The End of Manners
New Intolerances for the After-Post-Truth:
Posthumanism, Precision and Conservation
Alejandro Zaera Polo

## IN THE AGE OF COVID-19. THE END OF THE POSTMODERN

Beyond becoming a global catastrophe and causing tremendous disruption for all of us, COVID-19 marks the beginning of an era. While the combined effects of the attacks of September 11, 2001 and the 2007 global financial crisis had already irreparably damaged the integrity of the so-called neoliberal system, COVID-19 – probably the most brutal face of environmental degradation – marks the begin ning of a new system that will require a new mindset.

COVID-19 has confirmed the radical effects of non-human populations – in this case viruses – on the design and performance of cities, and the overwhelming importance of scientific findings in the fields of architecture and urban planning. Issues such as social distancing, confinement, the physics of air borne volatile organic compounds (VOCs) and other ruthless posthuman biopolitics, have confirmed what we had always suspected: architectural and urban 'cultures' are a mere efflorescence of the true forces of urban and architectural evolution.

The emerging conflict between ecological imperatives and social justice, illustrated in the struggle of the yellow vests – against environmental taxes and in defense of the fundamental right to drive a car with an internal combustion engine – is a vivid example of these confrontations: humans versus the earth; social constructivists versus posthumanists.

In the field of architecture itself, we have just survived a period in which the extravagances of a kind of architectural Cambrian explosion have unleashed two alternative forms of humanism. On one hand, there are the attempts at a disciplinary renaissance, essentially focused on representation, style, language and a return to history. Such attempts at revival seem unfortunate at a time when the practice of architecture has become a direct threat to ecological sustainability, simply on the basis that they require material extraction and energy consumption, as well as causing environmen tal pollution. Although there are already architects who propose a global moratorium on the con struction of new buildings,[3] some esteemed colleagues continue to argue about representation, composition or style, and even about the autonomy of the discipline, as if nothing had happened. And, on the other hand, those extravagances have unleashed another kind of humanism, spurred on by the global financial crisis by other esteemed colleagues engaged in an emerging 'activism', which is a variant of social constructivism.

It is difficult for me to find a relevant architectural proposal resulting from either of these two paths. I suspect that the problem lies in the fact that neither of these approaches is particularly capable of dealing with the purely material aspects affecting the built environment today. In the new 'planetary' order, architectural history, questions of representation, language or style, and even the attention to human communities, seem insufficient to solve the problems posed by climate change and environ mental degradation in the Anthropocene Age.[4]

In this respect, I would like to refer to a wonderful theory, and an absolutely timely one in the age of COVID-19 and planetarism. It contains, I believe, a possible explanation for the ineffectiveness [5] of social constructivisms and teleological historicisms in producing architecture. This is the Continental Axis Theory of geographer Jared Diamond, who, by the way, is the nemesis of post [6] colonial activists and has been accused of making academic porn. This theory attributes the rea sons for the rapid development of culture and technology in Eurasia to the shape of the Eurasian continent, in which the East-West dimension prevails disproportionately over the North-South axis. According to Diamond, this geometric quality of the continents encouraged the migration of popu lations due to constant climatic conditions and led to the birth of agricultural cultures in which tech nologies and societies flourished. The first colonial enterprises emerged from this technological superiority in Eurasia. European colonization was also favored by the higher level of immunity of the colonizing populations, because the agricultural environment had exposed them to systematic coexistence with domestic animals and their germs.

Which is more important, the interests of the imperial powers or the geometric and orographic arrangement of the continents and their epidemiological results? It seems to me that Continental Axis Theory would confirm, if it is possible to confirm it, that material and spatial qualities themselves pro duce social structures and not the other way around, as activists and social constructivists claim. It seems to me that beneath these activist and historicist ideologies lies a deep mistrust in the transfor mative capacity of architecture. The idea that better architecture can only emerge from a better or more progressive society is incomplete to say the least, and I think it does the discipline a disservice. Diamond's Continental Axis Theory would confirm Winston Churchill's famous phrase on a planetary scale: "we shape our buildings, and then our buildings shape us".

[7] The hypothesis of this text is that COVID-19 marks the end of the postmodernism – a culture built on

the expansion of cultural tolerance as a reaction against the most totalitarian and dogmatic forms of modernity – that we have been living in for almost four decades. But while tolerance of diverse opin ions is a feature of democratic cultures, it may also be at the origin of the post-truth world, as Lee McIntyre argues in his book Post-Truth. Some of the cultural phenomena we are now witnessing,
8
such as the crisis of truth and the balkanization of reality, originate in ideas that emerged in the 1970s within the context of post-structuralism and critical theory.
Daniel C. Dennett, one of McIntyre's referents and a furious critic of postmodernism, states in the quo tation that opens this text that all this postmodern relativism and its 'interpretations' and 'conversa tions', has produced an endemic "distrust of the very idea of truth", "a lack of respect for evidence", which "settles for 'conversations' in which nobody is wrong and nothing can be confirmed, only
Kellyane Conway's statement about 'alternative
asserted with whatever style you can muster".9 10
facts' is the ultimate consequence of these conversations that progressively fragment reality into mul tiple, parallel and unconnected universes. Not even the theories of evolution or climate change are considered to be proven, let alone the environmental performance of architecture.

The relativism promoted by the architectural discourse since the 1970s approaches architecture as a primarily cultural endeavor. Philip Johnson, a pioneer of post-modern America – now famously can for his Nazi antics – stated that I have no doubt that
celled11 "the future of architecture is culture".
Johnson was, at heart, a social constructivist endowed with a supreme cultural sensitivity which replaced his youthful ideologies with relativistic and liberal ones, but always dedicated to rebuilding the world through cultural practices. I think that, if he were still alive, his commitment to social con structivism would probably have made him a woke.
12
Delving deeper into the link between Philip Johnson and the wokes who are now canceling him, there is one cultural and architectural feature that links them both – and Kellyanne Conway. That feature is 'difference', for which Johnson was an enthusiast: "We all see the world differently. And thank God for that. Otherwise, what a boring world this would be". The artificial production of dif ference is the nexus between Johnson, his critics and cancelers, and the post-truth machine. From his position of power as director of MoMA's Department of Architecture and Design and curator of exhibitions, Philip Johnson tirelessly promoted the proliferation of difference in architecture, consol idating it as one of those postmodern practices denounced by Dennett, in which truth has been replaced by a rhetorical 'conversation'. "I do it differently" was his maxim. But Johnson's indifferent difference is now being instrumentalized as a vehicle for the vindication of political identities – iden tities dramatically intensified as political weapons in recent years.
COVID-19 has suddenly brought us back to more fundamental issues. Or rather, it has confirmed our suspicion that perhaps the most important concerns for the design of buildings and cities, now and in the near future, are not related to human differences but rather to non-human processes and pop ulations, such as carbon emissions, environmental pollution, pervasive computation, artificial sensing and the concentration of volatile organic compounds in the air we breathe. COVID-19 is only the marker of a new order on a planetary scale,13 an order in which architectural practices will no longer be able to survive merely by 'doing it differently', and where the postmodern compulsion to produce 'interpretations' of the world is unlikely to be effective in addressing both the relentless biopolitics of COVID-19 and the undeniable evidence of global warming. Postmodern affects appear as a myopic endeavor in the Anthropocene era, a time when architecture needs to address problems that tran scend human sensitivities (the exponential increase of an artificial environmental sensitivity suggests that the very notion of the human subject needs to be revised and connected to environmental processes, as Jennifer Gabrys brilliantly describes).14
If postmodernism largely promoted an immaterial architecture based on authorship, essentially driven as an evanescent cultural practice, the new ecological imperatives are going to gravitate around the physical and the concrete, and will operate at the planetary scale of Big Data engines. Social dis tances, megajoules per kilogram of embodied energy, thermal transmittances, carbon dioxide emitted per kilogram of building, building weight per square meter, concentrations of particulate matter and volatile organic compounds, have made such postmodern authorship an empty ambition.
A return to technique, accuracy and scientific evidence, as the very basis of our practice, may even tually put an end to those postmodern 'conversations' Dennett addressed, and their theaters of dif ference, and could provide an alternative to architecture as mere a cultural practice, which was pro moted and heralded by Philip Johnson, and which has engulfed the speculative architectural prac tices of recent decades.
In the COVID-19 era, difference in itself is no longer a sufficient guarantee of quality. Not only do we have sensors capable of measuring physical phenomena far more accurately than any human sensi tivity; we can also increasingly measure cultural trends and political behaviors. Just ask Dominic Cummings, Luca Morisi and Steve Bannon; they do not represent communities, they build them online; in their quest to instrumentalize difference for political purposes, populism and identity politics

are the death rattle of the postmodern difference.

COVID-19 signals the end of manners: postmodern representation and scenography will soon be replaced by ruthless choreographies of proxemic distance, biometric recognition and Big Data mining, in which measurability and quantification – matters of fact, rather than of concern – will become cru cial. Here, the naked eye is insufficient to comprehend the new reality. In the near future, it is the minute detail of the face, or the turbulence of moving air, rather than gestures and obvious represen tations, that will matter. Measurement and quantification are the most powerful antidote to post-truth, to populism and to identity politics, as the great Vaclav Smil argues, in Numbers Don't Lie.
15
It is quite difficult to synthesize the wide variety of styles that made up postmodernism in architecture into a finite series of physical features. Postmodern architecture is probably best described through the variety of attitudes which, based on difference, have characterized the architecture of the last decades, with features including contingency, immateriality, scenography, representation, identity and affect. But postmodernism died of COVID-19 in 2020, and a new paradigm is about to open up, which will also mobilize its own aesthetics. In the after-post-truth (and after-postmodern) canon of architec ture, many of those features will be reversed. I would like to formulate a hypothesis on the character istics of this canon of the architecture of the near future, through a series of propositions:
2
1. Contingency and difference will be replaced by precision and consistency.
2. The focus on representation and interpretation will shift to measurement and evidence. Matters of fact will prevail over matters of concern.
16
3. Architectural practices will veer toward science and cultural issues will no longer be central. Truth will again be important – more so than illusion, seduction, image or affect.
4. Identity and affect will be replaced by quantification and distancing. Alienation and explanation will become predominant modes in the architecture of the after-post-truth.
5. Immateriality, gesture and language will be replaced by a re-materialization of architecture, with attention to detail and to the imperceptible. The scale of perception of architecture will change from being molar – perceived through a human sensitivity – to being molecular and planetary.
6. The postmodern world was built based on exception, by independent 'authors'. In the new paradigm, the rule and the Design Space will prevail over the author's perspective and over
17
difference.
7. Conservation – of energy, of carbon, of biodiversity and so on – will be far more important than novelty.
I will try to explain these hypotheses in the following sections.

## THE MOLAR 'DIFFERENCE ENGINE' VERSUS MOLECULAR MATERIALITY

"The Democrats—the longer they talk about identity politics, I got them. I want them to talk about racism every day. If the left is focused on race and identity, and we go with economic nationalism, we can crush the Democrats".

Steve Bannon, in an interview with Robert Kuttner, in The American Prospect, August 16, 201718

"We are 99.5% genetically alike. But we spend 99.5% of our time taking care of that 0.5% that is different".

Bill Clinton at the Omega Institute's Center for Sustainable Living, October 5, 201319

These two quotations vividly illustrate the contemporary global political dilemma. Both examples are from the United States, but they are indicative of the political situation in many other Western coun tries. While Steve Bannon's project is built on intensifying difference through identity – race and nationalism – Bill Clinton's reference to the Human Genome Project (2000) offers a prescient per spective on the question of difference aimed at defusing the impending catastrophe of culture wars, populism and identity politics.

While relativism has been a dominant trend in global culture for decades, the most problematic aspect of its recent incarnations is its instrumentalization as a political tool. The current crisis of truth arises precisely from the acceptance of alternative truths as a characteristic feature of contemporary culture. Clinton's statement is relevant in two respects: on one hand, because it affirms similarity as a desir able quality, absolutely contradicting the political scaffolding that had been built up for almost two decades in favor of difference; and on the other, because it proposes a micro-material perspective, which contrasts with the molar and gestural scale on which identity politics operate. Nationalism and populism of all kinds – but also religious fundamentalism and cultural wars of gender and race – are built mainly on gestures and languages, rather than on material structures. This artificial construction of differences becomes superficial when faced with the depth of the microscopic and material per spective presented by the chains of DNA to which Clinton refers as a political metaphor.

Of course, differences exist in nature, due to different climates, different soils and different topogra phies. And we must be sensitive to these material intensities and work with them out of environmental and ecological sensitivity. But it is impossible to build an epistemology, and still less an ontology, on difference, which is what concerns us here. While the scientific method attempts to find structures underlying perceptual differences, the goal of identity politics is exactly the opposite: to artificially intensify differences and target them for political use. What is problematic about postmodern episte mology is not difference per se, but the 'theater of difference', in both politics and in architecture.

One of my favorite stories about the role of architecture in identity politics took place around 1990 at the Berlage Institute – more than a decade before 11 September, 2001 – when the cracks in the so called neoliberal system began to appear with the violent eruption of Islamic fundamentalism, one of the most aggressive forms of identity politics.20 The Portuguese architect Álvaro Siza had just finished a residential project in the Schilderswijk neighborhood of The Hague, and the Dutch architect Hermann Hertzberger invited him to present the project at the Berlage Institute. Both Siza and Hertzberger are self-proclaimed progressives: Siza is a veteran of the Revoluçao dos Claveles, and Hertzberger is the champion of the Dutch welfare state. Siza presented the project, explaining that he had been told most of the tenants would be of North African origin and strict Muslims. The proposal revolved around an interpretation of Dutch residential traditions, such as brick walls, walk-up stairs and the absence of elevators, but, to preserve the traditional etiquette of the Muslim inhabitants, Siza had also designed a sliding door that allowed the living room to be divided into a public area and a private one, where women could retreat.

At the end of the presentation, Hertzberger praised the project, but said that public housing in the Netherlands should not support social habits contrary to Dutch morals and its belief in gender equality. Was the establishment of the public/private threshold inside homes a progressive and appropriate decision for a tolerant and multicultural society? Or was it a sign of unacceptable polit ical behavior that defied the most basic definitions of universal human rights and democracy?

While Hertzberger was right, politically speaking, Siza's project was a demonstration of how mate rial complexities can sometimes articulate social complexities that cannot be resolved via repre sentation-based political means. Hertzberger represented a decidedly crude political perspective, while Siza was engaged in an opportunistic spatial practice and refused to become involved in cul tural warfare. This event preceded by more than a decade the assault on British multiculturalism by Trevor Phillips – then chairman of the Commission for Racial Equality in the United Kingdom – in his famous interview in The Times and Jacques Chirac's law on secularism and visible religious 21 symbols in schools (also known as Laïcité). 22

Both Chirac and Phillips were attacking emerging identity-driven violence and, like Hertzberger a decade earlier, engaging in cultural warfare. But I wonder if Siza's approach would not have been more effective in resolving the conflicts that would eventually trigger 9/11. Despite the precepts of the social constructivists in architecture and their claim to change architecture based on social policies,

the fact is that matter and geometry seem to be more ductile than politics in dealing with certain chal lenges (perhaps that is why identity politics always produces such uninteresting architecture!(.23
What, then, will be the characteristics of an architecture of the near future, after postmodernity (and post-truth, and its theater of difference)? We are obviously facing an epistemological dilemma, but it is difficult to translate it into concrete architectural qualities: the predominant characteristics of post modern architecture cannot be reduced to what was called PoMo – which curiously has recently been the subject of a genuine revival – but must cover a much broader set of cases, including Deconstructivism, the extravagances of Starchitecture and Neo-Postmodernism, and even, I would venture to say, various forms of activism and related uses of critical theory in architecture.
Until shortly before his death, the late Charles Jencks, the foremost theorist of postmodern archi tecture, used to tell me, decoupling "postmodern style" from its cultural substratum, that despite what most architects believed, we were all still living and producing within the framework of the postmodern era. Jencks died shortly before the onset of COVID-19 and thus never got to see the signs of the end of postmodernism that we can clearly perceive today. I wonder what he would have thought if he were still alive.
Let us bring these issues to bear on the architectural problem and consider a discreet, elegant build ing, such as Rafael Moneo's Murcia City Hall (1991-1998). This is a work that would not obviously be associated with the vociferous postmodern style although, in my opinion, it is an eloquent example of one of its more sophisticated versions. Murcia City Hall is an interesting building; pioneering in pro posing a gesture that has since won a huge following: the random horizontal displacement of the facade's vertical elements. What is the reason for that random positioning of pilasters on the facade? My guess is that this facade, which is basically a screen, was designed as a representation of 'differ Murcia City Hall represents these 'democratic', 'empathetic' and 'inclusive'
ence' and 'contingency'.24
values, through the use of certain architectural expressions that try to avoid homogeneity and repeti tion. But I believe that in the age of COVID-19, global warming and increased measurability, an archi tecture that 'represents' through compositional gestures is ultimately complicit with post-truth – my friend Mario Carpo says that Trump starts with Venturi…

In contrast to this representational approach, Bill Clinton's molecular dimension and Jennifer Gabrys' theory of environmental sensorization show the beginnings of alternative perspectives likely to replace the postmodern molar focus and its emphasis on representation. Once we place ourselves in the micro-material perspective, or broaden the panorama to the planetary and post-human vision, we can get closer to the 'truths' of the world to come.
In the postmodern world, the assertion of an 'ultimate truth' seems frightening. But the very moment that we doubt objectivity and refuse to acknowledge that the world exists beyond our opinions and perceptions, we position ourselves in the postmodern relativist limbo, where "no one is wrong and nothing can be confirmed". I do not believe in the 'alternative facts' claimed by Kellyanne Conway: I have little doubt that, during Trump's inauguration, within a certain time and scope of analysis, there was an exact number of people present. Because reality exists outside human perception; whether we can agree on the conditions for analyzing it is another matter. And we may never entirely be mas ters of truth and objectivity, but we can certainly approach truth through successive iterations of evi dence, in complete contrast to the intellectual legacy of pragmatic and relativistic liberalism so well summarized by Richard Rorty and his 'contingency'. This is a legacy that has led us to 40 years of 'interpretations' and fictions that do not attempt to approach the truth – quite the contrary. As long as intellectuals continue to uphold their right to differ at any cost, and the need to keep producing new, witty versions of reality, we will continue in the post-truth limbo in which there is no way of clar ifying whether a building is, for example, truly sustainable.
Academic institutions themselves, supposedly devoted to producing knowledge – and truth – seem to be entirely dedicated to relativism and the instrumentalization of difference in order to serve iden tity, as if knowledge were inevitably determined by biological or cultural patterns (the percentage of black academics working on blackness, women academics working on feminist critique, or scholars originating from the Global South working on postcolonialism, is astonishing). The controversy sur rounding the translation of Amanda Gorman's verses into Dutch and Catalan in early 2021 was an example of the level of stupidity to which the intensification of difference around identities has led us.25 Isn't the very purpose of knowledge and science to free us from such biological, territorial and tribal determinism, precisely through deep analysis of the subject matter? So how can architecture, a science of matter in its broadest sense, help to counteract these tendencies? What are the forms of architecture that can become alternatives to this division of reality into multiple incommunicable universes? Is it not precisely a radical recovery of the materiality of architecture and its scientific aspects that can allow us to escape the identity trap?
POSTHUMAN SCALES: MICRO-MATERIALITY AND THE PLANETARY DIMENSION
Postmodern relativism – and its populist and identitarian derivations – is based on a certain sensi tivity associated with human perception. But, in order to understand the world we live in, we may need to engage with sensitivities that are not human. This implies the development of an intelligence and a sensitivity – which we will call posthuman, referring to the theories proposed by authors such

as Sloterdijk, Latour, Bratton, Morton, and others. In material practices, this is fundamentally char acterized by a radical change in the scale of perception. From an anthropocentric perspective, the scope of perception is transferred both to a micro-material dimension and to the planetary dimen sion of ecology and Big Data. Perhaps it is this variation of perceptual scale, implicit in a posthuman perspective, that can challenge the foundations of the architectural discipline and its dependence on representation, language and visual perception, producing an architecture of explanation and alienation – in the Brechtian sense – that clearly makes explicit the latencies hidden below and above human perceptual thresholds.

This not only concerns the development of sensory technologies with much greater capabilities than the naked human senses to capture micro-material processes, such as thermal transmittance or dimensional tolerances. Today, the social networks have made cultural values more quantifiable than ever. We now have access to technologies increasingly capable of capturing – and manipulating – col lective values and opinions, even on a planetary scale. Social and cultural behavior is increasingly pre dictable through Big Data mining, and this is not unique to Western cultures. The idea that cultures are irreducible to quantifiable data is reactionary: cultural identity can no longer be used as an excuse for exceptionalism when Amazon has data mining and psychographic segmentation algorithms that

allow it to know what people are going to buy. Using similar techniques, Steve Bannon and Dominic Cummings can predict how we will vote with an astonishing degree of accuracy. If social and cultural behavior can now be measured on a global scale, should we not be able to transcend the cultural, religious, racial and gender divisions mobilized by populists and identitarians? Both populists and identitarians promote a craft based on representation and 'molar' perceptions that reinforce stereo types and identities. As an alternative to these practices, we could use the policies of 'becoming' through material intensities28 to produce an architecture that avoids the clichés of representation and language, and their drastic reductions of reality.
Direct engagement with the material world and its intensities requires a chemical and molecular scope, because augmented reality through artificial sensors enables such a micro-material perspec tive. Alternatively, we could try the planetary, statistical and quantitative lens of Big Data algorithms. What are the implications of these two non-human scales of perception in constructing a post-human architectural sensitivity capable of comprehending the reality we live in?
A material politics of becoming is one of the instruments we can use to challenge the hard segmen tations between identities being mobilized by populists and identitarians, instrumentalizing difference in order to divide audiences and electorates. The range of genetic similarity pointed out by Clinton again becomes a relevant model when we look at another recent controversy: sex and gender. JK Rowling, Richard Dawkins, and Kathleen Stock have all been recently canceled for making statements that emphasized the distinction between biological sex and cultural gender. Although this discussion may seem far removed from architecture, it is difficult to find a better example of the confrontation between micro-material determinations and the gestures of social constructivism. While there seems to be good reason to believe that the relationship between genotype and phenotype is fluid, the claim that biological determinations are entirely malleable through cultural politics seems unrealistic: sex is not a mere representation; it is also determined by molecular structures, DNA strands and enzymes. Is not transgender activism paradigmatic of the imposition of a molar perspective to undermine genet ic (micro-material) determinations in favor of representations and social constructs?
In architecture, the forces of gravity and thermal transmittance cannot be socially constructed either. They can be falsified or simulated, but, beyond effect, buildings have weight and thermal transmit tance values and embodied energy. The re-emergence of measurable micro-materiality, after decades of gestures and languages, is likely to be one of the qualities of a post-truth architecture – there is a good reason why Michael Braungart, the co-author of one of the sacred texts of sustainable design, Cradle to Cradle, is a chemist.
29

Rowling, Stock and Dawkins, Braungart and McDonough have argued in favor of material organization at a molecular level – organization that transcends social constructs, the molar gestures of culture and architecture. Whether we like it or not, neither gender nor gravity can be entirely socially constructed: they have a material basis that is not mere representation. Our DNA strands have been evolving for millennia, and can only be altered by manipulating their base material: something that has just hap pened with mRNA vaccines. And this is why gene therapy is currently much more promising than other fields of research; and why, at the moment, building technology is much more interesting than the discipline of architecture and its representational practices. Representation and cultural practices are particularly ineffective in the era of COVID-19.
In this light, the advocates of 'image-based architecture', the 'architecture of affects' or that which 'blurs the boundaries between reality and fiction', construction and illusion, evidence and interpreta tion, and all those architects who operate primarily on human perception, language and cultural con structs, are accomplices of post-truth. Even some practices dedicated to the physical side of archi tecture, using the tools of the discipline, may be using the wrong scale of perception. For example,

the combination of disciplinary autonomy and social constructivism, exemplified in European practices such as 51N4E, OFFICE KDVG and Baukuh, which emerged as an alternative to 'neoliberal' practices, explores a double denial of the symbols of the system it criticizes: political conservatism and paramet ric technology. While the interest of its theoretical positions is undeniable, its ability to engage with the posthuman scales appearing as an integral part of the post-truth reality is questionable.
The approach of these practices from a disciplinary perspective as a mechanism of social construc tion does not make them particularly effective in meeting the challenges of the COVID-19 era. The rep resentation of cultural, political and social identities through disciplinary tools seems to forget that, ulti mately, there are underlying physical and material factors over which traditional disciplinary tools have no agency (global warming, environmental degradation, pandemic...(. These factors are increasingly relevant and can be quantified rather than represented. COVID-19 has moved us from 'lifestyle' to 'bare life' despite the resistance of some of the humanist philosophers of vital representation.30
Overall, a more interesting proposal, also of Belgian origin, is the work of the RotorDC cooperative. This organization systematically carries out 'urban mining' focusing on the reuse of materials. Also noteworthy is the Granby Four Streets redevelopment project in Liverpool – winner of the Turner Prize – by the British firm Assemble; and the Rebirth Brick experiment by Chinese architect Liu Jiakun, in which the rubble caused by the 2008 Sichuan earthquake was turned into blocks to rebuild the city.
In contrast to the historically constructed discipline, the focus on materiality and constructive detail as vehicles for sustainable practice is what makes these three proposals a true alternative to postmodern gestures and discourse, even though many of their instruments still remain captive to the same post modern aesthetic. I am referring, for example, to their predilection for traditional drawings and their rejection of visual simulation technologies (#norender, again a resistance, through refusal, to 'neolib eral' aesthetics). We might say that this is where we should situate disciplinary research appropriate for the ambitions of these practices, which I fear would have to be 'parametric' and 'augmented' instead of remaining captive to disciplinary inertias.
In this sense, architecture may be a particularly good vehicle to operate outside identity and the cul tural wars, precisely because it has a fundamentally material substrate. Against the obvious gesticu lations and human-driven approaches of populisms and identity politics, we can mobilize an exact, 'intolerant' architecture that looks at the imperceptible, the chemical, and the molecular—the turbu lent eddies in a flow instead of its laminar behavior, the molecular reactions in a chemical compound or the ultra-low perceptual thresholds that allow a facial recognition algorithm to recognize individual identity for the masses craving ‘recognition'.31

Beyond its applications as a control mechanism, the question arises of the urban potential of a tech nology that allows the automatic recognition of each individual, based on biometric data. The individ ual is, after all, the largest minority.
Humanists will argue that analysis and data can be manipulated or erroneous, but we need to take that risk, which will always be lower than the risk of denying objectivity which lies at the core of post truth. Ultimately, I agree with Charles Babbage when he states that "Errors using inadequate data are much less than those using no data at all".32
In architecture, the potential for radical measurability and monitoring of matter at the molecular level and on a planetary scale not only foregrounds the question of matters of fact versus matters of con cern, in terms of architectural sensitivity it also involves a question of scale. I would like to highlight the work of the London office Forensic Architecture (FA) because of its extraordinary importance for after-post-truth architecture. To begin with, Forensic Architecture explicitly states a commitment to truth (the title of one of their monographs is The Architecture of Public Truth) and it can often be seen working for the UN Truth Commission. But it also maintains an unwavering commitment to scientific analysis as a vehicle for arriving at the truth – a commitment that reaches a truly aesthetic dimension.
While Forensic Architecture is not conventional architectural practice – in the sense that it does not construct buildings – and comes from the 'activist' milieu, it is a paradigmatic example of the changes in scope and sensitivity that I envisage as an alternative to postmodern relativism and its focus on rep resentation and identity. Even from an aesthetic point of view, the production of Forensic Architecture bases its sensibility on science: weather charts, LiDAR point clouds, CFD simulations of thermal plumes and so on. The tools used are an almost perfect example of the change that is required – a change covering everything from relativistic representation of identity to a rigorous material record of difference (the spectrum ranges from the macro planetary scale of macro-climatic data maps to the micro-material scale of microscopic dust analysis). Disciplinary construction and representational techniques have been entirely replaced by material sensitivities, cold and alienating graphics, maps and videos. And, while the Forensic Architecture arena is clearly politically charged, identities are care fully and systematically avoided.
I would even venture to say, perhaps much to their disservice, that some of their projects are at the opposite end of the spectrum to social constructivism, affirming the inertias of matter rather than the malleability of humans. It is already well known, of course, that truth belongs to the Right. While in some cases – such as in their research for the Truth Commission in Guatemala – they reveal that there is an inextricable link between human settlements and ecology, their project on the ‘aridity line’ as a historical enclave of conflict is remarkable: the 200-millimeter isohyet marking the desert boundary

consistently coincides with historical zones of conflict and war.33 This reminds me of Jared Diamond's Continental Axis Theory: it is almost as if Forensic Architecture, in its immersion in matter, geometry and data in search of truth, has found the perfect argument against social constructivism. Its material determinism, its relentlessly scientific production, its micro- and macro-scalar scope make it a para digmatic example of an after-post-truth architectural sensibility. I am tempted to say that all we need to do is reverse engineer34 its practices.

In the face of contemporary identity politics that condemn the practice of architecture – and the dis cipline – to a hopelessly provincial fragmentation; and in the face of the endless representation of clichés and stereotypes (gender, race, origin, belief, culture and so on), concentration on material and a planetary scale opens up for architecture the possibility of constructing new worlds rather than sim ply representing them. But to achieve this, an entirely new micro-material and planetary sensitivity will need to be developed. And perhaps also an arsenal of new in-tolerances.

## THE EMPIRE STRIKES BACK. THE MOST RATHER THAN THE FIRST

The ecological behavior of architecture now seems to become not only relevant common ground, but also a model in which multiple entities are necessarily linked to each other through a transversal sys tem that transcends them as classes, types and identities. Does after-post-truth architecture perhaps need to suspend human concerns in order to be able to recover a common denominator between the divergent universes of identity? Are the politics of nature the alternative to identity politics and pop ulism? Can the natural sciences become our much-needed planetary lingua franca?

In the face of the deluge of relativism and other derivations of post-truth – populism and identity pol itics – it might be worth looking at some imperial protocols aimed at producing coherence across geo graphically and culturally diverse populations, and to analyze their ability to liberate their subjects from those tribal forms of power based on land, ethnicity, cultural tradition or religion, by reducing legal frameworks to their minimum common denominator.35

While empires are originally based on exerting violence on the other, an empire cannot survive only on violence and repression: there are alternative forms of the empire which are perhaps worth reviewing now. There is a long history of creolization and hybridization that has been truly productive, culturally speaking, and which may be an alternative to the fragmentation of the world into 'identities'.

Empires, which had been effectively cancelled by the prevailing post-colonial ideologies of late —a branch of postmodern thinking— are much more complex and interesting organizations than simplis tic postcolonialism cares to admit. Furthermore, empires are having a comeback: Trump's Make America Great Again, Xi Jinping's geopolitical games, the fictional empire of Brexit, Putin's neo Czarist ambitions, even Macron's imperial affections… are grounded on the intensification of identi ties, just like the identitarian politics of race, gender, culture, religion, class..., In the twilight of the Pax Americana, the fascisms of identity reemerge into mini-empires and neo-tribes We may have to go back to Clinton's 99.9%, and Dennett's Design Space to understand the importance of imperial pro tocols in the planetary age.36 – an extreme adaptation of a species to a very restricted environment that makes its subjects very weak in the face of any change of conditions: they become captive to a single, local regime of authority.

Natural and artificial species do not evolve only through random mutations: environmental constraints make them converge in relation to a milieu. This is what Dennett calls the Design Space. Right now, within architectural practice, it seems much more relevant to work on the constraints implicit in the resolution of the impending climate catastrophe. Reducing embodied energy and energy consumption or eliminating pollution and conserving and recycling the urban fabric are presented as much more valuable efforts than cultural preservation and the intensification of difference, which are the actions instrumentalized by populist and identity politics.

During our research on building envelopes,37 we found good examples of the fit between an envelope assemblage and its environment: highly customized assemblies, designed for very specific applica tions, tend to have much less evolutionary potential than those designed for broader applications.

Reyner Banham wrote that he was more interested in "the most, rather than the first", probably on



account of the greater evolutionary potential of large, mixed populations, as opposed to 'thorough bred' high modernist designs. As with a thoroughbred horse, a highly integrated envelope assemblage (e.g., the facade of Jean Nouvel's Arab World Institute, or the exploration of recycling vernacular build ing materials popularized through the work of Wang Shu, but heavily dependent on a certain labor economy in China) produces a kind of hypertelia that can restrict its evolutionary potential. Curtain walls, or waterproofing membranes and synthetic thermal insulation layers – today's prevalent facade technologies – have evolved so much because they have become generic, while a vernacular archi tectural wall has remained the same for centuries. There are also many examples of curtain wall appli cations in unsuitable climates, clearly demonstrating the ineffectiveness of the empire's violence, but it would be foolish not to use breathable waterproof membranes or synthetic thermal insulation in dif ferent locations simply because they are not part of the local building identity. Some of the most inter esting evolutions in architectural practices have arisen precisely from the adaptation of global tech nologies to local environments. Levittown's synthesis of residential vernacular construction with waterproofing membranes and air conditioning equipment is a historic example of a generic assem blage of balloon frame technology with plastic materials and air conditioning systems that Is still evolv ing.

In this sense, it is interesting to reflect on the work of architects such as Vo Trongh Nghia or Bijoy Jain of Studio Mumbai, beyond the cliché of associating their architectures with a vernacular culture. I am particularly interested in Vo Trong Nghia's work because, based on a very specific environment which could probably be described as hypertelic, it quickly acquires generic potentials. Based on the possi bilities arising from his local environment in Vietnam, where bamboo is an abundant material and the local ecosystem is lush, Vo Trong Nghia's architecture projects itself into a planetary future in which the use of local materials – for example, bamboo – and the integration of architecture with vegetation become generic assemblies that transcend their vernacular origins. Vo Trong Nghia is what we have called in the book The Ecologies of the Building Envelope, an 'assembler', as were Albert Kahn and Pietro Belluschi – figures who were able to compose technological systems that transcended specific

design and produced generic assemblies capable of adapting to many situations. The fact that Vo Trongh Nghia had to set up a construction company in order to provide his clients with the necessary legal guarantees for bamboo construction – augmented by digital design, plastic flanges and water proof membranes – is indicative of the kind of processes that could be replicated in other geographies where bamboo grows and polyester can be purchased. The systematic use of vegetation integrated into the envelope could be deployed almost anywhere: hot or cold climates; democratic or authoritar ian regimes —in fact, despite its apparent local nature, it is closely connected to the projects of MVRDV, Edouard Francois, or Stefano Boeri's Vertical Forest, which provide the imperial version of this kind of assembly—. Vo Trong Nghia's architecture goes far beyond replicating vernacular ges tures: there is an imperial potential embedded in the way he operates that transcends the mere exten sion or preservation of the local, the hypertelic and the theaters of difference. We should probably all be making vertical forests to absorb carbon in buildings... I believe the exploration of these assem blages, their subtle details and almost imperceptible variations, is where we can begin to undertake the evolution of the contemporary Design Space and its species as an alternative to the architecture of gestures.

## THE DESIGN SPACE. NEW INTOLERANCES

In this attempt to find 'authentic' architecture, I would like to reiterate Daniel Dennett's notion of Design Space,39 which I have already mentioned, as a crucial concept to support architectural spec ulation which, instead of aiming to create entirely 'different' perspectives of reality – the key objective of postmodern architecture – concentrates on refining a design that progressively optimizes its behav ior in a particular environment. The return to optimization, which has been anathema to postmodern architecture, is a crucial argument for reconstructing the discipline after post-truth.

Dennett's Design Space is a set of geographically diverse and historically evolving constraints to which a given design must respond to adapt effectively to its environment. For Dennett, this notion is equally applicable both to natural species and human-made artifacts. The path guiding the evolution of Design Space over time is natural selection. Although Dennett himself, described by Steven Jay Gould as a 'Darwinian fundamentalist', recognizes that this is a philosophical notion and that the appli cation of a mathematical formulation to any design is a complicated task, Design Space would be the opposite of individual difference, extravagance or exception. The Design Space defines the character istics necessary for optimal behavior in a given design problem or environment.

If we try to think of examples from nature, we could imagine how a certain climate can determine that specimens with larger body mass can survive better than smaller species. So in that environment increased body mass would be one of the components of their Design Space. In the realm of human production, we can easily imagine that, in Manhattan since the 1950s, the availability of elevators combined with high land prices and steel structures made high-rise buildings prevail as a species. Anyone who has been involved in design practices will easily acknowledge that, at a given time and in a given city or region, certain solutions work optimally and are adopted in most projects. An exam ple of this is provided by the suburban shopping malls of the 1990s in the United States, which follow very precise rules regarding their location, the distances between traffic nodes, the size of the frontage and depth of the stores and the width of the central aisle. In the same decade, something similar hap pened with curtain walls in office buildings: the distance between mullions was related to the sizes of private offices and to glass technologies; there was also a standard distance between the facade and the building core, to optimize flexibility and use of daylight. An architect may attempt to defy such rules, but is unlikely to succeed, just as Mother Nature relentlessly eliminates poorly adapted speci mens. It would be as if a car designer decided to place the steering wheel on the axis of the vehicle to improve driving conditions: it would come into direct conflict with the global traffic systems that depend on the asymmetrical position of the driver's seat.

COVID-19 and global warming will now create a context in which the crucial task of architects will be to shape the Design Space of the built environment. Postmodernism was a reaction to the economic and political context following World War II and could afford to deviate from the well-established mod ern Design Space. The current situation has changed radically: environmental and ecological degra dation has reached a point where, to avoid an environmental catastrophe, we need to implement drastic changes in the way cities are designed. We are at the beginning of a new cycle and we need to concentrate on identifying their Design Space instead of looking for variations and exceptions. The recent postmodern neo-avant-garde, the games of language and representation, and rampant histori cism are as questionable as the urban excesses of neoliberalism. The postmodern 'city of exceptions' is finished: we need new rules for the city; a new Design Space.

In other words, we need to construct intolerances so we can quickly adapt our building systems to the new climatic and environmental context. For example, it seems to me that all those highly refined architectures made with cast-in-place concrete, sometimes clad with brick (and even rammed earth, which is one of the fashionable 'slow architecture' systems), produce much higher rates of embodied energy and carbon emissions than prefabricated wood systems, even consider ing their life cycle. That means concrete buildings or heavy buildings are, by default, 'worse'. If we are going to take the impending ecological catastrophe seriously, we need to scrutinize building technology at that level and act accordingly.

This is a terrifying thought for all architects educated in postmodernism because it implies intolerance of authorial freedom – a postmodern anathema. Some colleagues may wonder how the calculations I suggest are made. There is the postmodern profession's easy criticism of LEED ratings, for example. But to a certain extent, the accuracy of LEED is irrelevant. What is relevant is that some kind of cal culation can be made to approximate an answer, and we can probably get closer to the truth of the matter through further iterations.

Let us look at another well-known example: the OMA CCTV building in Beijing – a building that is about as far removed from the Design Space of contemporary high-rise office buildings as you can get. It is an inefficient building. It divides the office mass into two sloping bodies, has low compact ness, does not exploit the opportunity to implement large blind volumes of studios in a more com pact mass, and creates a huge overhang that raises the steel tonnage per square meter to more than double that of a standard office building of that size. An entirely glazed facade does not help to reduce energy consumption either. The CCTV competition entry submitted by Toyo Ito and Yung Ho Chang was much more efficient and economical. But it did not define a recognizable figure. It

did not 'represent' the dynamism and democratic ambitions of the Chinese regime's broadcasting machine with unstable and inclined forms. To be fair, the CCTV building was designed when the problem of climate change was still undetectable to most architects, and it could well be the swan song of the Cambrian explosion of architecture in the 1990s: figurative, representational, immaterial and extravagant... In fact, it has already become the paradigmatic target of Xi Jinping's famous phrase: "No more weird architecture".

We are all guilty of the same sins: we have built over-structured, all-glass buildings with massive overhangs and high envelope ratios. The question is whether the discipline should not focus now on shaping the Design Space of the near future, fundamentally on the basis of introducing 'in-toler ances', as comrade Xi proposes. To avoid global warming, reduce heat island effects and cut embodied energy rates, should we not immediately demand the outlawing of large cantilevers, or entirely glazed and sealed facades, or even the use of mass concrete, volumes with low compact ness, or tortured and unstable forms requiring massive amounts of structure, impermeable pave ments and sterile platforms? Otherwise, we might soon face more than just a moratorium on the construction of new buildings...

I am sure that this request for – physical – intolerances in order to construct the Design Space for the immediate future will outrage some of my colleagues. Many of them are already whining about the intolerable intrusion of LEED, just as many are outraged at the violation of privacy involved in contact tracing, mandatory vaccination or COVID-19 immunity passports... We have already seen this clearly in Agamben's statements on the pandemic, in which 'good life' takes precedence over 'bare life'. But at this precise moment I believe the production of intolerances and convergence on a Design Space is an inevitable approach after the Cambrian explosion of architecture. Some specimens are doomed to extinction in this new rarefied environment. We architects are particularly suited to the production of 'in-tolerances', because almost none of us like tolerances... And the moratorium – the ultimate level of intolerance in architecture – is just around the corner. There is no doubt about the risks involved in this operation – the same risks that are behind contact tracing or vaccination passports – that is, that the Design Space will become too restrictive, preventing any form of evolutionary mutation and destroying diversity. Ecology shows us what happens when diversity is eliminated from an ecosystem. The problem is that, in the Cambrian explosion, we have turned mutation into the rule.

But the validity of architecture as a discipline crucial to putting an end to post-truth, lies precisely, I insist, in the fact that it is fundamentally focused on physical and material matters. The operation of the physics of construction cuts across cultures and identities: a radiator, a sunshade or a sewer works on the same principles everywhere, but they react differently in local climates. Of course, there are differences, just as there are differences in the behavior of a heat pump operating in the north eastern United States and in southeastern China; just as you cannot have the same kind of democ racy in China as in the United States even though there is a political regime called democracy in which people can participate, to varying degrees, in the administration of power; or just as there are carbon emission and thermal transmittance ratios or ventilation values that apply equally to both genders and ethnicities. And I believe it is important to defend these values of similarity against the theaters of dif ference. There are some undeniable truths of architecture that defy social constructivism. Although the weightlessness of architecture can be faked, I am afraid that its real weight cannot be socially con structed. No matter how light we want the building to look, it will have a weight, and, as Buckminster Fuller said, a good architect should know that. I would even go further and suggest that the good architects of the near future should also know the envelope to fenestration ratio, the average envelope thermal transmittance value and the energy consumption per square meter, as well as the embodied energy and carbon emissions per square meter of their buildings. Architects should also be able to keep such parameters under certain tolerance levels.

We may have to return to arcane questions of architecture which are increasingly measurable and intelligible: the movement of air and water in an envelope and heat losses through the skin of the build ing. We may also need to produce a set of values that we can demonstrate publicly, so that we can shift public sensitivities away from the theatrical gestures prevalent in both neoliberal regimes and their populist and identitarian nemeses. Perhaps the time has come to outlaw buildings with inadequate facade ratios; those constructed with high embodied energy materials; those with inefficient perform ance; or those with complex structures requiring increased weight. Perhaps even all those with sealed facades requiring forced ventilation or air conditioning should be banned. Perhaps the time has come to have to exclude these technologies from relevant practices, through a new wave of 'in-tolerance'.

## THE ULTIMATE TRUTH. RADICAL MEASURABILITY, NEO-CONSERVATIONISM, AND THE PLANETARY AND MOLECULAR POSTHUMANISMS

COVID-19 signals the return of 'truth' and expert competence after the catastrophic failures of rela tivism and interpretation, along with its flagrant resonance with the distrust of facts and evidence. Such relativism and distrust fuel the ideologies of climate change deniers, promoters of intelligent design, 'patriots', identitarians and other post-truth thugs. The extravagance, illusionism and excep tionality widespread in the architecture of the last decades – the city of singularities – have consecrat ed the discipline of architecture as one of the postmodern practices. And yet architecture is a hyper concrete and quantifiable discipline in terms of its most basic performances – its bare life –. Considering the current fragmentation of intelligence, sensibility and culture encouraged by populism and identity politics, architecture could be ideally placed to promote the dangerous idea of certainty and the 'single truth' as a fundamental tool against the creation of 'alternative truths' and theaters of difference. We can approach this certainly through the new technologies of measurability and quan tification (natural lighting levels, insulation, carbon emissions, embodied energy, and so on).

The idea of a 'new authenticity' is a frequent claim of populisms after the artificiality of the neoliberal world and is often associated with notions of identity. Social class, race and gender, appropriate dif ference to establish hard borders in order to build electorates. Some architects are already exploiting this avenue with some success by seeking alignments with collective imaginaries, cultural precedents and so on. Activisms have developed forms of architectural representation to re-territorialize the 'float ing signifier' of the neoliberal star architect. It is interesting to recall that the great success of post modern architecture, the Guggenheim Museum in Bilbao, was promoted in the 1980s precisely to generate a key distance from the enormous economic and political problems of the Basque Country, when brutal deindustrialization, a wave of pro-independence terrorism and even a climatic catastro phe converged. The project was designed against identities: nationalist identity and the industrial working class were literally eclipsed – and, in fact, reversed – before the Guggenheim illusion.

'Activist' architecture operates from exactly the opposite pole: it captures and intensifies difference through engagement with local communities and the representation of the 'people', as opposed to the global capital that flooded Bilbao after the Guggenheim. The best examples of these practices are those that have succeeded in developing material characteristics from these engagements: Liu Jiakun's 'reborn' bricks; Wang Shu's recycled, community-built walls; or Assemble's community commitments in Granby Four Streets. These apostles of the new authenticity in architecture preach a critique of extravagance and neoliberal architectural artifice and advocate a return to community engagement and honest construction as reservoirs of truthfulness. Theirs is a humanist truth, based on community and cultural identity, often based on certain environmental concerns generally linked to the reuse of materials. Interestingly, the commitment of these practices to cultural identity has led them to a certain 'material conservatism', in which the material itself becomes the bearer of cultural values and identities to be protected from the neoliberal empire. Another interesting feature of these practices is that the project has shifted from the whole to the part: it is the texture and composition of the wall, or the constitution of bricks from rubble, that becomes increasingly relevant, rather than, for example, the three-dimensional composition of the Guggenheim.

Alternatively, there is also a return to measurability and quantification as an alternative foundation for another, less human and cultural kind of authenticity, conducted through the materials, geometry and data: the dust analyses and shrapnel records of Forensic Architecture; Carlo Ratti's immersion in the 'underworld' of sewers to build urban biomes; or Tomas Saraceno's Aerocenes intended to reveal patterns of aerial turbulence. A growing number of architects are eschewing representation in favor of mere recording and technically augmented measurability: geolocation, sensors and LiDAR point clouds are the new tools available to shape the essences of architecture in the after-post-truth era.

The return in these practices of 'ultimate truth' implies a 'scientific turn' in which designs are once again developed based on matters of fact. I am in no doubt about the risks involved in this. Both post modernists and relativists will immediately argue that science is always biased and unreliable. But that is precisely the argument consistently put forward by alternative fact advocates, climate change deniers, intelligent design advocates and all those dedicated to exploiting doubt and 'interpretation': truth is multiple, truth is cultural, truth is human.40 And yet these same politicians like Steve

posthuman

Bannon, Robert Mercer, Dominic Cummings and Luca Morisi – the so-called 'technopopulists' – use bots and Big Data mining to build their constituencies.

The new accuracies of geolocation, artificial sensing, data mining and machine learning shape the production of new forms of evidence that can substantially reduce the need for 'interpretation'. Friedrich Nietzsche wrote (perhaps predicting the post-truth world) that, in a world where everything is interpretation, "truth is merely a function of power". It is the authoritarians who are always in

41

favor of 'interpretation'. But massive amounts of "good enough data"42 can be pooled to produce intelligence that becomes progressively independent on a human perspective – an 'interpretation' – in which we can discover new and unexpected architectural truths to inaugurate posthuman sensi tivities for the after-post-truth era.

So, the question is: how do we ground the new architectural 'truths'? Unlike social networks, it is not entirely possible for architecture to retreat into representation and identity. The falsification of archi tecture can only be partially achieved, as it is – at least in its usual form – inevitably linked to the phys ical construction of real things. We have all seen the affects of PoMo architecture, which are, inevitably, materially false. If there is one thing architecture can do to confront the post-truth world, it is to abandon postmodern relativism and tolerance of 'alternative facts' to commit to an 'ultimate truth', much like that of the tritest modern manifestos on constructive sincerity, happy bricks, beton brut, structural transparency and the elimination of poché. It is precisely the lack of material corpore ality that makes it possible to turn architecture into pure representation.
Dematerialization is a precondition of representation and social constructivism, and, perhaps, even relativism. After all, the physical principles of building cannot be socially constructed, and are partic ularly important in the era of global warming, environmental degradation and COVID-19. This involves a radical return to matter, including the chemical, molecular scale of chromosomes, DNA chains, and testosterone and estrogen levels… or maybe the flightpath of bees and the blue carbon sinks that place a limit on the human—and humanist—construction of reality. Is this return to matter, to chem istry, to the molecular, a hopelessly conservative position or an inevitable posthuman expansion that is in fact progressive and inclusive, as in the example of the Siza dwellings in Schilderswijk?

While the optimization of material and space became redundant in the 1970s, when building tech nologies were driven by almost unlimited access to cheap energy and resource extraction, it has suddenly become important to return to the precise calibration of the material and energy consump tion we use for the construction and maintenance of buildings and cities. It has also suddenly become relevant to consider interference with the natural cycles of water, carbon, nitrogen or bio diversity... The precise calculation and optimization of material transformation processes – which have been abandoned and ridiculed by postmodern ideology for decades – make sense again (opti mization is a postmodern anathema).
While the neoliberal order associated the progressive with the new, the extravagant and the excessive, we now find ourselves in an era when the depletion of natural resources, pollution and global warming have become a universal concern. We live in times when excess is unjustified. Urban metabolism needs to be reduced to a minimum. Conservation – of energy, biodiversity, the urban fabric and the environment – has become a growing concern, far exceeding the 'conservation of cultural values' that architects embraced some time ago to great public acclaim. But this new trend toward conservation is no longer cultural; it is fundamentally material.
Progressive narratives now seem to align with a conservationist approach, such as we have seen in

the apostles of the new authenticity, but vested into material rather than cultural values Architects are now flocking away from parametric formal experimentation and seeking refuge in traditional architec tural models, typologies, geometries, tectonics, and linguistic conventions. Their politics reveal the emergence of a neo-avant-garde with cultural, anti-commercial and politically correct foundations, which proposes a return to the disciplinary – and even to its autonomy – or to political engagement in the traditional sense as a form of resistance to neoliberal exuberance and excess. San Rocco maga zine is probably the most sophisticated example of a neo-avant-garde that is demanding a return to convention, indifference, eclecticism, historicism and high culture as the territory of an architecture resistant to commercialization and neoliberalism. At the other end of the spectrum we have populist critics – such as Oliver Wainwright in The Guardian and Michael Kimmelman in The New York Times – who advocate a route away from neoliberal excess via politically correct, modest, socially construct ed and physically conservative architecture.
These are indications that 'conservationism' has come to replace 'novelty' as the prime objective of architectural practices. Instead of radical transformation and tabula rasa, contemporary architectural values are retreating into convention, continuity and history. But conservation can be approached in many ways. The rising values of resilience – what endures over time – could manifest themselves as progressive – for example, in terms of reducing the embedded energy in construction – or as regres sive: for example, in terms of intensifying cultural identities. Is it possible to escape the regression of this historicist and culturalist neo-avant-garde? Is it possible to escape from cultural and historical preservation, from the representation of identities, or even from tectonics and phenomenology as unique alternatives to the 'city of exceptions' and the neoliberal appetite for novelty?
This incipient neo-conservatism – be it populist or elitist – demands a critique capable of discerning its historical dimensions. One of the problems with the theorization of these trends is its immediate association with certain political positions. For example, traditional conservatism has a much better established evolutionary lineage than progressive politics of change, which now appear increasingly conservative. What is the difference between the authoritarian imposition of certain progressive or regressive politics and the non-directional forms of action that are initially indetermined yet open to gradual evolution? This is the eternal question of evolution versus revolution. Evolutionary policies cer tainly appear more conservative than revolutionary ones, but we must not forget that fascist ideologies were also revolutionary and radical; the latest example of these is precisely the so-called 'neo-con' ideology and its interventionist tendencies for regime change and the imposition of Western forms of

democracy on the rest of the world…

I find it difficult to identify any neo-con architects right now. They are probably large consultancy firms in charge of producing infrastructure in Iraq or Libya... But it is well documented is that modern archi tects flirted incessantly with fascism or communism as political regimes that could radically alter real ity, including Le Corbusier, Terragni, Gropius, Meyer, Niemeyer... (and maybe even Philip Johnson!(.
If our earlier hypothesis was that 'truth' in architecture is a matter of scale, perhaps its political dis criminants could be a matter of time – speed of change rather than an ultimate goal.
Do we set long-term or short-term goals? It could be that the neo-conservative approach ends up implying a renunciation of design itself in favor of a kind of natural evolution, spontaneous order and aesthetic deregulation concurrent with the brutalist critique of high modernism. As Alison and Peter Smithson wrote: "Design is a rude word". Anthony Fontenot has recently published a study of the lin eage that begins with Hayek's theories and runs through the entire postwar period via Jane Jacobs, Reyner Banham and Venturi/Scott-Brown, and that could probably be extended to Koolhaas' city of indeterminacy.44 Milton Friedman and Karl Popper's 'Open Society' appear in the background, illus trating a whole series of positions contrary to teleological historicism that form the basis of what has come to be called neoliberalism. Patrick Schumacher himself has recently claimed Hayek's legacy as the source of a kind of radical liberalism.
But was Reyner Banham's penchant for vernacular, anonymous, popular design, conservative? Is Milton Friedman's 'disaster capitalism' 'conservative'? Is Rem Koolhaas' 'tabula rasa' 'progressive'? Is the Smithsons' 'as found' architecture 'conservative'? Who was more conservative, Robert Moses or Jane Jacobs, Álvaro Siza or Hermann Hertzberger? I would argue that, contrary to customary wis dom, neither Milton Friedman nor Robert Moses were conservatives... It would be interesting to think of the genealogies of 'Non-Design' and 'Non-Plan' in terms of progression/regression... This reflection is particularly important at a time when activisms claim ideology as a necessary component of pro gressive architectural practice. Tafuri's critique of ideology again occupies a central place in this debate (and is, in fact, one of the references in the discourse of disciplinary activism).
Whether we agree with conservative values or not, conservatism has always had an organic, evolu tionary tendency that is certainly a precedent to consider if architecture needs to move toward slow ness and conservation, rather than rapid transformation through ideological imposition. Is it possible to be progressive through an evolutionary design model? At what point does conservatism move from an evolutionary to a reactionary approach? How can we define in architectural terms the equivalents to adaptation, to evolution, as the opposite of instantaneous change, to tabula rasa?
We should be able to understand that beyond ideological objectives there are two possible times: instantaneous and long-term. The difference between the two is that, in the long-term, conservationist time mode, the final objectives are not entirely defined in advance, whereas in the instantaneous time mode it is necessary to have a preconceived idea of the objectives before establishing the policies. That is why it is important to understand the difference between Napoleonic and common law; or between fascisms and Republican Values, True Blue or One-Nation Conservatism. Is the 'Darwinian left' that Peter Singer was looking for, at all possible?45
Modern architects tried to emancipate themselves from the powerful and work for 'the people', but their devices were primarily representational and linguistic: 'the people' could perceive progressive architecture through an architectural language with democratizing effects defined through horizontal windows, liberating pilotis or wholesome garden cities. Modern architecture was captured by these linguistic games. Then, postmodern 'critics' decided that the discipline consisted of playing with these elements, emptying them of their original political and material contents. The discipline became self referential and lost the modernist 'virtue'. Deconstructivism and critical theory operated fundamentally by disrupting the modern tropes: the discipline began to revolve around challenging authority through representation and became entirely self-referential. Since then, architects have continued to twist everything in order to oppose the force of gravity – the ultimate symbol of authority and stability. Gravity, symmetry, regularity, repetition and order, turned into symbols of power, had to be chal lenged by the discipline that was operating in a purely representational dimension.

In some recent architectural criticism – notably that of Pier Vittorio Aureli – we can find this idea of the disciplinary as a form of resistance against the neoliberal order and the 'end of history' associated with it. Except that, unlike the deconstructivists, their models and languages are much more traditional and often operate with pre-modern tropes, such as symmetry, order, repetition and so on. The recovery of some features of 'conservative' architecture – such as symmetry, compactness, gravity, regularity and order – could be an important endeavor for the after-post-truth era once they have been freed from their symbolic associations. For example, symmetry is an issue that fascinates me: by the end of World War II there were few advocates of symmetry left – perhaps none at all. Scholars such as Rudolph Arnheim, Ernst Gombrich and Bruno Zevi had co-opted symmetry as the visible face of fas cism, an order imposed on an 'organic' reality characterized primarily by 'creative' asymmetry. Symmetry became banal, boring and static, embodying a form of primitive order that offered a limited view of reality. Zevi routinely decried it as a crushing representation of authoritarianism.
This reading could be completely reversed if we were to contemplate architectural objects from a non

representational perspective: symmetrical organizations have extraordinary properties when analyzed from the perspective of their behavior rather than their meaning. In fact, they are more likely to pro duce buildings with better environmental performance, greater programmatic flexibility and greater efficiency in terms of economy of resources.
Is it not time to review these spatial, material and organizational features from the point of view of their material performances? Is it not time to develop their agencies? I wonder if Forensic Architecture's fascination with the fractured, with shrapnel, with smoke and with the footprint of an instant, would tend to fade if, instead of recording material events, they recorded a material organization evolving over an extended period of time. Would it not, taken to an extreme, produce an organization tending toward symmetry, compactness and regularity? What if the regularity of form was the evolved state – the limit of a system operating over a very long period of time?
An architecture of accuracy and quantification operating "under the radar", "at the threshold of detectability" at chemical and algorithmic levels might be more effective in connecting the built envi

ronment to broader material ecologies and planetary-scale interests than at representing human iden tities. Such an attitude could constitute an alternative both to tectonics and to phenomenological ges tures, which operate exclusively from human perception, and to manifest identities. I believe COVID 19, as an indicator of environmental degradation and climate change, and our greatly expanded ability to measure and simulate, will inevitably lead us toward conservationist building physics, rather than extravagant and 'socially constructive' tectonics.
A neo-conservative architecture could replace instability, fragmentation, difference, dynamism, asym metry and other postmodern tropes. Is it possible for us to retrieve symmetry, hierarchy, order, regu larity, compactness, stability and repetition as 'progressive' architectural traits in defiance of estab lished contemporary wisdom? This is a difficult task before a public audience that has become accus tomed to strident gestures and artistic manners; an audience that has lost its sensitivity to nuances – or that is moving toward architectural conservatism after suffering vertigo. Is it possible to speak of a conservationist progressive architecture? The key is probably to discriminate between conservative and conservationist.
Here, I would like to mention the architecture that seems to me the best example of the conservation ist attitude I am trying to propose: the work of Lacaton & Vassal. One of the actions of which I am most proud is having tried, as a member of the jury for the 2002 Mies van der Rohe Award, to give first prize to the Palais de Tokyo project to the astonishment of my illustrious colleagues on the jury, who did not understand why I wanted to give the award to such an 'insignificant' project. Of course, I failed and the prize went to Zaha Hadid's Strasbourg car park and terminus. It was 2002 and the jury probably did not yet have the perspective we have today on the ecological reality of architecture. But the power of the project was quite clear: an act of radical conservation, of non-intervention pro jected toward a truly new aesthetic – perhaps the Smithsons' as found aesthetic we referred to earlier, and which in my opinion is radically conservationist.

Even before this project, Lacaton & Vassal had already implemented a whole series of non-interven tion strategies in their work: in the genuine renunciation of action in the Place de Leon Aucoc in Bordeaux, in favor of maintaining the existing operation; in the preservation of the trees of the Lège Cap Ferret house; or in the series of social housing rehabilitation projects in the Cité du Grand Parc in Bordeaux and in the Tour Bois-le-Prêtre in Paris. I believe that probably no one else can claim such dedication to the conservation – not preservation – of the architectural and urban structures they have been working on for decades. Coupled with their interest in low-cost greenhouse and environmental conditioning technologies and their dedication to economy in architecture, these traits makes them the main reference for this kind of neo-conservativism, which is nevertheless aes thetically progressive – and even radical.
I would like to make two more observations about the work of these architects that are important in light of some of the propositions I have noted above. The first is that, in Lacaton & Vassal's aesthetic, there is not even a nod to 'difference' or 'identity' – in fact, their interest in greenhouses resonates with some of Buckminster Fuller's approaches – their proposals do not attempt to connect with a ver nacular aesthetic or identity at any point. Instead, they use the properties of polycarbonate to retain heat – a low-cost environmental aesthetic which is the origin of a project largely independent of its surroundings, and which in fact appears homogeneous across the different sites where they have deployed it. The second observation has to do with the concentration on quantitative rather than visu al issues, which we characterized earlier as 'under-the-radar architecture' or 'on the threshold of the perceptible', whether we are talking about costs or slab overloads. The deliberate search for imper ceptibility is one of the most important aesthetic qualities of these architects' work. I would venture to say that, as in the case of Fuller, Lacaton & Vassal's architecture has a touch of imperialism and modernity, as if we had finally reached 'the end of history'. Lacaton & Vassal's architecture calls into question the validity of the historically constructed discipline, social constructivism and teleological historicism. Architects can continue to think as much as they want about the evolution of the disci pline, but nothing they do will be relevant to the real world unless we begin to think seriously – as Lacaton & Vassal do – about whether the buildings we construct are truly necessary beyond what they

are capable of doing with respect to the history of the discipline.
But Lacaton & Vassal are only the best-established example of this label I am trying out for the archi tecture of after-post-truth. Perhaps one of the best emerging examples is Harquitectes, a young office in Barcelona that exemplifies many of the traits of conservationist and after-post-truth architecture. Not only does their work pay continuing attention to sustainability and the energetic and bioclimatic behavior of buildings; their constant concern for natural ventilation, thermal inertia, embedded energy and the bioclimatic behavior of architecture is an unmatched example of conservationism, as is their concentration on material details, devoid of ornamentation, coverings and pochés. The structure is the delimitation of space in its starkest form. What interests me about the work of Harquitectes is that they have managed to raise bioclimatic and constructive problems to an aesthetic level: that of expla nation – even to the Brechtian alienation we have already referred to. Neo-conservative architecture is a shameless architecture, without coverings, without poché, and without gestures, focused on materiality. Those fantastic walls mixing rows of different ceramics, hollow, compressed or reinforced bricks display their different physical behavior in the wall texture: lintels are working in flection and bricks by compression, while the hollow bricks are facings. Everything is built in series – repetitions. It is not composed, it is built. Ceilings have been eliminated and other textures appear from the ther mal control mechanisms. They have been bold enough to do this and they have managed to cash in on it. Those facades of hollow bricks would have made post-modern architects laugh. How dare they! Perhaps the hollow bricks are a result of Catalan local influence, in the same way that Vo Trong Nghia's bamboo is inspired by the local Vietnamese influence, but in the coming world of embedded energy, building with 'light' and insulation bricks has, once again, an imperial potential. I believe that, at the moment, those hollow bricks are more about thermo-clay than Catalan vaults.
I believe Harquitectes reflects many of the architectural concerns shared by other contemporary archi tects. Apart from the interest in the ecological performance of architecture, their attention to detail and matter – so far removed from the neo-postmodern, figurative and historicist tendencies we have seen in revival lately, where the material is almost always a veneer – and that insistence on eliminating the poché and exposing raw materials can also be found in the work of Bruther, Arno Brandlhuber and Gustavo Utrabo. I believe they also belong to the neo-conservative paradigm, although none of them achieve the consistency of Lacaton & Vassal or Harquitectes.

Some other lines of contemporary research go back to the proposed recycling architecture we have already seen in the Palais de Tokyo project by Lacaton & Vassal and in some designs by Harquitectes. I am referring specifically to the interest in recycling buildings we have already mentioned in relation to the project by Rotor DC, Assemble, Wang Shu and Liu Jiakun. This line of research can also be seen in some projects by Arno Brandlhuber, who is, in fact one of the proponents of the moratorium on new buildings, or in projects and works by 6a Architects, in which cracks are made explicit and where the physical material of the buildings is revealed. In contrast to the architecture of dressing, these projects raise urban recycling to an aesthetic dimension: the decay and undoing of the building revealing its construction and material composition, like in a piece by Gordon Matta-Clark. When this does not occur naturally, it is produced artificially with a jackhammer, by Arno Brandlhuber, for exam ple.
The ecological interest in recycling is elevated to an aesthetic dimension in many of these practices, which are not 'conservative' but 'conservationist', expressed through the building's material qualities. There is a convergence in the work of various contemporary architects toward the exploration of raw materiality. Examples of this aesthetic troglodytism can be found in the work of Arno Brandlhuber, Smiljan Radic, Amin Taha, Anne Holtrop and Assemble Studio, as if the material presented its most intimate qualities through this deliberate rawness, freed from the formal impositions of the discipline and the 'dressing'; freed from its submission to disciplinary gestures or even political manifestos. It is as if Bill Clinton's DNA chains were surfacing behind teleological historicisms and human identities. These contemporary 'rusticatos' are an indication of what is perhaps a histrionic and mannerist trend toward material determinism that is part, perhaps, of the aesthetic paradigm I am trying to capture. Although it seems to me that these projects do not confront the ecological and sustainable ambitions of Lacaton & Vassal and Harquitectes, I think they do show the latency of an anti-postmodern and anti-historical sensitivity, a sensibility which, I suspect, the recent episodes of COVID-19, global warming and environmental degradation are going to intensify.
It is also interesting to note the resonance between these neo-materialist 'rusticatos' and the idea of 'chunkiness' that Mario Carpo identifies as one of the aesthetic consequences of the application of large amounts of data and algorithms to the design and construction of contemporary architecture. This type of work is no longer limited to the mechanical repetition of a gesture, exploring robotic pro duction to generate a new architecture where materials and huge amounts of data converge, and which he qualifies as 'chunky'.47 The raw, the discretized, the formless is one of the trends that emerges from the intersection of material and computation. Some of the experiments Carpo refers to, such as those of Gramazio & Kohler, which use the capacity of sensors to capture the formal qualities of logs or boulders and to assemble them using robots in a new ad-hoc construction, and which form part of this interest in formless matter freed from the imposition of form, are part of this material aes thetic emerging across the field. These are experiments where the material scale and the planetary

scale converge to give rise to this new post-human, automatic coarseness; this new degree zero that abandons discipline, languages and gestures to make the material emerge in its purest state using the new instruments of digital fabrication.
Where does this leave the history of the discipline of architecture? Are we not facing a new end of history – no longer Fukuyama's neoliberal finale,48 but something more arcane, which preserves and mobilizes the molecular qualities of material, freed from ideologies, identities and their repre sentations?
I would like to add two more practices to these reflections because their work seems to resist this ten dency toward conservatism by focusing precisely on a micro-material scale. We might say they would be the equivalent of a direct manipulation of the genetic code in an analogous way to mRNA treat ment: it is the chemical, molecular manipulation of the constituent materials that produces the inno vation in the architecture. As I see it, the contemporary dilemma would therefore be located between ecological and energetic conservatism and the micro-material, molecular transformation of the genomes of architecture. Both options imply going beyond humanism and appear automatically excluded from the new precepts of political correctness. See the controversy that arose after Peter Sloterdijk's controversial essay in 1999, in which he tentatively outlined the failure of humanism and the need to confront the imminent human capacity for genetic manipulation.49

This molecular transformation of the genomes happens in Asif Khan's experiments in three ephemeral buildings that are completely given over to the use of new materials, so that they become a vehicle for constructing new, unprecedented architectural effects: the Megafaces Pavilion at the Sochi Winter Olympics in 2014; the Hyundai Pavilion at the PyeongChang Winter Olympics in 2018; and the Access Portals to the Dubai 2020 Expo. In all three cases, Khan relies entirely on artificial materials, explored as the source of new architectural effects: in Sochi, activators move the LED lights to produce figures in the envelope; in Pyeong Chang, the building's shape is lost through the use of Vantablack paint; and in Dubai, the giant doors are dematerialized using carbon fiber lattices. In the latter there is a nod to local identity through the reference to the mashrabiya. So radical artificiality at a molecular level gives rise to new architectural effects. Neither activators, nor Vantablack, nor three-dimensionally printed carbon fiber can be counted among historically constructed disciplinary effects because they have unprecedented architectural properties. Khan actually works with the genetic material of archi tecture but produces phenomenal (molar) effects to which humans are sensitive.
Even more interesting is the exploration of a post-human sentience in Alexandra Daisy Ginsberg's Pollinator Pathmaker project, in which a synthetic algorithm based on biology is created to design multiple gardens to optimize the work of pollinators, such as bees and moths, including flight paths, shapes, colors, scales, and other factors relevant to the pollination cycle. A portion of synthetic 'bet tered nature' is designed by an algorithm that operates to attract pollinators and benefit the natural ecology rather than triggering human sensitivities. It remains to be seen whether the genetic algorithm is truly efficient, and for what purposes, as several versions of this project are already under construc tion. Will it be able to increase the biomass or biodiversity indices? How will it evolve? Several aspects of this project relate to some of the other issues we are addressing. First, the garden is not designed from a human perspective, as is usual in garden design, but from the non-human perspective of an algorithm that determines geometric and material relationships between entities in a range of proxim ity. Secondly, the aim of the project is not to develop an 'alternative perspective' but to shape the gar den design based on a series of physical relationships, preserved as far as possible from interpretative mediation. Thirdly, the project deliberately pursues the exploration of non-human sensibilities of bees and algorithms, while avoiding the question of human identity. Finally, the project is concerned with the preservation of nature, but not in a 'conservative' way: synthetic biology is aimed at producing a 'better nature'. Unlike a topiary garden, where human design is superimposed on the natural ecolo gies, the Pollinator Pathmaker design emerges from the molecular components of its ecology. To a certain degree, respect for the genetic make-up of the plant species involved – and the fact that the Pollinator Pathmaker project will increase biomass production – is aimed at redressing the carbon storage balance. It is important that Alexandra Daisy Ginsberg openly and unapologetically advocates optimization – 'better' nature – which has been derided by postmodernism for decades. At last opti mization is once again a legitimate goal! Finally, doesn't this project have a somehow imperial and planetary scope that could, potentially, occupy the entire Earth?
In short, whether we accept the premise of conservation as the primary objective of architectural prac tices in the immediate future, or whether we decide to explore new materialities or new instruments to inspire our practices, the need to operate under new restraints, new orders and, ultimately, new intolerances, can be seen as the vehicle to escape from 'manners' and the theater of differences and produce a new objectivity. We may have to abandon all the possibilities and effects the Cambrian explosion made possible and go back to designing seemingly 'conservative' buildings, or limit our selves to operating on a chemical scale... I find this limitation increasingly exciting.