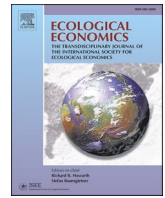




Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecocon

Spaceship Earth. A total institution

Steffen Roth*

CERIM, Excelia Business School, La Rochelle, France, and Next Society Institute, Kazimieras Simonavičius University, Vilnius, Lithuania

ARTICLE INFO

Keywords:

Escape room
Circular economy
Planetary health
Austerity
Second copernican revolution

ABSTRACT

The concept of Earth as a planetary spaceship serves as a root metaphor of ecological economics, sustainability science, and the broader environmental movement. This article first explores the origins of this metaphor and elucidates the core components and functions of a hypothetical Spaceship Earth. It then draws on Erving Goffman's characteristics of total institutions to show that such a spaceship would epitomise the most total institution ever known in human history. Acknowledging the continued influence of spaceship thinking, the article concludes by offering first hints to emergency exits from a planetary total institution with no mission other than orbiting another celestial body.

I still reach for the stars, but all I touch is my horizon
(Diary of Dreams, *Tears of Laughter*)

1. Introduction: An escape room exercise

Although “the great frontier for human activities during the space age has been intensive and microscopic, not extensive and macroscopic” (Deudney, 2020, p. 322), Christmas Eve 1968 has been staged not only as the eve of an epochal technological breakthrough (Kraus et al., 2023), but also as the prism of the perhaps most significant change of perspective in centuries (Höhler, 2016). While in lunar orbit for ten days, the crew of the Apollo 8 mission saw and photographed the Earth rising above the lunar horizon. Taken from aboard a spacecraft, these *Earthrise* photographs testify the first human first-hand visions of Earth in motion. Whereas the *Earthrise* photographs show half the planet as a lonely floating island in the black sea of space, it was the Apollo 17 crew who in 1972 captured the first human-made photographs of “whole earth” as an isolated biosphere. Like the iconic *Earthrise* shot by William Anders, the most famous of these full pictures, known as *Blue Marble*, is counted among the most reproduced photographs in history.

Observing *The Island Earth* (Nicks, 1970) or “whole earth” from space, the spacemen projected their own situation onto the Earth. Confined to a small, precarious, and isolated life support system, they identified Earth as precisely the small, precarious, and isolated life support system on which they depended for survival. This conversion of Earth into a spaceship is reported to have fundamentally changed the

spacemen's attitude to their home planet, which they had just rediscovered as a fragile spacefaring ecosystem that should be handled and maintained with considerable care. Coined as *The Greening of the Astronauts* (TIME Magazine, 1972, p. 43), this reported ecological turn included Apollo 13 crew member Jack Swigert's public subscription to the idea “that space technology—earth-resources satellites, solar-energy generators, global communications networks and the like—is the answer to the environmental disasters that threaten this fragile earth.”

As space imagery proliferated, this *Lunar Effect* (id.) soon extended to non-spacefaring members of the human race such as Margaret Mead (Mead, 2011, p. 503) who, in her 1977 *Earth Day* address, declared that “it was not until we saw the picture of the Earth, from the Moon, that we realized how small and how helpless this planet is—something that we must hold in our arms and care for.”

As it comprehensibly illustrated the planetary boundaries of our “closed earth” (Boulding, 1966), space imaginary lent considerable plausibility to the idea of the supposedly inescapable limits to the growth possible on it (Sachs, 2015, p. 112ff). The new perspective on the planet, therefore, seemed to imply the need for a new global economy. If Earth is seen as “a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution” (id. p. 7), then this spaceship can no longer sustain the “reckless, exploitative, romantic, and violent” *cowboy economy* of the past, in which humans depleted resources from one spot before they moved onto the next one to do more of the same. Rather, such a spaceship requires a spaceman economy where “we are primarily concerned with (...) stock maintenance, and any technological change which results in the maintenance of a given

* Corresponding author.

E-mail address: roths@excelia-group.com.

<https://doi.org/10.1016/j.ecolecon.2024.108243>

Received 16 December 2023; Received in revised form 6 May 2024; Accepted 16 May 2024

0921-8009/© 2024 Elsevier B.V. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

total stock with a lessened throughput (that is, less production and consumption) is clearly a gain.” (id., p. 8).

In outlining a circular economy for Spaceship Earth, “where sources and sinks are two sides of the same coin, endless growth is not feasible and materials need to circulate as long as possible within the socio-economic system” (Haas et al., 2020, p. 1), and which he considered a necessary “condition for safeguarding and sustaining life on earth” (Chauhan et al., 2022, p. 2), Kenneth Boulding (1966) not just contributed to the foundations of ecological economics (Victor, 2015), but must be considered one of its “immediate roots” (Costanza, 2020; see also Röpke, 2004). Spaceship Earth was further propelled by a growing perception of “emerging issues of resource overconsumption and pollution” (D’Amato and Korhonen, 2021, p. 4) to the point where it entered the mainstream environmental and resource economics (Meran, 2023) and where the “transition from ‘frontier economics’ to ‘spaceship economics’” would be “well under way” (Costanza et al., 2017, p. 4), were it not for a considerable proportion of earthly spacefarers who either deny their presence on a spaceship or knowingly consume this ship’s provisions as if they were unlimited.

For decades, the dominant strategy to control either deviant behaviour has been “to confront sceptics and resisters with the sheer omnipresence of warning signs that indicate the severe side-effects” (Roth, 2019, p. 504) of their unsustainable behaviour. These confrontational approaches, however, have recently been considered ineffective as they intensify defensive denial and reactance (Costanza et al., 2017). As the supposed problem of Spaceship Earth remains its crew (Höhler, 2014), however, the self-acclaimed commanders and counsellors of Spaceship Earth are currently complementing or substituting pedagogies of fear with approaches that treat unsustainable lifestyles as mental disorders or behavioral addictions in need for therapy. The point then is that these pathologies are identified as “societal” pathologies that afflict virtually everyone. “Examples include our societal addiction to inequitable over-consumption fuelled by fossil energy and the ‘growth at all costs’ economic model”, which is why it is going to take more than simply pointing out its problems. It is going to take ‘societal therapy’ to overcome this addiction” (Costanza, 2020, p. 4). The corresponding treatments, therefore, apply, in principle, to everyone.

Ecological economists are by far not the only spacefarers who pathologize the entire crew or passengers of their ship. The diagnosis that capitalist welfare societies are addicted to economic growth (Daly, 1974; Haapanen and Tapio, 2016; Jackson, 2009; Mishan, 1967; Rees, 1999; Slaughter, 2012; van Griethuysen, 2010) and that this addiction makes not only humans themselves, but the entire planet ill is also reflected in recent attempts to scale the concept of health to the planetary level. Claims for “planetary health” (Horton et al., 2014; Horton and Lo, 2015), defined as “the health of human civilisation and the state of the natural systems on which it depends” (Whitmee et al., 2015) indeed imply that the entire planet is ill, a diagnosis prominently disclosed not least by the then-Prince of Wales and later King Charles III. on the occasion of Earth Day 2020.

The problem with this expansive health concept is not only its all-embracing claim, but also that prominent proponents of the planetary health or “One Health” concept defined health as the “state of complete (...) well-being and not merely the absence of disease or infirmity” (Preamble to the WHO Constitution). If health is defined positively, then any failure to display an ever-longer list of positive health indicators may be problematised. The corresponding health concept is therefore total in at least two regards. First, it extends to all aspects of life on this planet. Second, it defines health as a precarious equilibrium of desired features whose maintenance requires constant monitoring and deviance-control paired with corresponding treatments and interventions. As there is suspicion anyway that many of the space technologies mentioned by the above Apollo 13 crew member are currently employed in such ways as to support scenarios of planetary biopolitics (Cavanagh, 2014; Hamilton, 2018), surveillance capitalism (Zuboff, 2018), or digital dictatorships (Harari, 2017; Harari, 2020), there is concern that the

increasingly comprehensive and fine-grained monitoring and problematisation of all aspects of life on this planet might develop totalitarian features and turn our spaceship into a global total institution.

Exit from an institution as total as is a planetary spaceship is hard to imagine. This circumstance turns an escape from Spaceship Earth into the ultimate escape room exercise. In this article, I shall first provide an overview of the origins of the Spaceship Earth rhetoric, also highlighting that some early users of the concept have been well-aware of its potentially totalitarian implications. I shall then outline core characteristics of total institutions and demonstrate that Spaceship Earth meets many, if not all, criteria of a total institution. Having thus established that this planetary life support system is the perhaps most total institution ever conceived by mankind, I provide hints to exit-options directed to those passengers who are motivated to take on this ultimate escape room challenge.

2. The origins of Spaceship Earth

Some of the first Spaceship Earth rhetoric is most optimistic. Take the example of Henry George (George, 2006[1879], p. 218) who thought of Earth as “a well-provisioned ship, this on which we sail through space. If the bread and beef above decks seem to grow scarce, we but open a hatch and there is a new supply, of which before we never dreamed.” George Orwell (2021[1937], p. 117) seemed to agree:

“The world is a raft sailing through space with, potentially, plenty of provisions for everybody; the idea that we must all cooperate and see to it that everyone does his fair share of the work and gets his fair share of the provisions seems so blatantly obvious that one would say that no one could possibly fail to accept it unless he had some corrupt motive for clinging to the present system.”

The “potentially” already indicates some reservations, and yet the world is great and could be of plenty if we just had the right system, namely socialism, in place.

Compare this assessment to one of the first popular appearances of Spaceship Earth in its more contemporary shape:

“We travel together, passengers on a little space ship, dependent on its vulnerable reserves of air and soil; all committed for our safety to its security and peace; preserved from annihilation only by the care, the work, and, I will say, the love we give our fragile craft. We cannot maintain it half fortunate, half miserable, half confident, half despairing, half slave—to the ancient enemies of man—half free in a liberation of resources undreamed of until this day. No craft, no crew can travel safely with such vast contradictions. On their resolution depends the survival of us all.” (Adlai Stevenson II, US Ambassador the UN, in his *Speech to the UN Economic and Social Council* on 9 July 1965).

Somewhen between 1937 and 1965, the world has shrunk. This new little world is a vulnerable and fragile craft in need of care, and we can only care for it if we all pull together. This is a matter of survival.

This basic storyline is characteristic of the Spaceship Earth literature, and it consequently also appears in the work of Barbara Ward (Ward, 1966, p. 17), who “borrowed” the spaceship “comparison from Professor Buckminster Fuller”:

“The most rational way of considering the whole human race today is to see it as the ship’s crew of a single space ship on which all of us, with a remarkable combination of security and vulnerability, are making our pilgrimage through infinity. Our planet is not much more than the capsule in which we have to live as human beings if we are to survive the vast space journey upon which we have been engaged for hundreds of millennia – but without noticing yet our condition. This space voyage is totally precarious. Think of what could happen

if somebody were to go mad or get dead drunk in a submarine and run for the controls. If some member of the human race got dead drunk on board of our spaceship, we are all in trouble. This is how we have to think of ourselves. We are a ship's company on a small ship. Rational behaviour is the condition of survival" (Ward, 1966, p.18).

As the ship is vulnerable, so too is the "single, vulnerable human community" (Ward, 1966, p. 3) which is vulnerable precisely because it has not yet internalised the aforementioned rational considerations, lacks the discipline to rational behaviour, and, therefore, is at constant risk to act like drunkards on a submarine. Rational guidance and control must therefore be provided at first by scientific experts, and then increasingly by computers. "Only to their superhuman range of calculative capabilities can and may all political, scientific, and religious leaders face-savily acquiesce." (Fuller, 1969, p. 10). Fuller indeed insists that computers will save the world.

"You may very appropriately want to ask me how we are going to resolve the ever-acceleratingly dangerous impasse of world-opposed politicians and ideological dogmas. I answer, it will be resolved by the computer. Man has ever-increasing confidence in the computer; witness his unconcerned landings as airtransport passengers coming in for a landing in the combined invisibility of fog and night. While no politician or political system can ever afford to yield understandably and enthusiastically to their adversaries and opposers, all politicians can and will yield enthusiastically to the computers safe flight-controlling capabilities in bringing all of humanity in for a happy landing. So, planners, architects, and engineers take the initiative." (id., p. 44).

This dream of a world on autopilot is shared by Jay Forrester (Forrester, 1971, p. 1) who argues that computerised system models can inform policy far better than public deliberation between citizens whose "human mind is not adapted to interpreting how social systems behave" anyway. In this ship designed by planners, architects, and engineers, there is clearly no need for political debate anymore.

It is important to keep this basic design of Spaceship Earth in mind if we now return to the initial quote of this chapter, where Henry George (George, 2006[1879], p. 218) described this craft as a well-provisioned ship, and read on to the next sentence: "And very great command over the services of others comes to those who as the hatches are opened are permitted to say, 'This is mine!'" And equally is it worthwhile to recall that George Orwell's depiction of the world as a raft is preceded by the following lines: "And all the while everyone who uses his brain knows that Socialism, as a world-system and wholeheartedly applied, is a way out. It would at least ensure our getting enough to eat even if it deprived us of everything else."

As much as his later oeuvre, Orwell's 1937 outlook on the deprivations brought about by a world system dedicated to barely more than our bare survival blend—though not exactly nicely—into Michel Foucault's (1973, p. 231) definition of total institutions as "complete and austere institutions" (Foucault).

3. Total institutions

The concept of total institutions was popularised by Erving Goffman through a collection of *Essays on the Conditions of the Social Situation of Mental Patients and Other Inmates* published under the title *Asylums*. The first of these four essays outlines the *Characteristics of Total Institutions*. Goffman's (Goffman, 1961, p. 3) examination of total institutions starts from an "everyday sense of that term"—definition of institutions as "places such as rooms, suits of rooms, buildings, or plants in which activity of a particular kind regularly goes on". His examples include train stations, factories, or family homes. All institutions absorb a certain degree of lifetime and energy from their members, he explains, yet some are more "encompassing" (id., p. 4) than others, and the most encompassing institutions are total institutions: "Their encompassing or total

character is symbolized by the barrier to social intercourse with the outside and to departure that is often built right into the physical plant, such as locked doors, high walls, barbed wire, cliffs, water, forests, or moors." (ibid.)

Whereas in modern society individuals usually switch between a considerable number of institutions such as family home, public transport, workplace, and leisure facilities, the

"Central feature of total institutions can be described as a breakdown of the barriers ordinarily separating these (...) spheres of life. First, all aspects of life are conducted in the same place and under the same single authority. Second, each phase of the member's daily activity is carried on in the immediate company of a large batch of others, all of whom are treated alike and required to do the same thing together. Third, all phases of the day's activities are tightly scheduled, with one activity leading at a prearranged time into the next, the whole sequence of activities being imposed from above by a system of explicit formal rulings and a body of officials. Finally, the various enforced activities are brought together into a single rational plan purportedly designed to fulfill the official aims of the institution." (id., p. 6).

In further specifying total institutions, Goffman identifies the following characteristics:

- There is one barrier between the total institution and the outer world that the inmates cannot cross. By contrast, individuals in the outer world are members of several institutions, whose borders they regularly cross.
- Inside a total institution, the personality of inmates is to the greatest possible extent reduced to the role they play in this institution. In the outer world, the personality of individuals is defined by a diverse set of roles they play in different institutional contexts.
- Total institutions aim at realising a total physical, mental, and social inclusion that covers all aspects of the life of their inmates. In the outer world, no single institution can raise justified claims of such total forms of inclusion.
- A total institution is governed by a central authority equipped with the power to discipline and punish.
- Total institutions pursue a particular goal following the aforementioned "rational plan" designed to achieve it.

From an inmate's perspective, this institutional design is experienced as a total barrier between himself and the outside world. Newcomers typically undergo admission procedures aimed at de-individualising them. These practices may include obedience tests and will-breaking exercises, rites of passage, situations of physical nakedness, enforcement of property dispossession, and uniformization.

Goffman then proceeds to distinguish different types of total institutions each devoted to the containment of different basic types of inmates. Thus, he identifies institutions.

- For the vulnerable and harmless: Homes for the handicapped, aged, poor, or orphaned.
- For the vulnerable and unintentionally dangerous: Leper homes, mental hospitals.
- For the intentionally dangerous: jails, prisoners of war camps.
- Of forced labour and resocialisation: "army barracks, ships, boarding schools, work camps" (Goffman, 1961, p. 5).
- For retreats from the world or religious training stations: "abbeys, monasteries, convents, and other cloisters" (ibid.)

There are various possible combinations between these ideal types such as "prison factories (Foucault, 1995, p. 25) or "factory convents" (id, p. 298). In the context of this article, however, the most significant take-away is that Goffman is not the only theorist of total institutions to

identify ships as total institutions. Foucault (1995) repeatedly refers to those “convict-ships” (Foucault, 1995, p. 115) that also feature prominently in Victor Hugo’s *Les Misérables*. The swimming factories depicted in *Moby Dick* or the accounts of the *Mutiny on the Bounty* further corroborate that ships may qualify as total institutions.

4. Neither leakages nor harbours

As austere as life is in many total institutions, most of them are not as total as it may seem. Escape from convict ships was difficult but possible, as exemplified by Jean Valjean’s outbreak in *Les Misérables*. While on sea, life on a swimming factory may have been total hell, but even the most hellish ship must return to a harbour at some point. History and fiction are full of examples that illustrate the many possible leakages between supposedly total institutions and their outer world. The monk who begets a child, the boarder who sneaks out to a night party, the prisoner who takes drugs in her cell. The respective institutions are therefore better described as “porous” (Ellis, 2021) than as total institutions.

Spaceship Earth is different. By definition, this ship encompasses the entire human habitat. There is no life possible outside this ship except for short excursions in vessels that are technological extensions of it. There is and must be no leakage between this spaceship and the universe; and there is no harbour as this ship’s only mission and mode of existence is to ceaselessly orbit another celestial body (Roth and Valentinov, 2023). There is hence no physical exit from Spaceship Earth. All this makes this ship the most complete and inescapable institution in the history of mankind.

In zooming in onto the “single, vulnerable human community” (Ward, 1966, p. 3) populating this institution, we recall that vulnerable individuals belong to Goffman’s ideal types of inmates of total institutions. There is little doubt though that there are not only vulnerable and harmless passengers on Spaceship Earth, but also those who “go mad or get dead drunk (...) and run for the controls” of our spaceship and bring us all in trouble (Ward, 1966, p. 18). This population of vulnerable and dangerous individuals will certainly have to live on separate decks or in dedicated compartments of our spaceship. Given the scale and scope of our collective madness—that is, the “growth fetishism” (Hamilton, 2004), “growth mania” (Daly, 1974, 2013; Mishan, 1967; van Griethuysen, 2010), or “growth addiction” (Costanza, 2020; Costanza et al., 2017; Daly, 1974; Haapanen and Tapio, 2016; Jackson, 2009; Mishan, 1967; Rees, 1999; Slaughter, 2012; van Griethuysen, 2010) that once motivated Spaceship thinking—however, this and other special treatments might concern not only a small minority of reactionaries or deniers.

As for those who are qualified as and remain Type 1 inmates in Goffman’s typology, that is vulnerable and harmless individuals, the message is clear:

“The essence of civil peace is the sacrifice of private force. The citizen abandons to law courts, to impartial police, to all manner of mediating bodies (...) the right to settle his disputes. Increasingly, he asks society in return – through his government – to see that his economic and social grievances are not such as to leave him in urgent and unsatisfied need of redress. Most of the tasks of government come under these two headings – of law and order on the one hand, of welfare on the other. And the essence of our international anarchy today is that the functions of order and most of the functions of welfare will stop at the arbitrary boundaries of states. The greatest institutional gap in our world is created by an inescapable, planetary interdependence which (...) is matched by virtually no instruments of worldwide order and welfare. And it is through that gap that mankind can tumble into annihilation”. (Ward, 1966, p.20).

The key message here is that the sacrifice of private force must be intensified both in scope and scale. Ward clearly advocates the extension

of a paternalistic welfare state model to the planetary scale, and it does not require much fantasy to imagine that definitions of private force may constantly be extended to include not only physical violence, but also, in more recent terms, “hate speech”, the spreading of “conspiracy theories”, the use of minority-insensitive language, climate change denial, or even the possession of ever-smaller amounts of cash or unregulated cryptocurrencies. Ward’s remarkable marriage of law-and-order conservatism and social democratic welfare paternalism is reminiscent of the secret alliances described in Heinrich Mann’s novel *The loyal subject*, which in the imperial Germany of the late 19th century were forged between conservative and social democratic leaders to frustrate the electoral success of liberal candidates. Unlike the 19th century case, however, her claim for an alliance of conservatism and welfarism is unconcealed as she insists that the inescapable planetary interdependence be matched by inescapable planetary institutions, which she deems necessary to prevent annihilation.

The need for the “vulnerable human community” to become even more vulnerable and harmless for both themselves and their natural environment is further justified by the modus operandi of a “spaceman economy” where “the essential measure of the success of the economy is not production and consumption at all, but the nature, extent, quality, and complexity of the total capital stock, including in this the state of the human bodies and minds included in the system” and where “what we are primarily concerned with is stock maintenance”. (Boulding, 1966, p. 8) This steady-state stock-keeping economy hence requires not only an extensive, but also an increasingly intensive monitoring of almost all aspects of life, including individual “states of mind”, and that the human community must be sufficiently vulnerable and harmless to consent with or endure their increasingly fine-grained surveillance.

It is therefore only consequential that in such a context of “global resource accounting” (Selcer, 2018, p. 90) performed to “monitor the health of the whole earth” (id., p. 174), the human community reappears as its own stock. To keep this human stock in balance, and thus in synch with the planetary ecosystem, spaceship thinkers were ready to ask great sacrifices from the (other) passengers of Spaceship Earth: “Suggestions of selective euthanasia and mass sterilization were not limited to works of SF (science fiction, the author) but were also openly discussed in ecological publications.” (Höhler, 2014, p. 101) Thus, the “natural resource most threatened” on Spaceship Earth truly “is man himself” (Ward and Dubos, 1972, p. 217), though threatened not necessarily by his own impact on the planetary ecosystem as suggested by Ward and Dubois, but more directly by the measures devised to keep this impact low: “How many people could the world support, who should live, who should decide, and how—these were the questions population ecologists concerned themselves with.” (Höhler, 2014, p. 101f) When the chips are down, interventions at Spaceship Earth can be drastic.

The global mission and operating system of Spaceship Earth may thus be summarised as follows:

“Spaceship Earth must function as a single entity; international controls must exist (sic!) in several areas. It is simple to outline what is necessary: control of production and sales of arms, followed by control of international conflict; regulation of trade, resource utilization and environmental impact; and control of population” (Ehrlich and Harriman, 1971, p. 113).

Control in this context means coercion. “Seeing the counterproductive results of voluntary compliance with guidelines, we finally admit the necessity of coercion for all” (Hardin, 1976, p. 129f). Where this control does not imply ideas of brute force, it takes the form of attempts at therapeutic interventions on an individual, institutional, and planetary level.

While Spaceship Earth had been “downed” and hors de combat due to the “unexpected ascendancy of neoliberalism” (Selcer, 2018, p. 248) for the fin du 20eme siècle, there has been a considerable revival of the “coercion in a good cause” (Ehrlich, 1969, p. 166) mindset so

characteristic of Spaceship Earth particularly during the COVID-19 crisis. In this context, it is noteworthy that this crisis, including the not infrequently draconian measures taken to manage it, has prominently been declared a “dress rehearsal” (Latour, 2021), “fire drill” (UN Global Compact executive director Lise Kingo in 2020), or some other form of blueprint for the management of the environmental or climate crisis.

If mankind is living in Spaceship Earth today, then our situation is defined by the most total barrier that has ever been established in the history of mankind between an institution and the outer world. The corresponding claim of inclusion would need to be equally total; we would hence be confronted with a zeitgeist according to which “Everyone has a role to play” (World Economic Forum) in the achievement of one or several sustainable development goals or the maintenance of the many precarious balances and equilibria on Spaceship Earth.

Our lives would be governed by a “single rational plan purportedly designed to fulfill the official aims of the institution” (Goffman, 1961, p. 6). Given the gigantic size of this institution, however, this rational plan would likely need to be broken down into context-specific instructions. Leon Faucher’s rules for the House of young prisoners in Paris cited in Foucault (1995[1975], p. 6ff) are a prime example of such a rational plan. As detailed as this plan is in defining when prisoners must wash their hands and eat their bread, however, it remains unspecific as to how the prisoners wash their hands or eat their bread. Compare this to a recent initiative where drivers of “unsustainable” cars are, in principle, banned from driving in the Greater Milano Area. As a former right turned privilege, these drivers then are allocated a restrictive budget of kilometres they are still allowed to drive in the Greater Milan Area, but only if they subscribe to the MoVe-In system and install in their car a black box which they need to pair with their smartphone. This black box allows the system to monitor not only where the drivers are driving, but also how. The latter aspect is important as drivers may gain bonuses of additional kilometres if they adapt a sustainable driving-style defined as, e.g., the avoidance of rapid accelerations. In other words: these individuals gain privileges if they allow a black box to define how to wash their hands to prevent a planetary health crisis.

If Spaceship Earth is viewed as total institution, broader concepts of rationing and allowances would extend beyond just bread or mobility to encompass carbon. Global institutions such as the World Economic Forum would engage in discussions around “personal carbon allowance programs” as if the major issue with these programmes were that they “have had limited success due to a lack of awareness and fair mechanism for tracking emissions” (Kumar and Kaushik, 2022). In such context, it would be presented as good news that during the COVID-19 crisis a “huge number of unimaginable restrictions for public health were adopted by billions of citizens across the world” (ibid.). It would add to the good news that due to advances in digital technology we “can enable tracking personal carbon emissions, raise awareness and also provide individual advisories on lower carbon and ethical choices for consumption of product and services” (ibid.). The same institutions would then make proposals of how these different aspects can be integrated into a carbon credit system that monitors individual lifestyle choices and prevents deviance from prescribed lifestyle models, or at least punishes this deviance by making it very costly. For this to be effective, individual members of the “single, vulnerable human community” would need to be almost constantly in a situation of comprehensive nakedness induced by the ubiquitous data surveillance, including health data surveillance, evoked by scholars such as Zuboff (2018) or Harari (2017, 2020).

As a total institution, Spaceship Earth would last not least be governed by a central authority equipped with the power to enforce compliance with the rational plan devised to achieve its mission. Strategies to extend at least intellectually the required “sure hand of expert-guided state planning” (Selcer, 2018, p. 245) to the planetary level would need to include concerted actions such as the simultaneous publication in more than 200 health journals across the globe of one and

the same editorial entitled *Time to treat the climate and nature crisis as one indivisible global health emergency* (e.g., Abbasi et al., 2023). In this widely disseminated text, the authors would “call on the United Nations, political leaders, and health professionals to recognise that climate change and biodiversity loss are one indivisible crisis and must be tackled together to preserve health and avoid catastrophe” in general and on the World Health Organization to “declare the indivisible climate and nature crisis as a global health emergency (...) before or at the 77th World Health Assembly in May 2024” in particular. Equipped with recently increased powers (Behrendt and Müller, 2021), the World Health Organization would then be expected to not only recommend, but also insist on the enforcement of measures that resemble or exceed those implemented during the COVID-19 crisis, though this time not under the pretext of a war against a virus, but a war against climate change. The permanent crisis of climate change would thus sanctify a permanent “state of exception” (Schmitt, 1922). The impact of the corresponding “exceptional” measures on the daily life of most humans on this planet would certainly be dramatic.

5. Escape from spaceship Earth

While there is little doubt that Spaceship Earth represents a total institution, there remains some doubt whether this institution has remained a concept of the 20th century or evolved into a relevant paradigm for the 21st century. However, if Spaceship Earth is gaining traction once more, especially as calls for increasingly ruthless interventions for climate change mitigation and other planetary health goals become more prevalent, then the exploration of escape routes from this ship might be desirable for some members of our “single, vulnerable human community”.

The main contention of this article is not that Spaceship Earth is currently under construction. Instead, I argue that should this metaphorical ship be realized, it would quickly become the most total institution ever known to humanity. Parallels between the hypothetical scenario of this spaceship and ongoing debates would therefore warrant a proactive approach to locate escape paths to the nearest exits. As demonstrated in this article, there is no shortage of such parallels.

As with all escape room games, exits are neither located on each side of the cabin nor marked by illuminated signs, but only vaguely indicated by a gamemaster providing hints to them. In the case of an escape from as total an institution as is Spaceship Earth, however, this gamemaster would necessarily be part of the crew. There is hence no gamemaster either. There are only hints.

One first hint to exits from Spaceship Earth is missing self-implication. Whatever its colour or motive, spaceship thinking ultimately boils down to the perceived need for an “elite to take control of an earthly environment in bad repair.” (Höhler, 2014, p. 105) This leadership claim corresponds with the belief that a “true ship always has a captain” (Hardin, 1974, p. 36). The idea that Spaceship Earth must or can be a ship in that sense, however, has early been challenged even by prominent environmentalists, be it because such autocratic, technocratic, or “ecocratic” (Sachs, 2015, p. 43f) captain or steering elite could themselves make fatal decisions, or be it simply because “Spaceship Earth (...) has no captain, and no executive committee. The United Nations is a toothless tiger, because the signatories of its charter wanted it that way” (ibid.). Yet, the key issue with supposedly required planetary therapies remains that the proponents of these interventions are necessarily members of the system they intervene into. Imagine family therapy sessions where one patient family member also plays the role of the therapist. This would be the reality of therapeutic interventions on a spaceship called earth. Heroic attempts to save humanity by extending the concept of health to the planetary level and engaging in planetary autotherapy do, therefore, at best “resemble Munchhausen’s attempt to pull himself and his horse out of the swamp by his own hair.” (Fritzsche, 2022, p. 2). At worst, they will worsen existing and add new pathologies. A first implication for future research would hence be to systematically

identify and address issues resulting from the missing self-implication of planetary therapists and therapies. These efforts might resemble approaches that draw inspiration from psychotherapy research and psycho-therapeutic practice (such as Costanza et al., 2017; Costanza, 2020; Roth, 2019), but with a particular focus on the challenges and paradoxes of therapeutic setting where interveners belong to the systems into which they intervene, and thus are both drivers and targets of their own intervention.

A second hint to exits from Spaceship Earth is the realisation that the idea of earth as a small, precarious, and isolated life-support system stems less from a collective epiphany inspired by the iconic Earthrise and Blue Marble. Rather, it is more a product of deliberate “campaigns to cultivate planetary loyalty” (Selcer, 2018, p. 190) that had started years, even decades before these enlightening images were captured. In March 1966, Stewart Brand awoke from an LSD-supported meditation on “Buckminster Fuller’s notion that people think of the earth’s resources as unlimited because they think of the earth as flat” (Turner, 2006, p. 69). One week later, he “started a campaign to persuade NASA to release what was rumoured to – but did in fact not then – exist: a colour photograph of the whole Earth. (...) Buckminster Fuller (...) agreed to help Brand his objective” (Potter, 2018). Brand later published the first edition of his Whole Earth Catalog (1968) which features a whole Earth photograph taken by a satellite in November 1967. Yet, the underlying idea is much older that “once a photograph of the Earth, taken from the outside, is available, we shall, in an emotional sense, acquire an additional dimension... once let the shear isolation of the Earth become plain to every man whatever his nationality or creed, and a new idea as powerful as any in history will be let loose” (Hoyle, 1950, p. 9f); and Buckminster Fuller was aware of this idea when he first coined his notion of Spaceship Earth in 1951. The script had long been written when the astronauts took pictures of Earth in space and turned the planet into a screen for literally great cinema. A practical implication of this hint is that we are well-advised to scrutinise and demystify root metaphors, icons, and narratives of environmental sciences and the environmentalist movement.

The third hint is related to a set of contradictions. While much of the Spaceship Earth literature is concerned with the prevention of a war, “war metaphors continue to proliferate” (Selcer, 2018, p. 249) in this body of literature. Apocalyptic scenarios of a third world war played a key role in *The birth of catastrophic environmentalism* (Hamblin, 2013), and this heritage is still reflected in the more recent rhetoric of a “grande guerre écologique” (Latour, 2015), wars against viruses, and fights against climate change. Spaceship thinkers have also been among the first to insist that.

“The effectiveness of government intervention to increase capacity in time of war led inescapably to the conclusion that government could also intervene effectively to ensure that the economy did not fall away into depression in peace time but would maintain, on the contrary, a steady rate of expansion. (...) Thus, not by theory or dogma but largely by war-induced experience, the Western market economies have come to accept the effectiveness and usefulness of a partnership between public and private activity” (Ward, 1966, p. 11f).

This war economics and public praise of public-private partnerships (PPP) is still popular today. Take the example of the ceaseless PPP advocacy by the World Economic Forum or the European Union’s implementation of Mariana Mazzucato’s concepts of entrepreneurial statehood (2014) and “mission economy” (2021). Wars are proven strategies to manage public debts (Reinhart and Rogoff, 2009), and the same might be true for the many good reasons to maintain or establish a war economy in times of peace. The resort to proxy wars against desertification, viruses, or climate changes might therefore amount to a “moral equivalent of war” (Selcer, 2018, p. 209) or an ostensibly more civilised functional equivalent to it. While this observation might

resolve the tension between world peace rhetoric and the discursive ubiquity of war, a second and more fundamental contradiction is that Spaceship Earth’s war economics for global survival applies ideas of an *open* systems economy—characterized by assumed flows and exchanges between organic and social systems—to what is perceived to be a *closed* living planetary system. However, in the context of such a closed system, theories of autopoietically closed systems would be more fitting. Such theories, as developed by Maturana and Varela (1980) or Luhmann (1995), offer a more appropriate framework for understanding how systems relate to environments on planet Earth. One practical implication of this theoretical turn would be the challenge to decide whether the planetary ecosystem is a system or an environment. The question at stake is indeed whether ecosystems large and small actually are autopoietic, self-maintaining systems, or rather systems (or environments) whose contours and operations are defined and must be maintained by an observer other than the ecosystem itself.

A fourth hint to an exit point from Spaceship Earth consists in the fact that its designers have constantly confused the environment with nature. Nature, however, is not *the* environment per se, but only the environmental concept of a subbranch of science, namely the natural sciences. In thus “making natural sciences the arbiters of the greatest good”, spaceship thinking opens “the door to a coercive ‘imperial ecology’” (Selcer, 2018, p. 85) or “ecocracy” (Sachs, 2015, p. 43f) that collides with the fact that other domains of society, including art, religion, and not least the social sciences have all reason to insist on their own and fundamentally different concepts of environment (Roth and Valentinov, 2020). Systematic explorations of these non-natural scientific environments would hence be a major research implication of this fourth hint.

A fifth and, for the time being, final hint is that the spaceship agenda is not progressive but archconservative. This is true not only regarding its purported ends of natural conservation and resource preservation, but also its means. Both tacit and overt references prevail to elites of experts, researchers, engineers, architects, and planners who relate to the “natural resource most threatened” on Spaceship Earth, that is, “man himself” (Ward and Dubos, 1972, p. 217) like shepherds to a flock of sheep. Contemporary spaceship thinking also leaves little doubt that in a spaceship, circular, or mission economy the “sure hand of expert-guided state planning” (Selcer, 2018, p. 245) should replace the invisible one. Spaceship economic policy is therefore “not about picking winners, but picking the willing” (Mazzucato, 2021, p. 56), that is, those private partners who compliantly support whatever public mission. The resulting crony capitalism (Foss et al., 2022; Klein et al., 2022) would clearly be defined by privilege and compliance rather than by law and merit. Experiences from managing the COVID-19 crisis have raised concerns. During this crisis, former basic rights evolved into privileges that rewarded compliant behaviour. This shift, combined with recent calls for similar or even more drastic measures to combat what is being termed the next major “global health emergency”—climate change—fuels further worries. There is a growing apprehension about a potential permanent state of emergency. Such a state would justify permanent transformations of former rights into privileges. The culmination of this trend would a situation where the extension of human rights to nature (Stone, 2010; Latour, 2015) permanently undermines human rights for humans themselves. These transformations would represent a reactionary agenda. A fifth implication for research and practice would hence be that researchers need to review their own psychological contracts with the numerous political agendas associated with environmental economics and the broader environmental sciences, whether these agendas are explicit or implicit. Environmentalist activists, for their part, might realise that there is a considerable risk that in totalising their “progressive” worldview they unwillingly support an archconservative mission.

If Spaceship Earth is a reality, then its launch is tantamount to a Second Copernican Revolution:

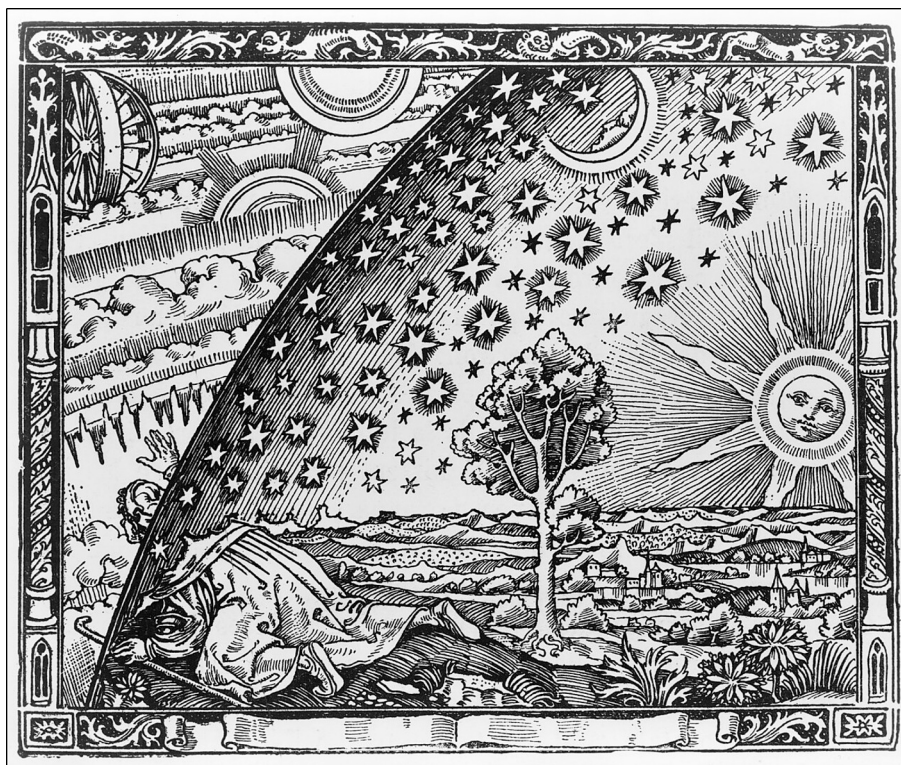


Fig. 1. The Flammarion engraving (Flammarion, 1888, p. 163).

“With regard to the Copernican Revolution of the sixteenth century, having displaced the earth from its centre in the solar system to a more peripheral existence among a number of other, similar planets, this second revolution is said to have brought the earth back to the core of human attention. Both ‘revolutions’ overthrew the prevalent views of their times. While the first weakened the supremacy of the earth and of humankind in a larger cosmology, the second revolution, in a holistic sweep (...) brought the earth back into the centre of the human universe.” (Höhler, 2016, p. 10).

In this case, Spaceship Earth has brought us back to the geocentric world so famously depicted in the Flammarion (1888) engraving (Fig. 1).

The firmament is a protective dome again, under which everything is well-sheltered, well-ordered, and well-tempered. For all its advantages, however, the life on this planetary total institution leaves some of us unfilled. Like the medieval traveller in the image, we feel an itch for putting our head through the spherical vault separating us from the outside world. Yet there is no *Break on through to the other side* of Spaceship Earth except through one of its extensions. So, if we do not want to trade our current escape room for an even more daunting “lifeboat” challenge outlined by Hardin (1974, 1976), then this playful article is a serious invitation to look for further hints to *Doors of perception* through which we can disembark from a ship with no mission other than orbiting another celestial body.

CRedit authorship contribution statement

Steffen Roth: Writing – review & editing, Writing – original draft, Supervision, Investigation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

References

- Abbasi, K., Ali, P., Barbour, V., Benfield, T., Bibbins-Domingo, K., Hancocks, S., Zielinski, C., 2023. Time to treat the climate and nature crisis as one indivisible global health emergency. *Lancet* 402 (10413), 1603–1606.
- Behrendt, S., Müller, A., 2021. Do we need to protect the entire world population from health threats through one global biomedical surveillance and response system? *Ger. Yearb. Int. Law* 64 (1), 41–92.
- Boulding, K.E., 1966. The economics of the coming spaceship earth. In: Jarrett, H. (Ed.), *Environmental Quality in a Growing Economy*. Johns Hopkins University Press, Baltimore, MD, pp. 3–14.
- Brand, S., 1968. *Whole earth catalog*. Point Foundation.
- Cavanagh, C.J., 2014. Biopolitics, environmental change, and development studies. *Forum Dev. Stud.* 41 (2), 273–294.
- Chauhan, C., Parida, V., Dhir, A., 2022. Linking circular economy and digitalisation technologies: A systematic literature review of past achievements and future promises. *Technol. Forecast. Soc. Change* 177, 121508.
- Costanza, R., 2020. Ecological economics in 2049: getting beyond the argument culture to the world we all want. *Ecol. Econ.* 168, 106484.
- Costanza, R., Atkins, P.W., Bolton, M., Cork, S., Grigg, N.J., Kasser, T., Kubiszewski, I., 2017. Overcoming societal addictions: what can we learn from individual therapies? *Ecol. Econ.* 131, 543–550.
- Daly, H.E., 1974. Steady-state economics versus Growthmania: a critique of the orthodox conceptions of growth, wants, scarcity, and efficiency. *Policy. Sci.* 5 (2), 149–167.
- Daly, H., 2013. A further critique of growth economics. *Ecol. Econ.* 88, 20–24.
- D’Amato, D., Korhonen, J., 2021. Integrating the green economy, circular economy and bioeconomy in a strategic sustainability framework. *Ecol. Econ.* 188, 107143.
- Deudney, D., 2020. *Dark Skies: Space Expansionism, Planetary Geopolitics, and the Ends of Humanity*. Oxford University Press.
- Ehrlich, P.R., 1969. *The Population Bomb*. Ballantine, New York.
- Ehrlich, P.R., Harriman, R.L., 1971. *How to Be a Survivor*. London.
- Ellis, R., 2021. Prisons as porous institutions. *Theory Soc.* 50 (2), 175–199.
- Flammarion, C., 1888. *L’atmosphère: Météorologie Populaire*. Hachette.
- Forrester, J.W., 1971. Counterintuitive behavior of social systems. *Theor. Decis.* 2 (2), 109–140.
- Foss, N.J., Klein, P.G., Murtinu, S., 2022. The economy doesn’t need a reset, and neither does management theory. *Scand. J. Manag.* 38 (3), 101214.
- Foucault, M., 1973. *The birth of the clinic. An archaeology of medical perception*. Tavistock.
- Foucault, M., 1995. *Discipline and Punish*.

- Fritzsche, A., 2022. The pragmatic roots of scientific insight: a culturalist approach to management theory in the view of grand challenges. *Scand. J. Manag.* 38 (4), 101230.
- Fuller, R.B., 1969. *Operating Manual for Spaceship Earth*. Pocket Books, New York.
- George, H., 2006. *Progress and Poverty: An Inquiry into the Cause of Industrial Depressions, and of Increase of Want with Increase of Wealth*. Robert Schalkenbach Foundation, New York.
- Goffman, E., 1961. *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. Anchor Books.
- Haapanen, L., Tapio, P., 2016. Economic growth as phenomenon, institution and ideology: a qualitative content analysis of the 21st century growth critique. *J. Clean. Prod.* 112, 3492–3503.
- Haas, W., Krausmann, F., Wiedenhofer, D., Lauk, C., Mayer, A., 2020. Spaceship earth's odyssey to a circular economy—a century long perspective. *Resour. Conserv. Recycl.* 163, 105076.
- Hamblin, J.D., 2013. *Arming Mother Nature: The Birth of Catastrophic Environmentalism*. Oxford University Press, USA.
- Hamilton, C., 2004. *Growth Fetish*. Pluto Press, London.
- Hamilton, S., 2018. The measure of all things? The Anthropocene as a global biopolitics of carbon. *Eur. J. Int. Rel.* 24 (1), 33–57.
- Harari, N., 2017. *Homo Deus a Brief History of Tomorrow*. Harper Collins, New York.
- Harari, N., 2020. *How to Survive the 21st Century. Speech at the 2020 WEF Annual Meeting in Davos*. Available online at: <https://www.weforum.org/agenda/2020/01/yuval-harari-warning-davos-speech-future-predictions>.
- Hardin, G., 1974. Living on a lifeboat: a reprint from *BioScience*. *Soc. Contract* 36–47.
- Hardin, G., 1976. *Exploring New Ethics for Survival. The Voyage of the Spaceship Beagle*. Penguin Books, London.
- Höhler, S., 2014. The real problem of a spaceship is its people: Spaceship earth as ecological science fiction. In: Canavan, G., Stanley, K. (Eds.), *Green Planets: Ecology and Science Fiction*. Wesleyan University Press, Middletown, CT, pp. 99–114.
- Höhler, S., 2016. *Spaceship Earth in the Environmental Age, 1960–1990*. Routledge.
- Horton, R., Lo, S., 2015. Planetary health: a new science for exceptional action. *Lancet* 386 (10007), 1921–1922.
- Horton, R., Beaglehole, R., Bonita, R., Raeburn, J., McKee, M., Wall, S., 2014. From public to planetary health: a manifesto. *Lancet* 383 (9920), 847.
- Hoyle, F., 1950. *The Nature of the Universe*. New York.
- Jackson, T., 2009. *Prosperity without Growth: Economics for a Finite Planet*. Earthscan.
- Klein, P.G., Holmes Jr., R.M., Foss, N., Terjesen, S., Pepe, J., 2022. Capitalism, cronyism, and management scholarship: a call for clarity. *Acad. Manag. Perspect.* 36 (1), 6–29.
- Kraus, S., Kumar, S., Lim, W.M., Kaur, J., Sharma, A., Schiavone, F., 2023. From moon landing to metaverse: tracing the evolution of technological forecasting and social change. *Technol. Forecast. Soc. Chang.* 189, 122381.
- Kumar, K., Kaushik, M., 2022. 'My Carbon': An Approach for Inclusive and Sustainable Cities. Retrieved from: <https://www.weforum.org/agenda/2022/09/my-carbon-an-approach-for-inclusive-and-sustainable-cities/>.
- Latour, B., 2015. *Face à Gaïa: huit conférences sur le nouveau régime climatique (Empêcheurs de penser rond)*.
- Latour, B., 2021. Is this a dress rehearsal? *Crit. Inq.* 47 (S2), S25–S27.
- Luhmann, N., 1995. *Social Systems*. Stanford University Press.
- Maturana, H.R., Varela, J.F., 1980. Autopoiesis. In: Varela, J.F., Maturana, H.R. (Eds.), *Autopoiesis and Cognition: The Realization of the Living*. Reidel, pp. 59–134.
- Mazzucato, M., 2021. *Mission Economy: A Moonshot Guide to Changing Capitalism*. Penguin UK.
- Mead, M., 2011. Margaret's Mead's earth day address to the UN, march 21, 1977. In: McConnell, J. (Ed.), *Earth Day: Vision for Peace, Justice, and Earth Care: My Life and Thought at Age 96*. Wipf and Stock Publishers.
- Meran, G., 2023. Is green growth possible and even desirable in a spaceship economy? *Ecol. Econ.* 213, 107947.
- Mishan, E.J., 1967. *The Costs of Economic Growth*. Praeger.
- Nicks, O.W. (Ed.), 1970. *This Island Earth (Vol. 250)*. Scientific and Technical Information Division, Office of Technology Utilization, National Aeronautics and Space Administration (NASA).
- Orwell, G., 2021. *The Road to Wigan Pier*. Oxford University Press.
- Potter, C., 2018. *The Earth Gazers. On Seeing Ourselves*. Pegasus Books.
- Rees, W.E., 1999. Consuming the earth: the biophysics of sustainability. *Ecol. Econ.* 29 (1), 23–27.
- Reinhart, C.M., Rogoff, K.S., 2009. *This Time Is Different: Eight Centuries of Financial Folly*. Princeton University Press.
- Røpke, I. (2004). The early history of modern ecological economics. *Ecol. Econ.*, 50(3–4), 293–314.
- Roth, S., 2019. Heal the world. A solution-focused systems therapy approach to environmental problems. *J. Clean. Prod.* 216, 504–510.
- Roth, S., Valentinov, V., 2020. East of nature. Accounting for the environments of social sciences. *Ecol. Econ.* 176, 106734.
- Roth, S., Valentinov, V., 2023. Health beyond medicine. A planetary theory extension. *Sociol. Health Illn.* 45 (2), 331–345.
- Sachs, W., 2015. *Planet Dialectics: Explorations in Environment and Development*. Bloomsbury Publishing.
- Schmitt, C., 1922. *Politische Theologie*. Duncker und Humblot, Berlin.
- Selcer, P., 2018. *The Postwar Origins of the Global Environment: How the United Nations Built Spaceship Earth*. Columbia University Press.
- Slaughter, R.A., 2012. Welcome to the Anthropocene. *Futures* 44 (2), 119–126.
- Stone, C.D., 2010. *Should Trees Have Standing? Law, Morality, and the Environment*. Oxford University Press.
- TIME Magazine, 1972. The greening of the astronauts. *Time Mag.* 100 (24), 43.
- Turner, F., 2006. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. University of Chicago Press.
- van Griethuysen, P., 2010. Why are we growth-addicted? The hard way towards degrowth in the involutory western development path. *J. Clean. Prod.* 18 (6), 590–595.
- Victor, P.A., 2015. The Kenneth E. Boulding memorial award 2014: ecological economics: a personal journey. *Ecol. Econ.* 109, 93–100.
- Ward, B., 1966. *Space Ship Earth*. Hamish Hamilton, London, GB.
- Ward, B., Dubos, R., 1972. *Only One Earth*. New York, NY.
- Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A.G., de Souza Dias, B.F., Ezeh, A., Frumkin, H., Gong, P., Head, P., Horton, R., Mace, G.M., Marten, R., Myers, S.S., Nishtar, S., Osofsky, S.A., Pattanayak, S.K., Pongsiri, M.J., Romanelli, C., Yach, D., 2015. Safeguarding human health in the Anthropocene epoch: Report of the Rockefeller Foundation–Lancet Commission on planetary health. *Lancet* 386 (10007), 1973–2028.
- Zuboff, S., 2018. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Profile Books.

Steffen Roth is Full Professor of Management at Excelsia Business School, La Rochelle, France, and Full Professor of Social Sciences, Founding Director of the Next Society Institute, and President of the Senate at Kazimieras Simonavičius University, Vilnius, Lithuania. He is also Visiting Professor of Management and Organization at the University of Witten-Herdecke, Germany, and member of the Executive Committee of the Inter-University Center Dubrovnik, Croatia. Steffen holds the Title of Adjunct Professor (*venia legendi*) in Economic Sociology at the University of Turku; a Habilitation (*facultas docendi*) in Economic and Environmental Sociology awarded by the Italian Ministry of Education, University, and Research; a PhD in Sociology from the University of Geneva; and a PhD in Economics and Management from the Chemnitz University of Technology. He is the field editor for social systems theory of *Systems Research and Behavioral Science* and a member of the editorial board of *Sociology*. The journals his research has been published in include *Journal of Business Ethics*, *Sociology of Health & Illness*, *Journal of Business Research*, *Ecological Economics*, *Administration and Society*, *Technological Forecasting and Social Change*, *European Journal of the History of Economic Thought*, *European Management Journal*, *Journal of Cleaner Production*, and *Futures*. His ORCID profile is available at orcid.org/0000-0002-8502-601X and his X/Twitter handle at <https://twitter.com/derrothdotcom>.