

Editorial

Material Oriented Ontology

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This year has set itself as the beginning of a new rhythm. Already it's repetition of twenty twenty, unique every century, made us cheer for a very special year, full of changes. And indeed it is, though not all the cheerful we would have chosen. This editorial note is being written from the "new normality", a term coined to designate the fragile period that came after the global pandemic we were confronted with last spring. A new normality that needs to be more "new" than "normal". The normality we were coming from led us to be shaken down by the wave produced by the very natural tides we were playing with. If we do not position ourselves in a new and different way, it will be the drag of that same tide that will pull us to more troubled waters.

The call for texts that detonated the compilation of thoughts and reflections that are here presented, was an invitation to define the coordinates and the consciousness behind this positioning - confronted with the previous normality and, now that they have been written, confronted with the new one. A call that was titled Material Oriented Ontology, sympathising from its very foundation with the thought of philosopher Timothy Morton and the ecological positioning of his school (Object Oriented Ontology). A call to create an open and multiple vision oriented to the materials, one that will suppose a study of the agencies and uses we (the people from now and the future, together to the planet from now and the future) do of them. It was intended with this call to understand, within the social and natural systems we create from, the co-responsibilities between the people that work with matter for a market use and the people that are the receivers of those works. This is a call for texts from an architecture magazine to create editorial work that will include us all.

As such, it has received a plural answer that, far from the surface, dives into some of the different depths we can find in the constructions we act within. What is being presented on following pages is a combination of texts that compiles thoughts about systemic thinking, architectural history, lexicon tricks used by the market and its green washings, the beautiful but insane architectural "sausages" and, in general, a compendium of multiple ideas that says that there is a necessity for a change; that the beauty we are working from must return to it; that we could do much if we were to be more conscious of which and where are the solid values to build upon, either materially or in some other way.

As a consequence of all the conversations that were shared during the gestation of this RA magazine issue, we have developed as well a document that has been called Manifesto for the Built Environment as an Agent for Sustainable Change (MaBEASC). This Manifesto is a compilation of possible ideas and directions to take within the built processes. It does not pretend to be a doctrine or a code, more likely a set of ordered and clear notes. As such, it is open to be extended, improved or implemented partially, since its intention is that of inspire, and ideally walk with, the change.

This document, developed together with Cristina Freire, Joan Vellvé Rafecas and Tomás Miranda, comes together to a poster that illustrates and resumes it in a more intuitive way. If it is the case that this poster will end up on your wall, or if it will happen to be present during the projection of your projects, dear reader, then it may serve as a guide or inspiration for those to participate of this "new" within the "normal". And perhaps be conscious and careful of the footprint they traced when the projects tread as, inviting to these lines the words of WB Yeats, the fragile tissue we walk on are the dreams and fortune of others.

"I would spread the cloths under your feet: But I, being poor, have only my dreams; I have spread my dreams under your feet; Tread softly because you tread on my dreams."

W B Yeats

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Matter and mutability

Ignacio Borrego Gómez-Pallete

If we shift the discourse to the ontological level, as the approach to matter suggests in this edition, we must refer to transcendental properties of matter. If, in addition, in this intellectual distancing we introduce the contemporary consciousness of a circular economy, then we will have to consider the mutability and reuse of matter, which as we will see does not depend so much on its physical properties but on the way in which it is manipulated. This hypothesis will be tried to be proved through a more interdisciplinary approach to ultimately reach the field of architecture, and finally propose that the essence of the constructions is in its form, and not in the matter itself, which is substitutable, corruptible.

The importance lies in the systems and relationships between the different elements that set up a construction. Identity is not in matter, but in the information it contains.



The law of conservation of mass or matter, also called the Lomonosov-Lavoisier Law states that matter is not created nor destroyed, it is only transformed. In an ordinary chemical reaction, mass remains constant, that is to say, mass consumed by reagents is equal to the mass obtained from the products.

Matter is often a subject of study in science, and in the field of biology it finds an area where form and material configuration is essential. This is produced by means of growth, which is a natural process and is different from construction, which implies artifice and artisanal intent. Nevertheless, biology has, on occasion, forgotten this essential distinction, and assumed living bodies to be objects created with intent. Thus, the wings of birds are described as extremities meant for flight, when a more precise explanation is that they are not so much meant to perform this activity as that thanks to them, a bird is able to fly. Nature is formed casually, and it is the random lives of its individuals that support the solutions that are best suited to the surroundings. Natural matter evolves.

The scientist Jorge Wagensberg describes with clarity Nature's ability to replace its components, the atoms, to temporarily resist degradation produced by time.

"We left the city after breakfast. We stopped for lunch mid-way (the overheated Fiat Hispania celebrated by puffing like a whale) and we arrived in enough time to shop and prepare dinner. This was more than thirty years ago. The other day it took me exactly twenty two minutes to reach the residential estate that had engulfed that small village, the setting of those endless summers of my childhood..

... After four thousand metres my heart skipped a beat: there was the same semi-stagnant water of the stream, the same red earth of its banks, the same reeds, the same water plants, the same dragonflies, the same fig tree with the hole in its trunk - the secret place where my brother and I would stash all our secrets!, the same whiff of mud, the same sounds...

... The place possessed an extraordinary power of evocation, but look out, because here begins our reflection.

It's clear enough that those molecules of water weren't the same, nor were those of the plants, the dragonflies, nor those that stimulated my olfactory senses, or the textures I felt on the tips of my fingers. Not even the molecules of our fingers! Those were other atoms and molecules thirty years ago. Since then, matter has been replaced a thousand times. What is permanent then? Not the particles, but the relations between them, their order..., that is to say, information. The essence of things is more in their form than in their matter. Edwin Schrödinger recounts something similar in some place of his memories. A living being, any one of us, has a material basis but, unlike other inanimate structures (such as a house, for example), our "bricks" are not permanent. The quality of a living being is maintained precisely through exchange. Atoms once well positioned within the body now float freely through the universe... and the other way around. The reader of these lines will scarce conserve any of the atoms of their childhood, but will be loath to admit that they are not the same person when they refer to themselves as the same unique individual. Identity is well able to withstand the change in matter, but very poorly when it comes to a change in information...".

After this revelatory reflection by Jorge Wagensberg we can make an evident leap to Bruno Latour. The French philosopher compares the material renovation of the Pont Neuf to a living being, construction and genetics, artifice and Nature.

"It's hardly surprising that its name hasn't changed, for after more than four centuries the Pont-Neuf (the "New Bridge") is still under construction! It was redone in 1891 already, right down to the foundations of its piles, under the close surveillance of the Ponts et Chaussées engineers. Today it's again being restored. Signs inform us of its ailments, its remedies and the name of its physicians. To replace every stone worn by time there's a new stone, carved in an open-air workshop on the Quai des Orfèvres by a sculptor, an expert in the trade. Physiologists claim that the body lasts several decades owing to movement in which each cell is replaced by a flow of fresh proteins to occupy the exact place and function of the aged cells whose debris scatters in the wind. For a biologist the living body therefore differs from a stone bridge only in the pace of its renewal. Speeded up, both resemble a jet of water that maintains its shape through the swift movement of countless tiny drops, each adding its minute contribution to the slightly trembling form...".

Architecture has traditionally clung to spatial and temporal stability nevertheless, it is the conditions of lightness and ephemerality that provide a more contemporary definition of our new context. Ever since Buckminster Fuller disturbed us by asking about the weight of our buildings, we have dreamed of new ways to face the need to build.

The questions that directly affect the design of a building have multiplied and accelerated in such a way that we are now aware that the impositions and readings during the development stage of a project are not the same that will affect the constructed reality during its useful lifetime.

It is therefore, a modern need for buildings to be able to adapt to changes; from replacing elements that rejuvenate its status, flexibility in modifying its configuration, to possessing a systematic ability to disappear and give way to new structures.

Natural selection is a concept that has made its way to the field of construction and it is in our hands to promote regeneration by sustainable means.

The systems of building construction are as important at the time of implementation as during maintenance and demolishing.

Socio-economic circumstances have stimulated the appearance of exciting new responses to adapt creative and constructive processes to an accessible reality, such as the usually direct relationship between the size of the elements of a work (from bricks that may be handled to complete façade elements that are executed in a workshop, and subsequently transported and installed on-site).

Architectural creation is engulfed in an implacable market where financial parameters are absolutely decisive. This

would not be a cause for worry if these conditions were not guided by a series of short or medium-term profitability goals.

One of the consequences of globalisation is the awareness of the limits of the habitable space and its natural resources. The Earth is exploited on a large scale and in addition to agriculture and industry; construction is an important consumer of these limited resources.

It is therefore necessary to introduce sustainability parameters when interpreting the entire construction process³. For this we could simplify natural resources in a practical sense by accepting that the lower the energy and material consumption, the better the process.

Undertaking a project involves its installation within an area, the addition and removal of materials and maintenance during its use. The reversibility of each of these three stages is a relevant factor in its assessment.

Substrate. Modifying the topography and vegetation involves an exchange of matter (possibly not utilising it) and alters pre-existing natural properties.

Installation. Construction implies a use of matter that may later be recycled or remain unused for ever. In some cases, the removal of matter is produced during the execution itself, not only in excavation, but also in the possible debris generated by the process itself.

Maintenance. The durability of the construction and its use requires a supply of matter throughout its useful life.

Alongside this consumption we must take into account processes of conservation, even material compensation such as the recycling and reuse of used materials. This would mean, in the best case scenario, a negligible impact from a material point of view.

By calculating the material consumption, we may obtain a sustainability balance in kilos. In order to apply these values in comparative terms, it may be more useful to link them to the volume of the activity and describe these values in kg/m³.

From a distant point of view, taking into account the entire useful life of the buildings, the capacity to adapt and regenerate of the architecture, subjected to the most acute limitations of territory and material and energy resources, challenges conventional building procedures and encourages the formulation of respectful designs that leave the smallest ecological footprint.

The new economic and above all, environmental context forces us to consider and take advantage of the recyclable and reusable capacity of materials in constructions that pose the least possible disturbance to our surroundings.

Art gives us examples where matter is used with the desire to limit its impact and, above all, with the goal of expressing its mutability, its impermanent, instantaneous condition of a dynamic process. This is the case of Andy Goldsworthy's installation in Madrid⁴.

Throughout his career, Goldsworthy has used plant elements such as wood, leaves, petals, animal elements such as sheep's wool; or inorganic elements such as clay, mud, snow and ice. Even stones whose solidity as oval structures was questioned by the action of being submerged in rivers and tides. His works appear in solitary and country environments as well as in museums, and are generally of an ephemeral nature.

The project consisted of various large domes made from piled trunks of wild pine from the woods near Buitrago de Lozoya, located 80 kilometres to the north of Madrid, administered by the Council for the Environment and Territorial Planning of the Region of Madrid.

The artist visited the woods several times to select the trunks that would form part of the exhibit "Inside the entrails of the tree". Some had been recently cut and were strewn around on the ground, others were piled and ready to be transported and later converted into paper or boards. Goldsworthy clarifies that none of

these trees were expressly cut for the purposes of the exhibition, and once over, the trunks continued on to their original destination and were transformed into commercial products.

All constructions have a limited lifespan that may vary between days in temporary constructions, and centuries, but there comes a moment when the original materials must be removed.

Another event with a similar commitment to reducing the environmental impact of the materials used was held in 2000 in Hamburg, at the Swiss pavilion at the International Expo, which was designed by Peter Zumthor. The temporary nature of these pavilions is a common characteristic of most set-ups at this type of event. However, on certain occasions, they constitute a relevant factor in the decisions regarding their execution.

The Swiss architect's proposal focused on this condition of matter "in transit" by using only standard-cut wood in the construction, which was arranged according to the drying stacks where wood is treated before being used. The presence of vertical metallic tensioners reveals that the large square wood profile walls have not even been screwed together. They have only been compressed vertically in order to ensure their stability for the lifetime of the pavilion.

The geometry and dimensions of the building elements are directly determined by the industrial production of wood and are not altered at any moment, so as not to change their original conditions and constitute only a pause in their commercialisation.

After the Expo, all the wood was unstacked and reused. 100% of the materials used in the pavilion were directly sold to be used in construction, without being handled for recovery, thus improving the concept of recycling with that of reutilising.

This attitude is a clear reflection of the trend sought by recycling processes. Optimised recycling consists of not letting the material deteriorate at each manufacturing stage so it may be indefinitely recycled maintaining its properties from its birth or start to its obsolescence, when it may be reborn, thus giving rise to the concept "from the cradle to the cradle"⁶. William McDonough and the chemist Michael Braungart propose a change of focus. Reducing the impact on the environment would slow it down, but whether faster or slower, we would still be moving towards the same end. Faced with this panorama they suggest that the problems be tackled from their roots, that is to say, instead of reducing energy consumption, we should focus on taking into account from the design or conceptual stage of any product, that the strategy or policy encompasses all the phases of the products involved (extraction, processing, use, reuse, recycling...) making energy expenditure unnecessary and resulting in a positive balance with regard to supply and expenditure, by taking advantage of solar energy and eliminating waste generation. Being "less bad" is not the same as being good.

The essence of buildings is in their form and not in the material itself, which is replaceable, corruptible and dispensable. The importance lies in the systems, in the set of decisions, solutions and relations between the different elements that make up a construction. Identity lies not in the matter, but in the information it holds⁶.

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He graduated in Madrid in 2000 receiving the Best Student Prize of that year at ETSAM-UPM, and the 1st National Prize for the best academic record in Spain, 2000. His doctoral thesis "Informed Matter", directed by Federico Soriano, obtained cum laude in the doctoral defence in 2012, and the X Arquia Tesis First Prize in 2015. He founded the architectural office dosmasuno arquitectos with Néstor Montenegro and Lina Toro in 2003 and founded Ignacio Borrego Arquitectos in 2014. He has received 37 national and international prizes in architectural competitions and architectural awards, such as COAM Prize, AIT Award or A+ Prize. From 2006 till 2013 he was co-editor in chief of the indexed architectural review of the National Architects Association of Spain: Arquitectos (Consejo Superior de Colegios de Arquitectos de España-CSCAE). This scientific Review is indexed, and in that period he edited 15 issues, with over 750.000 copies delivered to all registered architects in Spain. In 2009 he founded CoLaboratorio at the Technical University of Architecture of Madrid with Almudena Ribot, Javier García-Germán and Diego García-Setién. It is a research space for design strategies and new fabricating methods implemented in the contemporary industry, developing different initiatives such as the implementation of the FabLab UPM. This activity has a continuity at the CoLab Berlin, a laboratory of collaborative design, as part of an international net in Madrid and Berlin. As CoLab Berlin Director he is also in charge of the Digital Studio at the Institute of Architecture of the Technical University of Berlin.

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Notes

01. Jorge Wagensberg "Sobre el Alma de las Medusas" Text included in *Ideas para la Imagenación Impura. 53 reflexiones en su propia sustancia*. 2002.

02. Bruno Latour "Paris: Invisible City". 2006. <http://www.ensmp.fr/~latour/virtual/index.html>

03. Joan Sabaté. "Nulla estetica sine etica" in *Arquitectos 182-Bajo Consumo [III]*. Revista del Consejo Superior de Colegios de Arquitectos de España, Madrid 2007.

04. Andy Goldsworthy. *Inside the entrails of the tree*. Palacio de Cristal, Parque del Retiro, Museo Nacional Centro de Arte Reina Sofía. Madrid, from 2 October 2007 to 21 January 2008.

05. William McDonough and Michael Braungart, *Cradle to Cradle. Remaking the way we make things*. North Point Press, 2002.

06. Ignacio Borrego Gómez-Pallete, *Materia informada. Conformación, Deformación y Codificación, los procedimientos de almacenamiento en la materia*. Fundación Arquia, 2019.