

The science-fiction scenario of an artificial planet is already here

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On December 9, 2020, researchers from the Weizmann Institute of Science in Israel published a study in the journal *Nature* titled "[The global mass produced by man exceeds all living biomass](#)". The article summary sets the scene: "We find that Earth is exactly at the crossover point; in the year 2020 (± 6), the anthropogenic mass, which has recently doubled roughly every 20 years, will surpass all global living biomass."

Looking around us over a large part of the planet, this observation is not so surprising. There are more than 1 billion automobiles on Earth, several billion smartphones, computers and tablets. There are buildings and roads absolutely everywhere, not to mention the colossal mass of clothing... 7 billion humans, massively equipped, against 3,000 billion trees without any possession.

Not surprisingly then, but to have it scientifically quantified sets off major alarms. The authors drive the point home: "This quantification, based on its mass, of human enterprise gives a quantitative and symbolic characterisation of the Anthropocene era induced by man."

"Symbolic" may be because weighing the presence of man on the planet through his tracks, his production and his waste has the same effect as weighing oneself: facing a precise and unavoidable figure, without any possible negotiation.

A tipping point

The comparison between these two masses, that of the living and that of our objects, warns of the growing domination of humans on the planet. But analyzing the importance of mass in this "inert artificial" and living comparison is perhaps not so simple. Mass is not everything: the total mass of all the SARS-CoV-2 viruses in all the human bodies on the planet remains a negligible quantity. Viruses are characterized neither by their mass, nor by their energy, both of which are ridiculous: yet they have major consequences.

Nevertheless, this study has put a tipping point in front of us. This is a new paradigm. Decades ago, we had the comfortable vision of a planet Earth whose infinite resources and spaces would allow it to receive and dilute all types of pollution without damage. Apogee of this conception has probably been with the atmospheric explosion of nuclear weapons in

the middle of the 20th century.

The evolution described by this study adds to the list of major changes brought about by environmental upheavals to reveal that we have entered another world, that of the Anthropocene. As British researchers Jan Zalasiewicz and Mark Williams point out in their article published last December in *The Conversation*, "the science-fiction scenario of an artificial planet is already here." This vision of a planet devoured by humans, is common in science-fiction literature and cinema, and underpins many masterpieces: Trantor in Isaac Asimov's *Foundation* trilogy, the Death Star in *Star Wars*, and Alpha in Luc Besson's *Valerian and the City of a Thousand Planets*.

Humanity is inseparable from the biosphere

The world of our constructions and productions does not generate life. It is outside the biosphere. Plants, on the other hand, produce life from inert matter and are at the origin of the food chains on which we depend. To this day, we still eat living species and to stay alive and to nurture children, we cultivate crops and raise livestock.

We have managed to control life on a massive scale in oversimplified situations, in the context of intensive and industrial agriculture and breeding, built on chemistry and technology. But at the same time, we know that essential pollinators are destroyed by our very activity. Yet some people still dream of a future where humanity would control and manipulate life on earth at large scale and in detail, therefore down to the molecular scale. This would complete the ongoing transformation of living species into human resources. But despite our efforts in this direction, we have not managed to emancipate ourselves from living things. The COVID is a proof of this. We will always belong to the biosphere, which will continue to invite itself into our artificial world without our permission.

Donald Trump and COVID, the boomerang effect

The bacteria and viruses that cause pandemics evolve rapidly at the molecular level, and we powerlessly scrutinize their mutations, unable to control the immense complexity of living things.

The return to reality forced by the living was perhaps one of Donald Trump's greatest surprises during his time as president—he had probably never before experienced such implacable opposition to his will. Of course, there is no intention in a virus, only chemical reactions. Trump is one of the people who had the easiest access to material human power, which is also characterized by an unprecedented global consumption of fossil fuels of more than [150,000 TWh per year](#).

This has not been enough in the face of this virus, on the contrary. Donald Trump didn't believe the scientists, so the epidemic [deeply frustrated him](#). Anthony Fauci, director of the US National Institute of Allergy and Infectious Diseases and an advisor on the pandemic, had a different point of view: power and influence games in the human world were futile and insignificant because the game was being played in the biosphere.

Exponential acceleration

We now have most of the established knowledge we need to look to the future. The *Nature* publication as well as the studies on climate and the evolution of the biosphere clearly show that this artificial runaway will go quickly—on the scale of human generations. There won't be any great surprises, at least not on the good-news side. Scientific work will certainly intensify even more under the growing pressure of the consequences: ever more heat waves, ever more violent storms, killer pandemics, mega-fires, water shortages, and dramatic impoverishment

of biodiversity...

The COVID-19 pandemic has confronted us with the brutality of exponential growth. That of the anthropogenic mass is another. The almost infinitely produced materials began to grow exponentially after World War II. Cars, airplanes, household appliances and digital tools invaded the world at an incredible speed. This progression continues, at a rate that is clearly unsustainable for future generations.

More information: Emily Elhacham et al. Global human-made mass exceeds all living biomass, *Nature* (2020). [DOI: 10.1038/s41586-020-3010-5](https://doi.org/10.1038/s41586-020-3010-5)

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