

Alien life matters: Reflections on Cosmopolitanism, Otherness and Astrobiology

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National boundaries are not evident when we view the Earth from space. Fanatical ethnic or religious or national chauvinisms are a little difficult to maintain when we see our planet as a fragile blue crescent fading to become an inconspicuous point of light against the bastion and citadel of the stars. Travel is broadening. (Sagan 1980, p. 318)

Astronomically, the United States and the USSR are the same place. (Sagan 1980, p. 196)

Abstract

This is a synoptic paper that invites the reader to take a stroll on the edges of cross-disciplinary knowledge. We will walk the roads of anthropology, history, philosophy, astronomy and biology. It is mainly a theoretical article, where I attempt to provide links between authors and theories that were, at first sight, unrelated. In doing so, this paper is aimed at making one controversial claim: ideologically and politically speaking, cosmopolitanism may never fully transcend itself beyond a debate until and unless humankind encounters alien life forms. The argument is based on a simple equation. Despite all the quarrels and debates around the concept, it seems safe to assume that cosmopolitanism is the search for a certain universal identity or, at least, a search for a common *culturalia*, i.e. the cultural grounds wherein local and global senses of universalism come into being (section 2). In spite of the fact that identities are built in opposition and supported by difference (section 3), cosmopolitanism might only be possible as a political project (cosmopolitics) when humankind is faced with life forms that are capable of providing true Otherness. I believe that this may explain why we have been fascinated by the utopias of extra-terrestrials for many centuries now (section 4). These utopias are present in a diverse array of knowledges, ranging from science to art, literature or even religion. They have been around for at least 500 years. Until now, all of them have been trapped in the realm of imagination, but there is one concrete cluster of knowledge that has attempted to transpose these imaginings into reality: the promising discipline of astrobiology. Astrobiology is mainly troubled by the de-naturalisation of Earth in order to create analogues for the study of life elsewhere in the cosmos. Provocatively, I end this paper stating that this may well be the most cosmopolitical practice available to us (section 6).

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Introduction

The idea for this paper first came to mind during a reading of Carl Sagan's works. Sagan is perhaps the most famous astronomer of the 20th century. Amongst other feats, he pioneered the discipline of exobiology, which ultimately led to rise of astrobiology. But, he is also, I would add, one of the most cosmopolitan individuals that history can find. Inspired by 'The Blue Marble' photograph, as well as *Voyager's* picture of Earth taken from more than 3 billion miles away, Carl Sagan wrote *A pale blue dot*. The book reads as a cosmopolitan manifesto (Sagan 1994).

Spaceflight speaks to something deep inside us – many of us, if not all. An emerging cosmic perspective, an improved understanding of our place in the Universe, a highly visible program affecting our view of ourselves might clarify the fragility of our planetary environment and the common peril and responsibility of all the nations and peoples of Earth (Sagan 1994, p. 226).

This feeling of responsibility to all the nations and peoples of Earth is supported by a photograph that precisely hides our national frontiers. 'From this vantage point, our obsession with nationalism is nowhere in evidence', forcing us to conceive of ourselves as inconsequential, as a 'thin film of life on an obscure and solitary lump of rock and metal' (Sagan 1994, p. 3).

Sagan carries on his cosmopolitan quest:

From this distant vantage point, the Earth might not seem of any particular interest. But for us, it's different. Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives (...) – on a mote of dust suspended in a sunbeam (Sagan 1994, p. 6).

It has been said the astronomy is a humbling and character-building experience. There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we've ever known (Sagan 1994, p.7).

The blue sky is us. It means home.

The blue of a cloudless May morning, or the reds and oranges of a sunset at sea, have roused humans to wonder, to poetry, and to science. No matter where on Earth we live, no matter what our language, customs, politics, we share a sky in common. (...) If there ever is a true flag of Earth, this should be its colour' (Sagan 1994, p. 126).



Figure 1: The Blue Marble¹

Why was this photograph responsible for such reasoning? What deep superstructure of thought made Sagan think this way? What are the connections between cosmopolitanism, astronomy and the search for extra-terrestrial life? I posit that the answer lies in the question of Otherness. This photograph represents the gaze of the absolute Other. This has inspired Sagan to assemble such a cosmopolitan account because cosmopolitanism is, in fact, fundamentally linked with Otherness. Otherness is an essential component in the fabrication of identities. Otherness renders possible the materialisation of attachments and belongings. But, let us take this journey step by step. The following pages offer these links, connecting the dots between a selection of theories found in contemporary thinking.

What is cosmopolitanism?

Cosmopolitanism has long roots and a stellar position in the history of the West. If etymologists are to be believed, the word first appeared more than two thousand years ago in Ancient Greece, being a contraction of *cosmos* (world) and *polis* (arguably translatable to city-state). In Old Greek, a *cosmopolite* suggested an abstract notion of citizen of the world.

¹ https://commons.wikimedia.org/wiki/File:The_Blue_Marble_4463x4163.jpg

Like all century-old concepts, the idea of cosmopolitanism has seen many different variations and has been attributed many different meanings throughout time. The first major period of cosmopolitan-thought formation dates back to Antiquity. Even though it is undeniable that Plato, Aristotle and Socrates made use of the word, they provide only incipient insights. Their political and philosophical quarrels were much more troubled by their own fellow Athenian citizens. It was Cynic Diogenes who first gave explicit expression to cosmopolitanism, although it is not certain whether or not he argued for the emergence of some sort of world-state (Moles 1995, 1996). In fact, the best we can do

‘to find positive cosmopolitanism in Diogenes is to insist that the whole Cynic way of life is supposed to be cosmopolitan: by living in accordance with nature and rejecting what is conventional, the Cynic sets an example of high-minded virtue for all other human beings’ (Kleingeld & Brown 2013).

Cynic came to influence later thinkers such as Crate of Thebes, Chrysippus and, most importantly, the founder of Stoicism, Zeno of Citium (Brown & Held 2010). His legacy was then perpetuated in Ancient Rome, under the writings of Marcus Cicero, Seneca and Marcus Aurelius, amongst others. In general, during Antiquity, cosmopolitanism was above all a new philosophical attitude or mental disposition. Cosmopolitanism meant an awareness of humanity as a whole. This was perhaps the first time where such awareness took form.²

Despite the existence of several philosophers and theosophists who shared and encouraged cosmopolitan-related worldviews during the so-called Middle Ages and the Early Modern period, such as Saint Augustine or Erasmus of Rotterdam, the second major period of cosmopolitan-thought formation comes with the Enlightenment. It was the philosophers of the eighteenth century, heartened by what we might call a proto-globalisation and by a rediscovery of Old Greek and Roman writings, who gave way for a more systematic and complex assemblage of cosmopolitan ideas. Here, cosmopolitanism meant a new individual disposition, a realm of freedom, an escape from the authority of kings, monarchies and church. It was built against the backdrop of the feudalised corporations of the Old Regime. As Leo Tolstoy years later wrote, ‘to destroy war, destroy patriotism’ (Tolstoy 1896); or, maybe even more relevant, as Virginia Woolf exhorted, cosmopolitanism ‘is freedom from unreal loyalties’ (Woolf 1938). During this timeframe, many were the thinkers who treasured such ideas. In this sense, the term was often mobilised to indicate an attitude of open-

² Some authors argue that there are earlier forms of proto-cosmopolitanism, namely in Ancient Egypt with Anhnaton, or in other incomplete works of several Phaeacians, Hebrews, Chinese, Ethiopians, Assyrians and Persians (Brown & Held 2010, p. 3).

mindedness and independence. The eighteenth century writings of Foucheret de Montbron, especially in *Le cosmopolite ou le citoyen du monde*, are symptomatic: ‘all the countries are the same to me’; ‘[I am] changing my places of residence according to my whim’ (Foucheret de Montbron 1970, p. 130). These thoughts were at the core of the Enlightenment way of thinking. As Kleingeld and Brown put forward again, ‘‘a cosmopolitan was someone who was not subservient to a particular religious or political authority, someone who was not biased by particular loyalties or cultural prejudice’ (Kleingeld & Brown 2013).

Although cosmopolitanism could have been grasped as a mental attitude or disposition during this timeframe just as well, it came with a much sharper and more incisive political programme. The ideals of the French Revolution, restless for desires of a worldwide spread, reflect this very well. We can feel it in the thoughts of Immanuel Kant. In *Perpetual Peace*, Kant advocates that global peace is going to occur not only when states organise themselves ‘externally in a voluntary league for the sake of keeping peace, and when they respect the human rights not only of their citizens but also of foreigners’ (Kant quoted in Kleingeld & Brown 2013), but also, and perhaps more revealingly, when they arrange themselves according to the Republican principles (Kant 2006). It was common-sensical amongst cosmopolitan advocates that communities across the world should pursue belonging to a single geography of shared values and ethical/moral conducts. However, these values and conducts were not supported by notions of cultural relativism – which, in any case, only appeared more than a hundred years later with Franz Boas and his disciples (Boas 1887) – as much as they were constructed on top of an agenda of a Western socio-political exportation.

For instance, one of the most deep-seated political cosmopolitans, Anacharsis Cloots, believed in the extinction of all states, followed by the development of a unique worldwide state, comprising all individuals. But his arguments were based foremost on the typical structure of Rousseau’s social contract theory, wherein individuals would acquiesce to the power of a state that pursues security through the production of common laws, establishing a ‘republic of united individuals’ (Cloots 1792, 1793). In the eighteenth century, cosmopolitanism meant the universalisation of Western socio-political systems, albeit framed as mutual comprehension, dialogue and peace. As Delanty puts it, ‘unlike cosmopolitanism today, classical cosmopolitanism from antiquity to the Enlightenment has had a more pronounced Western orientation’ (Delanty 2009, p. 18). It meant a belief in a better and more just world if and when the Republican values were to be spread and implemented worldwide.

Cosmopolitanism here was an authoritative and somehow paradoxical program of Westernisation of republican and humanist freedom and values. Cosmopolitanism here became, clearly, an ideology.

Cosmopolitanism stood still in history for a long time. It is clear that it still influenced some doctrines throughout the 19th and 20th centuries, such as Communism and Socialism, on the one hand, or even Adam Smith's theories on liberalism, on the other hand, movements of which aimed at either uniting working-class individuals across the globe or proposing the organisation of a worldwide free-market society. Also, the Universal Declaration of Human Rights, adopted by the UN in 1948, is yet another example of how cosmopolitanism remained alive and well, this time in the realm of international law. Nevertheless, despite the influence that cosmopolitanism may have had in a number of political, religious or social movements throughout the past two centuries, a more scholarly production of cosmopolitan visions only made its comeback in the last two decades of the 20th century. Cosmopolitanism was resurrected in the 80s and the 90s. The rise of a global network society (Castells 1995), alongside massive migrations and transnationalism (Basch *et al* 1994), human mobility at large (Appadurai 1996) and the reinvention of the concept of culture (Hannerz 1992) made it inevitable. I believe this is when the third major period of cosmopolitan-thought formation began. As David Harvey exclaimed at the turn of century, 'cosmopolitanism is back' (Harvey 2000, p. 529).

But what does cosmopolitanism mean today? Cosmopolitanism today wears different cloaks. It is truly a 'bulldozer concept', as Capeller and Simoulin put it when referring to governance (Capeller & Simoulin 2003, p. 301). It means and 'drags' too many different things all together. For instance, there is a rising tradition, which tries to break with the more conventional usages of the concept. These authors are normally engaged with post-colonialism, stressing the practice of everyday life, to use Michel de Certeau's expression (de Certeau 1984), of travelling, moving or displaced individuals, be it at a physical, virtual or metaphorical level. This was when, for instance, anthropologists firstly addressed the concept in a systematic way. The notions of vernacular (Bhabha 1996), discrepant (Clifford 1997), ethnical (Werbner 2002), rooted (Appiah 1998) or visceral (Nava 2007) cosmopolitanism refer to a practical, phenomenological realm wherein individuals are confronted with the necessity and/or willingness to appropriate other cultural grounds and work on and around them. These refer above all to the lives of migrants, transnational workers, refugees, asylum

seekers, and so on. They tell the tales of the Indian taxi driver who had to reinvent himself in NY, or the displaced refugee in a faraway camp in a country other than his own, or the war expat who is not able to return home. As Beckenridge, Pollock, Bhabha and Chakrabarty put it, ‘the cosmopolitan of our times does not spring from the capitalized “virtues” of Rationality, Universality, and Progress; nor is it embodied in the myth of the nation writ large in the figure of the citizen of the world. Cosmopolitans today are often the victims of modernity, failed by capitalism’s upward mobility, and bereft of those comforts and customs of national belonging’ (Beckenridge *et al* 2002, p. 6). I am not specifically addressing these notions of the concept, but rather those which, in a certain sense, attempt to reinvent cosmopolitanism as a worldview.

In this sense, cosmopolitanism can first be defined in terms of a shared *moral*. The idea of a *moral* cosmopolitanism emphasises that every human being should be morally obliged to aid other humans or, at least, actively work towards the promotion of basic human rights and justice. In fact, as Held and Brown assert, ‘in its most basic form, cosmopolitanism maintains that there are moral obligations owed to all human beings based solely on our humanity alone, without reference to race, gender, nationality, ethnicity, culture, religion, political affiliation, state citizenship’ (Brown & Held 2010, p. 1). Unlike the trends of the Enlightenment, these notions are now imbued with an aura of cultural relativism, which purports that cultural diversity and hybridism should persist tied to a deep-seated comprehension and respect between cultures (see Beck 2004, Hannerz 1990, Rabinow 1986, Vertovec 1996). There is a group of authors who take this in a strict sense, operating between a practical utilitarianism (Singer 1993, Unger 1996) and Kantian assumptions (O’Neill 2000) or even more classical approaches (Nussbaum 2002). Other scholars insist on a more moderate positioning, advocating that we do have moral obligations towards every human being, but also a special duty towards our fellow countrymen (Scheffler 2001)³.

According to Brown and Held, this primordial definition of cosmopolitanism tackles three adjacent normative commitments. The first posits that the fundamental units of moral allegiance are human beings, and not states, nations or other practical forms of ‘imagined communities’ (Anderson 1983). The second, that this allegiance should be evenly distributed amongst every human being, ‘where the status of ultimate concern attaches to every living

³ These ideas were drawn from Kleingeld & Brown 2013.

human equally' (Pogge 2010, p. 144). Third and last, cosmopolitanism is underpinned by a fundamental universalism, which holds that all human beings are even in their moral positioning, positioning of which affects all of us ubiquitously, as if everyone was somehow a citizen of the world. Following these three dimensions, one might argue that what differentiates a cosmopolitan position from a state-centred model is that 'it advocates the liberal moral features of individualism, egalitarianism, and universalism beyond the borders of the state while also insisting that these moral features should act as key regulative principles in reforming global institutional structures' (Brown & Held 2010, p. 2). In this sense, cosmopolitanism becomes *political*.

Cosmopolitanism is, in fact, often seen as a *political* project. In *Conceiving cosmopolitanism*, Vertovec and Cohen offer a twofold view on this (Vertovec & Cohen 2002). First, we have what the authors call 'transnational institutions'. Vertovec and Cohen stress that cosmopolitan perspectives are often at the core of political initiatives, which attempt to establish global frameworks that engulf the sovereignty of nation-states. This is also visible in a number of academic accounts, ranging from the heirs of a Kantian tradition (Habermas 2001, Rawls 1999) to the believers of a 'cosmopolitan democracy' (Held 1995). Some argue for the likes of a world state, some prefer a federalist approach, whilst others call for the emergence of political institutions that tackle global issues. A second dimension of cosmopolitanism as a *political* project refers to 'multiple subjects', a concept which 'describes the variegated interests of political actors' (Vertovec & Cohen 2002, p. 12). For instance, Hollinger proposed that 'cosmopolitanism is more oriented to the individual, whom it is likely to understand as a member of a number of different communities altogether' (Hollinger 1995, p. 86). Within this framework, a cosmopolitan may hold various affiliations, although compromised with a universal awareness of the human condition.

What I would like to highlight is precisely the jump from a *moral* to a *political* cosmopolitanism. I think that this leap, which underpins most of the understandings of the term, is problematic. This jump is based on the notion that cosmopolitanism is a blend of a particular universal disposition that seeks a non-hierarchic equilibrium between cultures, bestowing a profound commitment to cultural diversity whilst reinforcing the senses of global justice, global citizenship and global human rights. Regardless of the approach, method or view, cosmopolitanism is in this sense characterised by the search for some form of universal identity or belonging. Most authors who tackle the concept are in fact searching, debating,

going around the idea of universal forms of identification. This universalism comprises two dimensions. The first dimension has to do with universalism at large. Some authors are in fact looking for the common grounds (be it political, social, economic, etc.) that a plurality of individuals (regardless of their race, gender, ethnicity, etc.) may come to share. The second dimension has to do with a universal disposition of the individual *per se*. It points out that a cosmopolitan has to build somehow a global awareness of humanity as a whole. I believe this is one of the foundational traits of contemporary cosmopolitanism. This feature has epistemologically underpinned most of the questions that buttress the contemporary cosmopolitan reasoning: how can we create forms of universal belonging and attachment? How do we see the Other and engage with him or her at a worldly or local scale? What is universal about being human? What is not? What are the forms of a presumable universal community? Can we be local and be translocal at the same time?

All of these refer, at a foundational level, to a search for a common cultural ground or, as I wish to call it, for a common *culturalia*. A common *culturalia* could be defined as a plateau that enables one to simultaneously be universalist and relativist. Cosmopolitanism is a negotiation of distances and proximities. A common *culturalia* is the ground where such negotiation takes place, paving the way for the creation of universal belongings and attachments whilst reinforcing the importance of cultural diversity. A common *culturalia* is the cultural grounds wherein local and global senses of universalism come into being. For this *culturalia* to become political, or to draw upon Cheah and Robbins, to become ‘cosmopolitical’ – a quest ‘to introduce intellectual order and accountability into this newly dynamic space’ (Cheah & Robbins 1998) – the emergence of a universal identity has to be equated. Without some type of universal communication, comprehension, sensation of belonging, global awareness, and so forth, this accountability might be impractical. There cannot be an assemblage of cosmopolitan politics solely based on a loose conception of inter-cultural respect. There is indeed an active quest for a *culturalia* of universal belonging, directly or indirectly, consciously or unconsciously. I believe that this jump to a *political* cosmopolitanism is indeed problematic, given that, if cosmopolitanism is indeed underpinned by the search of a universal identity, it lacks what identities ontologically need: difference and opposition. If cosmopolitanism is to be conceived of as identity, it lacks otherness. The ontologies of identities are held together by difference and opposition, by the existence of outsiders. Does humanity have these? Let us retain on this idea for a moment.

Identity as difference and opposition

Fredrik Barth provided one of the most enduring theories on identity in a book published in the late 60s, *Ethnic groups and boundaries* (Barth 1969). Addressing issues of ethnicity, the author sets about to propose that ethnic identities only exist relationally, i.e. ethnic identities are not primarily (or, at least, exclusively) products of biological and genetic evolution, but rather cultural constructs that ontologically depend on schemes of difference and exclusion to surface and become visible. Translating Barth's theory to a simple and straightforward equation, the author is claiming that one can only be white if there are non-white people, part of other borderline communities or groups. My whiteness is only possible through the appropriation of black, yellow or red as symbolic instances of difference. Ethnic identities are, thus, non-essential, being better defined as artificial constructs fabricated on the basis of a logics of opposition. Barth bases his theory on the notion of boundary, fleshing out how boundary-making is an axial feature when it comes to the production and reproduction of ideas of community. The author explains that these boundaries are even maintained in contexts of high mobility and fluxes of individuals between them. 'It is clear that boundaries persist despite a flow of personnel across them. (...) Ethnic distinctions do not depend on an absence of social interaction and acceptance, but are quite to the contrary often the very foundations on which embracing social systems are built' (Barth 1969, p. 9-10).

As we can see, Barth focuses his analysis on the idea of frontiers. The production and reproduction of a certain ethnicity depends as much, if not more, on the fabrication of barriers of Otherness (through difference and exclusion) as it relies on the construction of coherent cultural patterns within that same community. Pull and push factors go hand in hand. Endogenous forces of cultural identification are, at least, as relevant as the exogenous factors. The fabrication of boundaries is fundamentally linked with the naturalisation of criteria that allow for the existence of a specific group. Barth explains that these differences should also be conceived of as non-essential. They are the product of deep processes of social negotiation, to draw upon Berger and Luckmann's expression (Berger & Luckmann 1966).

'It is important to recognise that although ethnic categories take cultural difference into account, we can assume no simple one-to-one relationship between ethnic units and cultural similarities and differences. The features that are taken into account are not the sum of 'objective' differences, but only those which the actors themselves regard as significant (...) Some cultural features are used by the actors as signals and emblems of differences, others are ignored, and in some relationships radical differences are played down and denied. (...)

The critical focus of investigation from this point of view becomes the ethnic boundary that defines the group, not the cultural stuff that it encloses. The boundaries to which we must give our attention are of course social boundaries' (Barth 1969, p. 14-15).

Still, 'the important thing to recognise is that a drastic reduction of cultural differences between ethnic groups does not correlate in any simple way with a reduction in the organisational relevance of ethnic identities, or a breakdown in boundary-maintaining processes' (Barth 1969, p. 33). In short, ethnicities exist and persist not only because they ontologically or biologically differentiate from one another, but because they need to create opposition and difference between them in order to design contrasts and surface. Their ontology depends on difference and opposition, fabricated through processes of boundary-making. This conceptualisation of ethnicity has been transposed to the analysis of other types of identities. It has been perpetuated throughout more recent decades, especially when considering what we can call 'big identities' (ethnic, national, religious identities). It has been widely applied to the study of nations and nationalisms, for instance. Kathryn Woodward's seminal work *Identity and difference* reflects this very well. 'Serbian identity relies for its existence on something outside itself: namely, another identity (Croatian) which it is not, which both differs from Serbian identity, and yet provides the conditions for it to exist. Serbian identity is distinguished by what it is not. To be a Serb is to be 'not a Croat'. Identity is thus marked out by difference' (Woodward 1997, p. 9).

One of the most charismatic takes on this conceptualisation of identity comes from Stuart Hall, namely when the author addresses the idea of the 'constitutive outside', a concept which was originally coined by Ernesto Laclau and Chantal Mouffe (Laclau & Mouffe 1985). According to Hall, the figure of the outsider should not be perceived as accidental, but rather as constitutive. That is, identities can only *constitute* themselves through the appropriation of others as outsiders, which can signal the first's apparent coherence through a schema of differentiation. In a way, we should perceive the outsider as Serres' 'parasite', who instead of compromising the arrangement of structures is, conversely, an ontological feature of the latter, fabricating complexity and diversity vital to human life (Serres 1982).

'So the notion that identity is outside representation – that there are our selves and then the language in which we describe ourselves – is untenable. Identity is within discourse, within representation. It is constituted in part by representation. Identity is a narrative of the self; it's the story we tell about the self in order to know who we are. We impose a structure on it. The most

important effect of this reconceptualization of identity is the surreptitious return of difference. Identity is a game that ought to be played against difference. But now we have to think about identity *in relation to* difference. There are differences between the ways in which genders are socially constructed and physically constructed. But there is no fixity to those oppositions. It is a relational opposition, it is a relation of difference' (Hall 1989, p. 12).

Identity is, thus, a relational trait. It is non-essentialist. It depends on the idea of otherness and outsiders. It depends on difference and opposition. As Steph Lawler puts it, 'identities rely on the expulsion of what they are not' (Lawler 2008, p. 3). The idea of expulsion might seem too strong a word, but it depicts this fundamental dialectics towards the formation of identities. It is the systematic establishment and signification of 'relationships of similarity and difference. Taken – as they can only be – together, similarity and difference are the dynamic principles of identification' (Jenkins 2004, p. 5). Coming back to Stuart Hall, 'identities can function as points of identification and attachment only *because* of their capacity to exclude, to leave out, to render outside' (Hall 1996, p. 5). In short, identities need both difference and opposition. They need antagonisms. They need outsiders. They need what they are not.

The utopia of Otherness

Following this reasoning, it stands naturally that central to the formation of cosmopolitanism lies the transmutation of Otherness, of outsiders. Cosmopolitanism, as a universal search for a common identity or *culturalia*, should be ventilated through Otherness. In order to produce tangible cosmopolitanism one might need to answer the following question: from whom are *we* different? Yet, the idea of the absolute Other is strangely absent in the conceptualisations of cosmopolitanism. To be fair, otherness does indeed appear, but only when associated with scenarios of what we might call a healthy cultural relativism – that is, the equilibrium between the pursuits of universalism and the respect for local idiosyncrasies – and never fully referring to notions of complete outsiders. That is why alien life matters. The materialisation of extra-terrestrial life matters because it provides Otherness, allowing for the transcendence of cosmopolitanism into a tangible exercise. It stems the elusiveness of the concept. Otherwise, cosmopolitanism might never hold the ontological characteristics to potentiate itself beyond a debate. Up until now, we still do not have an Other to compare to. We still do not have an Other from which to demarcate ourselves. Cosmopolitanism today is unsupported by difference and opposition. Thus, it can never fully exist, because it can never fully be an identity. The search for a common *culturalia* is limited by the lack of outer-

barriers. Culturally speaking, planet Earth has no external boundaries. It holds but internal frontiers. These frontiers may never be dissolved until we start to go around the fabrication of a grand outer-frontier. I do believe that cosmopolitanism as a debate is still of paramount importance. By no means do I wish to neglect the impact of such thinking. But I do also posit that we will always be stuck in this limbo condition, trapped between our will to form a common *culturalia* and the impossibility of materialising such resolution due to the absence of the Other.

Perhaps, this is why the utopia of Otherness – aliens, extra-terrestrials – has deeply sparked our imagination for centuries now. Maybe this is why it stands on the pedestal of wide-ranging activities that go from the arts to science, literature or even religion. It is possible that we historically continue to produce imaginations of extra-terrestrial life due to its capacity to crack open the windows that permit us to fully grasp ourselves. At least since the fifteenth century, many thinkers have been troubled by the existence of stellar civilizations. Before the Renaissance the cosmos was tied to the Aristotelian vision of a finite, confined place. Although several scholars claim that there were Ancient and Medieval schools of thought who philosophised about life elsewhere in the stars, most notably of which, the Atomists (see Crowe 1997), the mainstream conception of the cosmos until the fifteen hundreds revolved around notions of a bounded globe. The Humanist revolution came to alter this. And I consider this to be very significant. It is revealing that we produced interest in forms of alien life precisely in a time that remained in History as the Humanist period, as historians call it (see, for instance, Chaunu 1966, Le Goff 1957 or, more recently, Hale 1995). In fact, the Copernican and the Galilean cosmological shifts inverted the perceptions of a finite cosmos to a much richer, more diverse and endless spatiality. Giordano Bruno is perhaps the most notable case of an individual who postulated such a notion, ending up burned at the stake after his interstellar epiphany (see Danielson 2013 for this case and many others).

Not less revealing is the fact that during the second major period of cosmopolitan-thought formation, the Enlightenment, about fifty per cent of its most influential authors embraced, in one way or the other, the realms of alien Otherness. This claim comes from Michael Crowe, who listed all of the thinkers quoted in eight anthologies of Enlightenment thought and went through their works to find references to extra-terrestrials (Crowe 2008). ‘By 1750, pluralism had been championed by an array of authors. Presented with exceptional appeal by Fontenelle, given legitimacy in scientific circles by Huygens and Newton, reconciled to religion by

Bentley and Derham, set to poetry by Pope and Young, integrated into philosophical systems by Berkeley and Leibniz, taught in textbooks by Wolff and in taverns by Whiston, the idea of a plurality of worlds was winning international acceptance' (Crowe & Dowd 2013, p. 17). Immanuel Kant, for instance, came up with a system to hierarchize the inhabitants of the different planets of the Solar System according to their relative distance from the Sun.

'Thus, we can conclude with more than probable assurance that the excellence of thinking natures, the speed of their imaginations, the clarity and vivacity of their ideas (...) is governed by a particular rule according to which these characteristics will always be more excellent and more complete in proportion to the distance of their dwelling places from the sun' (Kant 2008, p. 151).

This meant that 'the beings on the planets Venus and Mercury are reduced far below the perfection of human nature' (Kant 2008, p. 152). The (re)emergence of cosmopolitanism and the fabrication of utopias of Otherness go hand in hand. They happened in the same timeframe. It is arguable that this synapse, as well as the one presented above, is purely coincidental or accidental, but I believe that it instead underlines a deep structure of thought that, in its turn, highlights how the awareness of humanity as a whole is linked with the fostering of absolute Otherness. Man went alien to go human.

The trends of envisioning and conceptualising alien life continued throughout the 19th and 20th centuries, both at an elite level (academics, scholars, thinkers, essayist) and, more recently, at a popular one. The massification of culture and the democratisation of education brought the aliens to our television sets, stereos and books. Movies on interstellar civilisations are amongst the most charismatic pieces of the twentieth-century: think of *Star Wars* and *Star Trek*, to name only two of the most emblematic. Novels on the romanticisation of the alien have risen to the status of best sellers. Religions like Raelism and Scientology have emerged. These are a mere glimpse of a broader and popular interest in the conceptualisation of extra-terrestrial life (see Jameson 2005, Dick 2013). They stand as utopia. Some as dystopia. They hold a stellar position in the realm of imagination. They are projected in the future as an essential piece of a puzzle that humanity will have to deal with and assemble. It is virtually impossible to list and reference all of these imaginings. Furthermore, they are not particularly coherent, but instead contain a far-reaching diversity of approaches, themes and views. As utopian analyst Frederic Jameson put it, 'I believe that the representation of alien existence, that is to say, of the imagination of radical otherness, can be

seen to have passed through several distinct stages on its way to the contemporary period' (Jameson 2005, p. 140).

But they are, notwithstanding, a vivid portrait of how important and popular these utopian imaginations are and can be. Indeed, Jameson does refer to them as the 'ultimate Utopian challenge: to imagine a new heaven and a new earth!' (Jameson 2005, p. 120). The challenge of the utopia of Otherness has captured our attention for centuries now. I believe that its popularity and widespread nature has to do with the production of a cosmopolitan awareness. Each of these portraits opens a window into the cosmic fabrication of a universal self-awareness. Each of these 'thousand plateaux' of alien imagining (Deleuze & Guattari 1987) – the plateaux of biology, chemistry, science, art, literature, fiction, and so forth – are complementary fragments of a wider disposition of thought that silently, almost invisibly, works towards the embroidery of an awareness of the human condition as a whole. Such is probably the most cosmopolitan endeavour we have before ourselves. I posit that this awareness may never contain the potential to materialise itself into a tangible, operational identity until we encounter other trees of life, other life forms elsewhere in the cosmos, other ways of being alive. But, once again, 'what's the point of utopia? To keep walking' (Galeano 1993, p. 310).

Why not ants or elephants?

Before we move on, it is perhaps pertinent to question ourselves, in accordance to the arguments presented so far, as to why other forms of life are incapable of producing (absolute) Otherness, a paramount element in the definition of the Self, as we saw earlier. In other words, I suggest that we interrogate why other animals or species are not capable of rendering Otherness with the same potential and implications as alien life is. Some might argue that other earthly forms of life provide the necessary tools of difference and opposition for the production of identity boundaries between humankind and the Other, thus allowing for the emergence of some form of human universalism. In part, this is true. Naturally, we differ from ants or elephants. We see them as different. As something else. As something that is not ourselves. But, do we see them as the Other? Do we see opposition in them? Can we rely on elephants, or ants, to create a frontier between *us* and *them*, teleologically speaking? I believe this to be problematic, especially after the advent of the genetic revolution of the last decade

of the 20th century, which has led many to reinvent the concept (and frontiers) of life itself. Let us delve into these ideas.

Over the past two decades, genetics has unpacked our world's tree of life. The discipline of comparative genomics has grown in influence since the late 00s, following the arrival of the next-generation sequencing methods (Schuster 2008). Since then, many genomic comparisons have been drawn, demonstrating an awe-inspiring similarity between all forms of life on Earth. It has been verified that the human genome (which can vary 0.5%, at the most) shares surprising percentages of genetic similarity with many other mammals. For instance, cats have 90% homologous genes with humans, and dogs are in the region of 82% (Pontius *et al* 2007). The list is almost endless, with some highlights being the cow species with an approximate 80% resemblance (Elsik *et al* 2009) and mice with circa 67% (Pontius *et al* 2007). Non-mammals species, too, appear to have striking parallels with human DNA. A study has demonstrated that a chicken shares 60% of genomes with humans⁴. Equally, the similarities between the genetics of humans and plants can be substantial (see Russell *et al* 2011, on the species of yeast). Overall, the point is that life on planet Earth is remarkably similar. Species naturally differentiate from one another, but their inner composition, from a grand perspective, or from a cosmic point of view, shows tremendous resemblances. The building blocks of life are the same everywhere: hydrogen, oxygen, nitrogen and, most notoriously, carbon. Life, everywhere, is identical. The differences across species are being blurred against a background of uniformity, one that starts to conceive life as a single living organism, rather than a patchwork of difference and competition.

This reasoning has transcended the frontiers of biology. From a cultural perspective, humans are growingly seen as an intricate element of life on Earth, not a superior outcome of the evolution of life. For instance, in cultural geography, many have paid attention to the so-called 'animal geographies' (Wolch & Emel 1998), since the turn of the century. Recently, geographer Connie Johnston has vouched for the blurring of the lines that separate the human from the nonhuman. As she put it, 'I assert the value of scholarship that not only acknowledges the importance of the nonhuman domain of life, but also blurs the line(s) of distinction between forms of life and sets out to define humanity and animality not in contradistinction to one another but, rather, in concert' (Johnston 2008, p. 148). In other

⁴ See <http://www.genome.gov/12514316>

words, Johnston is advocating that humanities' scholars and social scientists should aim at redefining the classic distinctions between human and nonhuman. Naturally, this has been influenced by the advances of biology and genetics, namely when it proved that the 'Gaia hypothesis' (Lovelock 1972) had a scientific basis, genetically speaking. In the end, culture embraced nature and the human, even from an anthropological perspective, commenced to be regarded as one element of a bigger picture. The bigger picture is life itself. On planet Earth.

Thus, I would have to answer with a no. Neither elephants nor ants are capable of producing sheer Otherness. On the one hand, this is due to the fact they are not that *different* from humans, if we adopt a biological and genetic perspective. Indeed, we are all very alike. So alike that the differences between and across species have come to be dissipated in favour of a more integrated and global perspective of life on planet Earth – this vision has been shared by anthropologist Stefan Helmreich in the study of oceans, namely when the author privileges a perspective that epitomises the sea as living organism, as a whole (Helmreich 2009).

Secondly, and intimately related, elephants and ants are not able to yield an Outer gaze, from a cultural perspective. Those species are incapable of triggering the processes that would lead to the creation of a grand outer frontier, at the cosmic scale, between *us* and *them*. This is because, to a certain extent, they are *us*. They cannot look upon us, from the stars, just as we do not look upon them and, cosmically, see opposition. Instead, we start to perceive them as living elements of a bigger picture. Of a certain, vernacular way of assembling life. One that is *our* own.

Astrobiology as cosmopolitics

Astrobiology is an area of studies that stands out as the ultimate trans-disciplinary effort, proposing to examine the origin, evolution, distribution and future of life in the universe. It brings together astronomers, biologists, chemists, geologists, physicists and other natural scientists. Astronomers and planetary scientists working within an astrobiological framework produce, for instance, spectroscopic analyses of exoplanets (planets outside the solar system) in order to search for the 'signature of life' in them – 'any measurable property of a planetary object, its atmosphere, its oceans, its geologic formations, or its samples that suggests that life was or is present' (McKay *et al* 2002). The procedure is quite complex, although it may be explained rather simply: an astronomer points a telescope to a given star and waits for a planet to cross in front of the star's disk, at which point information about the radius, mass

and atmosphere of the planet is revealed. The atmosphere is unveiled due to variations of light. This is known as the transit method (see Queloz *et al* 2000 or Charbonneau *et al* 2000). There are many others forms of detection of exoplanets, such as the gravitational micro-lensing (see Wambsganss 2006) or astrometry (see Bean *et al* 2007), which use the planets' gravitational influence on a star to attest to its existence.

Astrogeologists, on the other hand, concentrate their efforts in examining the geology of other worlds in order to attest to the planets' habitability. The earliest evidence of life on Earth has been presumably found in graphite in 3.7 billion-year-old metasedimentary rocks of the Isua Supracrustal Belt, in Greenland. The team ran spectroscopic and geochemical analyses, which indicated presence of carbon traces in a particular morphology, a possible sign for early life on our planet (Ohtomo *et al* 2014). This type of evidence is normally used to experiment on the geological requisites that make a planet into a candidate for the hosting of life. For instance, the Pilbara region in Western Australia (see Van Kranendonk 2006) or the McMurdo Dry Valleys of Antarctica (see Courtright *et al* 2001) are considered to be geological analogues of some Martian regions. The study of the geological characteristics of these regions from an astrobiological perspective may help understand where exactly (where in the geological sense) life may sparkle. One other methodology used by geologists is to test life in extra-terrestrial grounds. One example of this is the experimental insertion of microorganisms in meteorites in order to verify the viability of life in alien soils (see Mautner 2002).

Chemists and biologists, in their turn, focus themselves on the molecular composition of living things and test their limits. Recently, one of the most famous advances arguably comes from the work of Wolfe-Simon *et al*, who detected a bacterium in Mono Lake that apparently was able to replace phosphorus with arsenic, which allowed scientists to cut off phosphorus from the list of indispensable building blocks to life (Wolfe-Simon *et al* 2010). Other biologists go deep underwater in an attempt to understand how life may have evolved. A spectacular illustration of this was offered by Hollywood filmmaker James Cameron in his *Aliens of the deep*, where he documented the work of marine biologists in international waters who submerge themselves in what Stefan Helmreich called the 'cyborg submarines' (Helmreich 2009) – a kind of Latourian interpretation of a submarine-human hybrid (Latour 1993) – to look for how life can be present in the most hostile and extreme environments found on Earth, environments which can be devoid of sun or reach extremely cold

temperatures. In the documentary, one can see scientists going around hydrothermal steam vents to collect samples or analysing the most tantalising species one can imagine. This may help understand, for instance, how extremophiles are born and endure. As the taxonomy stresses, extremophiles are living organisms that inhabit the most extreme environmental conditions that Earth has to offer. Extremophiles encompass a great number of sub-species, such as the thermophiles (who can survive at very high temperatures), the acidophiles (who survive under high acidity conditions), the radiotolerants (who survive in high radioactive environments) or the metatolerants (who can survive in high levels of dissolved heavy metals). Although there are authors who claim that extremophiles may be irrelevant to the origin of life (Cleaves II & Chalmers 2004), these microorganisms are normally made meaningful as pathways for existence of life, as anthropologist Stefan Helmreich explains (Helmreich 2009).

Helmreich produced one of the most interesting anthropological voyages in astrobiological knowledge. ‘What are life forms?’ Helmreich asks, concluding that what once Foucault labelled as ‘life itself’ is nowadays a fluid notion (see Rose 2001). ‘Life itself no longer resides solely in individual organisms. When it becomes possible to speak of “environmental genomics”, life disperses into distributed, deterritorialised webs, a net that for microbial oceanographers sometimes gathers up the planet itself’ (Helmreich 2009, p. 253). Helmreich deconstructs the notion of life itself – the anthropologist even proposes a theoretical distinction between life forms and forms of life – through an observant-participation in an astrobiological milieu.

‘Astrobiologists want to know how life emerges on worlds in general and in particular; they are curious whether Mars might host microorganisms akin to those found in extreme environments on Earth. In this scientific venture, microbes in such locations as salt marshes become meaningful as proxies for extraterrestrial life. Scientists read them not just for clues about Earth’s past, present, and future but as a means for considering the category of life itself on a more ample, universalistic frame’ (Helmreich 2009, p. 252).

So, in a way, astrobiology is creating a grand outer-frontier of planet Earth, searching and venting possibilities on the chemistries, the physics and the natures of Otherness. The astrobiological practice creates a barrier around Earth, signalling our difference within the cosmos. It takes Earth as whole. Here, there are no internal frontiers. As Plaxco and Gross wrote in an introductory handbook of *Astrobiology*, ‘it is our hope that, by the end of this

book, both cynics and enthusiast alike will be convinced that, unlike exobiology, astrobiology has a subject matter to study; its subject matter is nothing less than an understanding of our place in the Universe' (Plaxco & Gross 2006, p. ix). That is, our place in the universe against a background of difference and opposition. Astrobiology is the academic hunt for Otherness. Structurally, the discipline is confronted with the 'N = 1 problem', i.e. the fact that life is only known on Earth. Nevertheless, the combined efforts of the discipline are to test the limits of this implicit analogy, provoking difference, encountering opposition, and creating duals for life. Every day, astrobiologists promote a chemistry of Otherness through a testing of the molecular composition of the limits of life. They search for the geology of Otherness, challenging the geological conditions of as life as we know it. They tackle the spectroscopies of other worlds, theorising on the atmospheric conditions of Otherness. They introduce our common ancestors into alien soils, pushing the boundaries of the ontogenesis of life forms. They try to find other suns and planets similar to ours, so that our difference may surface through the existence of other 'trees of life', as Charles Darwin would put it (Darwin 1859). The astrobiological dream is the complete understanding of what we are so that we can discover what we are not, *out there*. Similarity, difference, opposition. They walk together.

Just as cosmopolitanism nowadays is not troubled by the implementation of an authoritative socio-political organisation, but rather by a shared and mutual comprehension of cultural diversity, so astrobiology shifted away from projecting our will of discovery into the Other⁵ to trying to understand how different can the Other be. Just as cosmopolitanism rests upon notions of cultural relativism, so astrobiology is now *natural* relativism. It attempts to relativise the concept of nature itself. It attempts to understand the biological, chemical, geological conditions that make our positioning in the universe unique so that we can create a framework to understand what else might be *out there*. This natural relativism is not used here in a Latourian sense. Latour mobilises it to account for how both culture and nature are relative in relation to one another (Latour 1993). According to the author, there is no such thing as 'nature' out there, but nature is also a cultural construct, diffused and infused through cultural *habitus* (Bourdieu 2000). My take on nature relativism addresses how astrobiology is deeply underpinned by the relativisation of 'our' molecular, material, physical, chemical assemblages, challenging their limits at every corner. Astrobiology de-naturalises Earth. If

⁵ Sagan was a believer in this. The Golden Record proves it well. The idea to send a message across the cosmos for alien consume presupposes that aliens are somehow similar to us: intelligent life forms, intrepid explorers thirsty for knowledge (see Sagan 1994).

there is indeed an Earthly conception of nature (which, seemingly, there isn't, but if there was), astrobiology aims for its deconstruction, whilst trying to grasp how different other 'natures' might be. Shouldn't this be the most cosmopolitical endeavour we have today? I cannot imagine a more cosmopolitical disposition than to relativise our nature, our life, our geological, biological and chemical conditions. This relativisation fleshes out a notion that humanity may be *different* from whatever lies in the cosmic vastness. This line of thought provides the ground for the assemblage of a common *culturalia*, because it manages to understand and conceive absolute Otherness. Astrobiologists are the agents of cosmopolitics, laying the grounds for a tangible, empirical *culturalia* through the production of Otherness.

Conclusion: cosmopolitanism as a debate

We are close to the end of this journey. We have walked many different disciplinary roads. I hope that these roads became somehow interconnected, capable of creating a map of knowledge that will allow others to more safely navigate on these troubled-waters. I started off with a brief summary of the history of cosmopolitanism, coming to the evidence that cosmopolitanism presupposes, in a certain way, the search of a universal identity or the negotiation of a common *culturalia*. This fundamental universalism has underpinned the contemporary conceptualisations of the term. Naturally, there are other recent takes on the concept (such as the ones arising from a more post-colonialist perspective), but this line of thought still seems to structure most of cosmopolitan reasoning. In the following section, we took a stroll on the plains of anthropology, which revealed how identities are ontologically informed by notions of difference and opposition. The demarcation between outsiders and insiders is just as relevant – if not more – as the social and cultural constructions of togetherness and similarity within a given group. The remainder of the paper has been centred on a provocative claim. In spite of this, cosmopolitanism may never fully exist, given that we do not have one Other from which to demarcate ourselves. In this sense, astrobiology may well be the most cosmopolitical endeavour of our time – cosmopolitical in the sense that it renders accountability and tangibility to the cosmopolitan dream – as it tackles, day after day, the production of absolute Otherness.

I do not wish, in this paper, to fall into a fallacious dualism of representation and practice. Perhaps, this paper reads as such, as it may seem that I am bestowing more political credit to the empirical, experimental endeavours of natural science than to the power of imagination. I

do not wish to reproduce such thinking. I do believe that cosmopolitanism is *real*. It is real because we can *imagine* it. But just as cosmopolitanism in the eighteenth hundreds was moved by political, practical motivations – the exportation of Western reason and modernity – so the political agenda of cosmopolitanism as we conceive of it nowadays will probably need an accountability of alien life in order to surface. Alien life matters because of this. Alien life will weigh even more when it becomes *matter*. Craig Calhoun has explained that, despite the increasing fluidity of present-day worldly organisation of social life, ‘nations still matter’ (Calhoun 2007). Maybe they will become a little less relevant when we encounter alien life forms. Douglas Vakoch stressed how astrobiology is a technical, scientific enquiry, but how it is also troubled by the cultural impacts of these quarrels. Astrobiologists ‘seek ways to minimize the roles of anthropocentrism and ethnocentrism in our thinking about extra-terrestrial life, turn to history for analogies to possible astrobiological discoveries, look to cross-cultural data from societies ancient and modern to gain insights into human diversity and the outcomes of cross-cultural encounters, develop scenarios, sample public opinion, and conduct experiments’ (Vakoch 2013, p. vii). Maybe considering a cosmopolitan scenario is one cultural impact that has been overlooked.

Kwame Anthony Appiah produced one of best definitions of cosmopolitanism to date, classifying it as a debate, ontologically and epistemologically speaking. Appiah talks about the importance of what he calls ‘conversation’, of creating productive bridges for different cultures to dialogue and understand each other. Appiah sees no harm in the existence of diverse ways of thinking and living as long as the word existence is preceded by the prefix ‘co’; in his opinion, the challenge of the 21st century is not how to exist, but rather how to co-exist. Appiah calls this cosmopolitanism. As he put it, ‘there are some values that are, and should be, universal, just as there are lots of values that are, and must be, local. We can’t hope to reach a final consensus on how to rank and order such values’ (Appiah 2006, p. xix). But, we can, at the very least, *debate* them. Maybe this is exactly it. Cosmopolitanism is propaedeutic. It is an introduction of the human condition, but not proficiency. This debate is necessary. By no means do I wish to render it futile or sterile. To think about our condition as a whole is a paramount philosophical, anthropological and historical task for the 21st century. But our internal frontiers will hardly be dissolved until we encounter one Other, an outsider from which difference may be built and opposition constructed. I suspect that cosmopolitanism, until then, cannot be a political project. It will linger as debate.

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