a point of reference that transcends the view that humans “are the most important things that exist.”³⁹ According to Tsaiyi Wu, for example, the way to achieve de-anthropocentrism is “ethical rather than metaphysical—it must involve a creation of the self, rather than an interpretation of the given human conditions.”⁴⁰ Jeremy Kidwell sees the importance of attending “to the presence and agency of these other-than-human creatures.” He particularly emphasizes that biblical interpretations can offer a crucial context for bringing the voices of non-humans to the foreground.⁴¹ Helen Kopnina and her co-authors maintain that humans should accept the notion that they are “part of nature, and have a responsibility to respect the web of life and heal the damage caused by the ideological dominance of anthropocentrism.”⁴²

The above examples certainly do not exhaust the range and diversity of ecocentric approaches. Despite their differences, they all share one common feature: they all see the need to include non-human entities—animals, plants, nature, the Earth—in the proposed solutions. Yet, despite this broad focus, ecocentrism remains limited. Its solutions do not engage other perspectives that do not fall within the range of ecocentrism.

The scope of environmental problems is very broad. It has many aspects and involves multiple factors--not just the preoccupation with human values and attitudes toward nature. For example, the implementation of the agenda

³⁸ Heather Eaton, “The Challenges of Worldview Transformation: To Rethink and Refeel Our Origins and Destiny,” in *Religion and Ecological Crisis*, eds. Todd LeVasseur and Anna Peterson (New York: Routledge and Taylor and Francis, 2017), pp. 121-137.

³⁹ The School of Life Articles. “The Disaster of Anthropocentrism—and the Promise of the Transcendent,” June 27, 2018. <https://www.theschooloflife.com/thebookoflife/the-disaster-of-anthropocentrism-and-the-promise-of-the-transcendent/>.

⁴⁰ Tsaiyi Wu, “A Dream of a Stone: The Ethics of De-Anthropocentrism.” *Open Philosophy*, vol. 3 (2020), pp. 413–28.

⁴¹ Jeremy H. Kidwell, “The Historical Roots of the Ecological Crisis.” *The Oxford Handbook of Bible and Ecology* (Oxford: Oxford University Press, 2021), https://jeremykidwell.info/publication/2021_oxford_handbook_crisis/.

⁴² Helen Kopnina, Haydn Washington, Bron Taylor, and John J Piccolo, “Anthropocentrism: More than Just a Misunderstood Problem,” *Journal of Agricultural and Environmental Ethics*, vol. 31, no. 1 (February 1, 2018), pp. 109–27, p. 123, <https://doi.org/10.1007/s10806-018-9711-1>.

proposed by ecocentric perspectives will require resources. Providing resources is just as important for the implementation of this agenda as changing human values and attitudes. Production is the only way to provide such resources. Yet, the ecocentric perspectives do not pay equal attention to issues related to production, thus relegating them to a secondary place. They are selective in emphasizing values and attitudes and their selectiveness is biased. In other words, they propose a selective approach of their own to the selectivity of the anthropocentric worldview. Thus, despite their broad claims, they remain selective and, in this regard, no less anthropocentric than the worldview they reject.

Selectivity is also characteristic for other solutions that are proposed to address environmental problems. The most prominent among them are those that focus on economic changes, such as, sustainable development, steady-state economy, limited growth, and de-growth. Similarly to the ecocentric agenda that relegates production issue to a secondary place, these perspectives assign primacy to matters related to economic organization and consider values and attitudes as secondary in their importance. Also, these perspectives are not immune to internal contradictions of their own.

Sustainable development for some time dominated the discourse on sustainability. However, in the opinion of many, its strategy in dealing with environmental problems has finally proven to be ineffective and, as a result, its influence has waned. The reason for the demise of this perspective is largely due to its failure to resolve internal problems. The core of the sustainable development perspective is the argument that entropy production can ultimately be constrained. While this argument is plausible, the sustainable development perspective has failed to outline the conditions that can constrain the law of entropy, as demonstrated, for example, by George McMahon and Janusz Mrozek in their insightful article "Economics, Entropy and Sustainability."⁴³

The failure of this perspective to prove, both theoretically and practically, the possibility of attaining sustainability through continued development has shifted attention to alternative approaches that advocate limiting economic growth and

⁴³ G. F. McMahon and J. R. Mrozek, "Economics, Entropy and Sustainability," *Hydrological Sciences*, vol. 42, no. 4 (August 1997), pp. 501-12.

consumption or even de-growing our economy as offering a more realistic path toward sustainability.⁴⁴ Although these two perspectives still have some limited appeal due to their popularity with the proponents of ecocentrism, they have internal problems of their own that cause much criticism and even resistance.

As has been pointed out earlier, there is the vital connection between the dynamic nature of systems and their conservation. Systems conserve themselves by giving rise to new and increasingly more powerful levels of organization. This feature reflects a critical distinction between conservation and preservation. Preservation does not require the creation of new levels of organization and evolutionary changes.

The creation of new and increasingly more powerful levels of organization is the main condition for the survival of any system, particularly complex human systems. If a system does not evolve, it cannot conserve the level of organization that maintains its regulatory functions. If regulation is unstable, it cannot coordinate the functioning of the system and its subsystems. With a lack of coordination, the system begins to disintegrate as its subsystems begin to operate increasingly on their own. However, this process of disintegration does not stop there. Subsystems are also systems in their own right. As such, they have their own regulatory operations that need to be stabilized. It is this stabilization that originally led to the creation of the system that incorporated them. The decomposition of a system necessarily leads to the eventual undoing of its subsystems. This process eventually and inevitably leads to the collapse of all the underlying levels and forms of organization.

The survival of any system, particularly such complex as our civilization, is impossible without continued evolution. Since both de-growth and steady-state economics abandon economic growth as part of their solution, they cannot achieve sustainability. They can only lead to the disintegration of our civilization. There is no sustainability without the creation of new and increasingly more powerful levels of organization, or growth. Dissipation of energy, or entropy, makes the creation of new levels and forms of organization both possible and necessary. New and increasingly more powerful levels and forms of organization make new flows of energy possible in a never-ending cycle of creation and

⁴⁴ McMahon and Mrozek, "Economics, Entropy, and Sustainability," pp. 509-510.

evolution.

Finally, one could mention the communitarian solution of the problem of environmental degradation. This approach has a significant appeal. The proponents of the communitarian approach toward the ecological crisis see the solution in the broad redistribution of wealth, both in individual societies and globally. Timothy LeCain, for example, for redistribution of mineral wealth as one way to approach the global ecological crisis. His solution is in living simple “so that others could simply live.”⁴⁵ Although the main point of the communitarian solution is valid, it is not a panacea. Our experience shows that a mere shift of the focus to community and communal interests does not solve environmental problems. After all, the environmental record of the communist societies that we know is no better, if not worse, than the record of capitalist countries.

The brief examination of the current solutions that address the environmental degradation shows that despite their differences, none of them sees this degradation as an act of nature or God; they all see its source in human actions, choices, and decisions. In this sense, they all are, in one way or another, about anthropocentrism.

The focus on what is characteristic in the proposed solutions inevitably overlooks the complexity that these different solutions demonstrate. In reality, many of the proposed solutions are entangled with each other, combining elements of several perspectives. Creating such combinations is not uncommon and is certainly a welcome sign. Although many of current solutions borrow elements of each other’s vision, they still prioritize their own agenda. None of them really attempts to formulate a vision that would be broad enough to include and assign equal value to all proposed solutions and agendas as particular cases of one broad vision. In other words, they do not see each other as equally important. All the current perspectives rely on the mental constructs created by those who formulated them, even if this formulation combines elements of several visions. In this sense they are all selective, exclusionary, and, for this reason, are, in one way or another, anthropocentric. They do not grasp the real source of

⁴⁵ Timothy James LeCain, “A Post-Anthropocentric Politics: Can Neo-Materialist Theory Provide Effective Solutions to the Problems of Global Mining?” *The Extractive Industries and Society*, November 25, 2020, <https://doi.org/10.1016/j.exis.2020.10.008>.

anthropocentrism is the failure to recognize the centrality of the process of creation in our relationship with reality. As a result, they all, even the ecocentric perspectives, see reality through the prism of constructs created by humans. None of them addresses the true source of anthropocentrism. Even the ecocentric rhetoric merely conceals anthropocentrism deeply buried within ecocentrism.

THE SOLUTION OF THE PROBLEM OF ANTHROPOCENTRISM AND THE NEW SOCIAL PRACTICE

As this article argues, the real source of anthropocentrism is in the failure of recognizing the centrality of the process of creation to our existence. Only by embracing the process of creation, by making it the main organizing principle of our practice, we can solve the problem of anthropocentrism. But what exactly will such solution involve? How will it affect our practice, particularly in relation to the environment? Answers to these questions require a brief review of what is already known about the process of creation.

The process of creation is intrinsic to reality. It is no mere hypothesis; it is real. It originates in conservation that is ubiquitous in our universe. Without conservation the universe simply cannot exist. Conservation and the process of creation are integral to each other: one simply cannot exist without the other.⁴⁶

There is much empirical evidence that confirms the existence of the process of creation. We use this process to create our mental constructs without which we would not be able to observe, interpret, or talk about reality. The remarkable creations—from particles and atoms to stars, galaxies, and planets, to life, and civilization—show the process of creation at work in the universe. This process is the source of numerous achievements of human genius in science, technology, social and political systems, art, and in many other fields.

We also know that the process of creation works on inclusion—not selective inclusion that is a form of exclusion, but inclusion that is universal. Combinations that emerge as a result of inclusion represent new levels of organization. These new levels of organization are more powerful than the levels from which they

⁴⁶ Gennady Shkliarevsky, “Revising the Cosmic Story.” *ArXiv:2012.12749 [Physics]*, December 23, 2020. <http://arxiv.org/abs/2012.12749>.

have emerged. These new and more powerful levels of organization give rise to new visions, ideas, and approaches; they offer new possibilities and access to new resources that are essential for conservation. Each level of organization regulates and conserves the level from which it has emerged; each level is regulated by the level that has emerged from it.

Inclusion is not a mere aggregation; it creates combinations. The creation of combination involves equilibration that is essentially a multiplicative operation. Since equilibration creates new and more powerful levels of organization, it produces disequilibrium. The process of creation maintains a balance between equilibration and the production of disequilibrium, or between equilibrium and disequilibrium. This balance is essential for the functioning of the process of creation; it is what makes this process work.

Another essential feature of the process of creation is the balance between hierarchical and non-hierarchical interactions. Each type of interactions plays an important role in the process of creation. Inclusion can only result from non-hierarchical interactions. Only non-hierarchical interactions can create new combinations and new levels of organization. The role of hierarchical interactions is to conserve and optimize such creations. Both types of interactions are important. Without non-hierarchical interactions, no new levels can emerge. Without hierarchical interactions, conservation of newly created levels is impossible. For the process of creation to work, the two types of interactions must be in balance.

Dualism that remains a powerful influence in the worldview dominating our civilization makes a critical distinction between theory and practice. The process of creation does not warrant an ontological distinction between theoretical and practical work, just as it does not warrant binary divisions in general. Therefore, a better understanding of the process of creation is inseparable from the practice that integrates this process as its organizing principle. There is definitely more to understand about the process of creation, but this learning will occur not only in theoretical studies but also in the course of using this process in our practical work. What we already know about the process of creation can and must be used for in our current practice. How will then the process of creation change our practice?

First of all, our practice will become inclusive. As has already been explained,

our current practice is largely exclusive. The failure to embrace the process of creation leads to rivalry as differences engage in competition for dominance. The process of creation is not about competition and neither it is about cooperation. This process is about the creation of new and increasingly more powerful levels of organization. Although this process requires inclusion of all differences, it also requires that these differences should retain their autonomy as particular cases on the created whole. This process does not eliminate differences; on the contrary, it conserves them since they are the principal source of radical novelty. The process of creating new and more powerful levels of organization subsumes both competition and cooperation among differences as aspects that are integral to this process.

The requirement of universal inclusion will significantly affect our many spheres of our practice. It will certainly require changes in the way we assess knowledge. Inclusiveness will be the most important criterion for validating knowledge. In other words, the evaluation of different perspectives should determine which perspective includes most differences and, therefore, is the most inclusive. The more inclusive a perspective is, the more possibilities it will offer; and the more possibilities means more power. Such approach will definitely affect the way we allocate resources. It is also important to remember that the process of creation and universal inclusion are not so much about knowledge—in fact, knowledge is incidental to the process of creation. The universal inclusion required by this process is primarily about conserving what we have already created; it is about sustaining us, as individuals, and sustaining our civilization.

There are at least two ways in which the understanding of the relationship between equilibration and the production of disequilibrium in the process of creation will affect our practice. The way we view reality profoundly shapes our approach in studying it. Our current view of reality is confusing. We see reality on the micro level of quantum particles as uncertain and on the macro level as deterministic. Although we have accommodated to this dualistic view, it often creates confusion that affects both our understanding of reality and our practice based on such confusing view.

We generally associate equilibrium with disorder and disequilibrium with order. The process of creation is neither orderly nor disorderly. As has been shown, the process of creation requires a balance between equilibration and the

production of disequilibrium. In other words, it involves both. In a powerful metaphor popularized by Stuart Kauffmann and Sonke Johnsen, reality is never static; it is always on the edge between order and chaos.⁴⁷ The process of creation helps us realize that when we view reality from the point of view of equilibration, reality will appear increasingly disorderly. However, by understanding how the process of creation works, we also realize that increasing equilibration also produces disequilibrium. If we view reality from the perspective of emerging level of organization and, therefore, disequilibrium, reality will appear to us as orderly. As a result of this realization, the perception of disorder, while certainly disturbing, will also bring some comfort by indicating to us that a new order is emerging and we should look for its outlines instead of surrendering to despair.

Also, the balance between equilibration and the production of disequilibrium helps us understand how new levels of organization emerge. This understanding leads to the realization that there are no fundamental building blocks or levels of organization, that each level of organization regulates the one from which it has emerged and, in turn, creates a new one that regulates it, and that the atomistic approach is deeply flawed. This realization will help end the futile quest for fundamental building blocks and the pursuit of the daunting task of interpreting reality through the properties that exist at some fundamental level.

As has been explained, the process of creation requires maintaining the balance between hierarchical and non-hierarchical interactions. Non-hierarchical interactions create new levels of organization. Hierarchical interactions optimize and conserve these creations. Both types of interactions are equally necessary important for ensuring the conservation and evolution of a system. The balance between the two types of interactions is essential.

The new social practice should also observe this balance. Maintaining this balance in our social practice will require changes in our approaches to management and to the role of leadership. These changes will bring more open, inclusive, and democratic relationship into our political systems and business

⁴⁷ Stuart A. Kauffmann and Sonke Johnsen. "Coevolution to the Edge of Chaos: Coupled Fitness Landscapes, Poised States, and Coevolutionary Avalanches," *Journal of Theoretical Biology*, vol. 149, no. 4 (April 21, 1991), pp. 467–505. [https://doi.org/10.1016/S0022-5193\(05\)80094-3](https://doi.org/10.1016/S0022-5193(05)80094-3); S. A. Kauffman, S.A. (1993). *The Origins of Order Self-Organization and Selection in Evolution* (New York: Oxford University Press, 1993).

organizations.⁴⁸ As a result, organizations that will implement such new practice will be able to achieve a steady and stable evolution and greater sustainability.

The embracing of the process of creation will also change our political and social practice. The fact that the process of creation works on inclusion will help us recognize the value of differences. We will no longer see differences as a threat but rather will embrace them as an opportunity to create new and increasingly more powerful levels of organization that will help us sustain our civilization. This realization will help avoid social conflicts that are produced by exclusion and the drive for domination. It will also help us prevent the domination of hierarchies that hinders the evolution of our civilization and poses a threat to its sustainability.

CONCLUSION: THE END OF ANTHROPOCENTRISM

There is a revolution coming. It will not be like revolutions of the past. It will originate with the individual and with culture, and it will change the political structure only as its final act. It will not require violence to succeed, and it cannot be successfully resisted by violence.

Charles Reich wrote this prophetic passage almost fifty years ago.⁴⁹ Many heeded his call. A quarter of a century after Reich published his *The Greening of America* Mary Midgley in an article entitled “The End of Anthropocentrism?” offered the following reflection questioning the anthropocentric orthodoxy:

What is it to be central? Are human beings in some sense central to the cosmos? It used to seem obvious that they were. It seems less obvious now. But the idea is still powerful in our thinking, and it may be worthwhile asking just what it has meant.⁵⁰

Much time has passed since then. Many new contributions have called to end the domination of anthropocentric worldview. The early challenges to the

⁴⁸ Gennady Shkliarevsky, *The Civilization at a Crossroads: Constructing the Paradigm Shift* (Raleigh, NC: Glasstree Publishing, 2017), particularly chap. 9 and Conclusion. https://www.researchgate.net/publication/318431832_The_Civilization_at_a_Crossroads_Constructing_the_Paradigm_Shift.

⁴⁹ Charles A. Reich, *The Greening of America* (Harmondsworth: Penguin Books, 1970). <https://silo.pub/the-greening-of-america.html>.

⁵⁰ Mary Midgley, “The End of Anthropocentrism?” *Royal Institute of Philosophy Supplement*, no. 37 (June 1994), p. 103. <https://doi.org/10.1017/s1358246100006482>

domination of the anthropocentric worldview were relatively modest. As years have passed, criticisms of anthropocentrism have been on the rise and their tone has become increasingly alarmed. The new voices called for mobilization and action against the ongoing climate change. In his introduction to the edited volume *Anthropocentrism: Humans, Animals, Environments* Rob Boddice states categorically: “This book is about the termination of anthropocentrism in ethics, politics, and throughout a range of academic disciplines.”⁵¹ The number of contributions that call to end the domination of anthropocentrism has grown enormously in the last decade as environmental problems continue to mount. They all convey the urgency of action.⁵²

As this article has argued, the problem of anthropocentrism is not so much about whether we recognize the primacy of humans and human values in the cosmic order. It lies much deeper in the very nature of our relationship with reality, more specifically, in our failure to recognize the important role that the process of creation plays in this relationship. Ending the domination of anthropocentrism requires the adoption of a perspective that does not rely on constructs created by humans. Even when the focus of a perspective shifts from humans to animals plants, nature, Earth or even the entire universe, this shift will make no difference with regard to anthropocentrism, if those who formulate this perspective rely on constructs that they have created, if humans ultimately answer the question of “What Is It Like to Be a Bat?” or what it is like to view reality from the perspective of the bat.⁵³ Despite their claims, all of the proposed solutions aimed at ending the domination of anthropocentrism are ultimately based on human choices and, for this reason, are totally anthropocentric. A mere shifting of perspectives from humans to non-humans does not solve the problem.

⁵¹ Rob Boddice, ed., *Anthropocentrism: Humans, Animals, Environments* (Brill: 2011), p. 1, <https://brill.com/view/title/18825>.

⁵² Ralph R. Acampora, “Anthropocentrism and Its Discontents: The Moral Status of Animals in the History of Western Philosophy (Review),” *Journal of the History of Philosophy*, vol. 44, no. 3 (2006), pp. 480–81. <https://doi.org/10.1353/hph.2006.0033>; John Michael Greer, “The Twilight of Anthropocentrism,” *The Ecological Citizen*, vol. 1, no. 1 (2017), pp. 75–81; Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013); Rajesh. K. Rajasekaran, “Environmental Ethics: Anthropocentric Chauvinism as Seen in Western Ethical Theories,” *International Journal of Innovative Technology and Exploring Engineering*, vol. 8, no. 6 (2019), pp. 1385–89.

⁵³ Thomas Nagel, “What Is It Like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4 (1974), pp. 435–50. <https://doi.org/10.2307/2183914>.

We cannot end the domination of anthropocentrism by using perspectives that are anthropocentric. We can only end the domination of the anthropocentric worldview if we view reality from a perspective that transcends our mind. The process of creation offers such perspective.

The source of anthropocentrism is the failure to recognize the essential role of the process of creation in our relationship with reality. This process is integral to our universe. It makes conservation and the evolution possible. As a result of this failure, the process of creation—this very important part of reality—is basically denied its central role. For all practical purposes, it is excluded from our view of reality. This act of exclusion is subjective and it leaves humans with no other alternative but to rely on human choices that, by the virtue of the exclusion, are inevitably subjective.

There is another problem with the current proposals that seek to end the domination of anthropocentrism. Most of them focus on the degradation of the environment and the destruction of nature. Anthropocentrism is a broad phenomenon that affects many areas of our life. Anthropocentrism is fundamentally about exclusion. The degradation of the environment is not the only result of this exclusion. Exclusion is the source of inequality and domination. It creates tensions and conflicts.⁵⁴ As many critics, including Reich, have indicated, exclusion has multiple and different consequences that affect our civilization as a whole: our knowledge production, social relations, political systems, institutions, and much else.

Practically all perspectives associate the end of the domination of anthropocentrism with the inevitable decline of the role of humans in nature and the universe. Nothing could be further from the truth. The embracing of the process of creation and making it the main organizing principle of our social practice will empower humans, not diminish their power. By understanding the process of creation and making it the main organizing principle of our social practice, humans will enhance their capacity to create an infinite number of new and increasingly more powerful levels of organization. Such new levels of organization will give rise to new ideas, approaches, and decisions. They will

⁵⁴ Gennady Shkliarevsky, "In Quest for Justice: Solving the Problem of Inclusion and Equality (June 8, 2021), available at SSRN: <https://ssrn.com/abstract=3862630> or <http://dx.doi.org/10.2139/ssrn.3862630>; Shkliarevsky, "Overcoming Modernity and Violence."

make possible to conserve human creations and sustain our civilization. The embracing of the process of creation will fulfill the promise that goes back to the time when humans began to walk the face of this Earth. Humans will not become less central to the cosmos. On the contrary, their role will be infinitely more important.

This increased importance of the human place and role in the universe will not lead to the destruction of nature and the animal world. The social practice based on the process of creation will be inclusive, not exclusive. Conservation requires the creation of new and increasingly more powerful levels of organization, which is possible only through inclusion of all differences. Each difference is a source of creation. Such new practice will shape a new approach in our environmental policies. This new approach should include all available environmental perspectives as its particular cases—that is, cases that are based on specific assumptions. The new approach should not be merely an aggregation of the available perspectives, but their combination. Since this combination includes all differences, it will represent the most powerful level of organization, which is the principal condition for conservation. Such combinations will offer new possibilities, new choices, and access to new resources.

Finally, the creation of new and increasingly more powerful levels of organization is the most important form of production. Contrary to many current approaches that see the solution of environmental problems in limiting growth or even achieving de-growth, the perspective outlined in this article sees the solution in enhancing our production and increasing growth. The patterns of our production should change, but we must create new levels of organization and, therefore, production must grow because this growth will generate new ideas, new approaches, new solutions.

Since efficiency requires that everything that is produced must be consumed, as our levels of production grow, so should our levels of consumption. Producing and consuming new ideas is also part of our economic system. Indeed, the production and consumption of ideas play an increasingly important role in our economies. Human capacity to create new and increasingly more powerful levels of organization is the most important economic resource. Unlike any other resource that we use, this resource does not depreciate; it only appreciates when used. Using this resource more efficiently will lead to exponential growth, thus

solving the problem of growth that has plagued and continues to plague our economies.⁵⁵

Human systems are dissipative. Increases in our production inevitably lead to increased dissipation and entropy. According to the famous law of thermodynamic, entropy production can never be less than 0. In order to counter this inevitable increase in entropy production, we must create new and increasingly more powerful levels of organization that will enhance our capabilities, provide access to new resources, and thus counter the entropy production. As we increase production, we will produce more entropy. The creation of new levels of organization is the only way to prevent entropy from strangling our civilization. The level of entropy we produce certainly cannot go below 0. However, there is nothing in the Second Law of Thermodynamics that prohibits maintaining the overall level of entropy production at 0.⁵⁶

Our civilization is undergoing a period of critical transition, perhaps the most critical one in its entire history. There have certainly been many momentous transformations in the past but the current one still stands out. Although past transitions were very different from each other, they all had one feature in common: they all fitted within the general frame of anthropocentrism; they merely replaced one anthropocentric vision with another.

As this article has explained, anthropocentrism represents a view of reality in which observations critically rely on human choices. As has already been stressed, shifting the focus of the perspective does not help if it relies on constructs created by humans. The anthropocentric worldview simply does not allow observing reality in any other way.

The current transition is very different in this respect. For the first time in human history we raise the problem that lies at the heart of our civilization—its anthropocentric worldview. In many ways criticisms of anthropocentrism are a result of the preceding evolution. But their motivation also comes from the

⁵⁵ Shkliarevsky, "Squaring the Circle: In Quest for Sustainability."

⁵⁶ Shkliarevsky, "Squaring the Circle: In Quest for Sustainability."

desperate conditions we face today: from climate change and the environmental degradation to our languishing economy, social unrest, international calamity, and above all the COVID-19 pandemic that continues to rage. Each of these issues poses a threat to the survival of the civilization; their combined impact is catastrophic.

Our civilization is now at a point when a more fundamental transformation is imperative. We have run out of anthropocentric visions--religious or secular, individualistic or collectivist/communitarian, scientific or moral. There are no new anthropocentric visions on the horizon. We are now desperately looking for a new vision; only a non-anthropocentric worldview can provide a vision that will be new.

The absence of new anthropocentric visions presents an opportunity to solve the problem at its root. Whether we use this opportunity to implement a fundamental change now is our choice. One can agree with Reich that this change is inevitable and we have little say in this matter. It may not take place now, but it will take place at some point in the future.

The forces behind this change are much more powerful than we are. Our universe, nature, and our own existence vitally depend on conservation, the process of creation, and the evolution. The processes that sustain our universe ultimately hold sway over our future. These processes are integral to the way we think and act. We cannot stop them from exercising their sway over our actions. They are deeply ingrained in our nature—both individual and collective.

The main question is not whether we will embrace the process of creation or not; the main question is only whether we will start embracing this process now or at some point in the future. In making this decision, we have to consider what the cost of delaying this change will be heavy. It will involve more destruction and more human losses. Indeed, human inertia, habitual ways of thinking, and institutional malaise may prevail for now and delay the coming of this fundamental change. But they cannot ultimately prevent it from taking place. For the sake of our civilization we must abandon the anthropocentric worldview and we will.

Bard College
shkliare@bard.edu

REFERENCES

- Acampora, Ralph R. "Anthropocentrism and Its Discontents: The Moral Status of Animals in the History of Western Philosophy (Review)." *Journal of the History of Philosophy*, vol. 44, no. 3 (2006), pp. 480–81.
<https://doi.org/10.1353/hph.2006.0033>.
- Beever, J. "Anthropocentrism in the Anthropocene." *Encyclopedia of the Anthropocene*.
Dominick A. Dellasala and Michael I. Goldstein, Eds. Oxford: Elsevier, 2018. Pp. 39–44.
<https://doi.org/10.1016/B978-0-12-809665-9.10454-9>.
- Boddice, Rob. Ed. *Anthropocentrism: Humans, Animals, Environments*. Brill: 2011),
<https://brill.com/view/title/18825>.
- Boden, Margaret. *The Creative Mind: Myths and Mechanisms*, 2nd ed. London, New York: Routledge, 2004.
- Boersema, Jan, Andrew Blowers, and Adrian Martin. "The Religion-Environment Connection." *Environmental Sciences*, vol. 5, no. 4 (December 1, 2008), pp. 217–21,
<https://doi.org/10.1080/15693430802542257>.
- Boslaugh, Sarah E. "Anthropocentrism." *Encyclopedia Britannica*,
<https://www.britannica.com/topic/anthropocentrism> (accessed September 5, 2021).
- Braidotti, Rosi. *The Posthuman*. Cambridge: Polity Press, 2013.
- Bron, Taylor, Gretel Van Wieren, and Bernard Daley Zaleha. "Lynn White Jr. and the greening-of-religion hypothesis." *Conservation Biology*, vol. 30, no. 5 (2016), pp. 1000–1009,
<https://doi.org/10.1111/cobi.12735>.
- Cafaro, P.J. and R. B. Primack. "Species Extinction Is a Great Moral Wrong." *Biological Conservation*, 170 (2014), pp. 1–2.
- Chemhuru, Munamoto. "Elements of Environmental Ethics in Ancient Greek Philosophy." *Phronimon*, vol. 18 (January 1, 2017), pp. 15–30,
<https://doi.org/10.17159/2413-3086/2017/1954>.
- Chen, Ajiang, Pengli Cheng, and Yajuan Luo. *Chinese "Cancer Villages": Rural Development, Environmental Change and Public Health*. Chinese "Cancer Villages," (Amsterdam: Amsterdam University Press, 2020) <https://doi.org/10.1515/9789048524570>.
- Chen, Ajiang. "The Historical Roots of China's Ecologic Crisis," 2020,
https://rces.hhu.edu.cn/_upload/article/files/bf/38/58202c284317a93fcb8bd409fba/6079f937-9535-46e5-a016-26c9c2aa254b.pdf
- Ćirković, Milan M. "Ancient Origins of a Modern Anthropocentric Cosmological Argument." *Astronomical & Astrophysical Transactions*, vol. 22, no. 6 (December 2003), pp. 879–86,
<https://doi.org/10.1080/10556790310001600871>.
- Crist, Eileen and Helen Kopnina. "Unsettling Anthropocentrism." *Dialectical*

- Anthropology*, vol. 38, no. 4 (December 2014), pp. 387–96,
<https://doi.org/10.1007/s10624-014-9362-1>.
- Ducharme, Lori J. and Gary Alan Fine. “The Construction of Nonpersonhood and Demonization: Commemorating the Traitorous Reputation of Benedict Arnold.” *Social Forces*, vol. 73, no. 4 (1995), pp. 1309–31.
<https://doi.org/10.2307/2580449>.
- Eaton, Heather. “The Challenges of Worldview Transformation: To Rethink and Refeel Our Origins and Destiny.” In *Religion and Ecological Crisis*, eds. Todd LeVasseur and Anna Peterson. New York: Routledge and Taylor and Francis, 2017. Pp. 121–137.
- Economy, Elizabeth C. *The River Runs Black: The Environmental Challenge to China’s Future*. Ithaca: Cornell University Press, 2004.
- Elvin, Mark and Ts’ui-jung Liu. *Sediments of Time: Environment and Society in Chinese History*. Cambridge; New York: Cambridge University Press, 1998.
- Elvin, Mark. *The Retreat of the Elephants: An Environmental History of China*. New Haven: Yale University Press, 2006.
- Greer, John Michael. “The Twilight of Anthropocentrism.” *The Ecological Citizen*, vol. 1, no. 1 (2017), pp. 75–81.
- Grey, W. “Anthropocentrism and Deep Ecology.” *Australasian Journal of Philosophy*, vol. 71, no. 4 (1993), pp. 463–475.
- Gribben, Jennifer and Julie Fagan. “Anthropocentric Attitudes in Modern Society Halting Climate Change Will Require a Cultural Shift toward Eco-Centrism” (2016),
<https://rucore.libraries.rutgers.edu/rutgers-lib/51505/#playback/MP4-1>.
- Rolston, H., III. *A New Environmental Ethics: The Next Millennium for Life on Earth*. New York: Routledge, 2012.
- Kauffman, S.A. *The Origins of Order Self-Organization and Selection in Evolution*. New York: Oxford University Press, 1993.
- Kauffmann, Stuart A. and Sonke Johnsen. “Coevolution to the Edge of Chaos: Coupled Fitness Landscapes, Poised States, and Coevolutionary Avalanches.” *Journal of Theoretical Biology*, vol. 149, no. 4 (April 21, 1991), pp. 467–505,
[https://doi.org/10.1016/S0022-5193\(05\)80094-3](https://doi.org/10.1016/S0022-5193(05)80094-3).
- Kidner, David W. “Why ‘Anthropocentrism’ Is Not Anthropocentric.” *Dialectical Anthropology*, vol. 38, no. 4 (2014), pp. 465–80.
- Kidwell, Jeremy H. “The Historical Roots of the Ecological Crisis.” *The Oxford Handbook of Bible and Ecology*. Oxford: Oxford University Press, 2021.
https://jeremykidwell.info/publication/2021_oxford_handbook_crisis/.

- Kopnina, Helen, Haydn Washington, Bron Taylor, and John J Piccolo. "Anthropocentrism: More than Just a Misunderstood Problem." *Journal of Agricultural and Environmental Ethics*, vol. 31, no. 1 (February 1, 2018), pp. 109–27, <https://doi.org/10.1007/s10806-018-9711-1>.
- LeCain, Timothy James. "A Post-Anthropocentric Politics: Can Neo-Materialist Theory Provide Effective Solutions to the Problems of Global Mining?" *The Extractive Industries and Society*, November 25, 2020, <https://doi.org/10.1016/j.exis.2020.10.008>.
- Luhmann, Niklas. *Social Systems*. Stanford: Stanford University Press, 1995.
- Marks, Robert B. *China: Its Environment and History*. Lanham, MD: Rowman & Littlefield, 2012.
- Mathews, Freya. "Why Has Environmental Ethics Failed to Achieve a Moral Reorientation of the West?" Opinion. ABC Religion & Ethics. Australian Broadcasting Corporation, June 17, 2019; <https://www.abc.net.au/religion/why-has-environmental-ethics-failed-to-achieve-a-moral-reorient/11216540>.
- Mausner, Matthew. "Deep Ecology: What Is It and Why It Matters | The Interfaith Center for Sustainable Development," July 9, 2021. <https://www.interfaithsustain.com/deep-ecology/>.
- McMahon, G. F. and J. R. Mrozek. "Economics, Entropy and Sustainability?" *Hydrological Sciences*, vol. 42, no. 4 (August 1997), pp. 501–12.
- Midgley, Mary. "The End of Anthropocentrism?" *Royal Institute of Philosophy Supplement*, no. 37 (June 1994), p. 103. <https://doi.org/10.1017/S1358246100006482>.
- Minteer, Ben. "An Appraisal of the Critique of Anthropocentrism and Three Lesser Known Themes in Lynn White's 'The Historical Roots of Our Ecological Crisis.'" *Organization and Environment*, vol. 18, no. 2 (2005), pp. 163–76.
- Nadasdy, Paul. "Transcending the Debate over the Ecologically Noble Indian: Indigenous Peoples and Environmentalism." *Ethnohistory*, vol. 52, no. 2 (April 1, 2005), pp. 291–331, <https://doi.org/10.1215/00141801-52-2-291>.
- Nagel, Thomas. "What Is It Like to Be a Bat?" *The Philosophical Review*, vol. 83, no. 4 (1974), pp. 435–50. <https://doi.org/10.2307/2183914>.
- Norton, B. G. "Environmental Ethics and Weak Anthropocentrism." *Environmental Ethics*, vol. 6, no. 2 (1984), pp. 131–148.
- Penn, Dustin J. "The Evolutionary Roots of Our Environmental Problems: Toward a Darwinian Ecology." *The Quarterly Review of Biology*, vol. 78, no. 3 (September 1, 2003), pp. 275–301, <https://doi.org/10.1086/377051>.
- Piaget, Jean. *Behavior and Evolution*. New York: Pantheon Books, 1978.

- Piaget, Jean. *The Origins of Intelligence in Children*. Madison: International Universities Press, 1998.
- Rajasekaran, Rajesh. K. "Environmental Ethics: Anthropocentric Chauvinism as Seen in Western Ethical Theories." *International Journal of Innovative Technology and Exploring Engineering*, vol. 8, no. 6 (2019), pp. 1385–89.
- Ranjan, Pratyush. "A General Account of Philosophical Anthropocentrism (with Special Emphasis on Political Anthropocentrism) in the Anthropocene." *International Journal of Basic and Applied Research*, vol. 9, no. 5 (2019), pp. 1229–45.
- Reich, Charles A. *The Greening of America*. Harmondsworth: Penguin Books, 1970. <https://silo.pub/the-greening-of-america.html>.
- Rose, Deborah Bird. "Arts of Flow: Poetics of 'fit' in Aboriginal Australia." *Dialectical Anthropology*, vol. 38, no. 4 (2014), pp. 431–45.
- Seigel, Michael T. "Religion, Science, and Environment." *Pacifica*, vol. 16 (2003), <file:///Users/Gennady/Downloads/vol16no1article5religion.pdf>.
- Shkliarevsky, Gennady. "Conservation, Creation, and Evolution: Revising the Darwinian Project." *Journal of Evolutionary Science*, vol. 1, no. 2 (September 25, 2019): 1–30, <https://doi.org/10.14302/issn.2689-4602.jes-19-2990>.
- Shkliarevsky, Gennady. "In Quest for Justice: Solving the Problem of Inclusion and Equality (June 8, 2021), available at SSRN: <https://ssrn.com/abstract=3862630> or <http://dx.doi.org/10.2139/ssrn.3862630>.
- Shkliarevsky, Gennady. "Overcoming Modernity and Violence," in Robert E. Tully and Bruce Chilton, eds., *Intolerance: Political Animals and Their Prey*. Lanham: Hamilton Books, 2017. Pp. 225-41.
- Shkliarevsky, Gennady. "Rethinking Democracy: A Systems Perspective on the Global Unrest." *Systems Research and Behavioral Science*, vol. 33, issue 3 (2016), pp. 452-470.
- Shkliarevsky, Gennady. "Revising the Cosmic Story." *ArXiv:2012.12749 [Physics]*, December 23, 2020, <http://arxiv.org/abs/2012.12749>;
- Shkliarevsky, Gennady. "The Universal Evolution and the Origin of Life." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, April 11, 2021, <https://doi.org/10.2139/ssrn.3824365>.
- Shkliarevsky, Gennady. "Understanding the Process of Creation: A New Approach." *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, vol. 22, no. 3 (October 31, 2017), pp. 1–13, <https://doi.org/10.7595/management.fon.2017.0021>.
- Shkliarevsky, Gennady. *The Civilization at a Crossroads: Constructing the Paradigm Shift* (Raleigh, NC: Glasstree Publishing, 2017). https://www.researchgate.net/publication/318431832_The_Civilization_at_a_Crossroads_Constructing_the_Paradigm_Shift.

- Shoreman-Ouimet, E. and H. Kopnina. *Culture and conservation: Beyond Anthropocentrism*. New York: Routledge, 2016.
- Simkins, Ronald A. “The Bible and Anthropocentrism: Putting Humans in Their Place.” *Dialectical Anthropology*, vol. 38, no. 4 (2014), pp. 397–413.
- The School of Life Articles. “The Disaster of Anthropocentrism—and the Promise of the Transcendent,” June 27, 2018.
<https://www.theschooloflife.com/thebookoflife/the-disaster-of-anthropocentrism-and-the-promise-of-the-transcendent/>.
- Warren, Mary Ann. *Moral Status: Obligations to Persons and Other Living Things*. New York: Oxford University Press, 1997.
- Washington, Hayden. “Why Ecocentrism Is the Key Pathway to Sustainability (The Ecological Citizen),” <https://www.ecologicalcitizen.net/article.php?t=why-ecocentrism-key-pathway-sustainability> (accessed September 5, 2021).
- Weston, A. “Beyond Intrinsic Value: Pragmatism in Environmental Ethics.” *Environmental Ethics*, vol. 7 (1985), pp. 321–339.
- White, Lynn. “The Historical Roots of Our Ecologic Crisis.” *Science*, vol. 155, no. 3767 (1967), pp. 1203–7.
- Wright, Richard T. “Responsibility for the Ecological Crisis.” *BioScience*, vol. 20, no. 15 (August 1, 1970), pp. 851–53. <https://doi.org/10.2307/1295493>.
- Wu, Tsaiyi. “A Dream of a Stone: The Ethics of De-Anthropocentrism.” *Open Philosophy*, vol. 3 (2020), pp. 413–28.