

Article

Incarnating the Unknown: Planetary Technologies for a Planetary Community

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Abstract: This article suggests that current technological development is based upon outdated ways of understanding human beings as “exceptional” to the rest of the natural world. As such, these technologies help serve to reify certain human lives at the expense of others. I argue that such exceptionalism depends upon an understanding of transcendence that is totally other. Using examples such as “Earthrise” and the UN’s International Treaty on Outer Space, I argue that an immanent understanding of “the other” renegotiates how we understand our embeddedness within the rest of the evolving planetary community. As part of renegotiating a planetary anthropology, we must also begin rethinking technologies as for the planet (not just for humans).

Keywords: Planetarity; new materialisms; wicked problems; earth ethics

1. Introduction

The systems involved are complex, involving interaction among and feedback between many parts. Any changes to such a system will cascade in ways that are difficult to predict; this is especially true when human actions are involved [1].

The complexity of “wicked” problems, such as those that Bill Joy alludes to in the epigram of this article, means that we humans have to come to terms with the fact that we don’t have all the solutions. Like so many other things within human histories and cultures and within individual lives, salvation often comes from beyond. Not an invisible, supernatural beyond, but from the unknown or what Ernst Bloch called the “not yet” [2]. Moments of creative insight, moments of clarity, moments of innovation and change, moments of great love for another, as well as moments of fear and trepidation, often come from beyond to lure us into new ways of thinking, relating, and becoming. This “delayed messianism” may be at the heart of the meaning of the incarnation of hope in the world: in order to create a different possible planetary community, we need something from beyond to help us shift towards new ways of becoming [3]. We humans seem to be incapable of saving ourselves, so we often look to religion and/or science to save us from ourselves.

Our contemporary contexts were forged through waves of colonization, forced and voluntary migrations, and revolutions in the technologies of communication, production, and transportation. Many contemporary identities were forged through the very threat of global annihilation, at the creation of the atomic bomb and in the fighting of two world wars, but also through the hope that emerged as the Apollo space mission sent back images of our “little blue” planet in the late 1960s. Around the same time as this space mission, one of the first planetary treaties not concerned merely with the peace of nations was forged by the United Nations: the Outer Space Treaty [4].

This article explores how an engagement with images such as “Earthrise” and documents such as the Outer Space Treaty might help to forge planetary technologies for a planetary community, which moves beyond national and religious understandings of identities and boundaries. This shift in our

understanding moves us from ideas of transcendence based upon an omni-God in whose image we are created. This type of transcendence projects a space of removal, a disembodied objectivity, from which we humans (or at least some of us) can recreate the world in our own image. It treats the entire planetary community (including many humans) as means toward a colonizing end. Instead, what if we thought of an immanent, embodied form of transcendence: viz., that which is beyond our planet. Forced from a transcendent space of beyond into an immanent understanding of beyond, our interactions with the “other” becomes embodied in outer space. Such an immanent “other” could provide the grounds on which we might begin to think of what a planetary community might mean. Just as the “Earthrise” image has been used to forge a sense of a common planet, so the space treaty identifies outer space as a commons that is “for all.” Of course, this “for all” may have meant for all humans, but as our understanding of the planetary community widens to embrace our embeddedness with all other life on this planet, we can begin to see it as a commons for all life on this planet. Furthermore, this new, planetary understanding of the commons means that we can’t only think of resources as commons for the planetary community, but that we must begin to think of imagination and technologies for the future, as *for* the entire planetary community.

Might there be planetary technologies that help us understand our own human “animality”? [5] Might technologies help us to understand better our own enmeshment with the plant, animal, and mineral bodies on this 4.5 billion year old planet in ways that the sciences of ecology and evolution have not yet made possible? Might there be planetary technologies for our oceans, lands, atmosphere, and waters? This is precisely the shift that outer space as an unknown “other” might be a catalyst for: a shift away from national, religious, and other types of isolated identities, and towards that of planetary creatures with a common planetary future. As has always been the case in major transitions in recorded human history, these shifts will require new technologies that are not merely extensions of old ways of thinking about humans, but that re-write human relationships (in this case) as creatures co-evolving with multiple planetary others.

2. Immanent Transcendence: The Planetary Outside/Beyond

Many of the problems associated with technology come from the idea of human exceptionalism [6]. This is the idea that, either through being created in the image of God or through the capacity of reason, humans are somehow exceptional to, or transcend in some way, the rest of the natural world. It is this space of removal that then allows humans, so it goes, to manage and enhance the world around us through our technologies. The problem is that we are embedded within the processes of the rest of the natural world and that whatever humans co-create returns to affect the world in various ways. This is precisely one of the things Bill Joy warns against in his article about the unknown effects of Artificial Intelligence [1]. The unknown consequences of our actions, paired with our own embeddedness in the world, means that these technologies change our very humanity as well. In other words, the changes we make, because we are embedded in the process of ongoing evolution, also change us. The assumption of a space of objective removal is a false projection on the part of some human beings, and when this space is projected, it often smuggles in hidden cultural and historical assumptions that then begin to shape the world in the image of those historical and cultural assumptions. Many philosophers and theorists have addressed this problem of perceived transcendence, in particular as it relates to reason, science, and technology.

Martin Heidegger, for instance talks about the problem as one of enframing vs. poesis [7]. Enframing is a closing off of the becoming world into the confines of human (mostly instrumental) reason. This turns the entire world (and eventually humans therein) into resources and things that become “standing reserve” for the furthering of the project of human reason. Such a cutting off of the world into the confines of human reason ends up destroying (through reification and putrification) the open-ended process of nature naturing. Heidegger suggests, in response, that the appropriate way to look at and understand “nature” is that of poesis: as an open-ended, emergent, self-organizing process.

Horkheimer and Adorno provide a similar analysis in their *Dialectic of Enlightenment* [8]. According to them, the problem of reason and in particular instrumental reason and the assumption of a neutral objective space, is that it essentially is a human solipsism. In other words, the entire world and all therein cannot be confined to human reason and the attempt to confine it to human reason ends up reifying nature, and eventually degrading the entire world. Even more, since humans are part of nature, reason eventually becomes an objectifying ouroboros, eating its own tail and making chaos and death out of all life, including human life. The mechanical model, with its emphasis on efficient causality and instrumental reason, and which is discovered through dispassionate objective reason, ends up killing the world.

Feminist philosophy of science has offered similar critiques that insist that bodies, histories, and cultures all matter. It is not just that transcendent objective ideals, forms, or reason are a human problem, but more specifically they are a male problem. Even more to the point, they are a Euro-Western, elite male problem. The idea of transcendence mimics the dispassionate male God who creates through no labor but with word alone *ex nihilo* [9]. This type of theology is the projection writ large of the ideal (male ruling class) human onto the cosmos. Thinkers such as Sandra Harding have thus argued that what we really need is a “strong objectivity” that takes into account the scientists’ embodied subjective realities and histories [10]. If all knowledge is located, then we must know something about the gender, sex, sexuality, race, history and culture of the one producing knowledge in order to be objective in this strong sense. Critical race, post-colonial, queer, affect, and other theorists have added to the unraveling of the transcendent ideal of objective reason. Part of the impetus for doing so comes from the continuation of scientific exploration itself.

In many ways, the narrative of “the death of nature” in terms of how nature becomes merely dead matter moved by external forces still has explanatory power [11]. The shifts in cosmology that began with Copernicus and were confirmed by Galileo began to fracture the idea of the “heavens” as a place where some divine power might reside. This “dis-enchantment” was even further realized in the material world around us through Newton’s mechanical understanding of physics. In many ways, the Industrial Revolution was the outcome of these more mechanical materialistic understandings of the natural world. However, there were always conflicting voices and the “death” was never quite realized. Bruno, Copernicus, and Galileo were all, in the end, religious peoples and their scientific endeavors did not, for them, negate the mystery inherent in the natural world, but rather in many ways their findings made the world more mysterious. The shifts made possible by the telescope made the universe a much larger place of which we are but a small part, which now includes a 13.8 billion-year-old universe with millions of galaxies spinning through space, not to mention the fact that we know very little about the dark matter and energy that make up the majority of our cosmos, nor do we know whether we are merely one of many universes in existence. Evolution, though used early on to combat theological dogmas, especially by the likes of Thomas Henry Huxley and Ernst Haeckel, suddenly place humans within a 4.5 billion-year process of planetary evolution, which includes religious ideas, thoughts, songs, and language just as much as it includes quantum realities, chemicals, living cells, bacteria, and everything else that we know as “nature” made up by the elements of the periodic table.

Even further, neuroscientists are beginning to understand just how relational we are in that every interaction we have changes our neuronal structures: our inside is deeply intertwined with what is outside our bodies. The Human Microbiome Project now understands the human body not as isolated individuals, but as ecosystems made up mostly of non-human cells. We are more consciously aware of our embeddedness in a planetary community and in a vast cosmos than at any other point in the history of humanity that we know of. Furthermore, the boundaries between energy/matter, human/animal, male/female, living/dead are now more challenged and made mysterious by the very sciences that at times purport to demystify the world they study. Science itself, then, challenges the narrative that nature is dead. Indeed all the way up to the early 20th century, scientists such as Wilhelm Bölsche, Gustav Fechner, and Ernst Haeckel (among others) were arguing about whether or not the methodological and epistemological foundations of the natural sciences ought to be

reductive materialism, idealism, dualism, or some form of non-reductive materialism that included both energy/matter, mind/brain, body/soul [12–14]. Right up to the time of the second world war of the 20th century, scientists had not yet agreed that nature was “dead stuff.” This was all to change with the war efforts that conscripted nearly all chemists and physicists into a technology transfer model of science which produced things: first for the war machine, then for industrial agriculture, then for advances in communication, transportation, and production technologies. It was really the world wars, then, that cemented the reductive, instrumental model of the natural sciences that was assumed nearly universally by scientists until Rachel Carson published *Silent Spring* in the 1960s and the modern environmental movement began [15].

What I am arguing here is that the model of reductive materialism and the “industrial” type of technology that comes out of such a model is more of a historical blip on the radar than the norm for the natural sciences. It lasted, largely unchallenged, from around WWII until the early 1960s. This was a mere 20 years. Emergent theorists, feminist philosophers, critical theories, new materialisms, and many voices from within the area of “religion and ecology” and “religion and nature” have been lifting up the problems of reductive materialism and the need for a new understanding of the natural world that includes humans, cultures, thoughts, and histories, just as much as it includes atoms, chemicals, quarks, rivers, and forests. However, the methods of reductive and productionist science that opt for the economic benefits of technology transfer have not really shifted to match our current understanding. We are still, largely, producing technologies for human advances alone and based upon the assumptions of instrumental reason, efficient causality, and human mastery. In other words, we are still acting as if there are transcendent places of objective removal, from which we (like an omni-God in whose image we are made) can (re)create the world *ex nihilo*. The end result of imagining humans as a transcendent from or exceptional to the rest of the natural world is that we recreate the world, through our technologies, in our own image. Instead, what we need is an understanding of transcendence (something beyond us) that doesn’t negate our embeddedness and immanence.

Perhaps one type of immanent transcendence can be gleaned from the first images of our planet from outer space in 1968, taken by Apollo 8. This “Earthrise” image was the first time we had really seen our earth as a unified planet from the outside. All histories, all cultures, all wars, all art, all animals, plants, minerals that ever existed all of the sudden seemed radically connected in a way that had never before been pictured. Yet, this was an immanent, embodied transcendence: the astronauts taking the picture were no more objective than the billions of people on the earth that they could not see or detect from the outside. The astronauts were outside the planet, yes, but still embodied and no more omniscient than anyone on the planet. Their own cultures and histories still shaped the ways in which they interpreted the images they were seeing, just as everyone else interprets it from their own socio-historical and biological locations. There are at least three lessons to be learned about immanent-transcendence from this image.

The first I have already mentioned: whatever objectivity might mean, it does not mean seeing all life on the planet at once as if from a god’s eye view. There is no way to see all the differences and perspectives when one gets too far away: and this suggests something important about the way human knowledge works. It is always perspectival, partial, and depends upon the ability to relate to other people, places, animals, plants, minerals, and things. No relation, no knowledge.

The second is that objective spaces that assume removal gloss over difference and diversity. In other words, we may know something by going to other cultures and going to places outside of the planet, but it always needs to be understood from within our own historical-social context, and within the context of the larger planetary community. Otherwise instead of understanding ourselves as learning from the other, we act as if we can speak fully for the other.

Third, and related to the first two points, the Earthrise image challenges all narratives that lay claim to universal knowledge. All of the earthly narratives, whether religious, philosophical, or scientific are now shown to be but many different understandings of a world we hold in common. Any claim to universality needs to explain how intimate knowledge of the farthest reaches of the

universe might be possible for a species that exists and persists primarily in one planet, in one solar system, and in one galaxy.

We are all beneficiaries of a cosmos and planet of which we are but a part: the human ideal of objectivity that seeks to see it all as a monotheistic god might, eventually leads to an attempt to create the world in its own image. This, as we have seen, creates a lot of planetary problems (e.g., global climate change). This may seem like an odd argument, seeing as how many sciences, including the ones that tell us we are part of a 13.8 billion-year expanding universe, lay claim to objectivity. However, I would also argue (along with Bruno Latour, for example) that in actuality sciences are giving voice to many more perspectives other than the human, and serving as spokespersons for those (chemical, atomic, ecosystemic, cosmic, etc.) voices [16]. It is part of the process of allowing multiple perspectives to come together in creation of a common world, not a dictating how and for whom that world ought to become. Rather than seeking to colonize from an outside space, the stories of the sciences are those of immanent, embedded “others” constructing a commons that together transcend all located perspectives, and thus cannot be reduced to one perspective. The “Earthrise” image helps us to imagine such a commons, while the International Space Treaty sought to articulate that commons. Together, they provide us with a good source for imagining what a planetary, immanent transcendence might mean.

The bulkily named “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies” was a United Nations document that came into effect in 1967 [4]. During the Cold War era, it boldly claimed that, “the exploration and use of outer space shall be carried out for the benefit and interests of all countries and shall be the province of all mankind.” Further, it claimed that “outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means,” and that “states shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner” [4]. There were several other clauses and statements in the treaty, but these are the general ones setting up outer space as a commons.

In 1967 so much was unknown about space and what our possibilities might be in terms of space travel. Even though today so much is still unknown, we have an international space station, many countries have sent people to space, we have sent powerful telescopes further and further out in to space, rovers have landed on Mars, and the first “commercial” space vehicle is under construction. It remains to be seen how far into the future our immediate solar system will serve as a commons “for all” (humankind and earthkind), but for the foreseeable future, it does. The outside of our frame of planetary reference is a commons, a place for peaceful exploration rather than industry and personal gain. The outside of our embodied frame of reference (the planet) is not some blank “space” onto which we can project whatever we want: it too exists in a context of 13.8 billion years of cosmic expansion, yet it transcends us in that it is the outside of our earthly, historical, social, and daily lives. This is the type of immanent transcendence that might be a good starting point for understanding ourselves as first and foremost “planetary citizens” among other humans and the more than human world, rather than first and foremost as a member of one or another religion, nation, or other type of tribe [17]. This is the type of immanent transcendence that, as a “commons” does not allow individuals (or a people) to use it as an Archimedean point from which to recapitulate and reform (indeed terraform) the whole planet; rather it must be inclusive of the multiple perspectives and embodiments that make up our planet (as it is a commons and not the property of any one). In other words this is a commons, which pre-existed human beings and even the planet earth, and of which we are but a part. It is ultimately a reference point that we can use not to recreate the world as if “*ex nihilo*,” but rather from which we can understand ourselves as radically immanent, radically interrelated, and radically multiple. Indeed, as Randolph and McKay argue, developing an ethics for astrobiology might help us to “protect and expand the richness and diversity of life” here on planet Earth as well ([18], p. 33). Just as new types of “religious” and “ethical” understanding of ourselves ought to be derived out of an awareness of

our planetary identity, so too new “scientific” and “technological” understandings ought to follow from this.

3. The Flattening of Life without Homogenization

Some have argued that the loss of transcendence and so-called “collapse into immanence” has led to a rise in reductive materialism and mechanical models of nature, and a collapse into individualism ([19], pp. 539–93). However, I would argue that the type of transcendence that takes us away from embodiment and contextuality, and the type of objectivity that relies on such transcendence is actually a collapse into certainty, materialism, and individualism. Let me explain a bit further. As Bruno Latour has pointed out the problem with objectivity which is the “outside” of subjectivity, or the problem of “transcendence” which is the outside of “immanence” is that the whole is then fully defined: all that exists can be understood as existing between these two poles [16]. A monotheistic God which transcends the earth is the container of possibilities for what that earth might become; a universal Reason with universal laws is the container for what nature can possibly become.

If, instead, we move to a model of immanent transcendence, it implies an emergent ontology in which the possibilities of the future of life are radically open to multiple different directions [20]. This may be understood as the “poesies” Heidegger argued for, or it may be understood as the rhizomatic ontology that Deleuze and Guattari argued for [21]. Such immanence is not a prison, rather it opens us up to multiple possibilities for future becoming. As Latour notes, “Deprived of the help of transcendence, we at first believe we are going to suffocate for want of oxygen; then we notice that we are breathing more freely than before: transcendences abound” ([16], p. 187). Furthermore, such collapse into immanence re-places us into a world of evolving relations, as assemblages within the planetary community.

Whether we use the metaphor and models of “assemblages,” of “New Materialisms” or of “object oriented ontologies,” the point of such rethinking of identity, things, and relationships is to make events and processes primary and to challenge any type of essentialism that would cut us off from the rest of the planet (and thus suggest some type of transcendence of self vs. other) [21–23]. In other words, we are assemblages of the evolution of multiple histories, ecologies, biologies, chemicals, minerals, plants, and animals. According to the Human Microbiome Project, our bodies are better thought of as ecosystems rather than individual organisms [24]. Neurologically, our inside is connected with our outside in that our neural structures change with every interaction we make. The boundaries between biotic and abiotic, plant and animal, human and other animals are constantly challenged. All of this we know, yet we still have a model for understanding technologies as instruments used toward specific goals (mostly for the benefit of human beings). Our scientific, religious, philosophical, and cultural traditions in general, all condition us to live as if: humans are above the rest of nature, there are clear boundaries between self and other, there are distinct species boundaries, things can be known discreetly, and actions can be isolated to individual causes. What we need, rather, is a shift in our perspective toward understanding ourselves as embedded and evolving with, rather than as exceptions to, the rest of the planetary community.

So much of our lives is determined by the biological, historical, and cultural processes that build up over time, long before our own existences. We are simply thrown into these processes at birth. What is meant by male or female, race, or personal “success,” what it means to be a person, ideas of family, ideas of the “good life,” all of these ideas and/or roles pull and tug our bodies, luring them toward certain ways of becoming rather than others [25]. These ideas, norms and habits can also be labeled technologies that shape and form the embodied world in which we live. We would not ever say that we rationally choose to adopt these technologies as we were thrown into a life that was already marked by them. What makes us so sure that we can rationally adopt any technology? It turns out, we may not be the rational selves we think we are. Technologies design our lives toward certain ways of becoming rather than others and we likely can no more “rationally adopt” or reject them than we can rationally choose when and where we are born.

Deep-seated emotions, feelings, and affectations are shaping us on a daily basis. This is, at least, the idea of “affect theory” [26]. In short, we have for too long in the modern and postmodern world assumed a rationalized version of the body: if the problem is bad information, let us just input new information and changes will follow. This is an old assumption based upon an Enlightenment understanding that proper education and rationality will lead to “correct” decision-making. Al Gore is a recent, perfect example of the failure of this way of thinking. In his documentary, “An Inconvenient Truth,” the assumption is that we just need to understand better the evidence and the information on climate change, and we will begin to behave differently and demand different politics around energy consumption. But, the truth is, we have never really been rational just as we have never really been modern (and by extension postmodern) [27]. We are more like assemblages of processes that pre-date us, feeling our way through moments based upon what lures us and what repels us. Affects are not just emotions, but deep-seated tendencies that shape and form how we are able even to express our emotions and vitality.

One of the promises of affect theory, is that we can begin to acknowledge how little we do is based upon rational choice. Accordingly, we might begin to address the underlying structures that push and pull us toward some ways of becoming more than others. Furthermore, dismantling the ideal of the “rational individual,” which relies upon that transcendent objective space that enables us to negate our historical and biological embodiment, helps open us on to the planetary community in which we are embedded. In other words, human exceptionalism is based upon one form of objective removal or another: *imago Dei*, Language, Reason [6]. In its challenge to all of these “technologies,” affect theory encourages us to pay more attention to the ways in which our living, breathing, eating, defecating, copulating, dying, evolving bodies are connected with the rest of the natural world in ways that shape us well beyond what we might rationally examine. We are “in the midst” and not above the fray of the bubbling process of nature naturing. How might we then begin to create technologies that affirm and reinforce our evolving interconnectedness with the planetary community, rather than developing technologies based upon the idea that reason allows us to distance ourselves from this process of nature naturing? We need to start thinking about planetary technologies.

4. Planetary Technologies, Delayed Justifications

If the outside or the beyond of the planet is understood as a planetary commons, then it seems that our ability to think about our planet should result from collective imagining. How might our collective imaginings incarnate in the world around us? How do our visions translate to technological and scientific advances that promote the entire planetary community rather than just human beings (or some human beings)? How do these collective imaginings shape and change our embodiments and our relations? These are some of the questions we might begin to ask ourselves from a position of located, immanent transcendence. Indeed, ever since the “Earthrise” image, we have had the capacity to be imaginatively on the “outside looking in.” With the exception of the handful of astronauts who actually get to experience this with the naked eye, most of us will only experience this as mediated through technologies. But it is a powerful experience nonetheless. Rather than imagining that we are “without” location when we examine images of the earth from outer space, it is rather helpful always to remember that we are exactly looking at it from an embodied perspective, and without that body there would be no imagining. Just as one might have some type of out-of-body experience, there is no way to speak of it unless he/she returns to the body that experiences this, so too with this experience of looking at the world “from the outside.”

We need this embodied space of “outside” so that we can begin to imagine ourselves as planetary creatures or citizens among many other creaturely, planetary citizens (both human and non). Such images, when they are always coupled with the embodied realities of the planet and the different ways different bodies experience the world based upon geographical location, race, class, gender, sex, sexuality, ability, history, and culture, can be a powerful tool for imagining ourselves beyond parochial, nationalistic, or other exceptional identities of imagined superiority.

Revelation, in its monotheistic forms, works by a breaking in from beyond to uncover a new possible reality. Deconstruction, in the western philosophical forms and in Vedic forms of breaking through illusion, allows us to see other possibilities for how we might interpret the world around us and our places therein. Tricksters and iconoclasts help us to uncover possibilities that are there for realizing, if we only break open the stale ways in which we have come to understand the world around us. These methods for understanding reality anew in ways that we might begin to live differently all depend upon some sort of beyond: but not on a beyond that is unrelated to the here and now. It is rather, like the possibilities of multiverses, which exist right on top of us; it is an immanent and intertwined form of transcendence [28].

How might our technologies, rather than recapitulating the human worlds that we know and understand, begin to foster us to live in other ways? What would technologies that help us to deconstruct business as usual and reconstruct ourselves as planetary citizens look like? Perhaps we need technologies for healthy forests, technologies for integral oceans, and technologies that promote the thriving of the human microbiome rather than mere instrumental technologies that help humans transform the world into “things” that are useful and instrumental for us. To be certain, we will also need to question what a successful technology is: it cannot just be measured on the instrumental value for human life, and the amount of money it may potentially generate. We also need to rethink, in other words, where justification comes from.

Currently technologies, built upon efficient causality and designed with instrumental reason, are based upon justifications that come from the present or immediate future. Instant gratification comes to mind: there is an isolated problem, concern, desire, or need, and this or that technology steps in to answer or fulfill. Success in this model is based on how well it addresses the issue in isolation, often without much understanding of the ways in which its effects ripple out to affect multiple earth bodies in different ways and throughout time. The so-called “green revolution” is a great example. The problem: not enough food to feed a growing human population. The solution: industrialize agriculture the world over in order to increase crop yields in so-called “developing” countries. The unintended outcome: a lot of people made a lot of money, and even in developing countries the larger farmers who could afford the new technologies made out well; however, with the increase in commodity crop production the price of said commodities fell, forcing smaller farmers out of business and thereby leading to the consolidation of land into fewer and fewer hands, and an increase in poverty for some [29]. Furthermore, industrial agriculture has led to severe water, air, and land pollution, and also has increased the CO₂ and other greenhouse gas levels contributing to climate change. Yet, the technologies as they were developed—to increase crop yields—justified their purpose. The meta-analysis of how those technologies have changed the face of the planet and daily life are still being measured. Similarly, Bill Joy is arguing for us to pay close attention to the unintended consequences of Artificial Intelligence (AI) in his article outlining what he perceives to be future dangers [1].

What we need, then, is technological development that understands that our interactions in the world lead to so-called “wicked” problems that do not have clear-cut solutions and that lead to unintended consequences [30]. The justification and cost-benefit analysis of a given technology’s “goodness” can only come from the future, from outside of the present looking back. The Iroquois’ “seventh generation principle” gets at this type of analysis: that we should only do something when we have thought about its effects for the next seven generations. Rob Nixon’s *Slow Violence* also draws attention to the ways in which technologies fan out in the ecosystem over generations, affecting especially the poorest of bodies around the world [31]. We need to map these geographies of violence over generations to reveal the ways in which technologies might be judged “better” or “worse.” More importantly, we should start thinking more about how to build in critical adaptation into technology transfer. As we become aware of problems that arise, companies that have perpetuated the unintended problem(s) should be largely responsible for monetarily spearheading the solutions to said problem(s). Technologies need to become as organic, varied and adaptable as the rest of life on

the planet, rather than used merely to secure a certain way of being in the world for certain peoples. The idea of “cradle to cradle” technologies, in which the waste of one technology becomes the material for yet another, come to mind here [32]. Biomimicry, in which we look to how things are “done” in nature to make more sustainable technologies, also comes to mind [33]. Technologies should be about creating new possibilities for a thriving planetary community, rather than securing a particular way of being in the world.

The possibilities of creating alternative worlds is nothing new to the world of fiction, and particularly science fiction. It is also important for almost every religious tradition: something is not right with the world we inhabit, and we can come up with a radically different way of living together on this planet. J. Cameron Carter speaks of the imaginative work that needs to be done in terms of developing “parallel visions” for planetary becoming [34]. *Para*, in the Greek, as Carter notes, is “next to.” It is precisely not an anti-vision of the world, as anti-visions often mirror the structures they develop against. This is something Catherine Keller also argues: instead of an anti-apocalypse, we need a counter-apocalypse [35]. It is also not a “post” vision, as “post” whatever is merely a line of continuation from what comes before. Rather, it is an acknowledgement of many different realities existing side by side, simultaneously. It is opening us up to the reality of and the possibilities of a multiverse [28].

The problem with most technologies as they exist and persist, is that they are largely geared toward recreating the world in which we live: perhaps in a “better” way than before, but they are often not critical of the dominant structures in societies. What might an egalitarian, earth-friendly, technology that helped us to create different spaces for planetary becoming look like? Some visionaries have attempted this type of thinking toward a radically different future: Buckminster Fuller and Paolo Soleri come to mind. These technologies create a world in which way more life than merely some human life matters and is taken into consideration. The extending of our circle of moral concern past the human and to the rest of the natural world, ought also to be an extension of our technological concern beyond merely the human. Still, for the most part, technologies are developed to make some human lives easier or last longer; in this way, these technologies continue to reify the human as exceptional to the rest of the natural world, and thus all life as fodder toward human ends. Developing a planetary technology would begin to understand that every technology has the power to open up new ways of being in the world; every technology has the potential to create new relations among humans and between humans and the rest of the natural world. In a sense, every technology has the ability to co-construct new meaning-making practices and ways of living within the planetary community. It is this call toward alternative ways of becoming that technological creation must heed if we don’t want to continue the reification of all life on the planet for the betterment of a few human beings.

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