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Architecture in the Shadow of Catastrophe and Collapse

ABSTRACT: Instead of discourses about specific ends, which Fredric Jameson wrote about in relation to the cultural logic of postmodernism, we are increasingly faced with discourses about the ecological catastrophe or civilizational collapse as a comprehensive end. The article raises the question of how this gives rise to a new way of thinking about architecture and the end (or the end of an architectural paradigm). Instead of greenwashing architecture, a stricter, systemic and truly holistic approach is offered, which takes into account, for example, the crisis of access to certain raw materials. With this in mind, the article analyzes the significance of the Colossus and the ruins. Special attention is paid to the role of architecture in discourses about collapse, and in the (neo-)survivalist and collapse-aware movements. Finally, it is pointed out that we tend to think of the end with the help of architectural metaphors (like when Greta Thunberg says "our house is on fire. I am here to say, our house is on fire").

KEYWORDS: architecture, ecology, collapse, end, deep adaptation, civilization, survivalism, greenwashing

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> "Noah had ample warning from a respected authority to build his Ark, and he used his time to good advantage. Skeptics laughed, ridiculed, and drowned—but Noah, the original prophet of doom, survived." D. C. Pirages, P. Elrich, *Ark II: Social Response to Environmental Imperatives,* The Viking Press, New York, 1974, p. v.

This article considers architecture from a special perspective. Taking seriously the predictions that our civilization may be coming to an end, it raises the question of what consequences this has for architecture, not just in a hypothetical future, but also for those who already view the building sector in a collapse-aware manner. The article proposes a holistic reconfiguration of the ecologically lean architectural thought, in such a way that it goes beyond greenwashing and the discourse on "sustainable growth," thus potentially leading to a change in both theory and practice. Instead of offering an easy solution, it proposes an alternative understanding of the question and the cause, encouraging us to be open to the idea of a radical end. As Jean-Pierre Dupuy put it in his book on enlightened doomsdaying: "I have been guided solely by the conviction that from now on we must learn to think in the shadow of future catastrophe."[1] This way of thinking does not have to condemn us to passivity, helplessness, or indifference, but rather the opposite. In line with Dupuy's paradoxical argument, to avoid catastrophe it is necessary to think its future occurrence as being necessary.

Does the future have a future, or has it come to a definite end? In his postfuturist book *After the Future*, the Italian autonomist philosopher Franco "Bifo" Berardi writes that the idea of the future should be over:

> All along the modern times the myth of the future has been connected to the myth of energy; think about Faust, for instance. This idea that the future is *energy:* more and more and more. More speed, more strength, more consumption, more things, more *violence* [...] Everything has to be sacrificed to the growth—this abstract growth—of money, of value, *of nothing.* So, how can we withdrawal from this kind of craziness [...].[2]

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[1] J.-P. Dupuy, *How to Think About Catastrophe: Toward a Theory of Enlightened Doomsaying*, Michigan State University Press, East Leansing, 2023, p. xiii.
[2] F. Berardi, *After the Future*, AK Press, Oakland, 2011, pp. 13, 107.

It is no coincidence that this book is both about the urban territorial perception of Los Angeles, the pseudo-public spaces of our time and the "city of panic," and also about the way in which industrial architecture gives way to a Baroque perspective of simulation and fractalisation.[3] In any case, the book's editors, Gary Genosko and Nicholas Thoburn, write, both generally and closely related to Berardi, that the idea of the future has come to an end, and this end can no longer be avoided: "The point is not to revive the future in a new vanguard. The future was itself a highly suspect temporal form."[4]

Does this discourse, or tone, contain anything new compared to what we have been used to for decades? It is worth recalling what Fredric Jameson wrote in *Postmodernism,* which analyzed in general terms the way space becomes dominant in relation to time in postmodernism, and included a separate chapter on architecture, covering many aspects, from Venturi to Gehry, from the Westin Bonaventure Hotel to the Renaissance Center in Detroit. Jameson writes at the beginning of his book that we are witnessing an "inverted millenarianism, in which premonitions of the future, catastrophic or redemptive, have been replaced by senses of the end of this or that."[5] For Jameson, discourses on the end (of ideology, art, the welfare state, etc.) are the essence of postmodernism. One might argue that a kind of "apocalyptic tone"[6] was also present in the field of philosophy, either in relation to the end in general, or in (post-)Heideggerian or other ways of speaking about the end of philosophy.

However, does this analysis encompass only the end of a specific civilizational product, or also the desirability of and/or fear from the end of civilization itself? *Postmodernism* notes that this cultural logic implies "fantasies of sheer catastrophe," and "catastrophic 'near-future' visions of, say, overpopulation, famine."[7] Jameson understands catastrophe as belonging to the sphere of the imaginary, which is either purely fictional or always postponed. However, he has two insights that foreshadow a different approach. On the one hand, Jameson, speaking of catastrophe, observes that the formerly futurological science fiction "turns into mere

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[3] *Ibid*., pp. 74., 89.

[4] G. Genosko, N. Thoburn, "Preface: The Transversal Communism of Franco Berardi," in F. Berardi Bifo, *After the Future*, p. 3.

[5] F. Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism,* Duke University Press, Durham, 1991, p. 1.

[6] J. Derrida, "Of an Apocalyptic Tone Recently Adopted in Philosophy," *Oxford Literary Review*, 6, 2, 1984, pp. 3–37.

[7] F. Jameson, *Postmodernism*, p. 46, 285.

'realism' and an outright representation of the present."[8] On the other hand, he writes that "if the atomic exchange has grown distant, the greenhouse effect and ecological pollution are, by way of compensation, ever more vivid."[9] Jameson thus senses that the style of perception and affectivity is changing. Nevertheless, *Postmodernism* oscillates between these two interpretations and Jameson does not, cannot, develop a thorough theory of catastrophe.

This article attempts to capture the end that is present tense and encompassing, with special attention to architecture, and as end in its various forms, in all of which the central motif is the possibility of irreversibility. This is different from the end that Jameson attributes to postmodernism. It is not an end which is an "end" in a series of many other ends. It is the ultimate radicalization of the end, an end that encompasses other ends and suspends the relevance of other "end times"[10] or "ends of the world"[11] discourses and apocalyptic tones. It is that a civilizational paradigm (or more precisely, a civilization or the civilization itself) may be coming to an end, irreversibly, that is, in such a way that the previous conditions will no longer be accessible to us, that we will not be able to return to them. It may be seen as symptomatic that this end is often expressed as an architectural metaphor or almost as an architectural metaphor. When we hear, for example, the term "collapse," who does not think of a building falling together, falling into an irregular mass through loss of support or rigidity? And of course, there are further questions: was the support really a support? To what extent should we describe "irregular mass" as disorder or chaos? Can it be used again to create a new building? And what does this mean for architecture in general? The etymology of "collapse" can also be illuminating, since "lapse" comes from the word *labi*, which means "to fall, slip" (e.g., "fall from a spiritual state"), and *collabi* means "to fall together," which expresses what has been said about the utterly all-encompassing nature of the end as collapse, and also raises the possibility that collapse is an event that might unite those who experience and witness it–making them a kind of community, a communion of collapse. And linked to this is the figurative meaning of "collapse," which became prominent from the early nineteenth century: "come to nothing, fail."

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[8] *Ibid*., p. 286.
[9] *Ibid*., p. 373.
[10] S. Žižek, *Living in the End Times*, Verso, London, 2011.
[11] D. Danowaski, E. Viveiros de Castro, *The Ends of the World*, Polity Press, Cambridge/Malden, 2017.

This article thinks of end and architecture first and foremost in terms of the present, that is, the extreme end that is perhaps already happening, in the sense in which we talk, often unreflectively, of ecological catastrophe or civilizational collapse. We start from the premise that a radicalized vision of the end necessitates a new way of thinking about architecture. *In medias res*, whether we acknowledge the necessary and/or desirable end of what we have come to call—not innocently—growth,[12] wanting its controlled cessation (for example, under the banner of degrowth), or believe in the inevitability of collapse, both imply the end of a kind of overarching paradigm of architecture.

The term "ecology," since its introduction in 1866, has primarily referred to harmony and equilibrium, which raises a number of questions, such as whether nature or the environment or living habitats are always like this, and whether we can thus think of the various forms of the end such as "ecological catastrophe" or "ecological collapse," or whether we should regard them as unacceptable oxymorons. Furthermore, when the term "environmental design" appeared in the United States in the 1950s (as in Chermayeff's Harvard program of the same name), the environment referred primarily to the socio-cultural environment, with only minimal connotations of nature. It was only later that environment began to refer to ecology in a prominent way, especially since the Club of Rome's famous 1972 landmark report on the limits to growth (anticipating "a rather sudden and uncontrollable decline"). The meaning became even more specific before the end of the century, when "ecology" was increasingly reduced to "climate." Another change, for example, is the term "ecological design," which we owe to Sim van der Ryn and Stuart Cowan's 1996 book of the same title.[13] Histories of "environmental architecture" or "ecological design" seek to consider continuities, narratives that offer a special kind of openness, so it is no coincidence that one of the books on this subject is entitled *Histories of Ecological Design*, in plural form, also containing *Unfinished* and *Cyclopedia* in its name.[14] A prominent role is given to architects who have taken more account of

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[12] See e.g. J. Hickel, G. Kallis, "Is Green Growth Possible?," *New Political Economy*, 25, 4, 2019, pp. 469–486. Also: T.-L Vadén *et al*., "Decoupling for ecological sustainability: A categorisation and review of research literature," *Environmental Science & Policy*, 112, 2020, pp. 236–244. G. Kallis, "Capitalism, Socialism, Degrowth: A Rejoinder," *Capitalism Nature Socialism*, 30, 2, 2019, pp. 267–273

[13] S. Van der Ryn, S. Cowan, *Ecological Design*, Island Press, Washington, 1996.

[14] L. Kallipoliti, *Histories of Ecological Design: An Unfinished Cyclopedia*, Actar, New York/Barcelona, 2024.

the symbiosis with the functioning of nature (e.g., Beverly Willis, Gernot Minke or Emilio Ambasz), or who have given much greater emphasis to "environmental concerns" in their work (e.g., Ant Farm or Ray Eames). But is it possible to rewrite this narrative or to write new narratives, with the motif of the end in mind?

One cannot fail to notice, for example, the inherent multiplicity of synecdoche in terms such as "green building" or "green architecture." What is more, different rhetorical devices are used when trying to describe a kind of overall economics, as in the case of "net-zero buildings" or "energy positive building" (as, for example, in the paradigmatic case of the ArchiBlox Positive House in Melbourne). Perhaps the boldest, most ambitious term of all is "sustainable planning," given that it allegedly refers to a whole or to global scales. "Green architecture" is quite possibly a synecdoche, in that the architecture in question is probably not entirely green in a literal sense, but how is green to be understood if it is not a color? Does it fit harmoniously into an ecology? Is the assumed balance even possible or desirable? And has it been determined in a systemic way, taking into account the complexity of diverse factors, that the building in question, for example, is "net-zero," or by some kind of cherry picking? Is the approach truly "holistic" or has a buzzword been misused again? Architecture, which sees itself as ecology-sensitive, very often commits itself to a specific way of talking about the end when it talks about mitigation, thereby committing itself to the idea that a certain end can be postponed or avoided—and thus, at the same time, the end is embedded in the speech in a haunting way, wittingly or unwittingly, implicitly or explicitly. This discourse talks about reduction or suspension in the context of certain verbs ("consume," "waste," etc.). It sets a target, for example, to reduce the number of over 220 million buildings (75% of the building stock) that are energy-inefficient and dependent on fossil fuels for heating and cooling in Europe, thus probably suggesting that the solution will be found in the future, and it only implies that a certain type of architecture must come to an end. It avoids any talk of a more general or comprehensive end, especially as the statement implicitly includes the 25%, i.e., the tendency to avoid a more severe end. This may mean emphasizing different materials or techniques (for example, low-flow plumbing and rainwater collection), and certain terms ("energy efficiency," "reuse of materials," "smarter design," "y-values," "thermal comfort," etc.) are given a prominent role. In this discourse, the emphasis is on comfort instead of the crisis or possible end

of comfort, on efficiency instead of the extraordinary challenge of energy (in)efficiency, on (re)use instead of the crisis (or impossibility) of use, on the future instead of the possible end (or ends). At the end of the twentieth century, the title of a book predicted the dominant attitude to the ecological question in the following years: *Natural Capitalism: Creating the Next Industrial Revolution*.[15] In the context of architecture and ecological catastrophe, the question must now be asked: instead of another futurism masquerading as green, should we not rather confront the question of end (and ends)?

As a positive counter-example, it is worth drawing attention to a 2009 paper on the building sector by William E. Rees.[16] Rees clearly situates the discourse on architecture in the context of a "growth-related" ecological crisis that "could well undermine prospects for global civilization."[17] What allows him to rethink architecture is precisely that he considers it from the perspective of the end, the comprehensive and irreversible end, i.e., the possible collapse of civilization. He declares that "mainstream 'solutions'–hybrid cars, green buildings, smart growth, the new urbanism—are thus rooted in denial and delusional,"[18] because they only deal with the surface of the problem. When Rees describes today's consensual approaches as illusory, he implicitly criticizes existing strategies for greenwashing. He sees overconsumption as the fundamental problem, and the effort to maintain the current level of growth. Nevertheless, Rees approaches the problem radically enough to allow him to reconceptualize architecture and ecology. His boldness is particularly evident when he realizes that the "technoindustrial society is inherently unsustainable."[19] Rees suggests that civilization in its current version is coming to an end, perhaps that is why he mentions that it is unlikely that national or international mitigation policies will be able to deliver significant changes. He states that survival is at stake, not just in general, but also specifically in the building sector, adding that major lifestyle changes are inevitable. And in this spirit, he urges us to face up to the root of the problem: the futility of striving for "more efficient unsustainability." In this sense, he

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[15] P. Hawken, A. Lovins, H. Lovins, *Natural Capitalism: Creating the Next Industrial Revolution*, Little, Brown and Co., Boston, 1999.

[16] W. E. Rees, "The Ecological Crisis and Self-Delusion: Implications for the Building Sector," *Building Research & Information*, 2009, pp. 300–311.

[17] *Ibid*., p. 300.

[18] *Ibid*.

[19] *Ibid*.

takes into account the illusions associated with the built environment by critiquing the universal myth of perpetual growth, taking into account the global nature of the problems and their specific contexts. Given all this, it is surprising that Rees raises the question whether "the [building] industry has the intellectual courage and practical momentum to assume a lead role in the sustainability campaign?"[20] It is even more surprising that Rees shares one of the illusions, in that he identifies "decarbonization" as the central issue, and within that, zero-carbon construction as the desired goal. However, it is noteworthy that he is realistic enough to acknowledge that significant reductions in carbon emissions cannot be achieved without a planned economic recession.

We who, 15 years after Rees' article, are thinking about ecological catastrophe and civilizational collapse, have the opportunity to think differently about the nature of the end. We can see more clearly which goals cannot be met, and what we must finally face up to as unsustainable. For example, the carbon load in the atmosphere has risen to over 410 ppm, the highest level in 800,000 years. Even though the discourse of transition to the green economy has gained momentum, compared to the official mainstream position that fossil fuel production and use should be reduced by at least 6% per year, at the time of writing the Energy Institute states that the share of energy used in the world still coming from fossil fuels is 81.5%. What is more, global energy-related CO2 emissions grew by 1.1% in 2023, increasing 410 million tons to reach a new record high of 37.4 billion tons. While the IPCC stated that the world's nations should limit the temperature increase to 1.5°C above pre-industrial levels, otherwise, humanity will face mutually reinforcing whirlwind of catastrophes, in 2023, as the warmest year in the 174-year observational record, the global near-surface temperature was 1.45 ± 0.12 °C above the pre-industrial 1850–1900 average. However, these are only the best-known figures, which, even if we dare to confront them, can only give a narrow, reduced picture of the nature of the disaster. There is a kind of synecdoche at work when they use a kind of architectural metaphor, mentioning "greenhouse gas emissions" as the central problem. The architectural metaphor of the house stresses unity and a kind of intimacy, but this metaphor is undoubtedly misleading, since, for example, the greenhouse does not have the rise in sea level or the melting of ice sheets that are the defining elements of the catastrophe of our time. And at the

[20] *Ibid*.

same time, the synecdoche distracts us from other aspects of the disaster, from the growing crisis of access to critical elements to the unimaginable scale of biodiversity loss, from acidifying oceans to the disappearance of forests, from the reduction of arable land to global water scarcity. From today's point of view, not only is there no sign that "decarbonization" and zero-carbon construction mentioned by Rees will be met, but we are even witnessing an increase in the absolute amount of global energy-related CO2 emissions. But, in fact, the one-sided slogan of "decarbonization," which has existed since 1992, is also a case of arbitrary selectivity, not only in that it distracts attention from other aspects of the systemic catastrophe, but also in that it even misdescribes the greenhouse effect, forgetting other factors such as nitrous oxide and methane. As Kenis and Mathijs say, "the focus on CO2 has narrowed the debate to ignore the human-societal root causes and processes of change and led to a focus on technical solutions that remain within the parameters of what currently exists and is convenient. Such discourses have depoliticizing and disempowering consequences."[21]

What would an authentically ecology-sensitive architecture mean, one that realistically and honestly confronts what is unsustainable and what has come to an end? First of all, it must be ruthlessly acknowledged that existing architecture and construction are an integral part of the problem, as this industry contributes 42% of all carbon dioxide emissions and is responsible for 40% of global energy consumption. Taking into account all the above, the conclusion is inevitable that the end of architecture and construction as we know it is not only desirable but inevitable. We are witnessing a growing realization that mitigation is no longer enough, but that we must adapt to the increasing number of disasters and to a kind of end, the end of the paradigm that has prevailed. In line with this, for example, there is increasing talk of the need for elevated foundations and advanced stormwater drainage systems. 80% of the world's major cities are near a coast, and the question now is less and less how to avoid floods, but how to adapt to a world of which they are an inevitable part. Even the modest slogan of "climate-responsive design" means acknowledging a profound transformation of the climate we have been used to, for example, by buildings that can withstand extreme weather. But again, it would be illusory to focus on the greenhouse effect

[21] A. Kenis, E. Mathijs, "Climate change and post-politics: Repoliticising the present by imagining the future?," *Geoforum,* 52, 2014, pp. 151.

or decarbonization alone, while forgetting other factors such as the crisis in the availability of certain raw materials. The increased use of certain "natural materials" (hemp, timber, straw, loam or poured earth, rammed earth,[22] adobe, wattle-and-daub or "quincha," cob, etc.) in construction is not only because it allows us to replace carbon-intensive materials, or because some of them absorb and store natural carbon, but also because a decisive change has taken place regarding the accessibility of certain raw materials. For example, in a world where sand has to be transported from Australia to Dubai, we hear more and more about shortages of sand suitable for construction. The commodity's supply is dwindling, and the risk of a global shortage in increasing. Even according to a UN Environmental Program (UNEP) report,[23] sand is being extracted far more quickly than it can be renewed. According to UNEP's conservative estimates made in 2022, the world sand consumption is in excess of 50 billion tons a year, and that number is twice that of the annual amount of sediment carried by all of the rivers of the world. And sand is increasingly in demand for technologies such as hydraulic fracturing. What is more, not only is sand extraction often very damaging, but, for example, its transport is also environmentally destructive. A recurring feedback problem is that solar panel and wind turbine manufacturers also rely on sand. However, at the same time, there is also a tendency for sand to be increasingly used due to rising sea levels and increasing ocean storms, and there is a growing need for sand dams and sandbag installations. Taken together, this means that the overarching paradigm of sand use is coming to an end,[24] but it is an open question what a restructured one would look like.

What else would a critical, ecology-sensitive approach, with an end in mind, mean? First and foremost, a truly holistic systemic approach that rejects cherry-picking-based interpretations, bearing in mind all the constitutive factors. In the case of *Passivhaus*, for example, this approach breaks with the uncritical idealization of the model and instead draws attention to the fact that it is often based on products and techniques that are frequently derived from fossil fuels. Let us take a concrete example:

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[22] It is worth drawing special attention to this book: G. Minke, *Building with Earth: Design and Technology of a Sustainable Architecture*, Birkhäuser Architecture, Basel, 2009.

[23] P. Peduzzi (ed.), "Sand and Sustainability: 10 Strategic Recommendations to Avert a Crisis," UNEP report, https://www.unep.org/resources/report/sand-and-sustainability-10-strategic-recommendations-avert-crisis, (accessed 25 October 2024).

[24] *Cf*. T. Watari *et al*., "Growing role of concrete in sand and climate crises," *Iscience*, 36, 5, 2023, pp. 1–10.

Deloitte's 'The Edge' building in Amsterdam has often been described as one of the world's most sustainable office buildings. When we read, for instance, that it is equipped with solar panels and thermal energy storage, we need to ask some key systemic questions. For example, what type and amount of energy and raw materials were used to produce the solar panel? What were the wires, control units or mounting structures made of and how much energy did their production use? What role does aluminum play, which is very energy-intensive as it can only be produced at very high temperatures using complex processes? How much raw material was extracted and how much fossil energy was used to extract aluminum? Is it mono- or polycrystalline silicon solar cells or some other technology? Is it a solar cell with a short payback period or other, such as a cadmium tellurium cell? In how many years will the solar panels need to be replaced? In short, the mere statement that "The Edge" is equipped with solar panels tells us very little about the extent to which it is truly a "green building," i.e., about its environmental impact from a holistic, systemic perspective, and exactly what its energy consumption and relationship to renewable energy is, not just taking into consideration of the isolated individual building, but the whole process, from the construction of the building to the aspect of obsolete[25] equipment. Similarly, we can be sceptical when we read about "The Edge" being a smart building to help the transition to the digital age. We know that being digital is far from neutral and innocent in nature, but sometimes even extremely energy intensive (from bitcoin to artificial intelligence). How should we assess the ecological footprint of the digitality of the building from a truly systemic, holistic perspective? And when we read about "The Edge" that "if no one is there, there is almost zero energy use," or that the building "results in zero carbon emissions," the question arises: how much energy and raw materials (including carbon-emitting ones) were used to construct "The Edge" to subsequently renew the building's components (such as the 65,000 sq ft solar panels)? Is it not misleading to talk about "zero energy use?" And when we read that "The Edge" features a new LED-lighting systems, co-developed with Philips, do we not need a similar holistic questioning of how the extraction of gallium, the raw material most commonly used for LEDs, took place and what are the limits of its availability? In other words, it is also true of LED that an abstract

[25] For a wider architectural analysis of obsolescence see e.g. D. M. Abramson, *Obsolescence: An Architectural History*, Chicago University Press, Chicago, 2016.

sentence about it reveals little about their actual environmental impact and as regards its status as a raw material.

So, in contrast to the greenwashing of architecture, we need a different type of discourse, one that is ruthlessly aware of what is unsustainable. We have to talk about the end of a paradigm, and face it, prepare for it, adapt to it. There are many ways to describe the paradigm itself, and one possibility is to use a metaphor, *homo colossus*,[26] which expresses the vanity of height and spectacle, but can also express the absurd scale of energy demand and raw material hunger, or simply the destruction of nature. The best-known historical manifestation of this trope, the Colossus of Rhodes, is instructive. It stood for only 54 years until an earthquake snapped it at the knees, and it fell onto the land, damaging the harbor and many buildings. It was a collapse, the collapse of a "miracle" that brought further collapses. The remains lay on the ground for 800 years, attracting many visitors. As Pliny the Elder writes bitterly: "even lying on the ground it is a marvel" (Plin. *Nat*. *Hist*. XXXIV, 18, 41).[27] (We could therefore ask what kind of collapse tourists will visit and admire the ruins of *homo colossus*?) But the story of the Colossus of Rhodes does not end there. In 2015, a group of European architects announced plans to build a modern Colossus, once again at the entrance to the harbor, which would have stood 150 meters tall and would cost an estimated US$283 million. The building would have consisted of several different sections, all powered by solar panels. However, no such plans were carried out. The plan was forgotten. But at least they even thought of greenwashing the modern Colossus.

One possible way to think about architecture and the end is to conceptualize ruins differently. The ruins that do not "suggest a future" and that are not a "stimulus to the imagination,"[28] that we no longer fantasize about reusing (and recycling, integrating…), that we may never visit, that we may lose forever. The ruins that may not be for us. Radical ruins, where we will really be able to give up or will have to give up. Will we be able to do so? And how will we experience it when it becomes inevitable? For example, those who think about post-civilization architecture and post-apocalypse design, write that a whole city might "fall silent"

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[26] See e.g. T. Lepage, *Eye of the Storm: Facing Climate and Social Chaos with Calm and Courage,* Open Door Communication, Irvine, 2023, p. 19.

[27] Pliny, *Natural History*, vol. 9, Harvard University Press, Cambridge, Mass./William Heinemann Ltd, London, 1961, p. 159.

[28] J. Hill, *The Architecture of Ruins: Designs on the Past, Present and Future*, Routledge, London/New York, 2019, p. I.

and be "without pulse," and that we will have to adapt, that there will be "scarcity of resources" and that "we may not have full protection."[29] The motifs of confrontation, adaptation and resignation are clear. But perhaps it is primarily by coming to terms with the ruins that we can demonstrate that we are ready to face the end, the end of a paradigm. Cal Flyn in his work *Islands of Abandonment: Nature Rebounding in the Post-Human Landscape* writes about no man's lands where ruins and rewilding (natural reclamation) form a disinterested alliance. For him, it is, among other things, an opportunity to "transcend the present," and "offer us a glimpse into a future in which climate change [...] come[s] to create a very different world."[30]

We can also draw on an essay by G. M. Tamás, which offers a typology of ruins: 1. romantic ruins, which are signs that "gods have fled;" the passage of time destroyed them so that they lost their aura and original contexts and became non-beautiful beauties, 2. "human settlements laid waste by natural catastrophes," which show human designs'

> vulnerability to anonymous forces without malice, indifferent to the human predicament, disproportionately larger than anything that the deliberately planned human cosmos can possibly muster. Those human dwellings wiped out by impassible nature will illustrate the futility of human will and the inborn weakness of the species.[31]

3. the ruins of war that bear witness to human violence that, for example, show incineration and pulverization by conscious choice; a sign that superior forces are punishing those allegedly belonging to the enemy, 4. the ruins of deindustrialization, such as abandoned factories, which can change the face of an entire city, 5. the ruins created by contemporary political art, through which art expresses that "it is not allowed to build anything," because otherwise it would be embedded in the logic of power and its symbolic order; the representation of these ruins is also a betrayal, art is only authentic if it is itself a ruin. (Tamás adds that, for example, the artificially created ruins in the English gardens of the Romantic period

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[29] Overstreet, "Architecture After Civilization: Design in the Post-Apocalypse," https://www.archdaily.com/998267/architecture-after-civilization-design-in-the-post-apocalypse?ad_campaign=normal-tag, (accessed 29 October 2024).

[30] C. Flyn, *Islands of Abandonment: Nature Rebounding in the Post-Human Landscape*, Viking, New York, 2021, p. 15.

[31] G. M. Tamás, *Innocent Power / Die Unschuldige Macht. 100 Notes - 100 Thoughts*, *No. 013, dOCUMENTA (13)*, Hatje Cantz Verlag, Berlin, 2011, p. 3.

were a sign of a freshly discovered sense of history.) If we interpret this typology in terms of the radicalized idea of the end, the question arises: is it not possible that these forms are not necessarily mutually exclusive, but can be closely related? Tamás' typology sees nature and society as a binary pair of opposites. The natural passage of time and natural disasters are rigidly separated from the processes of war and deindustrialization. And is the idea that natural disaster is the result of "anonymous forces" that are "disproportionately larger" than the "futility of human will" an adequate description of the disaster that has probably already begun, and whose next horrific stages will unfold for us in the coming decades? Should it not be stressed that there are many feedbacks and interconnections between nature and society? Should it not be emphasized that one factor (the Anthropocene, techno-industrial society, capitalism, etc., depending on how we want to describe it) can have a disproportionately large impact (with some futility and with the seemingly unlimited strength) on the environment as a whole, and that this can even lead to its own destruction? Imagine, in the context of a thought experiment, that a series of ecological catastrophes occur on our planet (that heat waves will eventually exceed those optimal for human flourishing, that sea levels will make many cities unlivable, etc.), whereby, in the struggle for resources, a multitude of wars break out, entire industrial sectors and cultural contexts disappear, and "not building anything" becomes not an artistic practice but a universal, necessary, self-evident principle. Does not the idea of a radicalized end confuse typology and make it desirable to think differently about ruins? They would remind us not only of the transience of architecture, but also of the transience of civilization, from which a certain paradigm of architecture has grown.

It is worth paying particular attention to the end as collapse, which we have already written about as functioning in large part as an architectural metaphor. Today's collapse-aware discourses have a number of inspirations, several of which are directly intertwined with the problem of architecture. Beyond the "classics" (from Ibn Khaldun to Gibbon, from Toynbee to Spengler), it is worth highlighting first Joseph Tainter, who, in defining the collapse of civilizations in his *The Collapse of Complex Societies*, emphasizes that one of the characteristic epiphenomena is less investment in complex products such as monumental architecture.[32] In *Collapse*,

[32] J. Tainter, *The Collapse of Complex Societies,* Cambridge University Press, Cambridge, 1988, pp. 4, 55.

Jared Diamond specifically discusses the Easter Island chiefs and priests who sought to impress the masses with monumental architecture, and how the Chaco residents saw the disappearance of the woodland, one of the symptoms of which was the disappearance of the pinyon beams from Chaco architecture.[33] While *Questioning Collapse*, a volume dedicated to Diamond's critique, disagrees with Diamond on a number of points, it agrees with him that one of the defining features of civilizations is colossal monumental architecture, and one of the signs of the collapse of civilization is its fall into disrepair.[34] Ugo Bardi analyses the narrower meaning in the context of architecture, the collapse of engineered structures, in his *Before the Collapse*. In this spirit, he describes the collapse of the Morandi Bridge in Genoa, or the collapse of Rana Plaza in Bangladesh, which was the result of criminal negligence.[35] The basic model for the work is the Seneca curve, with Chapter 1 offering a science of doom and the rest of the book describing the strategies that allow collapse to be managed. Finally, Guy D. Middleton's *Understanding Collapse*, which describes the "crisis architecture" of post-eruption, societal stressed Crete, is a case in point.[36] Middleton's description contains subtle details, including limiting access to buildings, dividing up large rooms (and turning them into storage), creating new enclosures, localization (emphasis on local mansions instead of palaces), etc. These are all symptoms of Minoan collapse.

It is also worth considering contemporary discourses that use an eminent meaning of the concept of the end. The collapsology developed by Pablo Servigne and Raphaël Stevens (and Gauthier Chapelle) emphasizes that the extraction of building materials increased by a factor of 34 during the twentieth century, and they talk about "the emergence of new livelihoods built on the ruins of capitalism." They also revive Jean-François Nouvel's concept of invisible architectures.[37] At the top of their book *Another End is Possible*, there is a wooden house, surrounded by

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[33] J. Diamond, *Collapse. How Societies Choose to Fail or Succeed*, Viking, London, 2005, pp. 119, 157.

[34] P. A. McAnany, N. Yoffee, *Questioning Collapse. Human Resilience, Ecological Vulnerability and the Aftermath of Empire*, Cambridge University Press, New York, 2010, p. 170.

[35] U. Bardi, *Before the Collapse: A Guide to the Other Side of Growth*, Springer, Cham, 2020, pp. 87–92.

[36] G. D. Middleton, *Understanding Collapse: Ancient History and Modern History*, Cambridge University Press, Cambridge, 2017, pp. 120–121.

[37] P. Servigne, R. Stevens, *How Everything Can Collapse: A Manual for Our Times*, Polity Press, Cambridge/Medford, 2020, p. 32. R. Stevens, G. Chapelle, P. Servigne, *Another End is Possible: Living the Collapse (and Not Merely Surviving It)*, Polity Press, Cambridge–Medford, 2021, p. 22, 287.

a mountain, with moss and grass on top, and some pine trees. Is it not self-evident that the metaphor of the house shows what it means to "live" the collapse? The deep adaptation introduced by Jem Bendell should also be mentioned here, which inspires architectural imagination as well,[38] and which moved from the "collapse inevitable" position to the "collapse has already begun" opinion. As a result of the concept of deep adaptation, architectural and urban planning discourses have been created that think differently about the end, that is, they keep in mind that certain harmful, negative effects are inevitable.[39] A kind of duality characterizes the post-doom thinking introduced by Michael Dowd, since on the one hand it emphasizes the resigned acceptance of the inevitable collapse of civilization, but on the other hand it talks a lot about how to "prioritise what is pro-future and nourishing."[40] These discourses significantly influence the way we think about the end today.[41]

It is important to see that these discourses prevail regardless of the scale of ecological catastrophe or civilizational collapse. Social movements (survivalists, doomsday preppers, retreaters, preppers, etc.) are becoming more and more common, which transform architecture in such a way that, above all, they have a specific way of end in mind. Of course, this view has been around for a long time. For example, the official U.S. 1950 government booklet *Survival under Atomic Attack* wrote that "inside a shelter or building there is little or nothing to fear from this resource. But if caught out-of-doors, try to grab hold of something to cover yourself with when you fall to the ground," and it also answered in details the question "what about radioactivity in the house?"[42] However, the idea

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[38] J. Bendell, *Breaking Together: A Freedom-Loving Response to Collapse*, Good Works, Bristol, 2023, p. 422.

[39] E.g. Z. Hercig, P. Szatzker (eds.), *Adaptációs utmutató az éghajlatváltozás hatásaihoz önkormányzatok számára*, https://vizmegtartomegoldasok.bm.hu/storage/dokumentumok/Adaptacios%20utmutato.pdf?fbclid=IwY2xjawF6CH5leHRuA2FlbQIxMAABHUkmKS2n8AFaQophTKp-qPPEtiG0UjUv9lV9Ur4aeeM-vGf5OwM5XjzNhg_aem_qNi5cpiFaTaQvhtPuTcb1A, (accessed 02 November 2024).

[40] Postdoom, https://postdoom.com/, (accessed 02 November 2024).

[41] For a comprensive analysis, see e.g. J. Monios, G. Wilmsmeier, "Deep adaptation and collapsology," in F. J. Carillo, G. Koch (eds.), *Knowledge for the Anthropocene*, Edward Elgar Publishing, Cheltenham/Camberley/Northampton, 2021, pp. 145–156. See also: P. Servigne *et al*., "Deep Adaptation opens up a necessary conversation about the breakdown of civilization," https://www.opendemocracy.net/en/oureconomy/deep-adaptation-opens-necessary-conversation-about-breakdown-civilisation/, (accessed 02 November 2024).

[42] *Anon*., *Survival under Atomic Attack*, *The Official U. S. Government Booklet*, https://orau.org/health-physics-museum/files/library/civil-defense/survival-under-atomic-attack.pdf, (accessed 02 November 2024).

of the collapse of civilization caused by an ecological disaster is shaping architecture differently today, given the way bunkers, bug-out locations, survival retreats, underground shelters, etc. are built or the way existing structures are fortified. Bertrand Vidal, who was one of the first to systematically grasp the phenomenon, describes the strategies of accumulation and buildings in his chapter entitled "A Small House on the Prairie ... and Zombies" in his book *Survivalisme*, for example the francophone BAD *(Base Autonome Durable)* which conceptually originates from Hakim Bey's Temporary Autonomous Zones.[43] Compared to fallout shelters and blast shelters, contemporary survivalist architecture has become incomparably more complex, since polycrisis (and polycollapse?) requires the consideration of many more factors. From today's perspective, books like Mike Oehler's *The $50 and Up Underground House Book*, which has sold nearly 100,000 copies,[44] Jeff Cooper's *Notes on Tactical Residential Architecture*,[45] or Joel Skousen's *The Secure Home*,[46] may seem too naive for contemporary survivalists. In the 2000s, after the 2004 Indian Ocean earthquake and tsunami and Hurricane Katrina, survivalist architecture was still too specialized and focused on special problems compared to today's trends. For example, James Wesley Rawles' book *Patriots: A Novel of Survival in the Coming Collapse* also reveals the limits of imagination, which insists too much on a kind of securitarian discourse (although it introduces, for example, the mantrap foyer at survival retreats and an architectural element that he calls a "crushroom").[47] However, as Gerald Celente pointed out, since 2009[48] neo-survivalism affects ordinary people, and it can be implemented in different areas (urban, sub-urban, ex-urban), and compared to the previous paradigm, it is much more characterized by cooperation (for example with the neighbors)–it embodies the etymological meaning of collapse that was already discussed, that is, community, "being together." The individual aspects (safety-preparedness,

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[43] B. Vidal, *Survivalisme: etes-vous prêts pour la fin du monde?*, Arkhé, Paris, 2022, pp. 123–128.

[44] *Anon*., "The $50 & Up Underground House Book," https://undergroundhousing.com/book.html, (accessed 2 November 2024).

[45] J. Cooper, "Notes on Tactical Residential Architecture," Issue #30 of P.S. Letter (April, 1982).

[46] J. Skousen, *The Secure Home*, Swift Publishing, Utah, 1999.

[47] E.g. J. W. Rawles, *Patriots: The Coming Collapse*, Ulysses Press, New York/Berkeley, 1998.

[48] J. Puplava, "Celente 2010 Trends: Economics and Neo-Survivalism," https://web.archive.org/web/20220213153636/http://www.youtube.com/das_captcha?next=%2Fwatch%3Fv%3DD9cPNu6tUjg, (accessed 2 November 2024).

wilderness survival, self-defense-drivenness, etc.) are no longer separated from each other, and the individual issues (such as peak-oil) fit holistically into a whole, so that they might be increasingly prolonged, even indefinitely or multi-generationally. In May 2024, the British government launched a "preppers" website (https://prepare.campaign.gov.uk/) warning families to gather an "emergency kit" of tinned food, batteries and bottled water for use in a crisis. According to experts, however, quite a few important elements were left out of the recommendations that could help you survive in the event of a flood, fire, a new health pandemic or even a nuclear war.[49] Neo-survivalists seem to be ahead of governments.

There are many symptoms of the tendency of deep adaptation in architecture. Such is the case of the insight that housing in Alaska cannot survive climate change. Waskey's home in Mountain Village is replaced by the Cold Climate Housing Research Center (CCHRC), and in this regard says Aaron Cooke, the architect who leads the Sustainable Northern Communities Program, that "if we cannot predict what the climate is going to do, then all of our architecture should be adapted. Your building has to be able to change."[50] It is clear from these words that Cooke does not think that the civilizational collapse is inevitable, but that we should act knowing that certain radical changes will take place, and not just partially, but comprehensively ("all of our architecture"). The idea of holistic change itself signals the end of a paradigm. Of course, the trends are not homogenous as they range from collapse aware initiatives (such as the Croatian "Održivo," which also has permaculture informed designs) to authentic self-sufficiency experiments (such as the "Naturvillan" in Sweden) and to Earthships, in which adapting to extreme conditions adaptation has a distinguished role. Various aspects of the environmental disaster, such as the theme of the wall and border militarization,[51] or the power supply,[52] make people reconsider contemporary architecture.

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[49] M. Howe, R. Tingle, "Supermarkets urge against panic buying as Government launches 'preppers' website - warning families to start a national crisis 'emergency kit' of tinned food, batteries and bottled water," https://www.dailymail.co.uk/news/article-13446219/emergency-survival-kit-floods-cyber-attacks-power-cuts.html, (accessed 2 November 2024).

[50] C. Quackenbush, "Housing in Alaska can't survive climate change. This group is trying a new model," https://www.washingtonpost.com/climate-solutions/2021/09/24/alaska-housing-climate-change/, (accessed 2 November 2024).

[51] T. Miller, *Storming the Wall: Climate Change, Migration, and Homeland Security*, City Lights Publishers, San Francisco, 2017.

[52] E.g. R. Heinberg, *Power: Limits and Prospects for Human Survival*, New Society Publishers, Gabriola Island, 2021.

For us, it is important to see how often the end is thought and imagined with the help of architectural metaphors. Perhaps the most well-known is Greta Thunberg's speech in 2019, in which she said that "our house is on fire. I am here to say, our house is on fire."[53] The metaphor can also be found in the dictionary of collapsology, in the discourse of Servigne and others: "if the fire brigade tells you that there is a possibility that your home could go up in smoke and kill your family, you do not silence them by calling them alarmists."[54] It is very exciting that Servigne and his coauthors use the metaphor once again in the same article, but in a slightly different way: "So what do we do? The house fire isn't certain, but because you take it seriously (it certainly can happen) you act accordingly. And if you act, then it is less likely to happen. In other words, we better take societal collapse for granted to have any chance of avoiding it or, at least, reducing its worst effects." Accordingly, it seems to be uncertain whether there is a fire (are we not supposed to see clearly?), however, it must be reported and pretend that there is already one. The nature of the change is therefore not clear (and to what extent it should be considered an end), however, the metaphor remains the same, as if an architectural-alarmist ethics for the end should exist. There is a close connection between architecture and the end, that is, architecture seems to be the most suitable for metaphorization, since it helps the imagination of collapse the most.

According to many, the most important thing is that infinite expansion is not possible in a finite system–and this should lead to an awareness of the limits (which is also a kind of end). The discourses of growth and sustainability are not satisfactory because by focusing on maintenance, they are not able to move beyond the status quo in meaningful ways and they are inherently incapable of seeing the end of a paradigm. Instead, perhaps the catabolic system will bring about its own end. According to some, we are experiencing the extreme present even today, according to others "we are already deep into the trajectory towards collapse,"[55] and others sharply criticize "collapse porn"[56] or, for example, find it incompat-

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[53] G. Thunberg, "'Our house is on fire': Greta Thunberg, 16, urges leaders to act on climate," https://www.theguardian.com/environment/2019/jan/25/our-house-is-on-fire-greta-thunberg16-urges-leaders-to-act-on-climate, (accessed 02 November 2024).

[54] P. Servigne *et al*., "Deep Adaptation opens up a necessary conversation about the breakdown of civilization."

[55] A. Moses, "Collapse of civilisation is the most likely outcome," https://voiceofaction.org/collapse-of-civilisation-isthe-most-likely-outcome-top-climate-scientists, (accessed 2 November 2024).

[56] P. Leigh, *Austerity Ecology & the Collapse-porn Addicts*, ZerO Books, London, 2015.

ible with the goals of anti-capitalism.[57] While the debates are becoming more intense, an increasing number of people think that adaptation is the right responsive change. However, this time it is not about regular adaptation, which would mean only small changes with conventional risk management tools and methods, and not even about transformational adaptation, which would entail large structural changes, but about deep adaptation that "can be defined as adaptation predicated upon collapse, where current systems collapse in a short timescale in chaotic and unpredictable ways."[58] In February 2020, an opinion poll on collapse conducted by IFOP on 5,000 people found that 56% of British people and 65% of French people think that Western civilization as we know it will soon collapse.[59] Some of them expect the collapse in the near future, while others think that the catastrophe is already going on. Although they are willing to combine mitigation with adaptation, they are not willing to put up with "transition" (and its positive connotations) and similar terms, because it would divert attention from the topic of the end. They are the ones who really take seriously the IPCC's suggestion that we must immediately institute "rapid, far-reaching, and unprecedented changes in all aspects of society."[60] They are the ones who act like our house is on fire. And as this article is being written, the extreme U.S. hurricane season is coming to an end, but in the meantime, catastrophic flash floods have appeared in Spain. The images we are confronted with show collapsed or flooded houses. Perhaps no one will ask us if a paradigm of architecture is coming to an end.

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[57] B. Bohy-Bunel, *Une critique anticapitaliste de la collapsologie*, Editions L'Harmattan, Paris, 2023.

[58] J. Monios, G. Wilmsmeier, "Deep adaptation and collapsology," p. 148.

[59] M. Rossman, "More than Half of the French Believe in the Collapse of Their Civilization," https://www.mbs.news/a/2020/02/more-than-half-of-the-french-believe-in-the-collapse-of-their-civilization.html (accessed 2 November 2024).

[60] IPCC, "Summary for Policymakers of IPCC Special Report on Global Warming of 1.5ºC approved by governments," https://www.ipcc.ch/site/assets/uploads/2018/11/pr_181008_P48_spm_en.pdf, (accessed 2 November 2024).

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