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**Original Research** 

# In which time and world do we live?



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#### Read online:



Scan this QR code with your smart phone or mobile device to read online. This article contributed to a project about Nature and Theology (Prof. Dr. J. Buitendag). The text questioned why our *modern* concept of nature must be reformulated in a contemporary concept of nature as the anthropocentrism of the modern concept of nature is criticised by a growing knowledge about the cohesion of many phenomena in the evolution of life on planet Earth. This criticism confronts theologians with fundamental deficiencies in their ongoing anthropological approach of life, especially human life. The article looked for a reinterpretation of mystical texts of Gregory of Nyssa in order to question whether this offers a new framework of a theological approach of a contemporary concept of nature.

**Contribution:** Within the project about Nature and Theology new questions arise as the concept of Nature has to be reformulated based on new insights in the evolution of life. Within the debates about the Anthropocene, the planet Earth is approached as being a living reality in one way or another. So theologians have to look for new theological approaches as well. This article suggested that concepts of Gregory of Nyssa contribute in this respect.

Keywords: anthropology; Anthropocene; Gaia-hypothesis; mysticism; Gregory of Nyssa.

# About the Anthropocene

Our actual concepts of nature and that of reality have been deeply influenced by the ongoing debates about the Anthropocene.

### **Clarification of the definition**

In a short foundational article (2000), the Dutch atmospheric chemist Paul Crutzen (1933–2021) and the American biologist Eugene Stoermer (1934–2012) introduced the concept 'The Anthropocene' as the name for a period in which it became clear that climate change was caused by humans (anthropogenic).

They take the invention of the steam engine by James Watt (1784) as marking a period characterised by newfound extensive use of fossil fuels. In doing so, humans cause a substantial increase of greenhouse gases in the atmosphere of planet Earth. Therefore, climate change must be considered as an anthropogenic phenomenon.

But other developments that mark the Anthropocene have drastic influences as well. Crutzen and Stoermer refer to the increase of human population on planet Earth. After the year 1000 CE, the human population increased more than five times. Actually, since the start of the 22nd century, 80 billion humans have been living on planet Earth and are looking for food sources.

Crutzen and Stoermer write that after the geological era of Holocene, that started 11 700 years ago, in the 18th century CE a new era, the Anthropocene, has begun de facto.

The Italian geologist Antonio Stoppani did refer to the influence of human actions on the planet Earth already in 1873 and used the word Anthropo-zoic(cum) for this new geological era. In 1919, the Russian geologist Alexei Pavlov, talking about the influences of the species Homo during the Kwartair, used the concept Anthropogene to refer this geological era. Pavlov's concept, a bit changed to Anthropocene in 1922, was proposed by Russian geologists in the years '1960' and formally in 1965 at the US-conference of the commission on stratigraphy. This commission judged in 1967 that it is possible to replace the name 'Holocene'.

The American science- and environmental journalist Andrew Revkin has used the concept 'Anthropocene' in a book entitled *Global Warming* (1992), but the ecologist Eugene Stoermer

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already used the concept Anthropocene informally during the year 1980 (Cf. Wikipedia, consulted 23 January 2022).

There is an ongoing debate regarding the definition of the concept of Anthropocene, firstly as the definition of this concept refers to other criteria than are normally used in the definition of other geological era, for example, atmospheric characteristics; and secondly as some points of reference are descriptive and some are normative, for example, about greenhouse gases. Authors like Chakrabarty, Klein and Angus point to totally new patterns of intertwining human history and natural history. And they stress the influences of the dominant histories of capitalism. Some propose to replace the concept of Anthropocene by Capitalocene.

The American science historian Caroline Merchant (born 1936) summarises five points of view that turned out to be relevant in the definition of the Anthropocene:

- The development of new scientific knowledge,
- The development of different socio-political relationships between developing and developed countries,
- The development of new ecological perspectives,
- The development of new approaches of the relationships between human beings and other species on planet Earth,
- The dialectical interferences between these points of reference in the definition of the human actor.

#### Phenomena

If the five points of view of Caroline Merchant can be considered five dimensions of the category Anthropocene, it is no surprise that some authors refer to the famous book (1955) of the French theologian and palaeontologist Pierre Teilhard De Chardin S.J. (1881–1955), Le phénomène humain [The human phenomenon]. The five dimensions suggested by Caroline Merchant seem to be dimensions of the human phenomenon.

But appearances are deceiving. The research and theory of Pierre Teilhard De Chardin are marked by a strong unity vision. This vision is witnessed by the following quote from his book:

[*T*]he evolution of material reality can be observed most primarily in its kernel: according to recent theories this shows a gradual build-up, following an increasing complication of the different fundamental physical-chemist units. (p. 32)

Such unity vision is no longer supported by actual insights and theories about evolution. The Nijmegen-based biologists Flik and Oomen (Oomen is a theologian as well) write that in the processes of evolution, variation possibly occurs caused by different reasons (genetic mutations and recombinant effects of genetic material) but is also caused by genetic flow and horizontal gene transfer and that the actual processes are not only caused by natural selection and more fitness but are sometimes dependent on contingent genetic drift (Flik & Oomen 2010:25). Referring to the actual biological knowledge of evolutionary processes, Flik and Oomen write that besides the Darwinian conceptualisation of the tree of life, another conceptualisation did come up, the net of life. Most scientific theories nowadays adapt the theory that life started by self-replication of molecules, which is an intrinsic characteristic of complex molecules such as ribonucleic acid (RNA). The chemical base of life as we know it is a conversion of RNA or DNA (deoxyribonucleic acid) molecules to proteins that in turn determine the metabolic processes in a cell. Deoxyribonucleic acid offers a stable repository of genetic information (not necessarily the oldest variant of self-replicative molecules). In our cells, RNA uses the DNA-information for the production-processes of proteins. The proteins determine the form and function of an organism. In the case of unicellular phenomena, this process chain occurs within the wall of that one cell. In multicellular phenomena, the wall of a cell separates the so-called cytoplasm (content of the cell) and the world outside it. To evolve to more complex life forms, walls of a cell and the operation of proteins are both necessary (Flik & Oomen 2010:45).

This is just one example of the extensive knowledge in biology that explains phenomena in the evolution on the planet Earth nowadays. Connected to this knowledge, much research also shows that evolutionary processes occur or have occurred in countless niches, which are sometimes very slow, sometimes faster. Flik and Oomen finish their text stating that the evolution in different niches obviously has resulted in two different humanoid species (chimpanzee and human) which show drastic differences in brainpower and in language ability (Flik & Oomen 2010:55).

### Cultural and philosophical questions

This new biological knowledge has had important consequences for the concept of the Anthropocene. Besides biological and geological connotations, Anthropocene was related to cultural and philosophical questions as well. The introduction (1974), by the English researcher James Lovelock (1919–2022) and the American microbiologist Lynn Margulis (1938–2011) of the socalled Gaia-hypothesis, was very important in this regard. Their theory was named after Gaia, the ancient Greek goddess for Mother Earth. It states that the planet Earth has to be distinguished from the planet Mars (e.g.) as the planet Earth is a synergistic and self-regulating, complex system that helps to maintain and perpetuate the conditions of life on the planet.

The reception of this theory was very controversial. Many scientists, among them many biologists, consider this theory very flawed. But many people in environmental movements take it as a new religion.

Margulis and Lovelock have never tried to evade debates with other scientists. On the contrary, they have reformulated their theory several times in these debates. Their debates with environmentalists are very economical. Lovelock has never appreciated the adoration from people in environmental movements. In this article, the author refers to one of the later published scientific texts about the Gaia-hypothesis. In their 1997 article, *The Atmosphere as Circulatory System of the Biosphere*, they start by referring to the German medical doctor and nature researcher Sachs Von Lewenheimb (1627–1672). In 1664, he indicates to the parallel between the circulatory system and the circulation between air and water in the atmosphere. Meanwhile, the circulatory system is scientifically acknowledged. Concerning the circulation of air and water in the atmosphere, they write that humans have been around for only a few million years, while microorganisms have existed for thousands of millions of years. The atmosphere is probably not so much the product of humans as of several billion smaller organisms living in every pail of rich soil or water (Margulis & Lovelock 1997:129).

In their theory, Margulis and Lovelock approach the atmosphere as:

[*A*] nonliving, actively regulated part of the biosphere ... regulated with respect to certain biologically critical substances: hydrogen ions, molecular oxygen nitrogen and its compounds, sulfur and its compounds, some others, whose abundance and distribution in the atmosphere are presumed to be under biological control. (p. 131)

They take into account knowledge about the increase of solar luminosity too, the increase of greenhouse gases, the existence of microbial life in the earliest sedimentary rocks and in geological development stages later on.

In their conclusion, they finish by posing a question:

The Earth atmosphere maintains chemical disequilibria of many orders of magnitude containing rapidly turning over gases produced in prodigious quantities. The temperature and composition seem to be set at values that are optimal for most of the biosphere. The biosphere has many potential methods for altering the temperature and composition of the atmosphere. ... Is it not reasonable to assume that the lower atmosphere is maintained at an optimum by homeostasis and that this maintenance (at the ultimate expense of solar energy, of course), is performed by the party with the vested interest: the biosphere itself? (Margulis & Lovelock 1997, p. 143)

In his review of the Gaia-hypothesis, the Canadian biologist Felix Baerlocher answers this question in two ways (Baerlocher 1990:232–238). On the one hand, most scientific biologists accept a weak version of the hypothesis. This entails the fact that the biosphere plays an important role in the evolution of life on the planet Earth. On the other hand, many reject the strong version, that is, the statement that the evolution of life is characterised by a form of self-regulation that implies foresight and planning. Nevertheless, writes Baerlocher, 'according to Lovelock the Gaia-hypothesis implies that in the evolution of life occur the so-called feedback systems without foresight which stabilise specific external inputs'. 'You may call this a holistic perspective', he writes, 'although without the assumption of a teleology'.

# Reflections on a 'fruitful fallacy'

In his review, Baerlocher has characterised the Gaiahypothesis as a fruitful fallacy. He refers to a remark of the Italian economist Vilfredo Pareto (1848–1923): Give me a fruitful error, any time, full of seeds, bursting with its own corrections. (p. 238)

Perhaps, Baerlocher might say, the strong version of the Gaia-hypothesis is an error. But the corrections, made by Lovelock himself, contain many fruitful questions. This third section will elaborate some of these questions in the field of philosophy.

#### Towards a metaphysical research program

Although many ecologists support the Gaia-hypothesis in their battle against pollution and towards a far more equilibrium in our human 'use' of nature denouncing the impact of human footsteps that we, especially in the western society, make on the planet Earth, the Gaia-hypothesis deals with totally different questions than human responsibility in the ways we, humans, are inhabiting the planet Earth. The Gaia-hypothesis deals with interferences between living and nonliving, organic and inorganic, animate and inanimate dimensions of phenomena on planet Earth (Margulis & Sagan 1997:201-206). Of course, raising questions about human responsibility is important and unavoidable as we now know about the consequences of the human use of air, soil and water. Perhaps we cannot foresee all consequences, and perhaps we have to acknowledge the fact that the Gaia-hypothesis as a whole is not open to validation or disproof. But the insights and knowledge we have, imply 'a metaphysical research program' as the philosopher Karl Popper once said about the Darwinian evolution.

To illustrate this implication, Margulis and Sagan write:

Gaia science operates out of the metaphor that the planet earth is not just a home ... but a body ... not an inert place in that it is sentient and reactive ... in Gaia theory, for example, the atmosphere becomes part of the biosphere, a sort of global circulatory system. (p. 204)

To develop this 'metaphysical research program' we must start by acknowledging that 'Gaia' – as a word, being a product of human language – of course is a metaphor. Although nowadays difficult and not easily answerable questions can be put about all relevant interferences between atmosphere and biosphere, about organic and inorganic, living and nonliving dimensions of phenomena on planet Earth, one cannot avoid scientific analyses by ridiculing the Gaia hypothesis as a premodern, non-scientific and ancient, just intuitive sentiment. Lovelock's hypothesis is subject to experimental falsification and modification. When critics reject his hypothesis, they should not refer to characterisations like personification of the planet into a conscious female entity lacking an explicit mechanism and falling outside the major Darwinian paradigm of selfish individualism.

To recognise the impact of the Gaia-hypothesis on a metaphysical research program, one must seriously consider the fact that the Gaia-hypothesis hardly leaves room for an *a priori* assumption of the uniqueness of the human being within the planet Earth. As Margulis and Sagan have put it:

[*E*]cologically speaking, the Gaia hypothesis hardly reserves a special place in the pantheon of life for human beings. Recently evolved ... human beings have only recently been integrated into the global biological scene. (Margulis & Sagan 1997:157)

Therefore, they conclude that a metaphysical research program:

[C]annot bypass a phenomenological approach. What does it mean to inhabit a living organism? (p. 205)

The Gaia-hypothesis asks for a change in philosophical perspective, as they have put it (cf. p. 157).

#### **Beyond Anthropocentrism**

The change in philosophical perspective is – in an impressive way – elaborated by the Indian historian Dipesh Chakrabarty (born 1948). In his book *The Climate of History in a Planetary Age*, he argues why and how our recent experiences with sometimes devastating effects of climate change urge a number of changes in the way we put fundamental philosophical questions about the ways we, human beings, inhabit planet Earth. Climate change asks for conceptual shifts in our philosophical thinking.

The title of his book refers to the headlines of his argument. Humans are now living in 'a planetary age'. The point of reference for a historian is a 'planetary age', and this expression is to be distinguished from 'an age of globalisation'. If a historian focuses on 'an age of globalisation', he focuses on interactions characterised by human subjects in a complicated, worldwide, social and economic network. This focus has his point of departure in the human subject. The often not explicated assumption: there is no history other than the course of actions human subjects unroll in their lifetime. But Chakrabarty argues that this unrollment comes up rather late in the processes that have formed life on the planet Earth.

A historian does better to reformulate the approach of the relationships between humans and the planet Earth. One does better to look for categories that consider that the relationships between humans and planet Earth 'hardly reserve a special place in the pantheon of life for human beings. Recently evolved ... human beings have only recently been integrated into the global biological scene', as Sagan and Lynn have put it. As a historian, Chakrabarty looks for a different point of view than the human subject. 'A planetary age' gives the possibility to connect the course of actions humans *un*roll in their lifetime and by which they *en*roll themselves in the processes that keep the planet Earth alive.

What is 'the climate of history'? In connection with all other species, the *un*rollment and *en*rollment of humans in planet Earth have consequences. The first consequence is that history becomes intertwined with evolutionary processes, human history gets intertwined with natural history. The ways humans act are not totally congruent with the ways other living species influence the habitability of planet Earth.

There are – for humans – two different ways of comporting in the world in which they find themselves. (pp. 86–87)

From the viewpoint of anaerobic bacteria, living on the surface of the planet before the great oxygenation of the atmosphere about 2.45 billion years ago, the atmosphere might look like a history of disasters ... anterior to every form of human relation to the world. But in a global perspective – with humans at its centre – we must talk about a perspective that can be and must be politicised, as Chakrabarty stresses in line with Hanna Arendt. Then, originally conditioned by the Cambrian explosion of life forms that created conditions without which humans would not have been, the habitability of the planet Earth is subject to all kind of questions about climate change and climate justice, inequalities and rights, income, race and gender.

So, the concept 'climate of history' is a dual concept, referring to a global perspective within which human histories with all its political questions, values and thoughts are embedded; and referring to an 'old', 'anterior' perspective that the human history has posited and still posits. In a global perspective, humans must deal with justice and inequality and with life and pollution. They must consider their responsibility. In the anterior perspective, humans must deal with questions about their origin and originality, their assumptions about uniqueness. Both dimensions of the human phenomenon on planet Earth cannot be played out against each other as we live in the Anthropocene.

# The mysticism of religion

We are living in the Anthropocene and may not exchange the global and the anterior dimensions of human life on planet Earth. French philosopher Bruno Latour (1947–2022) once remarked that the discipline of anthropology nowadays must face the same challenges as those at the beginning of the 19th century, namely: how to get bones and divinities to fit together (Latour 2014:3). This requires a fundamental renewal of the concept 'Anthropos':

[*A*]s the idea of One Human in charge of the geostory exploded into pieces. (p. 5)

The concept of human agency is tackled as the usual distinctions between 'physical' and 'cultural' anthropology have to be related anew to what is common and what is specific in the various ways of inhabiting the planet Earth. Referring to Lovelock and Margulis, Latour states that their concept 'the planet is alive' does not mean there is one big organism that is to be called Earth, but that its many ingredients are all building their own world. 'Connected' does not mean 'holistic', any more than 'animated' means 'having a soul' (Latour 2014:10).

According to Latour, the geostory implies the urge to make a difference between being 'modern' and being 'contemporary' (Latour 2014:7). 'Modernity' is a concept that belongs to ruthless forms of colonialism. But anthropology must depart from contemporary experiences, even ontological ones, as

Latour states. We may not exchange the global and the anterior dimensions of human life on planet Earth.

In a contemporary perspective, a fundamental renewal of the concept 'Anthropos' may be found in the texts of the theologian Gregory of Nyssa (335–394). He is venerated in many Christian churches and although he lived in the 4th century CE, his texts offer a contemporary perspective. Being one of the founders of Christian mysticism, Gregory of Nyssa influences religious imagination and thinking till nowadays. He sees, as a mystic, a deep connection between the anterior perspective of human life, natural history, calling it the cosmos, and the global perspective of human life, human history, calling it initiation into a lifelong process of formation in Christian virtue.

In order to understand how the mysticism of Gregory of Nyssa can contribute to a theological interpretation of both sides of the climate of history in a planetary age – the anterior perspective of life on planet Earth and the global perspective – we start with the metaphysical dimension of his 'Trinitarian grammar' (Cf. Hart 2002:113). Doing so, the author will follow suggestions of Bruno Latour that anthropology must depart from contemporary experiences, even ontological ones.

'Trinitarian grammar' can be summarised in words of Hart (2002) as the Cappadocian insight that:

[*I*]n God – *ad extra* and so, necessarily, *ad intra* – all is inaugurated in the Father, effected in the Son, and perfected in the Spirit. (p. 114)

About the relationships between Father, Son and Spirit, Hart (2002) states that according to the Cappadocians:

[*T*]he exteriority of relations and interiority of identity in God are one, each Person wholly reflecting and containing and indwelling each of the others' ... The divine simplicity is the 'result' of the self-giving transparency and openness of infinite Persons (as well as) the distinction of the Persons within the one God is the result of the infinite simplicity. (p. 116)

Therefore, Hart stresses how Gregory understands God's life and light and joy as being mirrored in our human soul and in the entirety of material creation which is 'a mirror of the mirror' (p. 120). This element of Gregory's mysticism has been worked out by Gregory in two ways. The mirroring is shining in our human life. And the mirroring is shining in the cosmos.

To explain what he sees, he starts from the second perspective, our actual human life. People may decide to get baptised, he argues, and if they do so, they not just submit to a ritual of adherence to the church. Baptism is a transmission of your life into an unbroken 'flow' of life that illuminates, and regenerates, and empowers your life in heart, mind and soul. That flow of life comes from God, the Father, through the Son and in the Holy Spirit. And that flow of life has an upward movement as well, uniting you to God (Cf. Abecina 2022:462–463).

Then he goes on to the first perspective, the anterior dimension of life on the planet Earth. Being united to God

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has a cosmic dimension, as he puts it. As human beings and their history are intertwined with the cosmos, this cosmic embeddedness of human life implicates that the flow of life coming from God, through the Son and in the Holy Spirit is a flow that encompasses the cosmic order as well.

As Gregory of Nyssa sees and argues, being united to God (salvation) is not only a perspective of humans but of the cosmos as well. In a sermon at the occasion of Epiphany, he stresses the contemporaneity of Christ's baptism and his congregation saying that *today* Christ is baptised by John to cleanse humanity and to bring the Spirit from above so as 'to exalt man to heaven'. Christ assumes manhood to cause a purification, renovation and regeneration of humanity. He is 'the first fruit' that is like a 'fount' that conveys baptismal grace to the whole world (p. 466).

This mystical perspective encompasses all different dimensions of the climate of history without exchanging the global and the anterior dimensions of human life on planet Earth. The word 'today' has an eschatological meaning, incorporating the participants in the congregation within both dimensions of time, namely global and anterior. And this eschatological perspective embraces all human beings and all the other living realities on planet Earth. The mysticism of Gregory of Nyssa offers an unexpected possibility for a theological interpretation of both sides of the climate of history in a planetary age. That is the contribution of this mysticism. This mysticism makes it possible not to exchange global and anterior dimensions of human life on planet Earth as it lives from the fount of all life that 'today' so: in our actual history and in our cosmos, now and in times immemorial, and in the future - can be drunk off and make us human, conscious of it already, always being there.

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T.v.d.H. is the sole author of this article.

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The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the author.

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