From Ecological Description to Political Prescription. Some Challenges among Theories for Environmental Change

GIULIA **SAJEVA**
Ricercatrice RTD-B in Filosofia Politica, Dipartimento Culture e Società, Università degli Studi di Palermo.
E-mail: giulia.sajeva@unipa.it

ABSTRACT
After briefly reviewing the evolution of the link between philosophy and the natural sciences, the article, with no aspiration to be comprehensive, analyses a small sample of the many philosophical proposals generated to respond to the need to change the relationship between humanity and planet Earth. *Vis à vis* the rhetoric of the environmental "crisis", the three theories here chosen – Ecological Integrity, Earth Jurisprudence and the Ecology of Law – propose changes in the relationship between politics and law and the natural sciences. They suggest the use of the natural sciences as an unquestioned guide not simply to ground political and legal decisions – i.e. inspiring science-based decision-making – but rather to provide apparently unpolitical responses to current environmental challenges, concealing normative and value-based decisions under a veil of scientific neutrality. Using Chakrabarty's distinction between the global and the planetary dimensions, the article describes the three theories and proposes some overarching critiques of their common approach towards the science-politics relationship.

KEYWORDS
science, ecology, earth jurisprudence, ecology of law, ecological integrity

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GIULIA SAJEVA

1. *From global to planetary and back* - 2. *Who believes in science?* - 3. *And so it was crisis* - 4. *Looking for answers* - 5. *Some common critiques* - 6. *Searching certainties, finding none*.

> «[I]n the era of the Anthropocene, we need the Enlightenment (i.e., reason) even more than in the past»[1].

1. *From global to planetary and back*

Whether one calls it Anthropocene, Chutlucene, Capitalocene, Plantatiocene or Humanosphere, whether one considers it a new geological epoch[2] or a mere epistemic tool[3], it is difficult to deny that we are in a moment in the history of the human and the planet that is characterized by a new «socio-natural entanglement»[4] that requires to rethink through our way of «staying with the trouble»[5] or of «staying with the present»[6]. Faced with a modernity founded on the binary distinction between the human and the natural, a sense of disorientation emerges[7] in a humanity that rediscovers itself as a geological agent capable of impacting the planet on previously unthinkable scales[8]. As data show, modern civilization is affecting the very functioning of the

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1 CHAKRABARTY 2021, 34.

2 On the 21st of March 2024, the International Union of Geological Sciences and the International Commission on Stratigraphy (ICS) approved the vote of the ICS's Subcommission on Quaternary Stratigraphy that rejects the proposal for an Anthropocene Epoch as a formal unit of the geologic time scale (see the official website: https://stratigraphy.org/news/152). Nevertheless, the Commission and the Union recognize the value of the term as a rethorical descriptor of human impact on the Earth system.

3 ARIAS-MALDONADO 2019, 50.

4 ARIAS-MALDONADO 2019, 51.

5 HARAWAY 2016.

6 CHAKRABARTY (2023, 71 ff.) uses the expression to indirectly respond to HARAWAY (2016) by emphasizing the importance of finding a way – not necessarily utopian or post-apocalyptic – to answer the question "what is to be done?". He also notes that proactively finding an answer to this question is a uniquely human task (CHAKRABARTY 2023, 17).

7 CHAKRABARTY 2023, 70.

8 CHAKRABARTY (2021, 30 f.) notes how this is the result of population growth combined with technological development. HARAWAY (2016, 99) wonders when a change in degree becomes a change in quality (it becomes geological and no longer biological – CHAKRABARTY 2021, 31) and proposes to conceive the Anthropocene as a moment of rupture due to the biocultural, biotechnological and biopolitical (99) effects of human actions that have destroyed «places and times of refuge for people and other critters» (100). The author remains highly critical – and *angry* (HARAWAY et al. 2016) – at the use of the term Anthropocene, believing it fails to see that the contemporary world is not an exclusively human product – «a human species act» (539) – but the product of the interaction between millions of different creatures.

Earth, to the point that humans are no more «*bystanders* to our own drowning»[9] nor «spectators of a natural drama to which we adapt»[10]. Humanity influences the planet through decisions and «impersonal and unconscious»[11] collective actions at an unprecedented scale. Philosophy and politics[12] thus have become overtly ecological[13], and ecology[14] (and other natural sciences and technology) has become overtly political.

The relationship between natural sciences, philosophy and politics has indeed always been a relevant one: just as for *Homo neanderthalensis* the management of the natural resources of the place of settlement was a political issue, and a change in rainfall was fraught with important political implications for community decisions, it is difficult to imagine the rapid expansion of contemporary representative democracies without access to energy resources (from coal to oil and beyond)[15]. To fully understand the contemporary shift in these interactions it is in fact necessary to dwell a little further in the details of the matter. For this purpose, the distinction proposed by Chakrabarty between the *planetary* dimension and the *global* dimension[16] appears to be particularly valuable. The two dimensions are instruments to read the present and the past by focusing on different – though interacting – elements that allow us to focus on diverse aspects that might otherwise be confused and overlapped losing their depth and relevance. The planetary dimension is embodied in a «new historical-philosophical entity called the planet»[17] that represents the entire Earth system and is distinguished from the global dimension that represents instead a «humanocentric construction»[18]. The two categories are connected and interact with each other continuously, but they have different horizons. The planetary is a whole, a *unicum*, which concerns the natural history of the planet, with its geological time scales and natural evolution, while the global concerns (the brief) human history and its evolution between capitalism, imperialism and colonisation. The global dimension contemplates many worlds, cultures and histories and must be approached considering the differences between countries, economies, peoples, colours, genders, and the like – being for example able to show the «racialized impact of climate change»[19]. The global is inherently political and plural because it concerns humanity in its interaction with itself through its own history. It is the dimension that can hardly be flattened on the idea of Anthropocene that «proclaim[ing] the language of species life – *anthropos* – through a universalist geologic commons, [...] neatly erases histories of racism that were incubated through the regulatory structure of geologic relations»[20]. In the planetary dimension, instead, the global (of *global warming* for example) refers to the Earth system as an «abstract scientific construct»[21] that requires Earth System

[9] SAVRANSKY 2021, 270.
[10] BIERMANN, LÖVBRAND 2019, 1.
[11] CHAKRABARTY 2021, 3.
[12] See PRICE, PREITE 2023 for a reconstruction of some of the political-philosophical, ethical-legal and socio-anthropological responses that have been proposed.
[13] KELLY 2019, 2.
[14] Ecology is understood here as the science that studies the "totality of nature" (KELLER, GOLLEY 2000, 1) whether through animal ethology (including *homo sapiens*), genetics, geology, developmental biology or climatology. This meaning was first attributed to the term ecology by Ernst Haekel in 1866. To be noted that, ecology is often confused with an ecological/ecologist view of reality that refers to an *environmentally friendly* thought, vision and lifestyle that is not necessarily based on ecology as a science (KELLER, GOLLEY 2000, 3). At the same time, ecologists are not necessarily attentive or interested in promoting an ecological/ecologist view.
[15] Fundamental, as KELLY (2019, 13) notes, to the creation of the communication and transport systems and other infrastructures needed to manage the functioning of contemporary democratic institutions.
[16] CHAKRABARTY 2021; 2023.
[17] CHAKRABARTY 2021, 3.
[18] CHAKRABARTY 2021, 4.
[19] YUSOFF 2018, 3.
[20] YUSOFF 2018, 2.
[21] CHAKRABARTY 2021, 11.

Science[22] and other natural sciences to be fully understood. Its study allows us to understand the causes, consequences and necessary actions to counter the environmental crisis. Within the planetary, humanity *is provincialized* and reduced to one of many biological and geological agents that have inhabited the planet's million-of-years-long history: its behaviour is analysed, understood and recounted as (a tiny) part of the Earth's natural history rather than as an element that distinguishes and separates from it. The separation between the planetary and the global allows us to dismiss the use of levelling terms like the Anthropocene to talk about political responsibilities and ways forward while permitting science (Earth System Science, geology, climatology and the like) to focus on the whole of the planet and on human *collective* actions.

Importantly, the recent capacity for geological human impact[23] turned humanity into a relevant actor (though not a protagonist[24]) no longer only for the global history but also for the planetary history. To understand this interaction, it is therefore necessary to combine the tools, scales of analysis and data of natural history with the tools, scales of analysis, data and political implications of the global. From this newly relevant and currently inescapable interaction emerges the need to question the relationship between philosophy and the natural sciences in order to better orientate in the relationship between the political dimension and the human's transformed ability to influence the planetary. In Chakrabarty's words, this new entanglement between the planetary and the global dimensions of history requires us to re-think through «what did it mean for humanities to engage with ESS [Earth System Science]?»[25].

This article, with no aspiration to be comprehensive, will analyse a small sample of the philosophical proposals generated to respond to the need to change the relationship and framework of interpretation between humanity and planet Earth *vis à vis* the need to acquire the appropriate tools to answer the question «what is to be done»[26]. Starting with James Lovelock's writings describing the Earth as a single organism – Gaia – and moving on from Aldo Leopold's *Land Ethic*, the article will examine three theories that propose changes in the paradigm of the relationship between philosophy, politics and law and the natural sciences: Ecological Integrity, Earth Jurisprudence and the Ecology of Law. The three were selected not because they represent the whole plethora of the foundations and *modus operandi* of the current theories for environmental change, nor because they are the most important ones (though the first two have a very big resonance in the current debate), but because they respond to the need for change by proposing a specific shift. They suggest the use of the natural sciences as an unquestioned guide not simply to *ground* political and legal decisions – i.e. inspiring science-based decision-making – but rather to provide apparently unpolitical responses to the above-mentioned question «what is to be done», concealing political and value-based decisions under a veil of scientific neutrality. After concisely reviewing the relationship between philosophy and the natural sciences, the three theories are presented and followed by a brief critique of their common threads.

2. *Who believes in science?*

Before moving into the analysis of the three theories, it is useful to dwell for a brief while on the role and perception of the natural sciences and technology and how they have changed dramatically over time, responding to the evolution of both natural sciences and philosophy.

[22] CHAKRABARTY 2021, 1.
[23] Whether it is in the form of the *Great Acceleration* or at other moments in global history, see STEFFEN et al. 2015; SUBCOMMISSION ON QUATERNARY STRATIGRAPHY 2019.
[24] CHAKRABARTY 2021, 78.
[25] CHAKRABARTY 2023, 1.
[26] CHAKRABARTY 2023, 17.

The scientific discoveries of the Enlightenment and the elaboration of the scientific method brought the celebration of the natural sciences as the tool for reason to escape the dominance of myth and magic. With this celebration came the question as to what shall be left for philosophy to take care of since empirical methods seemed to provide for all but non-existent entities[27]. Scientific realism[28] or naturalism described nature as an objective entity knowable through observation and experience: nature emerged as a set of magnificent and complex but predictable mechanisms without an end or purpose (mechanical philosophy). The natural sciences and the scientific method thus appeared as generators of predictions and certainties. The fear of the uncertain was *radicalised* into the illusion of having defeated it forever[29] and the natural sciences were unquestionably elevated to the «pre-eminent form of knowledge creation» whose contents are presented as absolute and universal[30]. So-called empiricists or positivists regarded science as the only real generator of knowledge and philosophical work was left to pick up the crumbs[31]. The products of scientific research emerged as correct, without hesitation, and in no need of social explanations or arguments[32].

But scientific predictions and theories were used also to explain and justify the domination over nature and peoples – at times described as *scientifically* inferior and less human[33] – so, demonstrating how science could not properly be kept separate from political enterprises, providing answers that invaded the political dimension. «Science knows, science prescribes, technology puts into operation»[34] and so *does politics* through techniques of governing markets, factories and «relations between sexes, races and peoples»[35]. Thus, science *did* politics, but without presenting itself as such, evading political contention[36], and hiding under a veil of certainty and objectivity.

From the first half of the twentieth century onwards, the downsides of this rhetoric began to be unveiled within the School of Frankfurt[37]. The Constructivist thesis took shape, according to which accounts – whether scientific, historical or else – are necessarily influenced by the social context in which they develop[38]: there was no longer full belief in the possibility of knowing reality and nature through the scientific method alone because it – like any other process of discovery – is inexorably influenced by the perspective (social constructions, biology, religion, ideology) of the observer[39]. Practices of discourse and matter were revealed to be present in scientific research, and denying their influence on scientific accounts was eventually exposed as a way to hide power dynamics[40]. It was also unveiled how the increase in economic, energy, and military productivity made the most *efficient* groups disproportionately superior to the others[41]: «in the impartiality of scientific language the powerless [lose] completely the power to express themselves»[42]. The destruction caused by fascisms and atomic bombs, both of which were interpreted as ignited by a universalist fire and desire to dominate nature (whether human or

[27] GUTTING 2005, 1.
[28] See CHAKRAVARTTY 2017.
[29] HORKHEIMER, ADORNO 2010, 22.
[30] COLLINS, EVANS 2017, 9.
[31] GUTTING 2005, 1.
[32] COLLINS, EVANS 2017, 10.
[33] BAZZICALUPO 2023, 471.
[34] BAZZICALUPO 2023, 471.
[35] BAZZICALUPO 2023, 472.
[36] BAZZICALUPO 2023, 472.
[37] GUTTING 2005, 2.
[38] COLLINS, EVANS 2017, 10.
[39] KELLER, GOLLEY 2000, 1.
[40] PIASENTIER 2024, 7.
[41] HORKHEIMER, ADORNO 2010, 6; WILLIAMS 2002, 4. In the dystopian scenario imagined by HUXLEY (1932) in *The brave new world*, the quest for maximum efficiency goes so far as to biologically programme people to make them better suited to the social (and productive) role they play.
[42] HORKHEIMER, ADORNO 2010, 30.

otherwise)[43], forced into a reflection on the self-destructive drift of an Enlightenment faith – traitor to itself and prey to (or predator of) formless masses prone to racist paranoia[44].

The – at times obsessive – search for certainty turned into suspicion and distrust[45]. Partial, self-absolving and ideological historical narratives – such as those that described the processes of colonisation as the realisation of moral superiority[46] – were slowly unwrapped, and alleged scientific truths – such as those concerning the existence of human races and their supposed hierarchies – were questioned. Recognition of the existence of the influence of social forces on the pursuit of knowledge[47] unfolded a veil of scepticism on the natural sciences, on which validation tools typical of the social sciences started to be – not infrequently – imposed, to the point of denying the epistemic role of science itself[48]. Predictions were uncovered as myths themselves[49] and the denial of science as indispensable to the conquest of knowledge was accompanied by the insinuation of a *crisis* in science itself[50]. At the School of Frankfurt, it was shared understanding that «one could gain just as much insight concerning the condition of social life through a critique of science as by the empirical means of social research»[51]. While philosophers began to pretend to understand science by observing its mere surface, «just as the colonialists and Victorian anthropologists were said to be able to understand the world of the natives without direct experiences»[52] so it spread «the remarkable assumption that the sociology of knowledge is in a better potion to deliver the truth about science than science is to deliver the truth about the world»[53]. If, in fact, history cannot be contrasted with the search for historical facts and if the results of scientific research cannot be contradicted through the scientific method, no approximation to truth can ever be achieved. The denunciation of any canon of interpretation, any research, any premise or research question as an ideological imposition led to thinking that knowledge is, by definition, dictated by power[54].

This attitude of distrust has not meant the disappearance of the opposite attitude. It has simply given rise to a more heterogeneous distribution of the perceptions of scientific knowledge. Today, *vis à vis* the increased perception and fear of environmental challenges, we witness a double tendency. On one extremity the post-modernist and post-structuralist analysis of philosophy, casting doubt on the very existence of truth [55] (scientific, historical and otherwise), and leading to surrender to romantic flirtations with folk wisdom, returns to naturalism, extravagant trusts in gut-instinct and intuition, and foraging an increased distrust in technocracy and the demand for the participation of "non-experts" in decision-making procedures. On the other extremity, the remaining of uncritical belief that science and technology will solve contemporary crises providing us with the apolitical (because natural, *ecological*) tools necessary to respond to the *what is to be done* question.

As a consequence of the two sides of the coin, science and technology acquire a schizophrenic aspect[56]: they are at once the cause of the current environmental crisis that fosters a mechanistic

[43] COLLINS, EVANS 2017, 23.
[44] HORKHEIMER, ADORNO 2010, 5.
[45] WILLIAMS 2002, 1.
[46] COLLINS, EVANS 2017, 3: «The realisation that a sense of moral superiority was often a thin disguise for the exploitation of colonised peoples, and now the fear that the exploitation of the Earth's natural resources is risking our collective future, are causing us to question what we have traditionally thought of as progress».
[47] WILLIAMS 2002, 3.
[48] WILLIAMS 2002, 3.
[49] HORKHEIMER, ADORNO 2010, 20.
[50] HORKHEIMER, ADORNO 2010, 3.
[51] HONNETH 2005, 295. I am indebted to PIASENTIER (2024, 8) for spotting this citation.
[52] COLLINS, EVANS 2017, 6.
[53] WILLIAMS 2002, 3.
[54] WILLIAMS 2002, 8.
[55] WILLIAMS 2002, 1 ff.
[56] HARAWAY et al. 2016, 535.

and anthropocentric view of nature that promotes its domination and exploitation, but also the bearers of a promise of regeneration that will save humanity and the planet.

Paradoxically, both the illusion of the total sufficiency of sole scientific research and the return to romantic folk wisdom and gut instincts operate through the overlapping of separate levels, crushing science onto politics and vice versa. In both cases, the biggest risk seems to be that of the elimination of the separation (of powers and levels of analysis) between science and politics[57], between the planetary and the global: a separation that is essential both to allow science to continue to act with the freedom and rigour it needs and to allow political and philosophical issues to be dealt with scientifically *grounded* but not scientifically *determined* political tools.

3. *And so it was crisis*

The separation of domains of science and politics has nowadays been further infiltrated by the rhetoric of the Anthropocene that juxtaposes the (supposed) crisis of the Enlightenment with the (supposed or real) crisis[58] of the Earth's ecosystems. Indeed, the idea of the Anthropocene utterly sinks into the rhetoric of the environmental *crisis*[59]. Crisis (whether real or imagined) refers to the idea of something short, quick, and immediate that needs – and can only be solved – through quick and timely solutions and actions. The lack of time to act and the vision of an imminent apocalypse move the discourse in search of easy and unambiguous answers because:

> «if human beings are out of time to deal with anthropogenic climate change in conventional ways, then perhaps we need a mix of authoritarian and technocratic rule to basically solve problems that we, collectively, are unable to agree upon a course of action about»[60].

So, authoritarian and technocratic rule emerge as necessary to replace time-consuming political confrontations by proposing, quick and certain, technocratic solutions[61]. This path bears the risks of leaving to scientific analysis alone, presented as natural and neutral, issues that would also require profound philosophical and political reflections[62], with the further risk of using

> «the pretext of planetary ecological emergency to promote techno-fixes such as geoengineering, [...] to bypass democratic institutions by supporting technocratic scientific-based modes of decision making and governance»[63].

Probably quicker and less time-consuming, scientific and technocratic solutions might appear as solely descriptive and seemingly unpolitical[64] but they ponder causes and suggest courses of action

[57] COLLINS, EVANS 2017, 7.

[58] The use of this term to refer to the current state of the environment is widespread and often unproblematised. Indeed, it appears – as PRICE, PREITE (2023, 25) note – paradoxical to perceive environmental degradation as an emergency, a break from normality, given that its origins and consequences have been known and predicted for quite some time.

[59] FREMAUX 2019, v.

[60] KELLY 2019, 16.

[61] See, for example, E.O. WILSON's (2016) proposal to turn half the Earth into a nature reserve to save biodiversity. This proposal – which has had much success – is presented as an exclusively technical issue whose evaluation can be left entirely to conservation science. The author, however, glosses over the important political implications such proposal has, such as for instance the eviction of indigenous peoples and local communities inhabiting the lands to be turned into protected areas.

[62] BASKIN 2019, 151.

[63] FREMAUX 2019, 16. See also HONNAKER 2020, 6.

[64] ROBBINS 2020, 11-14.

that contain a normative core. They deal with values, principles and interests that apply through institutions and power relations[65]. Issues that appear to be exclusively about stones, plants and animals, percentages, and degrees Celsius have ethical implications regarding both responsibilities and ways of acting. For example, a surrender to «more economic management of the planet, more intrusive technologies, or more artificialization»[66] and towards forms of change that propose green capitalism and green economy[67], de-linking[68], sustainable development[69], or blue growth[70], obfuscate the political decision to abandon alternatives such as those proposed by post-development[71] and post-capitalism[72] or more alternative fabulations such as Haraway's Communities of Compost[73].

Using Chakrabarty's terminology, overlooking the differences between states, people and peoples to indulge in *technical* solutions – such as mere climate engineering[74] – results in the flattening of global issues (i.e. issues that turn around the human, address politics and law, and cut across countries, genders, colours, and states) onto planetary issues (that are centred on the scientific description of the planet and its functioning). The need and urgency to address the planetary dimension obscures, for example, the importance of *also* addressing issues of climate justice[75]. If «scientific knowledge formulates its diagnoses and predictions» that are used to say that «the only possible answer is an efficient techno-political regulation of the environment» there is less «space for a critique that questions the powers involved and the social subjects, which are exposed to risk in a very unequal way»[76]. A political discourse – which refers to the global, not the planetary – is concealed behind a veil of apparent scientificity.

In the discourse and time of the *crisis* of the Anthropocene, the natural sciences thus run the risk of assuming a role that tends to go beyond what is justified by their descriptive interpretations and to trespass towards the proposal of considerations and solutions that traditionally concern the spheres of politics, ethics, and law, forgetting that

> «[t]o try to derive any ethical or moral lessons from our new understanding of the Earth system [...] is to try to bring within the grasp of the global (the domain of forms and clauses and therefore of the political) the planetary that not only out-scales the human but also [...] has nothing moral or ethical or normative about it»[77].

4. *Looking for answers*

Interestingly, *vis à vis* the rhetoric of the environmental crisis, today's schizophrenic vision of science and technology[78] has also led some legal and political philosophers to turn to the natural

[65] A clear example of the political character of an (apparently a-political) ecological description is Malthus' theory of population dynamics (cf. ROBBINS 2020, 14).
[66] FREMAUX 2019, VIII.
[67] FREMAUX 2019, 19.
[68] *De-linking* proposes a renewed confidence in the ability of technology to make the world *smarter* and *greener*.
[69] See SACHS 2019, xii.
[70] As BAZZICALUPO 2023 (466) notes, the reaction to the disquiet discovery of the indeterminacy of knowledge and nature takes the form of the «classic modern response: more certainty, more technique, more control» (466).
[71] *Post-development* and other alternatives to development propose radical innovative paths through the abandonment of technocratic and market-based solutions and the rediscovery of local culture and knowledge (ESCOBAR 2006).
[72] See, for example, the proposals in FREMAUX 2019, chapters 5 and 6; see also KOTHARI et al. 2019.
[73] HARAWAY 2016, 168 ff.
[74] CHAKRABARTY 2023, 17.
[75] CHAKRABARTY 2023, 99.
[76] BAZZICALUPO 2023, 465.
[77] CHAKRABARTY 2021, 90.
[78] HARAWAY et al. 2016, 535.

sciences in search of (semblance of) certainties that could guide human action. The result is that the above-mentioned tendency for the unpolitical use of the natural sciences to provide solutions (such as technofixes) is accompanied by the recourse to the natural sciences as a place to find normative solutions without recognizing them as such but rather concealing them under a scientific veil: presenting them as unpolitical and hence not in need of philosophical scrutiny. As a result, ecology, Earth sciences, climatology and the like are called upon to provide directives, principles of action, norms and rules of conduct and conflict resolution well beyond their fundamental role as the scientific basis of political decisions. They are presented as ready-made answers to the question «what is to be done» which are *correct*, *just*, *good* because they are derived from science, because they are *scientific*.

These theories – three of which are here analysed – refer to science as the source of the normative, as the guide of human action: not just as the building ground to understand how nature works but also to derive how we *should* relate with it. They do so in a new sort of way that combines scientific realism or naturalism with jusnaturalistic approaches, looking for answers to the environmental *crisis* in the realm of a certain and predictable *is* rather than in the combination of the *ought* – necessarily extracted from human attitudes, visions, beliefs, and principles – and the understanding of the *is* – rightfully provided by the natural sciences.

In many cases, such approaches presuppose a *teleological* interpretation of nature[79]. The latter becomes the holder of a goal identified with the preservation of its integrity and its ecosystems. Such positions are often inspired, more or less explicitly, by James Lovelock's *Gaia Hypothesis*, which sees the Earth – biosphere, oceans and soils – as functioning as a single complex entity, an organism, that regulates itself to maintain the conditions necessary for life to continue[80]. Its preservation thus becomes a good that the ecosystem itself (the Earth) pursues. This method leads, as proposed by the philosopher Aldo Leopold, to the development of moral principles derived from ecology itself[81]. According to Leopold, those who study and understand nature through ecology come to change their «intellectual emphases, loyalties, affections, and convictions»[82] to the point where they love and admire the Earth without the need to justify its value. This value is perceived as intrinsic and self-evident as the duty to preserve the «biological community»[83] that is «entitled to continuance»[84]. And so the *Land Ethic* that Leopold derives from it can state that «a thing is right when it tends to preserve the integrity, stability and beauty of the biotic community»[85] because this is the moral attitude people learn to gain.

Moving along these lines, the *Global Ecological Integrity Group* (GEIG) emerged from the promising union of more than 250 philosophers and natural scientists[86] with the aim of developing scientific methodologies to provide moral guidelines for public decisions[87]. According to these authors, current institutions and policies are not able to protect life on Earth because they are not based on the recognition of the intrinsic value of nature[88]. Grounding on Aristotelian philosophy, Westra establishes the value of life as obvious and intuitive and argues that all of nature unfolds for the eternal continuation of life[89]. Nature thus acquires a goal, an

[79] See for example Ulanowicz (1995, 77) according to whom: «the larger notion of integrity [...] entails a secular direction, and endogenous direction (telos)».
[80] Lovelock 1979.
[81] DesJardins 2013, 152; 163.
[82] Leopold 1949, 262.
[83] Leopold 1949, 262.
[84] Leopold 1949, 247.
[85] Leopold 1949, 262
[86] Westra, Bosselman 2020, v.
[87] Westra et al. 2000, 35.
[88] Westra 1998, 3.
[89] Westra 1998, 42.

end to be achieved: the continuation of ecosystems and their *ecological integrity*. This narrative, which is in fact teleological, presents ecosystems as living beings endowed with moral relevance. The intrinsic value of nature is further reinforced by a holistic view of reality that exalts the interconnections between all-natural elements and emphasises the dependence of human survival and health – present and future – on the preservation of the *ecological integrity* of natural systems[90]. Ecology is elevated to a source of ethical principles based on the recognition of the protection of humankind's habitat as the starting point of moral principles[91] that must be incorporated into constitutions and laws[92] to preserve *ecological integrity*.

There is no unambiguous definition of *ecological integrity*, but the definitions proposed[93] converge around the idea of proximity to the original (*pristine*) state and of the resilience[94] and developmental capacity of an ecosystem[95]. This integrity is treated as an objective, scientifically definable, quantifiable[96] and predictive entity «as other scientific concepts are» and, at the same time, as a morally relevant one[97]. This dual nature of *ecological integrity* is what allows the concept to act as a bridge between science and public policy[98]. The *principle of integrity* is in fact described as a foundational element of ethics on a par with happiness and justice[99] but, unlike them, it is not regarded as a metaphysical construct, but rather as a genuine scientific concept, a phenomenological reality[100]. According to this *principle of integrity*, «nothing can be moral that is in conflict with the physical realities of our existence or cannot be seen to fit within the natural laws of our environment in order to support the primacy of integrity»[101]. From this principle Westra derives two categorical imperatives: act in ways that conform to universal natural laws; act in ways that demonstrate respect for and understanding of all natural laws and processes[102]. These imperatives are embodied in eight second-order principles aimed at establishing the scientific, methodological and practical guidelines that must lead individual and collective actions to preserve the *principle of integrity*. Among these – in addition to the duty to adopt an ecological view of reality (abandoning the expansionist tendency of Western societies), respect for areas rich in biodiversity, the organisation of all human activities as if they were taking place in a *buffer zone*[103], and the adoption of the precautionary principle – the obligation not to cause any damage to *natural systems* stands out as essential. Importantly, according to Westra, its assessment must be carried out based on *post-normal science*[104]. *Post-normal science* – developed by Funtowicz and Ravetz[105] as a proposal to overcome classical science[106] – starts from the assumption that «[t]he standard of proof that should be required of regulatory decisions is a public policy and ethical question, not a scientific one»[107]. It

[90] WESTRA 1998, ch. 2; WESTRA 1995, 17.
[91] WESTRA 2016, ch. 1.
[92] WESTRA 2016, ch. 2.
[93] See the various definitions proposed in WESTRA, LEMONS 1995.
[94] WESTRA 1995, 17.
[95] Westra argues that «everything that is either added to or removed from an original ecosystem, at least in principle, is a threat to its continued existence, in its natural, optimal form» (WESTRA 2016, ch. 2).
[96] The integrity or health of an ecosystem is measured *quantitatively* (WESTRA et al. 2000, 26) through comparison with the "original" state of an ecosystem (i.e. without human influence) or through complex systems theory (WESTRA et al. 2000, 22 f.).
[97] WESTRA 1998, 8 f.
[98] WESTRA et al. 2000, 22.
[99] WESTRA 1998, 8 f.
[100] WESTRA 1998, 10.
[101] WESTRA 1998, 11.
[102] WESTRA 1998, 24.
[103] Area usually created next to protected areas to protect the latter from potentially harmful activities.
[104] WESTRA 1998, 27 f.
[105] FUNTOWICZ, RAVETZ 1993, 739 f.; 2000, 16.
[106] FUNTOWICZ, RAVETZ refer to the *normal science* described by KHUN (1962).
[107] WESTRA, LEMONS 1995, 10.

aims to overcome the difficulties in proving the cause-and-effect relationship between human activity and environmental damage. Faced with the impossibility of science to provide certainty in decision-making – only predictions of possible damage may be formulated[108] –, faced with the high level of environmental risks and with the urgency and the intermingling of many political decisions with ethical questions, Funtowicz and Ravetz propose to overcome the old dichotomies between facts and values and between knowledge and ignorance and to expand the peer community to be involved in the process of scientific discovery so as to include not only scientists but also ordinary citizens, institutions, and social movements[109]. The result of the application of *post-normal science* and the *principle of integrity* is the assumption that the conservation of ecosystems should be treated as a primary objective over human preferences and rights[110]. This leads to the necessity to reevaluate democracy itself[111]: law-making and politics need – to respect the *principle of integrity* – to acquire «ecological eyes» that shall enable them to pursue «an ideal goal or "good", rather than represent the haphazard implementation of voters' preferences»[112]. In order to suggest who can determine what this «ideal goal or "good"» is and how it can be achieved, Westra mentions an imaginary return to a kind of Platonic guardians trained to see *the good* and dedicated to a monastic life far removed from «normal» citizens[113]. Such decision-makers – whether they remain individuals or take the form of supranational institutions – should, according to Westra[114] – implement a basic «triage» that prioritises the preservation of life on Earth over other problems, such as racism or gender discrimination.

On a similar note, the *Earth Jurisprudence* movement – initiated by Thomas Berry[115], later followed by Cormac Cullinan[116] – is concretised in the proposal of a new theory of law that also refers to Aldo Leopold and James Lovelock, as well as to the cosmology of some indigenous peoples[117]. According to the promoters of Earth Jurisprudence, the new theory of law must be interspecific[118]: that is, addressed to the entire *Earth community* and based on the recognition of ecosystems as sacred and inviolable[119]. The theory that emerges is a theory of natural law that seeks to interpret the content of law through the observation of nature. Indeed, through the rediscovery of an «intimate relationship» with the Earth[120], there emerges, according to Berry, the recognition of all living and non-living beings as endowed with intrinsic value[121] and entitled to specific rights[122]. Human rights then become relative and limited by balancing them with the rights of other members of the *Earth community*[123] and once this communal relationship is recreated, it becomes impossible to act in ways that harm nature[124]. In line with the *Land Ethic*, the central maxim to be pursued will be: «[w]hatever preserves and enhances this meadow in the natural cycles of its transformation is good: whatever opposes this meadow or denies it is not good»[125].

[108] FUNTOWICZ, RAVETZ 1993, 742.
[109] FUNTOWICZ, RAVETZ 1993, 753.
[110] WESTRA 1993, 125.
[111] WESTRA 1993, 125 f.
[112] WESTRA 1993, 128.
[113] WESTRA 1993, 130.
[114] WESTRA 1993, 130.
[115] BERRY 1987; 1991; 1999; 2006; 2009; SWIMME, BERRY 1992.
[116] CULLINAN 2002. For an interesting and comprehensive exploration of Earth Jurisprudence, see BURDON 2015.
[117] CULLINAN 2011, 22.
[118] BERRY 2006, 20.
[119] BURDON 2011, 14.
[120] BERRY 1999, x, 19.
[121] BERRY 1999, 4; BURDON 2015, 47.
[122] BERRY 1999, 5.
[123] BERRY 1999, 5.
[124] MASON 2011, 40.
[125] BERRY 1999, 13.

Although there is no single theory of Earth Jurisprudence, all authors converge in elevating nature as the main source of law[126] and ethics. Jurists are called upon to read law from nature and «become aware of it»[127] keeping in mind the concept of *ecological integrity*[128]. *Vis à vis* this task, humanity must awaken its ability to listen to nature using scientific research and technological skills that – through understanding the principles and laws that describe the workings of the natural world[129] – serve as a path to wisdom[130]. Berry and Cullinan both developed a list of Principles of Earth Jurisprudence in which the universe and existence itself are regarded as normative and as the «primary law-givers»[131]. The Universe and the sciences that interpret it become the supreme arbiters of good and evil, and, centrally, any positive law that violates the Principles of Earth Jurisprudence is, in fact, *non-law*[132].

More recently, Ugo Mattei and Fritjof Capra have proposed a change in the legal paradigm – an eco-legal revolution[133] – leading to a new *Ecology of law*[134] that is founded on a vision of the world and law as a complex system, a network, rather than as a machine composed of separate and separable elements[135]. Drawing a parallel[136] between the natural sciences and law, Capra and Mattei note a divergence between the two: while from the twentieth century onwards the natural sciences move from a mechanistic model to a systemic model such as that of ecology, the law remains anchored to a rationalist, efficientist and atomistic view of society and rights aimed at serving the interests of individuals and capital[137]. As such, the law remains anchored to that claim of control and predictability that characterised previous centuries of economic and industrial expansion and domination of nature[138]. In their proposal for a new legal system[139], Capra and Mattei imagine a movement *from capital to commons*[140] that transforms law from a mechanistic order to a bottom-up product of collective sovereignty hinging collective property and social rights. The resulting *ecolaw* thus arises from the encounter between jurists – called upon to translate conservation science, climate science and human ecology into politics and law[141] – and communities holding natural resources in common. The management of the commons is seen, through various examples given by the authors, as tending to be more sustainable than the typical management of private property[142]. Such an undertaking requires the transformation of jurists and philosophers as well as of citizens into *eco-literate* beings capable of using their knowledge to protect and generate common goods. Capra and Mattei suggest making our values consistent with the continuation of life on Earth and learning from ecosystems themselves how to live sustainably[143]. Ecology, climatology and other contemporary

[126] HOSKEN 2011, 27.
[127] HOSKEN 2011, 26 f.
[128] BURDON 2015, 79.
[129] CULLINAN 2002, 69.
[130] BERRY 2006, 125; BERRY 1999, 161.
[131] CULLINAN 2011, 13.
[132] BURDON 2011, 133 f.; for a critique see DE LUCIA 2013, 174.
[133] CAPRA, MATTEI 2015, 188.
[134] CAPRA, MATTEI 2015, 4.
[135] CAPRA, MATTEI 2015, 10.
[136] STASSER 2017.
[137] VATANPARAST 2017, 305.
[138] FERRARA 2016.
[139] STASSER 2017, 2.
[140] CAPRA, MATTEI 2015, ch. 8. The authors define commons as «a common pool of natural and/or cultural resources (communal institutions), open to all members of society» (CAPRA, MATTEI 2015, 194).
[141] CAPRA, MATTEI 2015, 181.
[142] STASSER 2017. The debate on the greater or lesser sustainability of resources managed through *commons* or privately owned structures is wide-ranging and not at an end. The basic reference authors remain HARDIN 1968 and OSTROM 1990; BECKER, OSTROM 1995.
[143] CAPRA, MATTEI 2015, 176.

sciences point us, according to the two authors, to understand the ecological principles of ecosystems as «normative laws for human conduct» in order to overcome the current «global environmental crisis»[144]. It follows, therefore, that a certain behaviour is to be considered in line with the ethics of the Earth and thus able to contribute to the sustenance of the web of life if it respects the basic principles of ecology[145]. We are therefore all called upon to go through a process of basic ecological literacy[146] to discover the laws of nature and transform law into the expression of a collective agency[147] in which all citizens of the world participate without distinction of «race, class, or gender»[148].

5. *Some common critiques*

The theories explored so far represent only a small part of the panorama of those developed in recent years on the human-nature relationship. They do not represent the totality, nor the majority of the theoretical approaches used to promote the rights of nature or other ecocentric positions, nor are they to be considered exhaustive in representing alternatives to the rethinking of the human-nature relationship. However, they well exemplify a style and approach typical of part of the literature. Ecological Integrity, Earth Jurisprudence and Ecology of Law – even if different from many points of view – all propose paradigm shifts and evolutions towards new conceptions of law, philosophy and politics and entail some common sets of problems.

First of all, it is necessary to wonder whether it is sufficient to emphasise that ecosystems are structured in such a way as to promote the continuation of life and the existence of species within them[149] in order to claim that they are teleological beings endowed with a purpose. Seeking the teleological nature of ecosystems, be they the Earth's ecosystem or less complex ones, expresses a conception of nature and evolution as directed towards an end in themselves. Such a position forgets that nature tends constantly and slowly towards entropy, disorder, and the absence of potential energy. Moreover, a teleological view is at odds both with Darwinian theory – according to which evolution is nothing more than the result of a combination of luck and the selection of traits best suited to external conditions[150] – and with more recent positions that can be traced back to, for example, the *selfish gene* theory developed by Richard Dawkins[151].

It should also be noted that, even if we were to accept a teleological interpretation and define the preservation of ecosystems and their integrity as elementary moral principles, we would still have to wonder whether these principles would prove sufficient to ground the value of maintaining the human species on Earth. Or whether, on the other hand, a vision so broad as to be centred on the paramount priority of the continuation of ecosystems or life on Earth could not be realised even if – or because of – *homo sapiens*' extinction[152] – hence resulting useless (or even dangerous) if used to guide human action.

Secondly, such approaches propose a shift from purely human ethics and law to ethics and law that must respect *natural* principles intended to guide humanity towards a harmonious relationship with nature. The community of the Earth and the ecosystems are thus to be protected from the whims and biases inherent in legal and moral systems through the study and

[144] Capra, Mattei 2015, 19.
[145] Capra, Mattei 2015, 166.
[146] Capra, Mattei 2015, 15.
[147] Capra, Mattei 2015, 16.
[148] Capra, Mattei 2015, 15.
[149] Westra 1998, 42; Berry 2006, 121 f.
[150] Shrader-Freschette 1995a, 132.
[151] Dawkins 1976.
[152] On this point, see the brilliant essay by B. Williams (2006).

understanding of ecology and by treating the universe itself as the source of law and fundamental principles[153]. To derive conclusions about how the relationship between people and nature from descriptive sciences – be it ecology, climatology or observation of the universe – means crossing the boundary between the *is* and the *ought* – as some of these authors explicitly acknowledge[154]. While Capra and Mattei claim that their conception does not «separate the law into a domain of facts – how the law *is* – and a domain of values – how the law *ought to be*»[155], Westra hastily dismisses Hume: «[n]o doubt, philosophers may still be cringing at my use of an "is" to generate an "ought". But, peace Hume, Kant's support of the infinite value of life, is closer to the approach I have been taking»[156].

Peace for Hume, but peace also for the Enlightenment and the exit from the state of *minority*. Kant's belief in the unique purpose, resulting from the purification of the intellect that interprets reality directly in accordance with the intellect itself[157], helps the subject to subdue nature and self-preservation. But such a unique purpose, deriving directly from the *is*, does not allow any «objective end» to be deduced, which instead remains an «illusion, a lie»[158]. So much so that Kant himself – in order to save the Enlightenment from barbarism – finds himself having to limit his Enlightenment critique[159] by recognising the existence of a moral law (which imposes the principle of «benevolence towards mankind») that, however rational, is recognised as belonging to the realm of the ought-to-be and not of the is[160].

Third, even if it was possible to extract value and «principles of ecology»[161] from ecosystems and turn them into modern «laws of nature»[162] «as stringent as Newton's law of gravity»[163], it is necessary to ask whether such ethical principles would not take the form of romantic (and unscientific) visions of nature such as those according to which «in the delicate balance of nature, there are no zero-sum games»[164], or according to which the basic law of habitats would require each species to limit itself so that none could «overwhelm the other species»[165]. Or rather, whether such ethical principles would not turn out to be merely too vague and nebulous indications to guide human actions and state policies. Would they tell us, for instance, how to balance the needs of the global South with the need to limit the use of non-renewable energy? Would they tell us where to place solar panels without falling into a new *land-grabbing* tragedy? Would they tell us how to deal with the problems of human population growth? The principles theoretically derivable from a teleological interpretation of ecosystems may be of great heuristic and inspirational value, but they would in fact appear of little use *vis à vis* the need to resolve real and concrete environmental controversies because they would inevitably remain imprecise and lacking in secondary ethical principles[166]. Such «qualitative, unclear, vague» positions[167] are nothing more than – echoing Naes[168] – «basic intuitions» of «normative foundations», which are not submissible to scientific falsification or verification («one either has them or does

[153] Berry 1999, 161 ff.; Westra 2016, ch. 1, 2; Capra, Mattei 2015, 19.
[154] See for example Berry 1999, 161 ff.; Westra 2016, ch. 1, 2.
[155] Berry 1999, 161 ff.; Westra 2016, ch. 1, 2; Capra, Mattei 2015, 14.
[156] Westra 2016, ch 1.
[157] Horkheimer, Adorno 2010, 88.
[158] Horkheimer, Adorno 2010, 88.
[159] Horkheimer, Adorno 2010, 99.
[160] Kant 2012; Horkheimer, Adorno 2010, 107 f.
[161] Capra, Mattei 2015, 177.
[162] Capra, Mattei 2015, 176.
[163] Capra, Mattei 2015, 177.
[164] Bell 2003, 76.
[165] Berry 2006, 121 f.
[166] Shrader-Frechette 1995a, 125; 136; 1995b, 621 f.
[167] Shrader-Frechette 1995a, 128.
[168] Naess 1973 (cited in Shrader-Frechette 1995b).

not»[169]) and underestimate the imprecision and uncertainty of ecology[170]. Such inaccuracy and uncertainty render ecology mute and all too shallow in the face of real controversies such as those facing politics. Such *soft ecology*[171] suggests normative positions that are too indeterminate to give guidance on how to behave.

Ecology would, in other words, be elevated to a role that cannot be fulfilled by science alone. Any decision, as technical as it may be, needs to be accompanied by non-scientific assessments[172]. More generally, ecology cannot be elevated to the position of a guide for environmental policy-making and decision-making without pre-existing ethical foundations, because it too often not only has to evaluate data, but also to select between different methodologies and theories, to choose which data package to use, or to deal with explicitly ethical questions – such as whether to prioritise the conservation of individual species, ecosystems or biodiversity[173]. In other words, the planetary dimension (as opposed to the global dimension) does not provide ethical answers because «[t]here is nothing in the history of the planet that can claim the status of moral imperative»[174]. But to make decisions we need ethical foundations, which must hence be sought elsewhere. Ecology can help ethics to act according to its principles by *combining* «case-specific, empirical, ecological *knowledge*» with ethical positions «dictated by humans»[175]. But when natural sciences are consulted and treated as *neutral*, they hide a normative side that is overlooked for the sake of efficiency, though it is nevertheless present. As widely emphasized by the School of Frankfurt, no decision based on ecology or other natural sciences is solely scientific: as soon as a scientific account becomes a guide on «what is to be done», it embeds values and norms. Hence, entrusting ecology, as these theories seem to do, with the sceptre of power attaches to ecology a set of normative principles without acknowledging to do so and requires ecology (or other natural sciences) to be able to give precise enough answers to solve environmental dilemmas.

Finally, such approaches hide a tendency to rely on some seemingly enlightened saviour (like a Platonic guardian[176]) who shall be able to detect which is the right *natural* path to follow. Although incredibly reassuring, such positions appear deeply anachronistic in relation to the characteristics of the constitutional rule of law and our democracies. They suggest, more or less explicitly a return to natural law theories[177]. What Berry and others outline as characteristics of their new theory of law is quite close to what, for instance, Finnis describes as the natural law tradition[178]. But nowadays, considering positive law as true, legitimate, law only if it conforms with natural principles[179] that are to be read by human rationality[180] – whether deduced through the study of science[181] or through the observation of the laws that govern the universe[182] and that are as real as mathematical rules[183] – appears as an excessive and implausible demand. Would it really be possible for modern states and

[169] Shrader-Frechette 1995b, 627.
[170] Shrader-Frechette 1995b, 631.
[171] On *hard* and *soft ecology*, see Peters (1995) on the crisis of ecology as a science lacking rigour, predictability and independence from subjective value judgements.
[172] Collins, Evans 2007, 145.
[173] Shrader-Frechette 1995b, 624.
[174] Chakrabarty 2021, 87.
[175] Shrader-Frechette 1995b, 634 f.
[176] Westra 1993, 130.
[177] For a description of natural law theories (*giusnaturalismo*) see Finnis 2020a; Finnis 2020b. For positions in line with natural law theory see Capra, Mattei 2015, 164; Cullinan 2011, 13; Hosken 2011, 27; Berry 2006, 125. For a critique see De Lucia 2013, 174 f.
[178] Burdon 2011, 158; Finnis 2011, 23.
[179] Finnis 2011, 23; Cullinan 2002, 131.
[180] Finnis 2011, 290.
[181] Westra 1998, 8 f.; Capra, Mattei 2015, 181.
[182] Cullinan 2002, 76.
[183] Finnis 2011, 24.

contemporary scholars to turn back and accept, once again, to abide by a non-human law that is incontestable and unchangeable because it is what nature prescribes? Could they easily go back to thinking that natural law exists, out there, somewhere in nature, and that the real law shall be received from someone (be it a guardian, a scientist or a philosopher) capable of interpreting from nature the rules that must guide human action?

6. *Searching certainties, finding none*

The human being who needed «neither science nor philosophy to know what one must do to be honest and good»[184] no longer exists. Faced with the obsolescence of traditional ethics – constructed for a human being incapable of causing lasting damage to the natural order and whose sphere of action is restricted in time and space[185] – the relationship between science and politics fully emerges as a highly problematic issue. In contrast to Jonas, who explicitly proposes a new ethical *categorical imperative* addressed to public policy in a long-term vision (capable, for example, of taking future generations into account[186]), the promoters of Ecological Integrity, Earth Jurisprudence and Ecology of Law prefer to build their answers on the natural sciences denying the operation of adding ethical principles to the matter. While this process seems to prize the natural sciences and their role, it in fact denies their freedom to be and remain uncertain, indeterminate, *in fieri*, because it forces them to provide political answers on what needs to be done.

The natural sciences generate scientific knowledge through complex procedures that are continually challenged by new research. Therefore, if, for example, the majority of scientists around the world warns us against the extinction of biodiversity, there is a basis for clamouring for political intervention based on the precautionary principle. Already more than fifty years ago, Jonas proposed revisiting the role of knowledge from a moral perspective (understood as pertaining to the profile of responsibility for the consequences of action), recognising that there is a gap between our «predictive knowledge» and our power to act, which forces us to recognise our ignorance and take it into account as a new element of «knowledge» and evaluation of our actions[187]. To cope with this uncertainty, rather than (con)fuse science and politics, Jonas proposed the elaboration of a «science of hypothetical predictions»[188], an idea that actually materialised in the functioning of the International Panel on Climate Change which – recognising that science «if it can deliver the truth, cannot deliver it at the speed of politics»[189] – cyclically produces sets of graphs describing *different hypothetical* scenarios responding to different models and input data that are then submitted to the (often unsatisfactory, it must be admitted) judgement of politics.

There is today a terrible need for enlarging the ability of politics and philosophy to rely on the scientific understanding of reality and not fall prey to pre-Enlightenment positions. At the same time, this reliance needs to draw on what critical theory and the school of Frankfurt taught us, not to the point of dismissing science as "nothing but power", but to accept that science alone is not enough: it needs philosophical and political considerations – openly presented as such – to guide our futures. The three theories here analysed – though different

[184] KANT 1986, 47, cited in JONAS 1990, 9.
[185] JONAS 1979 [1990], 7. «All the liberties he takes with the inhabitants of the Earth, the sea and the air leave the nature that encompasses these *spheres* untouched and do not affect their generating forces» (JONAS 1979 [1990], 5).
[186] JONAS 1990, 15-17.
[187] JONAS 1990, 11 f.
[188] JONAS 1990, 34.
[189] COLLINS, EVANS 2007, 1.

from the other – all seem to conceal their political positions in scientific analysis rather than simply using science to ground political decisions. Though, as stressed above, they do not represent the globality of philosophical proposals, their common mistakes are important to be underlined because they show the existence of the tendency to rely on an *élite* of subjects to whom the sceptre of true, unique, correct knowledge is handed over.

The need to distinguish between the tools to understand the global and those to understand the planetary is paramount. Their collapse one onto the other denies science the freedom to research and continually regenerate and leaves the doors open to technocratic decisions oblivious of the differences between humans.

Ceasing this rush towards final answers and enlightened saviours – so in line with the currently resurging populist tendencies – we must accept that the only antidote to totalitarianism is a knowledge-based *vita activa* engaged in politics.

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