
Friedrich von Borries
Architektur im Anthropozän
Eine spekulative Archäologie
Suhrkamp

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ARCHITECTURE
IN THE ANTHROPOCENE
A Speculative Archaeology

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Friedrich von Borries was born in Berlin in 1974 and is an architect and professor at the University of Fine Arts of Hamburg.His most recent books with Suhrkamp Verlag are *Caught in the Titotality Machine*, a biography of Franz Ehrlich written together with Jens-Uwe Fischer and the novel *Festival of Inconsequentiality*.

We need new forms of historiography that provide a plausible account of how our species … rapidly became a dominant force in the Earth system.[1]

Eva Horn

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THE HORIZON OF EXPECTATIONS

Speculative Archaeology
Or: What history will be told about us?

What history of architecture will be told about our epoch, the Anthropocene? Imagine a being from the future looking back at us one day.[2] Which buildings, projects, and traditions would it view as key to understanding us? And what it's verdict on us be?

This view from the future forms the narrative framework of this essay. It maintains a sketch-like character because a subject as expansive as this can only be viewed in sections. And it is also speculative, because we neither know what the future will look like, nor whether the beings living then will have an interest in examining our present.

The central point of reference here is the Anthropocene. The "Anthropocene" is a technical term from the field of geochronology which has since gone on to be adopted in other fields of investigation and in the broader public discourse. First used in the year 2000, it was initially intended to convey the (then extremely provocative) notion that humanity has become such a decisive factor in the development of the Earth system that the present can be distinguished from previous geochronological epochs. Though this hard epochal cut is contested within the field of geochronology, the term has become well and truly established in many other disciplines and within public discourse. It is emblematic of the way that humanity is reshaping the planet and destroying the preconditions for survival for many species, and perhaps even for humanity itself.[3]

Many geologists locate the beginning of the Anthropocene in the 1950s, because that is the point at which the intervention of human beings on the Earth system begins to be discernibly within the sedimentary record – a key indicator for research in geology.[4] Some of the indicators detected were the levels of carbon dioxide, ozone, and methane, as well as the presence of soot particles from industrial production, new

inorganic compounds (plastics), and radioactive contamination. Scholars from outside of the field of geology also view this temporal marker as relevant because it correlates with other phenomena – from shifts in energy consumption to the rapid economic growth of the postwar era and the potential for global destruction posed by the atomic bomb. For this reason, the approach to architectural history I am proposing here follows this classification.

In my quest to investigate the importance of architecture in the (ecological, social, and cultural) processes of upheaval associated with the Anthropocene, I use archaeology as a recurring metaphor. There are multiple reasons for this, and the first is quite literal. In order to determine the beginning of a new geological era, geologists investigate sedimentary strata, however in order to understand our everyday lifestyle, future cultures will make recourse to architectural "technofossils", reconstructing our everyday life by way of residential neighbourhoods, buildings, and the artefacts within them. This is because "architecture gives an infallible indication of what was really happening at a particular time", as the architectural historian Sigfried Giedion wrote in his 1941 book Space, Time and Architecture, a work that laid some of the key foundations for the architectural history of Modernism.[5] However, Giedion's assumption that architecture formed a particularly well-suited source for understanding (everyday) culture was based on historical experiences that might be obsolete in the future. Ultimately, it is also conceivable that the "signals from the distant future" – as British geologist and palaeontologist Jan Zalasiewicz refers to the future remnants of our civilisation[6] – might take the form of radio waves. In that case, the informational remnants of internet sites and reality shows might shape how the future imagines our way of life. But for my project, we will continue to assume that buildings made of concrete and steel, of plastic and glass, will continue to be fruitful sources of information – if only because these materials are so incredibly durable.

The second reason is an epistemic one. Archaeology also serves as a suitable metaphor for the present project because of the way that knowledge is acquired within the discipline. Though archaeology views itself as a science, it is also heavily influenced by chance events. While some

excavations are carried out in search of something specific on the basis of a hypothesis (such as the search for Troy in Heinrich Schliemann's expeditions), it has always also been that case that many archaeological finds are accidental by-products of the earthworks carried out on construction sites. This combination is reflective of the method employed to compile the examples in this study; some were compiled in a targeted manner, following a hypothesis, while others were found by chance. And these discoveries in turn cast a new light on things that had previously seemed old and familiar to me.

The third reason is a methodological one, and has to do with the fact that the architectural history presented here does not reflect a linear process, it does not follow a chronological narrative,[7] does not lead from a chronological beginning to some end point determined by the author. The procedure has more in common with an excavation, whereby the site is explored cautiously, feeling one's way in circular motions, approaching from different angles. And despite this open process, just like in classical archaeology, the overarching goal is to piece together the fragments, shards, and slivers that are found, arranging them into an image of the whole – in this case, the architecture of the Anthropocene. This image encompasses both the emergence of the societal challenges associated with the Anthropocene and our efforts to combat these.

The architectural structures that I will be investigating within this project can be divided into two categories. There are buildings and projects that in classical architectural history are at best discussed as marginal phenomena (such as power plants, cement factories, or zoos), and then there are classical architectural icons that in this study are viewed from new perspectives, because previous historical studies have neither discussed their significance for the Anthropocene nor have they sketched out their concomitant potential for envisioning future approaches to architecture.

This approach is somewhat laborious. It involves re-sorting and rearranging the history of architecture, reassembling the fragments of a historical manuscript, and producing a sudden shift in meaning. The aim is for this procedure to open up new meta-perspectives on our built environment and on the stories we tell about it, and also on the futures

that this makes conceivable. Because we need to reach a better understanding of how the present situation came about, we need, in the words of the German literary scholar Eva Horn, "need new forms of historiography that provide a plausible account of how our species … rapidly became a dominant force in the Earth system."[8]

This attempt to write an architectural history of the Anthropocene is also a documentation of a failure and of self-deception – both of society as a whole and with respect to the work of architects. Because given the effects of climate change and the destruction of the Earth's natural resources, our indeterminate being from the future (which for the sake of simplicity I will refer to as "Aia") is interested not just in the attempts we made to save or escape this situation and why they might have failed, but also in which measures were not taken, despite the fact that humanity considered them worthwhile.

Ultimately, Aia poses the question of how much blame for the destruction of the Earth can be apportioned to architects. It may be unpleasant and painful to address the possibility of a future sense of guilt, but it is a necessary task, because admitting guilt and taking responsibility are prerequisites for change. In order to get a glimpse of what a future architecture might look like, we need a new beginning; one that broadens our perspective on architecture in space and time, allowing us to look beyond the Western, anthropocentric canon and to uncover overlooked traditions and references. Only then might we find a path to an architecture that does not cause destruction but fosters reconciliation. We need to find new forms of coexistence, between humans, animals, plants, and perhaps also between the beings and forms of existence whose perception resists rational explanation.

So what is the objective of this project? To produce a clarifying perspective on the history and present of architecture, combined with a glimpse into the future, imagining mental constructions and castles in the air that gesture toward a path beyond the complete destruction of the planet.

PROLOGUE
The Habitability of the World

Architecture reflects the ideals, challenges, and conflicts of the age in which it is created. Architecture is a contested field, which is why there are many definitions of what architecture is. These definitions have changed over time, foregrounding various aspects of the work of construction. But regardless of the particular framing of works of architecture or the intentions behind the construction of a particular building, one quality of architecture remains constant: architecture materialises the relationships between humans and the world; between humans and other living beings, space, and time. One of the core tasks of architecture has been to shape the spaces within which humans live. Or to put it succinctly: architecture is the attempt to make the Earth habitable for humans.

Western architectural history has an archetypal image of the origins of architecture, which at the same time is figured as the beginning of the practice of dwelling: the "primitive hut". This image can be traced back to the Roman architect and theorist Vitruvius, who lived in the 1st century BCE.[9] Vitruvius envisioned the first human dwelling as a simple structure made of tree trunks, which protect the "primitive" human from elements, enabling humans to also settle in inhospitable regions. Viewed from today's perspective, preoccupied as we are by debates around sustainability, this is quite an idyllic image, utterly devoid of menace. After all, this primitive hut is made of nothing but wood and leaves, highly sustainable materials, the use of which poses no threat to the environment or to natural resources, and to the broader prerequisites of human survival.

But the reality of the cities and landscapes that have emerged throughout history – particularly the history of the nineteenth century – have been strikingly different to this. Architecture has not just provid-

ed humans with protection from the forces of nature, it has also transformed the planet beyond recognition. A simple physical ratio provides a clear illustration of this: since 2021, the mass of human-made material on Earth has been greater than the living biomass[10] – that is, the weight of all the houses, infrastructure, machines, consumer goods, etc. outstrips that of all the living flora and fauna. And architecture plays a big role in this, because more than half of this human-made mass consists of architectural constructions.[11] It would seem that the process of transforming the planet is far from over. After all, the global population continues to rise – and with it, the need for more buildings (a need that is regularly and emphatically proclaimed).

The prospect of transforming the Earth is something that has motivated many architects. For a long time, the business of building works of architecture was associated with an almost godlike creativity. For centuries, architecture as a profession viewed itself as conquering nature – or, to use another concept that reveals the core of architecture – as domesticating nature.The image of the primitive hut marks the prelude to a sweeping project to transform the world. In 1734, right in the middle of the Age of Enlightenment, the French architectural theorist Marc-Antoine Laugier once again invoked the image of the primitive hut – imbuing it with a new, sociopolitical meaning. For Laugier, the primitive hut symbolised the transition of humankind from a being of nature to one of culture. In his reading, the construction of the first house marked the beginning of civilisation. "Civilisation", however, as cultural anthropologist David Graeber and archaeologist David Wengrow have pointed out, is a term that has been weaponised ever since the Enlightenment, used by the supposedly culturally superior West to justify the disenfranchisement, exploitation, and enslavement of supposedly less developed societies – despite the fact that this contradicts their own vaunted ideals.[12] Viewed in this light, the primitive hut – or at least the image of "civilisation" that is projected onto it – is by no means as innocent as it might first seem. There is a line issuing from it that extends all the way through to the destruction that characterises the Anthropocene.

Violence, exploitation, and the destructive transformation of the Earth by human beings, though, is juxtaposed in the history of architecture with the longing for a harmony between human beings and nature. Because of this, the simplicity of the primitive hut is often referenced whenever people seek to invoke a departure from Western civilisation and capitalist economics. An oft-cited example of this is the American writer and reformer Henry David Thoreau, who lived in the early industrial era and retreated to the forest to live in a self-built hut. His book Walden, published in 1845, became an important source of inspiration for generations of dropouts who turned their backs on the industrialized world in search of a (supposedly) natural, simple life.

But it's not just dropouts who succumb to the allure of the primitive hut. Even Le Corbusier, the architect who had such a decisive impact on the evolution of modern architecture, with its focus on functionalism and – in the eyes of many critics – its alienating effects, would spend his holidays in a small hut on the Mediterranean that he called Le Cabanon. The fact that this little hut is today a UNESCO World Heritage Site is one of the ironies of architectural history – or rather, an expression of the realisation that fleeing from the world we have created is part of our understanding of the world.

Today, it is the "tiny house" onto which many people project their desire for a balance between proximity to, and distance from, nature. The simplicity of the primitive hut that allows humans protect themselves from nature without losing contact with it seems to be an enduring ideal type in the history of dwellings.

"Dwelling" is a key concept when it comes to the relationship between humans and the world. Architects are the experts in this department. They know how to design spaces in which people will feel comfortable; or, to put it another way, how to make the world habitable. Or at least, that is the ideal. Because the romantic ideas associated with the image of the primitive hut have little in common with contemporary architectural practice. Architecture has long since become one of the key drivers of comprehensive changes to the Earth system that have led to climate change and and other negative developments.

One philosopher who thought profoundly about the notion of "dwelling" was Martin Heidegger. In 1951, he articulated some fundamental ideas on architecture's relationship to both "dwelling" and "being".[13] According to Heidegger – who lived in a remote hut in the Black Forest, the German terms wohnen (living or dwelling), bauen (building), and sein (being) all had the same etymological root. He defined "dwelling" as "the way in which you are and I am, the manner in which we humans are on the earth".[14] The conception of building (bauen) that he derived from this extended far beyond the classical tasks of the architecture. "The old word bauen, which says that man is insofar as he dwells, this word barren however also means at the same time to cherish and protect, to preserve and care for."[15] He went even further: "Mortals dwell in that they save the Earth. … To save the Earth is more than to exploit it or even wear it out. Saving the earth does not master the Earth and does not subjugate it, which is merely one step from spoliation."[16] Though we could hardly argue that Heidegger conceived of "preserving", caring for", and "saving" the Earth in the ecological sense we might mean today, he did interrogate architecture's image of itself by revealing its inner tensions. On the one side we have the fundamental form of the being of building and dwelling as the way in which we are in the world; and on the other, its obvious inability to preserve, care for, and save the world.

Fig. 1: The "primitive hut" as depicted by Laugier in 1755 in the frontispiece of his *Essai sur l'architecture*. It symbolised the birth of "civilisation"; which was used to legitimate not only humanity's domination of nature, but also of Western powers over other cultures and societies.

Saving the world from self-destruction is also the aim of the notion of "sustainability", a principle that has now become a common-sense belief. In the wording of the 1987 UN report Our Common Future, sustainability is defined as meaning that in meeting the present needs of humanity, we must ensure that we are not "compromising the ability of future generations to meet their own needs."[17] Despite all the invocations of this new ideal, the contradictions outlined above between the desire to preserve the world and the ongoing destruction of it have not yet been resolved. Nevertheless, sustainability is extolled as something to strive for in our quest to ensure our future on this planet. In architecture, sustainability typically refers to building materials, reducing energy usage, and ensuring the durability of buildings. But it is plainly obvious that these measures are insufficient, which is why in thinking about the future viability of architecture, urban planning researcher Johannes Novy self-critically states: "We cannot afford to just build greener. We also need to build less."[18] And he is far from alone in this belief.

It may also be the concept of sustainability itself that needs to be put up for discussion. Because at its heart, it refers to things that should be retained and made to last rather than asking what we perhaps need to abandon and refrain from.[19] We can find an alternative suggestion for an approach to the future – one that draws explicitly on Heidegger – in the work of Indian historian Dipesh Chakrabarty. He writes that "the key term in planetary thinking that one could contrapose to the idea of sustainability in global thought is habitability."[20] But this habitability does not solely reference humans, instead concerning all living organisms. "Its central concern is life, complex, multicellular life, in general."[21]

Habitability leads us back to architecture. And to Vitruvius. For him, architecture began with the primitive hut – and with this began the habitation of the planet. Architecture makes the Earth habitable. But when we consider humanity's destructive interventions into biotopes and the entire Earth system, anthropogenic climate change, and the destruction of natural resources, it seems extremely doubtful that the Earth will continue to be habitable in the future – or at least, not for all forms of life. It has already ceased to be so for many plant and animal species. The central question as far as habitability goes, Chakrabarty continues,

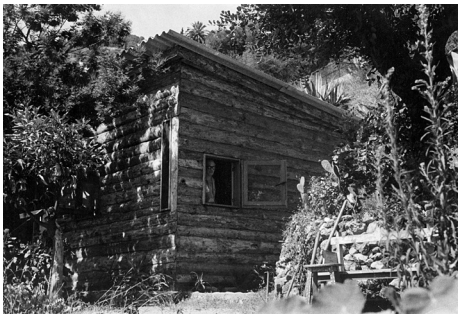

Fig. 2: Le Corbusier, a key figure in the conception of the functional city, liked to retreat to the seclusion of a simple hut.

is what "makes a planet friendly to complex life for hundreds of millions of years?"[22]

The notion that architecture as we currently know it makes the Earth habitable has well and truly become obsolete. And worse still: architecture leads to the consumption of incredible amounts of natural resources and energy. According to the UN, some 38 per cent of global CO_2 emissions can be traced back to the construction industry – and these figures are on the rise.[23] Architecture as it is predominantly practiced today produces unhabitability. As Chakrabarty sums up the paradox of the present (whose ramifications go well beyond architecture), "the institutions humans have used so far to secure human life have reached a point of expansion and development whereby that very fundamental premise of human politics – securing human life – is undermined."[24]

We all know that our way of living and dwelling – that is, the lifestyle facilitated by architecture and urban planning along with all our treasured "habits" – is massively destructive. We need to "unlearn" our habits – to use the language of Indian postcolonial theorist Gayatri Chakravorty Spivak[25] –, in order to then learn a new mode of dwelling and building, a new way of interacting with the world. "The real dwelling plight", according to Heidegger again, is that "mortals … must ever learn to dwell."[26]

Abb. 3: Martin Heidegger spent a great deal of his time in a remote hut in the Black Forest.

In light of the ramifications of the Anthropocene, we must develop a new perspective on architecture. In this perspective, architecture is no longer (only) synonymous with habitability, but

(also) unhabitability. It contributes to the destruction of the foundations of our survival. It is not a purely creative act but also a destructive one. In this sense, we are faced with a fundamental paradox: the previous attempts to make the planet habitable through architecture led to the opposite. If architecture does not want to bring about the end of civilisation but rather the habitability of the planet, we must reinvent architecture.

Part I
DESTRUCTION
Architectures of CO_2 Emissions

> *The historian, particularly the architectural historian, must be in close contact with today's conceptions. Only if he is imbued with the spirit of his age can he uncover traits from the past that were not visible from the standpoint of earlier generations.*[27]
>
> Sigfried Giedion

> *A single building, any building, suffices to demonstrate the entire pathology of human society.*[28]
>
> Hermann Funke

Nowadays, the term Anthropocene is not only used in the world of science but also in broader cultural discourses to describe small-scale but nonetheless destructive interventions by human beings in natural processes – regardless of whether they bring about a transformation of the entire Earth system. As such, humanity uses the concept of the Anthropocene to reframe debates around our relationship with the world, allowing us to become aware of the extent of the destruction we are wreaking. In light of this, this architectural history of the Anthropocene begins as a history of destruction.

The first step is categorisation. What are the central events, actors, and artefacts – or translated into architectural terms: the designs, plans, and projects. When it comes to uncovering "traits from the past that were not visible from the standpoint of earlier generations",[29] in the context of the threat posed by climate change and the destruction of natural resources, the key contemporary parameter of the CO2 emerges as a useful indicator.

In environmental sciences, there is solid evidence about which areas of society produce the most CO2. When it comes to these "drivers", there is a clear hierarchy: in Germany – as in all industrial countries – in 2023, the biggest CO2 emitters were energy providers (38 per cent), followed by manufacturing (21 per cent), mobility (18 per cent), housing (10 per cent), agriculture (8 per cent), trade (4 per cent), and finally, waste management (1 per cent).[30]

In "Destruction", the first section of this speculative archaeology, Aia will take a look at the architectural constructions of the seven central drivers of climate change. The aim here is not to provide a comprehensive survey, but to look at particularly illuminating examples, because a single, building, any building" as the German architectural historian Hermann Funke polemically pointed out, "suffices to demonstrate the entire pathology of human society."

Endnotes

1 Horn and Bergthaller (2022, p. 20).

2 This speculative perspective from a possible future is an increasingly accepted methodology. See, for example, the figure of the "future geologist" in Yusoff (2016).

3 Every day, 150 animal and plant species go extinct. On top of this, over the next 30 years, climate change will make regions that have previously been densely populated uninhabitable due to the risk of flooding or extreme heat, forcing millions of people from their homelands.

4 There are, however, other methodological approaches, which have produced different proposals. Temporally, they range from the agricultural revolution in the Neolithic Period (approximately 10,000 to 15,000 years ago) to the colonisation of the Americas, from the beginning of industrialisation around the year 1800 through to the "Great Acceleration", referring to the phase of massive economic growth after the Second World War powered by petrochemicals and nuclear energy. In 2009, the International Commission on Stratigraphy (ICS), a group of respected geologists that deals with the determination of geological eras, formed the Anthropocene Working Group (AWG). This working group was supposed to assess whether (and if so, when and how) the existence of the "Anthropocene" as a geological era could be proven. To this end, beginning in 2019, drilling was carried out at various locations around the world – including in the ice of Antarctica, at a marsh in Poland, a lake in China, at Karlsplatz in Vienna, at an Australian coral reef, in a cave in Italy – in order to investigate whether significant changes to stone and sedimentary strata could be found whose origins could be traced back to human activity. Within the working group, there was consensus that the beginning of the Anthropocene could be located in the mid-twentieth century. The reason for this is not that this was the time in which the essential features of this geological era emerged – as the architectural constructions presented in this book will make clear, that happened significantly earlier – but rather that geochronology always determines the beginning of a new geological era based on specific, measurable changes to the crust of the Earth. Globally, the indicators that can be categorically detected are, in addition an increase in CO2 levels and the appearance of plastics, the radioactive sediment resulting from the nuclear weapons tests that were carried out from the 1950s onwards. Nuclear weapons tests are also emblematic of perhaps the most terrifying ability developed by humanity in the Anthropocene: the ability to abruptly make the Earth unsuitable for human habitation. One of the ICS's rules is that for every geological era, a location is nominated as a central reference point, at which the typical characteristics of the era can be measured. In July 2023, the AWG announced a location where, in their opinion, the beginning of this new geological era could be clearly marked: Lake Crawford, near Toronto in Canada. In 2024, however, this proposal was rejected by a superior ICS committee. As such, the debate around whether the Anthropocene will become an official geochronological era continues. Regardless of this, the ecological effects that our society has had on the Earth system remain entirely real and threatening.

5 Giedion (2007, p. 44).

6 Zalasiewicz et al. (2014).

7 In contrast to the highly recommended work by Calder (2021).

8 Horn and Bergthaller (2022, p. 20).

9 Back then, architecture was understood more broadly than it is today. Vitruvius developed military machinery for besieging cities, planned the water systems of Rome and erected imposing buildings. He also composed the oldest known text on architectural theory, the famous Ten Books about Architecture. In this work, he sketches out his occupation, which includes the construction of dwellings, cities, and temples, but also of military machinery, clocks and watches, and astronomical devices.

10 Elhacham et al. (2020).

11 Zalasiewicz et al. (2017, p. 13).

12 See Graeber and Wengrow (2022, pp. 18 ff.)

13 In his lecture, Heidegger (who had himself been an adherent of the Nazi regime) only made marginal remarks about the destruction wrought by the Second World War and the ghastly destructive potential of the burgeoning nuclear arms race, but an echo of these experiences can be heard in his considerations of dwellings and homelessness. Various architects who were influential in postwar Modernist architecture in West Germany were in attendance, including Otto Bartning, Egon Eiermann, Sep Ruf, and Hans Scharoun.

14 Heidegger (1991, p. 90).

15 Ibid.

16 Ibid.

17 Hauff (1987, p. 46).

18 Novy (2021).

19 Borries (2021).

20 Dipesh Chakrabarty, "The Planet: An Emergent Humanist Category", *Critical Inquiry*, vol. 46, no.1, p. 20.

21 Ibid. (p. 146).

22 UN Environment Programme (2020).

23 UN Environment Programme (2020).

24 Chakrabarty, p. 30.

25 See Spivak and Harasym (1990, p. 42).

26 Heidegger (1991, p. 102).

27 Giedion (2007, p. 37).

28 Funke (2022, p. 5).

29 Giedion (2007, p. 37).

30 As in all statistical approaches to reality, there are methodological imprecisions depending on which section of the world you look at, and on which emissions you ascribe to which category. To illustrate this with an example connected with architecture: Do the emissions generated in the production of cement belong to "manufacturing" or to "housing"? And how are the gases (such as the deleterious methane) produced by agriculture, which have an effect on the climate, accounted for in such a calculation? For this reason, various investigations have produced various outcomes – but the ranking remains essentially the same. These figures are based on Umweltbundesamt (2024c) and (2024d).