FROM STRUGGLE FOR EXISTENCE TO AUTOTELIC JOY – A CONCEPT OF LIFE FOR THE ANTHROPOCENE

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The life scientists cannot explain what life is in scientific terms. They all know what it is, as we have done since childhood, but no one has yet succeeded in defining life. The idea of life, the sense of being alive, are the most familiar and the most difficult to understand of the concepts we meet.
James Lovelock

ABSTRACT: This article develops a concept of life adequate to the Anthropocene, by tracing the historical shift from life understood as a matter of survival under external selection pressures, to self-realizing activity. By following the divergence between continental and British traditions after Malthus and Darwin, we argue that the functionalist understanding obscured essential features of living systems. Drawing on Albert Schweitzer's ethics of reverence for life, Hans Jonas's phenomenology of biological temporality, and recent work on autopoiesis, interoception and agency, the article advances a concept of life as intrinsically unfinished and future-oriented. Our perspective let time emerge as an inherent biological agent. Life is characterized not merely by survival, but by self-maintaining agency, temporal openness, and surplus capacities that manifest as autotelic joy. Studies on animal behavior support the claim that joy is not an epiphenomenon but possibly also a pervasive biological factor. The article concludes that the ecological crisis of the Anthropocene is rooted in an instrumentalized concept of life, and that responding to it requires a philosophy that recognizes living beings as processual, relational, and ethically significant.

KEYWORDS: Concept of life; Biological time; Autopoiesis; Play; Autotelic behavior; Joy.

INTRODUCTION

When rocks tumble down a mountainside and scatter across the slope below, a process of sorting takes place: large and heavy stones roll farther than small and light ones. The shapes of the stones, together with irregularities in the terrain, also influence where they come to rest.

Such sorting illustrates how evolution by natural selection operates. The metaphor works, especially if one attends to the underlying presupposition: The sorting happens because the stones differ in mass, which gives larger stones greater momentum than smaller ones. Once in motion, it takes more to stop them. Without differences in mass, no sorting would occur.

Natural selection rests on a similar presupposition, which usually is taken for granted: the momentum which render organisms their drive for maintenance, the so-called survival instinct. The underlying premise for selection is that all organisms have an inherent desire to persist. It makes hares to flee from the fox, flies to dart away when swatted at, reindeers to dig through snow in search of lichen, and seedlings to push up through compact soil. Just as mass remains invisible in the sorting of stones below a cliff, the survival instinct functions as a self-evident precondition for evolution by natural selection.

This article examines the term "survival instinct" and complements it with a conception of life in which surplus — manifesting mentally as existential joy — emerges as a fundamental characteristic of living beings.

FROM ARISTOTLE TO DARWIN

Philosophers and naturalists alike have reflected on the problem. Aristotle conceived life as an ensouled process, striving towards fulfilment of inner being. Life was understood as meaningful and purposeful. Thomas Aquinas wrote of something he called appetite—a form of motivation he suggested as inherent in living things. Spinoza called it conatus, writing that "Each thing, as far as it lies in itself, strives to persevere in its own being" (*Ethics*, Part III, Proposition 6).

Alexander von Humboldt (in the introduction to Kosmos) imagined the living nature as an animated wholeness moved by "inner forces", that actively seeks to maintain its living conditions. Living things are always, to some degree, unfinished enterprise and in a state of ongoing realization, "because being is never completely separated from becoming." Friedrich Schelling and Johann

Wolfgang Goethe articulated similar views, writing of life's intrinsic formative capacity (Bildungstrieb). In this sense, what lives is also disposed toward developmental transformation, reflecting a drive not only to remain what it is, but to self-formation.

Jean-Jacques Rousseau discerned, particularly in humans, a strive for improvement within the drive toward continued existence. He called it perfectibilité. Humans possess the capacity to transcend the present, enabling development. Perfectibility may be conceived as a specification of Spinoza's conatus. Rousseau's understanding greatly stimulated developmental ideas across Europe (Lovejoy, 1936). Nicolas Condorcet (1743–1794) elevated perfectibility to the ultimate goal of society, claiming that humanity in its perfect state eventually achieve physical immortality. The idea also inspired early evolutionary thought. Jean-Baptiste Lamarck held that all life strives toward perfectibility, allowing new species to emerge. Novelties, however, were rooted in change of existing structures emerging from the organismal within, rather than through repeated selection of particular phenotypes from a population (Lewontin, 1985; Corsi, 2005).

On the British Isles, the functional features of life were emphasized. Natural theologians such as William Paley argued that organisms resemble mechanical devices that function as they do because a creator once "wound them up." Once set in motion, however, they were governed by laws of mechanics. The clergyman Thomas Malthus took particular offense at the belief that humans could redeem themselves through increasing perfection. In response to Condorcet and others, he published his *Essay on the Principle of Population* (1798). Although he wrote little about the nature of life as such, he highlighted one aspect: its capacity to multiply. Reproduction inevitably leads to overabundance. Living beings, accordingly, must compete for limited resources, and "that imperious all-pervading law of nature, restrains them within the prescribed bounds. The race of plants and the race of animals shrink under this great restrictive law." (Malthus, 1798, Chapter 1). Malthus outlines what would later be termed self-preservation or survival instinct.

The concept of life hence took divergent paths in Europe. On the continent, life was rather conceived as a capacity for continued existence and developed through self-movement from within. On the British Isles, the concept became

increasingly mechanistic, focusing on competition for limited resources and justified by its functionality. Rather than understanding life as self-movement from within, it was maintained from the outside by means of its functions. The result was an ontological shift: *life as self-realization became life as survival.*

By drawing on Malthus, Charles Darwin avoided attributing intrinsic properties to life itself. He touches on the issue only briefly, as when he writes: "as more individuals are produced than can possibly survive, there must in every case be a struggle for existence…" (Darwin, 1859, Chapter 3). Darwin takes the drive toward continued life for granted and outlines a functionalist concept of life: survival as the outcome of the struggle for life (Claeys, 2000). What it ultimately rests upon, he does not say (Beer, 2010; Conlin, 2014).

ALBERT SCHWEITZER AND HANS JONAS – CONCEPTS OF LIFE IN THE TWENTIETH CENTURY

The concept of life advanced by Darwinism was part of a general instrumentalization of life sciences at the turn of the twentieth century. While promoting conceptual rigor, it also generated distance to life as a phenomenon filled with meaning (Weber, 1919). The functionalist view of life, however, did not go unchallenged. Among those who sought to highlight life's inherent meaning was Albert Schweitzer. He launched a concept of life based on his own experience of being alive, and rejected René Descartes' cogito ergo sum as a reliable foundation for human self-understanding:

> "Every philosophy must start from the most immediate and comprehensive fact of consciousness, which says: 'I am life which wills to live, in the midst of life which wills to live.' This is not a cleverly composed dogmatic formula. Day after day, hour after hour, I live and move in it." (Schweitzer, 1929, p. 246).

His concept of life is not a result of stepwise analytical reasoning, but a bodily experience of being alive, which he acknowledges common to all living beings. "Life wills to live" is as present in bacteria as in fungi, trees, birds and human beings. And this becomes the starting point of human ethics: "To relate oneself in the spirit of reverence for life to the multiform manifestations of the will-to-live which together constitute the world, is ethical mysticism." (ibid., p. XIV).

To Schweitzer, ethics is not a cultural construct but something that arises directly from the experience of life itself. In humans, it takes the form of responsibility. This marks *homo sapiens* as an evolutionary turning point, for there

is no indication that other species expose responsibility. Organisms are generally fully occupied with living itself, making them subject to natural selection. In humans, however, life becomes an ethical riddle: "So what is the goal of the evolution which has begun in me?" (ibid., p. 249). Schweitzer immediately notes that a conclusive answer cannot be given. Just as evolution remains unfinished, the question of where the evolution of ethics leads humanity must remain open. To Schweitzer, ethics is not about theories, but about living in a certain frame of mind. Yet the unfinishedness is itself a fundamental property of all life. Living things are unfinished and accordingly possess evolvability. It gives rise to an evolutionary perspective that "…does not build up for itself a completed world-view, but resigns itself to the necessity of leaving its cathedral unfinished" (ibid., p. 250). Like knowledge, evolution is in constant growth and transformation (Lindholm et al., 2026).

A related view of life was elaborated by Hans Jonas (1966). Jonas ascertains that life manifests a strive from within, toward continued existence. He adds, however, that the developmental space in which an organism unfolds is governed by a temporality that is biological regulative and species-specific. Jonas accordingly makes time a biological property:

> "The internal direction toward the next impending phase of a being that has to continue itself, constitutes biological time; (…) while mere externality is, at least can be presented as, wholly determined by what it was, life is essentially also what it is going to be and just becoming." (Jonas 1966, p. 86).

Dead things manifest their existence monotonously. When change occurs, the causes are external and lie in the past. Dead things are hence indifferent to the future. Living beings, by contrast, realize themselves through ongoing metabolic activity, and appear, in a sense, unfinished. They have something left to do, which also invokes desire to persist. This does not mean that organisms are unaffected by causal factors. Rather, causality is taken up into life itself. Evolutionary inherited dispositions are activated as biological legacy, which gives life historicity. In living things, the present moment bears the weight of an inherited past and the openness of future potential. Organisms, accordingly, synthesize past and future to a powerful, meaningful now. The presence of a potentiality manifests itself both in the capacity to reproduce, and the ability to recover from injuries, as "prospective potential is always greater than prospective meaning.

(…). Ultimately, the functional wholeness of any organism consists in this capacity to hold past and future in the present." (Schad 1993, p. 239-240, own transl.). Phenomenologically, even novelists have recognized this puzzling condition. Karl Ove Knausgård (2015) accordingly, notes that:

> "What radically separates life from non-life, living matter from dead, is will. A stone wills nothing; a blade of grass wills something. And what life wills, which distinguishes it from non-life by an abyss, is more life. Without this will, the first life would simply have perished; therefore, the will for more life must have been present from the very beginning, probably as the constitutive part of this then-new phenomenon." (p. 169; own translation).

To Jonas, a living cell, accordingly, poses a system where something is at stake. The cell membrane defines a boundary between inside and outside, articulating the cell as a first-person state that the functionalistic approach misses: "The analytical view misses the decisive point—the point of life itself: its being self-centred individuality, being for itself and in contraposition to all the rest of the world, with an essential boundary dividing 'inside' from 'outside'." (Jonas 1966, p. 79).

The drive to preserve one's own existence through maintenance of organic boundaries is not a secondary emergence of natural selection, but rather its precondition. It is *because* life strives to continue, that selection can do its work. To claim that organisms are genetically programmed to survive, as Richard Dawkins (1976) later argued, would, according to Jonas, be circular reasoning (p. 38ff). While particular traits may be genetically programmed, genes alone cannot explain the underlying system that governs their expression — much like a program cannot fully account for the operating system on which it runs. Correspondingly, the premise required for natural selection cannot itself be the product of selection (Thompson 2010; Hunt 2012; Fuchs 2018).

Living things do not only respond reactively to selection pressures but proactively shaping the very factors that constitute those pressures, and thereby the conditions under which they operate (Corning et al. 2023; Lewontin 1985; Lindholm 2015; Odling-Smee et al. 2003).

AUTOPOIESIS, INTEROCEPTION, TIME AND AGENCY

The concepts of life developed by Albert Schweitzer and Hans Jonas gradually

gained empirical support, not least with the postwar rise of ecology as scientific enterprise. Rather than seeking purely functional explanations, researchers attempted to anticipate life systemically. Humberto Maturana and Francisco Varela (1972) proposed that living things are networks that continuously maintain metabolism while regulating a boundary between themselves and their environments, with capacity to change, adapt, and adjust from within. They termed this competence autopoiesis, and concluded that life necessarily comprises a normative element, because action presupposes evaluation of possible outcomes to the system. Organisms "are autonomous; that is, they subordinate all changes to the maintenance of their own organization, independently of how profoundly they may otherwise be transformed in the process" (p. 80).

Schweitzer's bodily experience of being alive is meanwhile regarded as a premise for mental health. The bodily perception of hunger, fatigue, heartbeat, breathing, muscle movement, pleasure, or discomfort is referred to as interoception, and researchers argue that several mental disorders are linked to disturbances in this bodily sense of being alive. Patients' experiences of emptiness, lifelessness, or existential alienation can be understood as expressions of disrupted interoceptive contact with once's own body: "Homeostatic feelings [are] telling us, in no uncertain terms, that we exist, that we are faring well or not so well, and that we may need to act in order to obtain something that we lack and fare even better, e.g. food, drink, sex, temperate climate, or the right kind of love." (Damasio & Damasio 2024).

The phenomenon of life, accordingly, is not determined solely by its historical past, but also by its unfinishedness. For inanimate objects, there is no future state different from what already is, apart from decay and disintegration. To live is to be sustained by a temporally regulated developmental rhythm rooted in the organism itself and its genome, encompassing gradual aging and ending when the organism passes from being alive to becoming a dead 'thing'. From that moment onward, what was once alive no longer possesses temporality and is subjected to the same external physical laws that govern the disintegration of inanimate matter:

> "All life is wrested moment by moment from the threat of non-being, which the next breath, the next meal, keeps an arm's length away. The key ontological divide is not between human beings and the rest of nature—it is between living nature

and that which does not live and, so, cannot die." (Rubenstein 2009, p. 166).

Life's ontological category is therefore not merely being but becoming. This is possible only because time in living systems operates as an organizing competence. In living things, there is "a time for everything": Life is temporally regulated and unfolds within species-specific developmental patterns that stretches from the fertilized egg cell to the completion of life at death (Schad 1997; Ebisuya & Briscoe 2018; Grindley 2025).

Time as biological agent motivated some biologists to perceive organisms' life histories as musical trajectories of development. Just as a melody gradually unfolds and tone by tone attains its coherent wholeness through rhythmic and temporal acoustic patterns, so do organisms. The unfolding life history of the phenotype—for example, the growth of a plant from seed, through stem and leaves, to bud, flowering, pollination, and eventual return to seed—can be perceived as a temporal, melodic unfolding from first to last tone. This prompted Jakob von Uexküll ([1934] 2010) to write that any organism is a melody that sings itself into being throughout its life history. Each organ, moreover, is a separate melody which "join together to form the symphony of the organism." (p. 171). More recently, Hartmut Rosa (2019) has pointed to music featuring resonance as a fundamental agent in human world relations. Studies of cellular nano-scale oscillations encouraged researchers to descriptions like 'songs of the cells' (Pelling et al. 2004), while Denis Noble (2006) perceives the genome as an organ with 30,000 pipes, and "the music of life lasts as long as life itself." (p. 47). Gilles Deleuze and Félix Guattari (1987) moreover, developed a philosophy of nature as music. In their philosophy of becoming, living things are conceptualized as the fold of a fundamentally living universe, organized as autopoietic systems. Herbs, pine trees, sparrows and humans are melodies which are never temporally completed as long as life persists. This grants organisms a future which manifest in the present as agency (Walsh 2015; Rosslenbroich et al. 2024), defined as "a capacity of the system to pursue goals, to respond to the conditions of its environment and its internal constitution in ways that promote the attainment, and maintenance of its goal states." (Walsh ibid, p. 210).

Organisms as temporal beings of past, present, and future, lead Immanuel Kant (1987) to conclude that living things are their own cause. They "produce themselves both in their form and through the connection of their parts, and thus

are their own cause (…) and must be regarded as at once cause and effect" (§65). Organisms "at the same time produce and are produced by the totality to which they belong" (Virenque & Mossio 2024, p. 12). Causality thus becomes circular, because "the properties of (and interactions among) the constituents account for the whole organization, and vice versa" (ibid.).

What characterizes living beings is not simply cost minimization, but the capacity to redefine what counts as cost or benefit. This enables organisms to continuously establish novel norms of existence and to adapt them to situational demands (Canguilhem 2008; Lindholm 2015). Life thus possesses an "intrinsic capacity (…) to act on, and in, [its] world, and thereby to modify [its] experience of it, including in ways that are neither predetermined nor random" (Laland et al. 2019, p. 131). The capacity to redefine both the environment and one's relation to it is a manifestation of agency.

All of this draws together in the concept of autotelic joy, which we explore in the following.

AUTOTELIC JOY

Living is an unfinished enterprise, such that organisms exceed what they presently are through their future-directed potential. Mentally, this surplus manifests as joy. From Aristotle to Søren Kierkegaard and Friedrich Nietzsche, philosophers have reflected on the phenomenon of joy—an emotional surplus that seems to well up inexplicably from the asthenosphere of existence. Friedrich Schiller regarded joy as the driving force of all living existence. Joy creates human community and gives substance to ethical and aesthetic striving; the force that animates meaning and gives the word its content (Frankl 1984). Nietzsche saw joy as the source of all creativity, and William James rendered it mystical-religious undertones. All life is animated by joy, writes Henry David Thoreau (2004): Nature itself seems to wish that "the day and the night are such that you greet them with joy, and life emits a fragrance like flowers and sweet-scented herbs" (p. 171). This comes close to Deleuze, who conceived life as the tide of increasing and decreasing power, where joy was the very essence of life. In his last testamentary piece Immanence: A Life… Deleuze develops the idea of a life as part of a virtual, universal all-pervasive Life (Lenton et al. 2020), and equates its essence and experience as bliss itself: "life is the immanence of immanence, absolute immanence: it is complete power, complete bliss." (Deleuze 2001, p. 27). And

Marc Bekoff (2007), finally, considers joy as a fundamental prerequisite of living beings in terms of "a joyous response of being alive" (p. 61).

Indeed, joy is not restricted to humans. It is a potent operative factor across the animal kingdom and may, in derivative form, even be seen as a working force throughout the entire living realm (Marder 2013; Perry & Baciadonna 2017). Behavioral studies mainly focused on animal suffering, but recently, research also addresses joy and what has been called life optimism (Lagisz et al. 2020). Animals seek well-being and avoid discomfort and actively regulate their life situation through self-administration (Panlilio & Goldberg 2007). Broiler chickens suffering from bone fragility, when offered feed containing analgesic medication, quickly come to prefer this over standard feed—indicating that they perceive bodily discomfort and prioritize the relief induced by medication (Danbury et al. 2000).

Laughter was once thought to be uniquely human, yet characteristic vocalizations occur in other species as well, in contexts that in humans would elicit laughter (Panksepp 2007; Grant-Jacob 2024). Young great apes emit panting sounds and make facial expressions when tickled (Winkler et al. 2025), and dogs, cats and rats employ joyful vocal registers during play. In children and animal juveniles play is driven by joy, a momentous experience of life's surplus. It is a genuine aspect of being alive: the joy of being (Saldukaitytė 2021). Some researchers write about 'biological exuberance' (Bagemihl 1999).

Across the animal kingdom, joy seems to be associated with activities performed for their own sake. Such activities are termed autotelic—actions for the sake of action itself (Reimer 2025). Play is the paradigmatic example. Charles Darwin (1872) considered joy as one of six basic emotions, and noted (1871) that birds may sing out of "mere happiness," continuing "for their own amusement," or fly acrobatically without apparent purpose, as "nothing is more common than for animals to take pleasure in practicing whatever instinct they follow at other times for some real good" (p. 54).

Bernd Heinrich (2012) vividly describes a pair of ravens engaging in joyful play:

> «As I stepped outside into the early morning darkness, the pair lifted off and began to circle the clearing. A third bird continued to call from the pines, then joined the pair but soon returned to the trees. The pair in the air kept up a continuous conversation of nasal hanks and hunks, squeals, kecks, hooting, and knocking calls (the female courting calls). The calls got fainter and fainter to my ears as the birds

> circled perhaps more than a mile above me. The third bird remained perched, occasionally calling loudly. The pair were still cavorting after it was fully light. I saw them as barely visible black specks dancing above the clouds. I stood spellbound, continuing to take notes (…). They performed their sky dance, during which I never saw them more than three feet apart for at least an hour bursting through the clouds like black thunderbolts. They pulled in their wings and shot almost straight down, then caught the air again, gracefully spiralling up and again falling like rocks. It was a ballet of sound and motion." (p. 74).

Nelson et al. (2023) evaluates joy as a possible trait across the animal kingdom, reporting on otters and birds sliding in snow, dolphins playing in the waves, and joyful dogs after succeeding at difficult tasks. Autotelic joy is accompanied by measurable hormonal responses in the nervous system that correspond to those observed in humans (Perry & Baciadonna 2017). Autotelic behavior is suggested among insects as well (Dona et al. 2022; Triphan et al. 2025). Animals raised in enriched environments develop life optimism, whereas stress leads to pessimism (Hockly et al. 2002). Poole (1997) suggested that unhappy animals are often physiologically and immunologically abnormal. Loss of joy is recognized as a distinct and clinically meaningful feature, identified as diminished interest or pleasure in response to stimuli, and referred to as anhedonia (Treadway & Zald 2011). Anhedonia constitutes a transdiagnostic feature across numerous mental disorders and holds particular significance in depression, and is observed in other animals, as well (Bolton et al. 2018), even among invertebrates. Bees exposed to stress become more pessimistic and less inclined to engage with novel situations (Bateson et al. 2011; Mendl et al. 2011). Such findings confirm experiences familiar to anyone who regularly interacts with animals: they are indeed capable of experiencing joy.

The British Victorian era emphasized hard work, struggle, and competition (Smiles 1859), values that also influenced contemporary conceptions of nature. Alfred Tennyson famously envisioned nature as red in tooth and claw. That Charles Darwin placed great emphasis on competition and struggle over limited resources reflected the dominant societal understanding of his time (Young & Young 1985; Bowler 1989; Claeys 2000).

The overarching energy source in the biosphere is chemically fixed solar radiation. Yet if the driving force of evolution is competition for limited resources, one might expect photosynthetic energy to be depleted by hungry grazers. So

why is the planet Earth so green? The paradox has puzzled generations of ecologists (Fretwell & Barach 1977; Hairston et al. 1960; Oksanen et al. 1981; Surma et al. 2025). After the growing season is the African savanna covered by tons of dry grass, and in temperate deciduous forests vast amounts of debris fall to the ground each autumn. Why is this energy left unexploited, if resource limitation constitutes the driver of evolution? The fact that a diverse community of decomposers subsists on litter demonstrates that the energy could have been utilized while it was still living. The enormous amounts of unused energy suggest that competition for limited resources may not be as severe as Victorians assumed. In one study, productivity at 58 grassland sites across the globe was deliberately fertilized over years. Yet the enhanced production of green biomass did not generate a corresponding increase in grazers (Borer et al. 2020). This is one of several indications that photosynthesis and energy fixation is not, as commonly assumed, resource limited (Körner 2015; Prescott et al., 2020).

Darwin himself acknowledged that resource limitation could not be the sole cause of the diversity of life. There are numerous instances of astonishing energetic extravagance: ornamentation of butterflies, vibrant colors of fish, play behavior or bird song. Darwin termed it sexual selection. Subsequent research revealed further puzzling forms of apparent energetic surplus. Homosexual behavior is evolutionarily dysfunctional yet surprisingly common (Bagemihl 1999). Adoption is not fitness-enhancing, yet widespread (Riedman 1982). Bruce Bagemihl suggests that surplus energy in the biosphere is as common as deficite, and that both may facilitate evolutionary novelties. Georges Bataille (1991) may have been partly right in claiming that "the history of life on earth is mainly the effect of a wild exuberance" (p. 33).

One possible reason is that the biosphere's fundamental basis—photosynthesis—is not strictly governed by an adaptive zero-sum game in the Darwinian sense. Several studies have shown that photosynthesis and energy fixation is maintained even under periods of drought stress or nutrient limitation, likely because CO_2 is rarely a limiting factor for growth. This may explain why plants so readily fix more solar energy than they need (Körner 2015; Prescott et al., 2020). The surplus is partially released as root exudates into the soil or stored in storage sinks, as bulbs, fruits and berries (Smith et al., 2018). If this interpretation is correct, it also solves the puzzle why the Earth remains so green

despite the presence of herbivores (Hairston et al., 1960). Photosynthesis thus demonstrates, above all, that life is fundamentally a phenomenon of surplus.

Historically, this position is not particularly controversial. Friedrich Schiller argued that the innermost potential of the human being eventually realizes when necessities loosen their grip, allowing play and joy to emerge. This inspired him to write what would become his most famous poem, Ode to Joy. Herbert Spencer (1855), and later Karl Groos (1906), brought the idea closer to rational exploration, arguing that life continually generates situations of excess energy that must be burned off as a matter of necessity. According to this surplus-energy theory (Rubin et al. 1983), play and autotelic joy arise from energetic surplus.

A CONCEPT OF LIFE FOR THE ANTHROPOCENE

When the phenomenon of life is reduced to a matter of survival, essential aspects evaporate: autopoiesis, agency and autotelic joy. Survival is undoubtedly an essential aspect of life, but it is insufficient for what is needed to conceive the biosphere in the age of Anthropocene. In fact, to reduce life to a matter of plain functionality is at the root of the environmental crisis itself (Foltz 1995). We need a novel philosophy and scientific paradigm of life, one which affirms the significance of surplus energy and autotelic joy. Life's striving to maintain itself and as having a purpose in itself can be seen as an expression of joy. There is nothing beyond life that is needed to justify it, just like the experience of joy needs no explanation beyond itself to be meaningful. The question Why would anyone want to experience joy? is nonsensical. There is no need to point to anything beyond the experience. Joy is the immediate and fundamental appearance of value.

Organisms possess a future that is only completed at death. This temporality also prevents life from being explained through the same figures of thought as inanimate objects. The precondition also has spatial implications. Living things are not spatially delimited in the same manner as stones, houses, or cars. Metabolism entails a dynamic integration of inside and outside, and the outside is involved in ways qualitatively different from its influence on inanimate objects. Dead objects can be transported between continents and climate zones and function the same everywhere. Palms, pigeons, and butterflies cannot. Organisms only superficially seem to end at their physical boundaries. Metabolism extends outward through finetuned yet vital interactions with the environment, and the

number of niche dimensions is potentially infinite (Hutchinson 1957). John Haldane (1933, p 74), accordingly ascertained that there is no spatial limit to the life of an organism. Living things are sustained by complex networks involving the entire globe and the sun. Even galactic factors are considered influential for life (Gonzalez et al. 2001; Firestone et al. 2009). To live involves multiple resonances between something bodily bounded locally and something vast and unbounded (Corris 2020).

'Wholeness' is a term many appreciate but few can define (Bortoft 1996; Lenton et al. 2020). Wholeness is the experience of something that cannot be delimited yet nonetheless mediates meaning. It eludes instrumental frameworks, which presuppose bounded slices of reality. As a result, wholeness is often replaced with what appears more tangible: 'nature'. Yet the concept nature, too, resists instrumental analysis. Nature is not a bounded object. Where does nature begin and end? Outside the city? At the shore? Nature ends nowhere. This puzzling condition is accepted because it rests on an undeniable bodily-phenomenological reality, which simultaneously perceives spatiality as three-dimensional and curved. After circumnavigating the globe in search of nature's boundaries, one returns to the point of departure—from behind. This experience suggests that wholeness can indeed be grasped, but not from an instrumental view which limits its understanding to definable objects.

Two centuries of functionalistic-instrumental views of nature have produced unprecedented material prosperity. Yet they have also generated resonance that now manifests as environmental crisis of the Anthropocene. The crisis reflects the consequences of conceptual frameworks grounded in a one-eyed understanding of life (Jonas 1979; Rosa 2019). But the riddle cannot be solved through interventions configured by the very conceptual frameworks that produced it.

Civilization will only move beyond the Anthropocene insofar as it develops a conception of life that does justice to the reality of living beings — which is far more than mere survival.

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