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To cite this article: Lukáš Likavčan (09 Oct 2023): Light, Metabolisms, Elemental Media: Theorising Human Mediality in the Anthropocene, Visual Resources, DOI: [10.1080/01973762.2023.2253099](https://doi.org/10.1080/01973762.2023.2253099)

To link to this article: <https://doi.org/10.1080/01973762.2023.2253099>



Published online: 09 Oct 2023.



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Light, Metabolisms, Elemental Media: Theorising Human Mediality in the Anthropocene

Lukáš Likavčan 

This paper applies concepts of *elemental media* and *metabolisms* to the case of cosmic and planetary ecologies that emerge from the interaction between Earth and Sun, manifesting in photosynthesis or carbon isotope chemistry. In doing so, it expands on registers of media theory and environmental studies and prompts the reader to consider the medial and archival affordances of the light-based interactions, and further processes they give rise to. The main aim of the paper is to use these observations to speculate about the human condition in the Anthropocene, characterised by the experience of human *mediality*. The paper addresses human mediality mainly in the dimension of affective qualities this condition may prompt, and the resulting narrative model of selfhood – the *metabolic self*. The paper develops its conceptual contribution in close proximity with several artistic examples, especially Eduardo Navarro's performance *In Collaboration with the Sun* (2017–2019). The paper is positioned as a contribution to studies of multispecies cohabitation and more-than-human communication, while also developing a narrative strategy for talking about the decentred position of human species in the more-than-human world-making.

Keywords: Elemental Media; Metabolism; Narrative Self; Light; Selfhood; Photosynthesis

1. Introduction: The Conditions of the Anthropocene

Sitting at a distance of 150 million kilometres from the Earth, the Sun represents the central organising element of human existence, and of the terrestrial biosphere as such. This boils down to basic conditions for the Earth's *habitability* that would be otherwise unthinkable, beginning with basic physical parameters, such as the Sun's luminosity. These parameters translate into one of the major factors of habitability – the amount of energy the planet continuously receives from its host star – and they determine the extent of the so-called *habitable zone*.¹ The habitable zone is delimited by two thresholds, related to chemical properties of H₂O and CO₂ – the two compounds essential for the existence of Earth-like life. The inner edge of the habitable zone is the 'recent Venus' threshold, defined by a temperature low enough to maintain water below its critical point (374.14°C). Beyond this point, the planet overheats rapidly due to a runaway greenhouse effect, and loses all its water, as happened to the once

potentially habitable Venus. Lacking water, and being conditioned to oppressive temperature, a planet like this turns into a hostile rock that cannot sustain any known life form. The outer threshold of the habitable zone – the ‘early Mars’ limit – is defined by temperature too low to maintain CO₂ in its gaseous state: –78.5°C. Below this freezing point, CO₂ turns into ice, and the planet loses the ability to regulate its climate via the greenhouse effect, which is essential to heat the planet to the moderately warm temperatures needed for life to flourish.²

However, there is much more to the Earth’s dependency on the Sun. The energy of the Sun propagates into manifold planetary processes, ranging from outgassing of CO₂ and other greenhouse gases from the planet’s interior (which delivers to the atmosphere the gases needed to keep the ‘planetary thermostat’ running) to the hydrological cycle, heat convection, and winds and movements of clouds. And, of course, sunlight enables the emergence of a biosphere, which requires the Sun’s energetic inputs into its photosynthetic machinery. In this process, the rays of the Sun turn into organic compounds, which down the line – across vast geological timespans – end up buried in the Earth’s crust, and even later – in the form of fossil fuels – become a high-caloric energy source for those members of the biosphere known as humans. From this point on, the story is well known.

There is a proposal to inaugurate the Anthropocene as a new geological epoch, marked by the overwhelming influence of the human species on the Earth system,³ and the mounting evidence for this thesis goes hand in hand with our deep realisations that as humans, we have driven the planet into the new climate regime, increasingly hostile not just to human life but also to many other species that evolved together with us in the relatively stable climate of the Earth over the past million years, characterised by oscillations between glacial and interglacial periods.⁴ So today, as our species is faced with the catastrophic consequences of turning the ancestral organic matter into the propellant of economic growth, it has become urgent to reflect not only on how the human species entered the stage of geological time but also on what kind of *experience* the Anthropocene brings about, and how it may influence the way we narrate our *selves*.

In other words, the Anthropocene opens the question of the human condition anew, from a geological, planetary, and even cosmic perspective. One may underscore this point by noting the very importance of the term ‘conditions’ while dealing with the Earth system (together with its cosmic context), characterised by the overwhelming presence of the Sun as the major determinant of the planet’s being so and so. The science of Earth’s habitability serves as a great example, with its interlocking matrix of parameters that map into favourable conditions for life’s continuous existence on this planet, humans included. It is exactly the realisation of the manifold limits by which human existence is conditioned that marked the history and pre-history of the Anthropocene discourse, going back as far as the 1972 *Limits to Growth* report, or later to James Hansen’s US Congress testimony in 1988.⁵ Backed by strong visual metaphors, such as the imagery of Apollo-era space photographs, the realisation of one’s conditioned existence on this planet has grown ever stronger.⁶

Given that this narrative has already been recollected in many pivotal contributions to the Anthropocene discourse in humanities and social sciences, the

task of this essay is to bring one new element into the debate, by means of speculating about the *affective profile* of the Anthropocene.⁷ To achieve this aim, the essay brings together elements of media theory and environmental studies in order to read the conditioned existence of human species on this planet through various interactions with light. By focusing on these interactions, the essay develops its central concept of the *metabolic self* – the concept that narrates the experience of *human mediality* in the planetary system, and in the larger web of cosmic interactions this system is involved in.

Most importantly, this essay uses a specific strategy to develop this concept. Alongside the tracing of relevant scientific insights and their philosophical interpretation, the idea of the metabolic self emerges out of close interaction with artistic practice. In particular, the intuitions behind this concept are derived from the artistic interventions of Argentinian artist Eduardo Navarro. Between 2017 and 2019, Navarro staged two instalments of his performative work *In Collaboration with the Sun*, first in Reykjavík, Iceland, and later in Rio de Janeiro, Brazil. This performative work metaphorically encapsulates what it means to be a metabolic self, and for this reason, it is used as an intuitive gateway to the conceptual landscape of this essay.

After this, the essay proceeds with building its conceptual apparatus in two steps, following up on the interpretation of Navarro's performative project. In the first step, the essay introduces two concepts from environmental humanities and media studies: *metabolisms* and *elemental media*. The aim is to use them not only as an interpretative framework for the performance but also as a way to gain insights into the nature of planet–star interactions, and the role of sunlight in various forms of metabolic exchanges and mediations. In the second step, the essay turns its attention to the human role in these exchanges and mediations, speculating about what potential affective profile they may yield to us. Here, the central notion of the metabolic self is introduced, followed by a reflection upon how the experience of human mediality that the concept of metabolic self encapsulates can be analysed and exemplified by artistic and cultural artefact. With these thoughts – leading to further research avenues to be elaborated on in the future – the paper concludes.

2. In Collaboration with the Sun

With the increased popularity of research-based art in the past decades, one can find many examples of contemporary artists elaborating on the theme of sunlight and the Earth–Sun relationship, including the human position within. Among the artists who seamlessly integrate cultural and scientific practices in their creative process, one can highlight the work of Argentinian artist Tomás Saraceno and his collaborators. Both the human dependency on sunlight and the awareness of the network of feedback loops between Earth and Sun are among Saraceno's long-term interests. As stated in the text accompanying the documentation of his exhibition *Solar Rhythms* (2018) at Tanya Bonakdar Gallery in New York, one of the most telling moments of the conditioning relationship between Earth and Sun is an eclipse:

In that moment of alignment between Sun, Moon and Earth, we understand that we rely on a reciprocal alliance between the elements and effects, the shifting winds, the exchange of heat and momentum and the diffusing reflection of solar radiation towards the cosmic extent.⁸

Saraceno's interpretation of the interplay between objects in our solar system dovetails with this essay's introductory remarks related to Earth's habitability. His work allows us to meditate upon the conditions of existence circumscribed by the specific environment of our planet, and how the mode of existence of our planet can be described as a process of dynamic negotiation between cosmic forces, rather than a mute, fixed state.⁹ The key aesthetic motif that Saraceno extracts from these interactions, and from the qualities of the light as such, is the eponymous *lightness*. Ultralight cutting-edge materials, air-powered balloon flights, inflatability, reflexivity, transiency: these all point in Saraceno's work to the dynamic, procedural nature of Earth's dealings with the sunlight. Similarly, Australian artist Tega Brain embodies the transient aspect of sunlight in her ongoing project *Solar Protocol* (2020–), based on a network of solar-powered computers distributed across the planet. The network's energy source is conditioned by the cyclical movement of the Sun – depending on where it shines, the location of the server hosting the website of the project moves, in order to maximally use the available energetic gifts of sunlight. Hence, Brain makes a powerful case for an anti-extractivist form of collective computation network that aligns with and taps into the flows of stellar radiation, instead of exploiting its post-processed form captured in fossil fuels. One can read her project as a commentary on the alternative strategies for building human–nature interfaces in the Anthropocene – or, even better, of *aligning* the organisation of human collective existence with non-human rhythms on a more-than-planetary scale.

Yet the interest of this essay does not lie in the aesthetic codes and infrastructural interventions emerging from light-based, planet–stellar interactions. Instead, what interests us here is the human positionality in these processes. For this reason, we can turn our attention to an extremely instructive artistic practice of another Argentinian artist, Eduardo Navarro. In several of his past projects, Navarro placed humans into *mediatory* roles between planetary or cosmic forces. For example, in his 2016 project *Instructions from the Sky*, he equipped a group of performers with special costumes made of mirrors that reflected the cloudy sky above New York City. These dancers were instructed to follow the movements of the clouds, resulting in a 'natural' choreography. Similarly, two years later, his 2018 work *Pollenphonia* used musicians to translate the smells of flowers into a melody. Staged at the Botanical Garden of Buenos Aires, Navarro again developed specific costumes, this time featuring headsets that extend the range of receptors in the nose. Armed by these sensorial extensions, a group of eight flute players was then tasked by Navarro to mediate between two modalities of sensations, by transducing smells of flowers to music. In the line of these performative interventions stands also the project that is of the central interest to this essay: *In Collaboration with the Sun* (2017–2019). It was realised for the first time in Reykjavík, Iceland, in 2017, and later adapted for Niterói Contemporary Art Museum in Rio de Janeiro in 2019. The performative part of the work



Figure 1. Performance of Eduardo Navarro's *In Collaboration with the Sun* at Niterói Contemporary Art Museum in Rio de Janeiro. Photo courtesy of the artist and Nara Roesler, São Paulo.

consists of seven dancers completely covered in reflective golden costumes and holding mirrors that allow the performers to pass the light on (see [Figure 1](#)). Here, Navarro again highlighted human mediality: the dancers reflect the light, the viewers are also engaged in the game of mirroring, and the whole choreography is governed by the agency of Sun itself, which makes the performers move as it moves too. Since the work was for the first time staged in Iceland during late autumn, when the amount of daylight in the region begins to decrease sharply, the determination of the human performance by the cosmic rhythms of Sun was underscored by the durational aspect: as the performance was intended to take place before the sunset, its length and timing changed with the gradually moving path of the Sun in the sky relative to the observer from one day to another.

In her introduction to Navarro's performative work, Slovak curator Ema Čabová writes:

The artist dismantles the foundations of our rock-solid belief in our own superiority and through an emphasis on the emotional and the sensational applies a dynamic which is in direct opposition to our need to constantly impose our conceptual, kinetic and existential apparatuses on other species or natural phenomena. He in contrast encourages us to master and conform to their communication patterns.¹⁰

Such an interpretation of *In Collaboration with the Sun* thus leads us to think about the relation established between the performers and cosmic objects in terms of

communication. One can thus speculate that an ability to conform to some extrinsic communication pattern – i.e. to *align* with the process, rather than to overlay it or resist it – is a gesture that exemplifies a more general ability of human species yet to be cultivated: an ability to acknowledge our own mediality, manifested in the gestures of alignment with non-human metabolisms, such as the cosmic interaction between the Sun and Earth. Hence, we may stretch this interpretation beyond the narrow sense of human communication: the alignment under discussion here does not mean only to be sensitive to what is communicated to us by the non-human world, but to be sensitive to what physical transactions occur between humans and non-humans, on both collective and individual levels. These metabolic exchanges constitute the general background of the human inhabitation of this planet and represent the conditions for the viable future of our species. Navarro's practice is a testimony to this insight, which situates ecology not just as a science of conditions of habitability embodied in affordances of the planetary environment, but also as a practice of care for these conditions, and of their active embodiment and mediation.

That being said, one can guess that the confrontation with human mediality facilitated by artistic practices such as that of Eduardo Navarro comes with a certain affective profile, that can be further analysed and abstracted into more generic observations about the nature of human condition in the Anthropocene. But before we move into this part of the essay's argument, let us first closely inspect the vocabulary of mediality and metabolisms deployed in the previous interpretation of Navarro's work, in order to better ground the upcoming philosophical speculation.

3. Metabolisms and Elemental Media

Taking advantage of the metaphorical licence inherent to philosophy, let us say that the performers in Navarro's *In Collaboration with the Sun* are not completely unlike photosynthesising plants. While the interaction between the dancers and the Sun translates into the cosmic choreography of movement, the interaction between the plant and the sunlight is manifested in the growth of the organism, and in the maintenance of its internal composition. As the life-sustaining process, photosynthesis represents a major example of organic metabolism: a process of intake and disposal of energy that guarantees the continuous existence of the individual organism.¹¹ In the case of photosynthesis, the organism uses the energetic intakes from the sunlight to build complex chemical compounds, with molecules of oxygen as its waste product. In turn, the oxygen enters another kind of metabolism, one where the use of this term is already expanded beyond its original domain of biology – the dynamic maintenance of the atmospheric composition favourable for life. The original build-up of the organically produced oxygen in the atmosphere belongs to major transitions in Earth's geological history (the oxygenation events of the Proterozoic era),¹² and the present state of the atmosphere of our planet is also highly dependent on the organic sources and sinks of atmospheric compounds, mainly CO₂.¹³

This wide interpretation of planetary processes by means of the vocabulary of metabolisms has one major advantage: it allows us to observe continuity between various parts of the Earth system, beginning with geology, geophysics, and geochemistry, and

moving towards biology and even human-made technological infrastructures (the *technosphere*) – the prime armatures of the planetary transformation in the Anthropocene.¹⁴ This perspective is backed by ecological economics, where it became customary to think about both natural flows and socio-economic processes as composing different kinds of metabolisms.¹⁵ One may find additional support also in the deeper history of economic thinking: it was nineteenth-century scholar Mose Hess who described the essence of the interface between humans and nature as *Stoffwechsel*, i.e. ‘material exchange’ or ‘intercourse’ – a term used today in German to translate the word ‘metabolism’.¹⁶

Hence, returning to the case of Navarro’s performative work, we may say that the dancers are also engaged in a kind of metabolic exchange: the human performers are turned into intermediaries between production of energy by the star and the production of meaning in the cultural practices of one specific biological species. The performance thus works as an embodied, philosophical commentary, that asks to be expanded beyond the limits of one artistic intervention. It reveals a mode of inhabitation of the planet characterised by the positionality of humans as mediating elements between processes that transcend the confines of technology, society, economy, or culture, situated rather in the recursive loops between the planetary and the cosmic.

On top of this metabolic interpretation, one can expand on the remarks about the communication that takes place between natural forces and human performers towards the vocabulary of media theory. The proposal of this essay is to think about the light of our Sun as an *elemental medium*, following John Durham Peters. The essence of this concept is articulated in Peters’ wish to return to the ‘precritical notion of media as natural’¹⁷ – media as natural infrastructures of information relaying, enabling forms of interaction between different elements of natural milieus.¹⁸ The notion of elemental media thus intentionally stretches the scope of mediality far beyond human-made communication devices. In this context, Peters confesses, in his initial exposition of the concept, that

I do think there is meaning in nature and that it is precisely madness *not* to think so. [...] But we have to rethink what we mean by meaning. If we mean mental content intentionally designed to say something to someone, of course clouds or fire don’t communicate. But if we mean repositories of readable data and processes that sustain and enable existence, then of course clouds and fire have meaning.¹⁹

Notice here the subtle reference to the ‘conditioning’ function of elemental media (as an existential environment or milieu), indicated by the phrase ‘processes that sustain and enable existence’.²⁰ In other words, the physical–chemical relationships between different objects – say, Sun and Earth – can be interpreted not just alongside the domains of matter and energy, but also that of *meaning*. Hence, ecologies have affordances of semiotic media. The omnipresence of sunlight in the terrestrial ecologies indeed makes for a wonderful media-environmental situation – light is an elemental medium that fills out the space between all earthly processes (which also points at the etymological origin of *medium* in the Latin *medius*, ‘in-between’).²¹

In media theory, the elemental mediality of light and light-related processes has been recently theorised through the conceptual apparatus of photography, which seems especially fitting given the role of light in photographic inscription. For example, Eyal Weizman assigns photographic properties to natural surfaces:

[...] the photographic is a way of inscription, in which surfaces are inscribed with events that happened near them, in relation to them, etc. It's a process of continuous inscription and erasure, in which there is no privileged surface. All surfaces do that inscription and erasure continuously. You know, silver salt halides, fixers and the like are built upon phenomena that exist in all material surfaces, from the skin of your body to the forest in the tropics.²²

Expanding on this idea of non-human photographic processes,²³ think about a tree for a while. The role of light in its basal metabolism, translated into the growth of the plant, has been considered by some scholars the indication of the photographic nature of photosynthesis.²⁴ By virtue of this, one might consider a tree to be a case of a non-human photographic device. This becomes especially evident in the case of visual outputs that function as indexes of the plant's growth, such as tree rings, following the interpretation of Dietmar Offenhuber: '[...] tree rings are not just material, but also visual forms of information that can be investigated through visual methods [...]. As conspicuous records of slow processes, their layers bear testament of past conditions'.²⁵ Hence, it is not just the plant growth itself that is indexical of the interaction with sunlight; the plant also develops a secondary archive of this growth in the form of the visual inscription of the individual growth intervals over a unit of time: a full-year solar cycle. Offenhuber calls such an archival image an *autographic visualisation*, which he defines 'as a set of techniques for revealing material phenomena as *visible traces*'.²⁶ The thickness of the particular tree ring – i.e. a trace of a solar cycle – can even contain additional 'metadata', e.g. it can indicate the temperature of the environment in the given year, which may be related to intensity of the solar radiation. It seems, in the non-human metabolic circuits of information, there are not many degrees of separation between the cosmic and the terrestrial.

The flow of photographic gestures in the earthly information metabolism does not end here. Once the tree dies, it develops another media affordance by means of being decomposed into materials containing organic carbon (the remnant of the once-photosynthesising organism), which stores information about planetary events in the periods of geologic time. This is possible thanks to principles of isotope chemistry, which derive from the fact that atoms of the same element can contain different numbers of neutrons, and hence can differ in atomic weight. Carbon has two stable isotopes, ¹²C and ¹³C (the index number represents the atomic weight of the isotope). These isotopes usually occur mixed together, but chemical reactions can change the balance in a characteristic fashion, so that the resulting ratio of ¹²C to ¹³C may be read as a 'signature' of the given chemical process. The chemistry of organic matter on Earth has a strong preference for the lighter ¹²C. Photosynthesis produces compounds of carbon with considerably higher amounts of ¹²C compared to

^{13}C , which means that discovering a large repository of ^{12}C may be a sign of mass burial of organic matter, e.g. due to an extinction event.²⁷ The omnipresent touch of starlight on earthly life is thus transcribed into the very composition of organic matter, and even into its leftover traces. Or, if you will – light passes on its medial character to forms of matter it gives rise to.

4. Metabolic Self

Apart from a specific media-theoretical metaphysics, the notions of metabolisms and elemental media can be instructive in interpreting the experience of human immersion in non-human, more-than-planetary realities, as exemplified by Navarro's artistic practice. The concept of elemental media strips the human species of the privilege of semiotic activity and communication, spreading instances of such processes among a wide range of earthly and cosmic ecologies. Complementarily, the metabolic perspective rectifies the thesis of elemental media by integrating material, energetic and information exchange into a continuum of physical phenomena. This results in the need to adequately reconceptualise human positionality in this continuum.

In this respect, philosopher Annemarie Mol introduces a great point of departure. While developing her unorthodox, metabolic take on philosophical anthropology, she poses the central question: 'What if we were to stop celebrating "the human's" cognitive reflections *about* the world, and take our cues instead from human metabolic engagements *with* the world?'²⁸ In Mol's case, it is eating that becomes the central domain of metabolic exchanges relevant to her theoretical interpretations: she contrasts a figure of humans as *walkers* moving *in* the environment with a figure of *eaters* that 'move their surroundings through their bodies'.²⁹ Here, we encounter a conceptualisation of human mediality that encapsulates the spirit of Navarro's *In collaboration with the Sun* – the performers do not only move in space, while directed by the Sun, but also process sunlight, metabolise it, and translate it into cultural practice. Analogously, a photosynthesising tree moves the environment filled with sunlight through itself.

While building on this example, however, we are not interested in phenomenological interpretations of human mediality. Rather, what interests us in the case of Navarro's performance is a narrative structure that can give meaning to experiences of human mediality – i.e. a structure that can be employed in building a specific representational model of *narrative self*. The notion of narrative self is theorised by Daniel Dennett:

A self, according to my theory, is not any old mathematical point, but an abstraction defined by the myriads of attributions and interpretations (including self-attribution and self-interpretation) that have composed the biography of the living body whose Center of Narrative Gravity it is.³⁰

This biographical account of oneself constitutes, according to Dennett, the core of what we standardly assume to be our selfhood. To explain how it arises, he uses analogies with other biological species:

Just as spiders don't have to think, consciously and deliberately, about how to spin their webs, and just as beavers, unlike professional human engineers,

do not consciously and deliberately plan the structures they build, we (unlike professional human storytellers) do not consciously and deliberately figure out what narratives to tell and how to tell them. Our tales are spun, but for the most part we don't spin them: they spin us. Our human consciousness, and our narrative selfhood, is their product, not their source.³¹

Thus, the narrative self is a spontaneous and indispensable product of the activity of our brains, akin to the self-model described by Thomas Metzinger – a self-representation that is an integral part of human cognition, the removal of which would be fatal to our ability to comprehend the world around us.³² We may become conscious of its production, and even steer it to some extent, but possessing a narrative account of oneself is not optional. In Dennett's account, the existence of narrative self is underscored by his naturalist metaphysics – it is the result of activity of a living body, not of some mental entity. Thus, narrative self exists in a continuum – and as a necessary consequence – of biological processes and metabolic exchanges the body partakes in. One may thus elaborate on Rosi Braidotti's claim that just like thinking, spinning of the narrative self 'is indeed the stuff of the world'.³³

Following the conceptual apparatus already laid down in this essay, and building on the motif of narrative self, the notion that articulates the experience of human mediality in the late Anthropocene can be described as one of the *metabolic self*. As such, this concept is akin to Braidotti's posthuman feminist theory of subjectivity, which situates humans in transversal assemblages of organic becoming.³⁴ 'as embedded and embodied, relational and affective subjects, we are immanent to the very conditions we are trying to change'.³⁵ However, in contrast to Braidotti, it is important to stress that the concept of a metabolic self is not meant to represent a theory of subjectivity, or some metaphysical account of mind, but just a narrative representation of selfhood characterised by three affective qualities: *permeability*, *orientation towards exteriority* and *sociality with non-human world*. Nevertheless, these qualities may be seen as developing out of Braidotti's descriptions of posthuman subjectivity, which emerges from 'vitalist and materialist multi-directional affectivity that works in terms of transpositions, that is to say generative cross-pollination and hybrid interconnections'.³⁶

To illustrate these affective qualities, let me introduce one more example that connects with the theoretical vocabulary of this essay. This example is not artistic per se, but it presents a cultural artefact that articulates what it means to be a metabolic self. In 1968, an archeological expedition in East Siberia discovered a clay jar, more than 2000 years old, in the shape of a human head. It was categorised as belonging to the late period of so-called Tagar culture, significant for its complex funeral rituals featuring multiple stages of burial and exhumation, as well as elaborate techniques of mummification. Originally, it was assumed that the jar contains body remnants of a distinguished warrior or leader, but the findings of the X-ray analysis suggested that it contains a skull significantly smaller than that of an adult human. Although the content of the object raised suspicions, the archaeologists did not have any non-invasive method at their disposal to verify the analysis, and so the Tagar clay head was shelved. However, in 2010, a new team of scientists examined the artefact

with X-ray again, this time using fluoroscopy as an imaging technique to better determine what lies inside the doll model of the supposed Tagar warrior. The results were surprising: the analysis indicated that the artefact contains a sheep skull. This raises a question that resonates with the proposed notion of metabolic self: Why would someone bury a non-human as a human?³⁷

A possible answer goes as follows: The understanding of selfhood in a culture that permits the burial of an animal in human form may develop out of deep sociality with the non-human world – one of the three stipulated affective qualities of the metabolic self. Indeed, it seems that sheep ranked among the most celebrated domesticated animals in the ancient Siberian cultures. Hence, a ram hiding in a human clay head can be read as a confirmation of an intuitive social ontology that orients individual existence towards appreciating multispecies, *entangled biographies*.³⁸ Moreover, such a reading introduces another quality of the metabolic self: permeability. With the Tagar clay head, we encounter a gesture that anthropomorphises the animal, and at the same time animalises the human – an ontological trespasser, if you will. The instability of the categorical boundaries is, after all, paramount to metabolic perspective per se, and the account of self modelled on such a template will likewise exhibit this kind of porosity. A metabolising body is positioned as a mediating entity by means of being constantly overflowed by outside elements and processes, and, analogously, a metabolic self is a similarly opened structure. Hence, we reach towards the third affective quality of the metabolic self – orientation towards exteriority – which stipulates that one's self is never an isolated island, but rather a provisional abjection of the cosmic outsideness that maintains its fragile boundary between outside and inside by engaging in metabolic exchanges with its external environment.

In a similar vein, while observing the same kind of open metabolic coupling between organisms and their environment, Bruno Latour proposes to think about living beings inhabiting the Earth as *Lovelockian agents*, referring to the indispensability of biosphere in regulating the present composition of the atmosphere of our planet (following James Lovelock's Gaia hypothesis). Ultimately, according to Latour, the organism–environment coupling results in the collapse of the distinction between living individuals and the ecologies they are surrounded by.³⁹ The interior is spilled over the exterior, and the exterior invades the interior. As far as one is willing to maintain a naturalistic viewpoint on the human as a biological body situated in a world of manifold metabolic interactions, the narrative model of the metabolic self inherits this kind of porosity.

5. Conclusion

The intuitions around the notion of metabolic self can be further reinforced by one final artistic example. Slovak painter Pavel Maňka (1929–2015) belongs – alongside Stano Filko, Július Koller and Milan Adamčiak – to the long list of artists deeply influenced by the First Space Age (marked by the Cold War competition between the Soviet and American space programmes). This tradition of which Maňka is a representative provides an important standalone strand of cosmic-inspired art, which has flourished in Eastern Europe since the 1960s alongside other futuristic cultural



Figure 2. Pavel Maňka, *Nepozemšťan* (1982). Artwork courtesy of Soňa Sadilková.

movements, such as Polish sci-fi represented by Stanisław Lem, or the Czechoslovak Marxism of Radovan Richta and his team.⁴⁰ As one might expect, among Maňka's favourite motives belong depictions of life in outer space, including visions of extra-terrestrial creatures. His *Nepozemšťan* (1982) – which literally translates as *Non-earthling* (thus contrasting with the standardised Slovak term for an alien: *mim-ozemšťan*) – depicts a humanoid figure wearing clothes resembling a spacesuit, topped with a giant head radiating rays of black and white light (see [Figure 2](#)). In a strange coincidence, this being could very well fit into the scenery of Navarro's performance,

joining the dancers in their movements organised by the Sun. Maňka's *Nepozemšťan* suggests a transient existence opened towards the exterior, testifying to the relationality inherent to the non-human world. The creature is a mediator of cosmic metabolisms that overflow its body – an elemental medium packed into humanoid shape, just as humans often are. By shifting the shape of the human body into the cosmic register, Maňka thus clearly gestures towards the model of the metabolic self developed in this paper.

This reflection on Maňka's painting also closes this paper's presentation of various conceptual and artistic attempts that catch up with the experience of human mediality in the Anthropocene. To be sure, the problem of how exactly to narrate and embody the metabolic self remains one of the unresolved questions of this essay. The argument here only points at a possible solution space with the three proposed affective qualities, without having an ambition to provide a satisfactory answer. The notion of the metabolic self as a narrative device for charting the human positionality in cosmic and planetary ecologies is developed in this essay first and foremost as a provocation for further practical and theoretical elaboration. In the theoretical dimension, it invites attempts to forge wider conceptual apparatus derived from ecological sciences, media theory or semiotics, that would clarify non-human forms of mediation and communication (thus expanding on the vocabulary of elemental media and metabolisms). In the practical sense, it demands artists and designers further radicalise their practice towards more-than-human world-making and meaning-making.⁴¹ Talking about artistic and design interventions, the porosity of the metabolic self (as illustrated by the Tagar head example) may be a wonderful template for practices that aim to interface between the human and the non-human, and prioritise what our species can learn from the planetary and cosmic ecologies. In this sense, Navarro's *In Collaboration with the Sun* and Maňka's *Nepozemšťan* remain the pivotal examples for such practices.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Notes

- 1 James F. Kasting, Daniel P. Whitmire and Ray T. Reynolds, 'Habitable Zones around Main Sequence Stars', *Icarus* 101 (1993): 108–28.
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