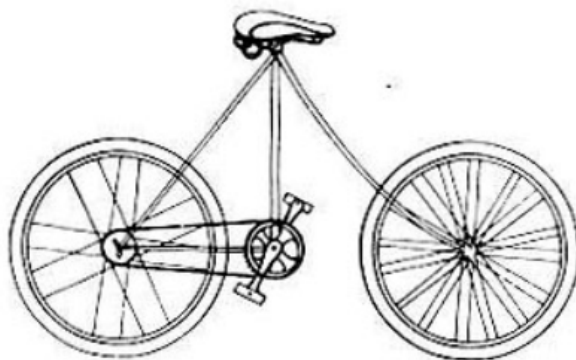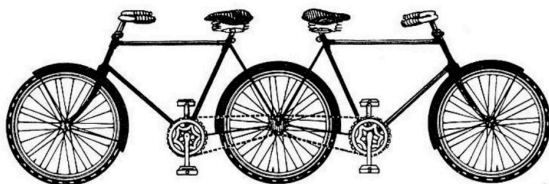# Ais/Design
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Storia e Ricerche

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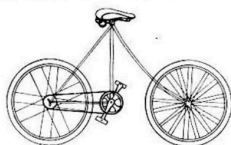
K1 — Tandem convergent. Modèle pour fiancés.

K2 — Tandem divergent. Modèle pour couple en instance de divorce.

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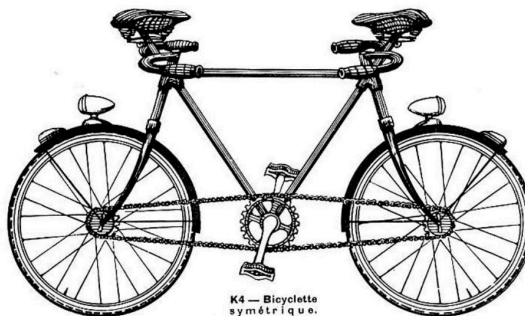## Storia e Ricerche

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Why is a Latourian Approach to Design Relevant Today? Five Statements

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The Science and Technology Studies (STS) tradition 'flourished' in the 1980s in the aftermath of the structuralism wave and generated new concepts and methodologies for the understanding of society, technological innovation and design. In the past two decades STS, and in particular Actor-Network-Theory (ANT), associated with the name of Bruno Latour, gained popularity among researchers in the fields of design and architecture studies. This article will outline the key epistemological offerings of Latour's social theory for design researchers. I will present five key arguments from the work of Bruno Latour: We Have Never Been Modern, There is no Society. Follow the Actors, Objects Mediate Social Relations, We are Locked in the Critical Zone, Give me a Gun and I will Make All Buildings Move. *I will then introduce key methodological insights for developing a pragmatist approach to design, inspired by Latour.*

Over the course of their work designers often facilitate the production of social relations and help shape societies. Therefore, knowledge in sociology (and philosophy) is crucial for designers and architects. This is perhaps one of the reasons why the work of the French thinker Bruno Latour has gained popularity among practitioners and researchers in the fields of architecture and design studies within the past two decades. The original and provocative tone of Latour's social theory is compelling to design scholars as it addresses issues ranging from the history of modernity, studies of science and technology, innovation, creative processes, cities, political ecology, the challenges of globalisation, religion and art, as well as the ecological crisis.

A Latourian sociological approach is relevant to architects for a number of reasons: first, there is a growing realisation of architecture as a social practice, recognising the social nature of the outcomes of architectural production; second, architectural professionals increasingly question understandings and beliefs in relation to knowledge production, innovation and creativity that are commonly taken for granted; third, there is a tendency to acknowledge the active role of objects, materials and technologies in the

process of design and inhabitation. Therefore, it is not a coincidence that Ac-tor-Network Theory (ANT) associated with the name of Latour, has gradually gained popularity among researchers in the fields of architecture and design studies within the past two decades (Yaneva, 2009b).

In what follows, I will focus on five key statements of Bruno Latour that are essential for the understanding of his work. I will use some of the illustra-tions developed in my recent book *Latour for Architects* (Yaneva, 2022) that were redrawn from classic diagrams and figures included in some of his key works and were further reinterpreted by Alexandra Arènes, an architect, scholar, and former PhD student of mine.

1. We Have Never Been Modern

In his most influential book *We Have Never Been Modern* (1993) Latour probes the powerful dualisms of nature and culture, fact and value, subject and object that are crucial for modernity. The Modern Constitution, as Latour describes it, is based on four features (Figure 1). First, the belief that Nature has a supe-rior dimension distinct from the fabric of Society, while the pre-moderns belie-ve in a continuous connection between the natural and the social order.

Figure 1

First dichotomy

Nature

Society/culture

WORK OF
PURIFICATION

1   2

Second dichotomy

WORK OF
TRANSLATION

3

Hybrids
Networks
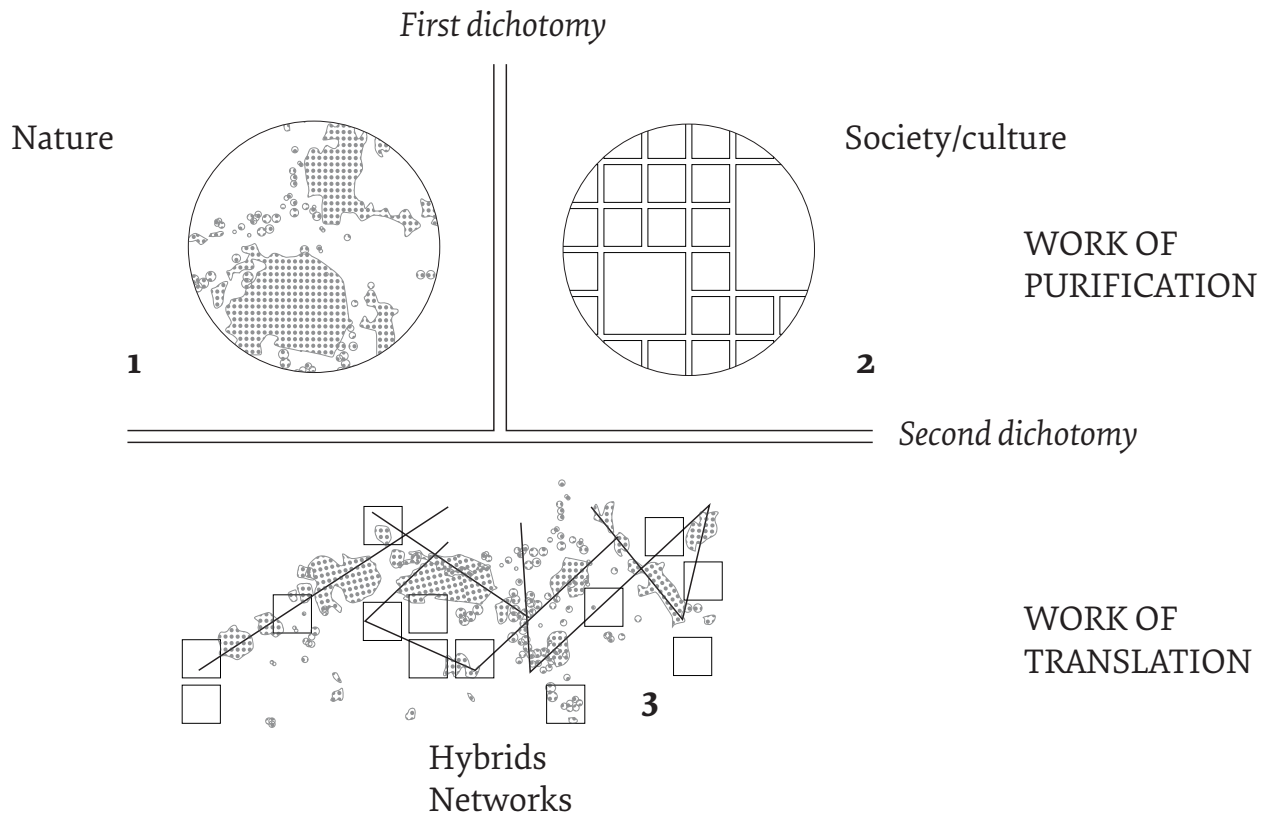
Second, while Nature is transcendent (outside of human activities), Society is immanent to human activities, and possesses an inherent dimension that renders citizens totally free to reconstruct it. Third, the separation between Nature and Society is maintained.

It is claimed Society has no relation to Nature, or the object world. Fourth, the idea of a God, as the arbitrator of this dualism, makes it possible to confirm these separate orders.

It is the work of purification that defines the Modern Constitution – a separation between Nature and Society/Culture, between the scientific power charged with representing (speaking on behalf of) things and the political power charged with representing subjects. The dualisms between Nature and Society/Culture constitute one way in which we define ourselves as moderns. Yet, they hinder our understanding of the world, argues forcefully Latour. Being modern also relates to how we represent ourselves as historical.

"Modern", "modernisation" and "modernity" are terms that suggest a sharp contrast with an archaic and continuous past. It is a break in the flow of time and yet, we continue to push forward, everything advances. This points to an asymmetry between the past and the present that is rooted in the very meaning of what it is to be "modern".

But how is this debate about Modernity, and the divides between Nature and Society/Culture, relevant to the understanding of design practice? When we are in the midst of a practice, whether it is the making of an artefact or an experiment, it is not possible to define the direction of the flow of time.

There is a fundamental uncertainty in the way we understand ourselves as moderns. To illustrate this, let us take an example from the field of architecture. How often do we open the pages of architectural magazines and read about controversial buildings? Every day. Here is the Disney Concert Hall designed by Frank Gehry in Los Angeles, stainless-steel, aesthetically "beautiful" and iridescent, changing colours depending on where the sun is. Yet, it is also extremely controversial – residents and businesses complained about a blinding glare, neighbours claimed that the sunlight reflected from the building caused rises in temperatures (reaching approximately 59 °C – 138 °F), errors in construction were pointed out by the architects, budgetary constraints and the fears of earthquakes forced limestone to be replaced by steel, the tension soon escalated and the architect was sued. On the pages of *Archdaily*, we can also read about another glare dispute, this time between the Renzo Piano-designed Nasher Sculpture Centre in Dallas and the Museum Tower, a neighbouring residential building. The latter was accused of reflecting so much glare through the museum's glass roof that it risked damaging the artwork inside and making the museum's garden areas so warm that they were unusable.

Similar issues of safety, temperature, respect for the neighbours and the context, clients' demands, and social responsibility emerged. Yet, to fully understand the issues of glare, let us follow designers from FOA architects (now AZPML) at work as they design a new reflective steel façade of the train station in Birmingham, UK – the New Street train station (Yaneva, 2017). Witness with your eyes how engineers from Arup identify "a risk of glare" for its new steel façade with a curving, non-linear complex envelope.

After running further tests both architects and engineers tackle the problem as a matter of emergency. Testing, probing, and adjusting the parameters of the sun in order to deal with the glare problem, architects consider calculations, identify areas where they have to potentially treat the steel, and analyse the amount of sun that hits the train tracks and the kind of luminosity that this creates. Further detailed tests, however, show the glare problem as a "high risk" to blind the train drivers. Hence, more tests and adjustments are needed. Architects consider producing camouflage patterns of different types of sanding in order to avoid the problem of glare for neighbouring buildings and to prevent the glare to blind the train drivers and cause major disruptions at the busy train station.

Yet, this elicits concerns about the "architectural language" of the façade, the changing geometry of the envelope, and the "radical reduction of the massing" of the building. Moreover, changes in the reflecting surface of the façade should echo the sky (blue or grey), not only the rails, and will affect the iconography of the building and the "image of Birmingham". This is an image that conveyed an important promise to citizens when the project was first presented to the public of Birmingham. Thus, the glare issue appears to be too intractable and too enmeshed in contradictory interests to separate it into purified domains. It entangles science, politics, engineering, infrastructure, economy, law, and technology. One issue *translates* into another. In their practices, we see it here, architects are often mixed up in various questions of knowledge, interests, ecology, social responsibility and power.

They become scientists, artists, politicians, technologists and ecologists at the same. In other words, hybrids. This glare example illustrates what Latour defines as the paradox of modernity, and namely that modernity requires a constant work of purifying nature from culture. Yet, it is impossible to disentangle the issues of sunlight from those of social responsibility to neighbours and other legal issues. In contemporary situations of crisis and controversy, we always encounter hybrids, and we rely on the work of translation that draws us into hybrids, or networks. Design practice is hybrid and operates in a non-modern way – by bringing together skies, political promises, light, engineering calculations, train drivers and architectural language into one collective.

2. There is no Society. Follow the Actors!

The key questions that guide Bruno Latour's sociological work are "What is a society? What does the word 'social' mean? Why are some activities said to have a 'social dimension'? How can one demonstrate the presence of 'social factors' at work?" (Latour, 2005a, p. 3). Society is often understood as the "hidden source of causality" that accounts for the existence and stability of different types of action or behaviour, society is often called upon to explain design or architecture (Figure 2).

Figure 2

SOCIETY/
SUBJECT

NATURE/
OBJECT

Former
society/subject pole

Former
Nature/object pole

LOCUS OF ENQUIRY
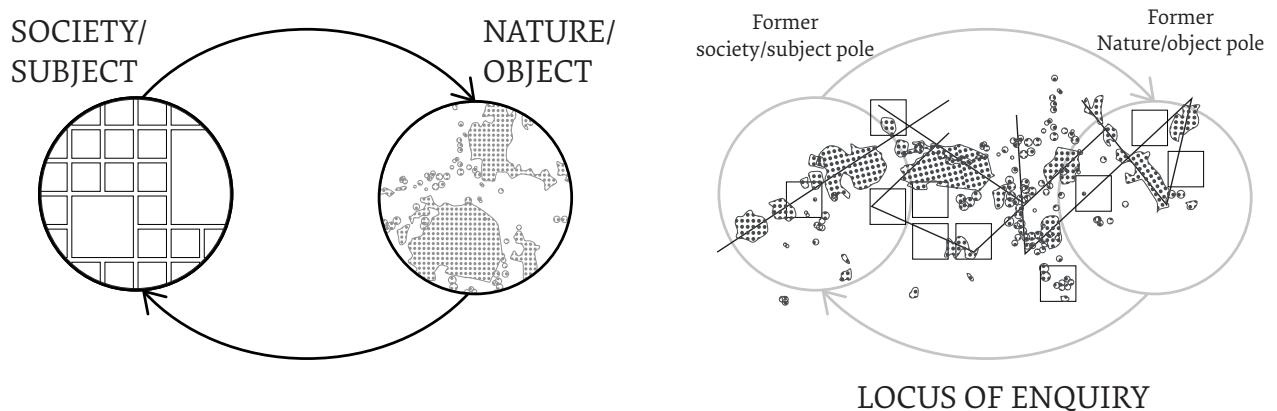
There is an implicit role given to the social sciences when explanation is at stake: they are expected to provide the solutions (the cause). Yet, Latour demonstrates that the social sciences are part and parcel of our problem, not a solution. He engages in a critique of all attempts of "social explanation".

The "social", he argues, is not that which should explain, but that which requires an explanation through empirical investigation.

Following Latour, we can argue that Society cannot explain Architecture, or any type of design. And yet, we often draw two lists and engage in causal analysis and explanation. On the one side, in list A, we place social needs, economic, political, religious, or cultural factors, etc. On the other hand, in list B, we place architecture and design elements (Form, Style, Appearance, Location, etc). However, no explanation has ever consisted of anything more than a disproportionate amount of heterogeneous, historical, and contingent elements. If society is not out there, and if it cannot explain architecture, what is it that we call "social"? The term "social" does not designate a domain of reality, but rather points to a movement, a displacement, a translation, an association between entities which are in no way recognizable as being social. As the social is a movement, we need to follow the actors to understand it, to grasp it. We need to engage in an enquiry that will unpack the entire network of heterogenous elements. Thus, following Latour we should call upon design scholars – "follow the actors to understand design".

3. Objects Mediate Social Relations

Actor-Network Theory (ANT) relies on three types of uncertainties: first, there are uncertainties surrounding the nature of groups: one can belong to many different groups at the same time and can gain an identity in different ways. From an ANT perspective it is important not to settle on one privileged grouping, but to acknowledge that there are lots of contradictory group formations, and processes of enrolment into groups. Second, there is uncertainty around the nature of actions: in each course of action a great variety of agents seem to intervene and displace the original goals. Action does not take a simple route, but is overtaken, taken up by others, and shared. Third, there is uncertainty around the nature of objects. Yet, objects do not do things "instead" of humans; they simply allow, afford, encourage, authorise, suggest, block, render possible or forbid. They are not passive, but act as mediators.

Latour discusses at large the role of objects and technology in social life, and develops an Anthropology of Technology. In the pragmatist perspective that guides his approach to objects, the divide between the "subjective" and "objective" is abandoned in favour of the idea of mediation. Technology plays an important role in mediating human relationships. We cannot understand societies, argues Latour, and how they work, without an understanding of technologies and how they shape our everyday life. We cannot imagine a society that is not built by things – IT technologies, trains, telegraph cables, cars, but also – we might add – buildings and infrastructure. He dedicates numerous books and articles to various technologies, from the analysis of a sophisticated project of the Personal Rapid Transportation (PRT) Aramis, a high-tech automated subway system in the 1960 (Latour, 1996) to simple mundane artefact like the Berlin Key (Latour, 1991).

Let us focus briefly on the Berlin Key. Latour stumbles upon this unusual, almost surreal key while visiting Berlin in the late 1990s. Yet, if a sociologist can easily interpret the key as a reflection of society, as mirroring divided Berlin and that specific political moment, Latour fights the assumption that objects carry meaning, receive and reflect it, but never fabricate it.

The assumption that Society is made elsewhere, and with social means only is precisely what Latour criticises passionately. This explanatory framework inspired by critical theory would typically treat objects as projections and reification of social and cultural meanings. Latour offers instead an alternative way to understand objects, tools, and technologies. If, instead of unravelling the hidden meaning of objects, we follow their functioning, their "programme of action", specific constraints, and exigencies, if we unravel the daily web of use of particular technologies, we will be able to understand how precisely they relate to society. Indeed, the peculiar key discovered by

Fig. 3 —

Latour has a specific "programme of action". It forces users to keep the door locked after they have entered an apartment building so as to keep everyone safe and maintain the social order (Figure 3).
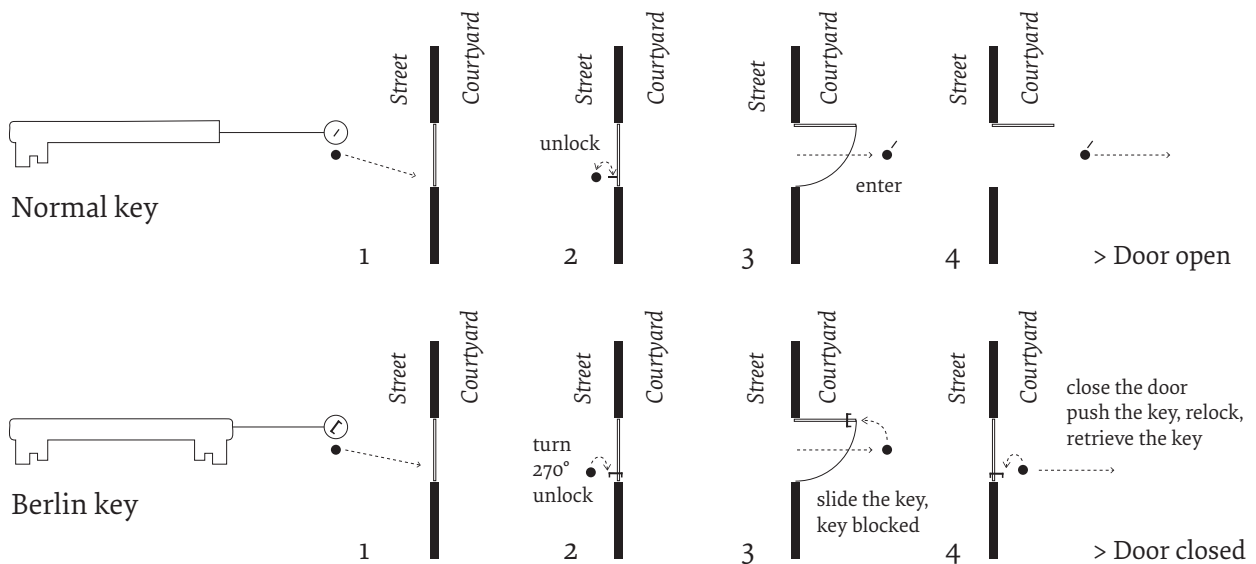
The key and the lock mediate all these complex relations between tenants and owners, inhabitants and thieves, the concierge and possible intruders. Latour reiterates: "The object does not reflect the social. It does more. It transcribes and displaces the contradictory interests of people and things" (Latour, 1991, p. 153). Thus, social rules do not exist on their own but are often delegated to people and to things that will act on their behalf. We delegate the action of closing a door to hinges, springs, and hydraulic pistons, as we delegate the action of traffic control to many signs and speed bumps (or "sleeping policeman"). And we delegate to nonhumans not only force, but also values, duties, and ethics. The seat belt in our cars, for instance, is an object that is meant to discipline us, to make us more ethical drivers, reminds us Latour. The speed bumps indeed impose on humans the need to slow down, to be cautious. But this also makes us ethical beings and socially responsible citizens. The material world pushes back on us because of its physical structure and design; in addition to speed bumps, many other urban artefacts and environments mediate our lives in cities (Latour and Hermant, 1998). Fences, heavy doors, bicycle covers, fountains, bollards, barriers all prescribe behaviour: they authorise and forbid, give permission or hold promises. Thus, it is absurd to believe that society is made of human relationships only and that technologies are made of nonhuman relations only. What we witness in practice, as we follow the mundane actions of seat belts, doors, speed bumps, and barriers is a reciprocal relationship between humans and nonhumans.

Latour's sociology of technology renders visible how technical objects (rather than simply mirroring meanings) produce modes of social, political and ethical organisation. A more durable set of social relations is performed through the introduction of technologies, steel, and wood. The social needs keys and locks, argued Latour, but also – we might add – infrastructure, designed environments, material arrangements, furniture, and buildings.

4. 'We Are Locked in the Critical Zone'

As Bruno Latour notes, the scale of ecological crises made us realize that every kind of politics has always been "cosmopolitics", that is, politics of the cosmos, and that we have always dealt with object-oriented politics (Latour, 2005b). He invites us to entirely abandon the modernist idea of passive nature as being external to the human experience (Figure 4), a nature that can be mastered by engineers and scientists from outside, but to rather consider all those who have relevant knowledge about nature and whose practice actively engages "with" it.

Figure 4

TWO-HOUSE COLLECTIVE   COLLECTIVE WITHOUT OUTSIDE RECOURSE
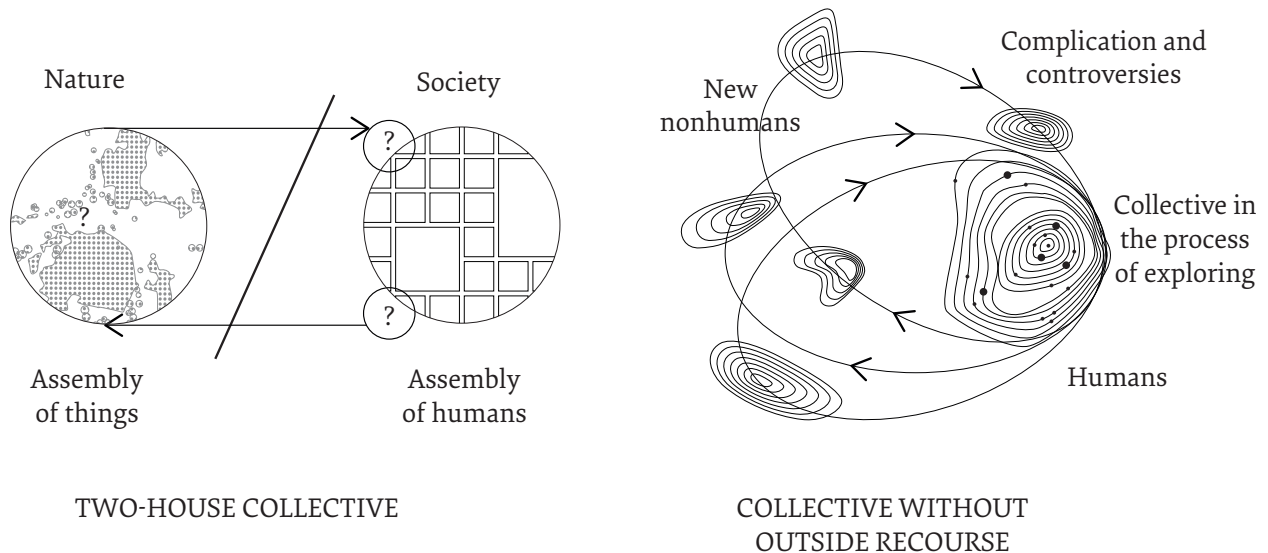
Nature can no longer provide a simple backdrop for our activities but is to be "composed" and actively reworked "from within." And that is what Latour, following the Belgian philosopher Isabelle Stengers, calls the "cosmopolitical question". Cosmos embraces everything, including the multifarious natural and material entities that make humans act. It is therefore important for us to ask: What is the role of design if nature is not silent any longer? What is the role of design at the time of the Anthropocene? Informed by this new understanding of cosmopolitics (Yaneva and Zaera-Polo, 2015) we should consider redesigning the political scene in a way that nonhumans will be also included. Through their work designers often turn nature into a cause for thinking in such a way that

all nonhuman elements are included and considered. They take into account the agency of other species and objects and make explicit the connection of humans to a variety of entities with different ontology. Instead of acting "against" climate change or pollution in a militant way, designers are in the unique position of being able of acting "from within", raising awareness and suggesting adjustments. All solutions that rely on "acting from within" are not generated by big politics and meet little resistance. They can therefore lead to agreements and solutions much more easily.

In his later work, Latour mobilises increasingly artists in search of an answer to the cosmopolitical question, including in theatre plays. In his most recent writings, in place of Nature, Latour offers the figure of Gaia. Here he builds from the hypothesis, formulated by the chemist James Lovelock and microbiologist Lynn Margulis, that living organisms interact with their inorganic surroundings on Earth to form a self-regulating complex system that maintains the conditions for life on the planet (Latour, 2017). Gaia is named after the goddess who personified the Earth in Greek mythology. Unlike Nature, Gaia is not indifferent; she is local, she cares and feels for us, reacts to us, and might, eventually, get rid of us. However, Gaia is also a scientific concept that captures the "living Earth" as a reciprocal and entangled relationship of various entities that have their own interests.

Moreover, Latour argues that something has been totally overlooked when the Earth is considered from the outside (as in Galileo's discovery that the Earth moved around the Sun). Earth as Gaia is incredibly reactive to our actions, not only that the Earth moves around the Sun but that it is being moved by us, modified from within, and "for that reason escapes all our hopes of dominating it" (Latour 2018, p. 223) compared to Nature which was seemingly indifferent to our actions, and for that reason could be mastered.

That is why Latour implores us to engage in rethinking the visual language we use to represent nature. The lack of a common visual language to communicate environmental issues hampers their understanding. Issues like the massive stores of pollution, the rapid degradation of landscapes or the threats to biodiversity are represented with conventional cartographic, scientific and cybernetic images that speak in an abstract way, using a top-down aesthetics. The difficulty to represent environmental issues has led to climate change scepticism and denial. That is why it becomes crucial to rethink the representational techniques that have for long shaped how we look at nature and to multiply the instruments for data collection.

After all, a new politics of the cosmos is possible only if we can represent these intricate environmental issues in their multiple scales, gravity, and durations. The work of 'Design Erath' and their *Geostories* (Ghosn and Jazairy,

2018) provide a notable example in that regard. Employing an inventive mapping technique to trace the Earth zones affected by acute environmental issues, their "geostories" take us into the thick of the Earth: into the middle of the ocean of oil extraction infrastructure, melting icebergs, and waste management. Addressing critical questions of deforestation and resource extraction, these "parliaments of things" are very different from the purified concept of Nature. These visualisations rethink multispecies cohabitation and make explicit the fragile connections between humans and nonhumans. They craft new layers, compositions, new interlocking swarms of actors and technologies in inverted scales, overlapping niches and novel envelopes. Through these visual analyses, the Earth appears as layered, composed of complex biological and geological entities, and instruments and always seen in three dimensions, and from different perspectives. The viewer is always embedded in the folds of this ever-surprising Earth.

Situating their analysis at the Critical Zone (the Earth's surface modified by geochemical cycles) designers can make visible the interactions between various forms of life, matter, and landscape, as well as the disturbances caused by humans and nonhumans and their various chemical residues. Alexandra Arènes' visualisations of the critical zone provide another outstanding example for alternative visualisations. She engaged in ethnographic observation of the practices of scientists working the Critical Zone (Arènes, 2021) to be able to produce cosmopolitical visualisations (Figure 5).

This map offers a distortion (anamorphosis) of the Earth image, very different from the dominating planetary vision. It reverses the conventional projection of the layers (rocks, soil, atmosphere), in a way that the atmosphere is placed in the inner circle so as to emphasize that atmospheric pollution does not disappear into space but returns to us on earth; we are trapped in the ozone layers. As seen in these examples, engaging with a "Gaia-graphy of Critical Zones" designers are better placed to produce alternative accounts of environmental transformations and to generate visualizations that suggest that we live *within* nature and interact with it, we weave a web of connections that might hurt or repair its balance (Arènes, Latour, and Gaillardet, 2018). Designers are in the unique position of acting from within, raising awareness and offering new solutions for crafting the co-habitation of humans and nonhumans. Following these insights, we can argue that design can become a powerful apparatus for re-thinking, re-diagramming and re-imagining the new cosmopolitical order.

5. 'Give Me a Gun and I Will Make All Buildings Move'
To unpack this statement, which is also the title of a joint article (Latour and Yaneva, 2008) I will first explain what is meant by movement.

The Critical Zone view

Atmosphere
Top soil
Rocks

Terrestrial Carbon cycle

flow ways   flow duration

from center   Rapid
to periphery

from periphery   Slow
to center

ATMOSPHERE   TOP SOIL   ROCKS   MANTLE
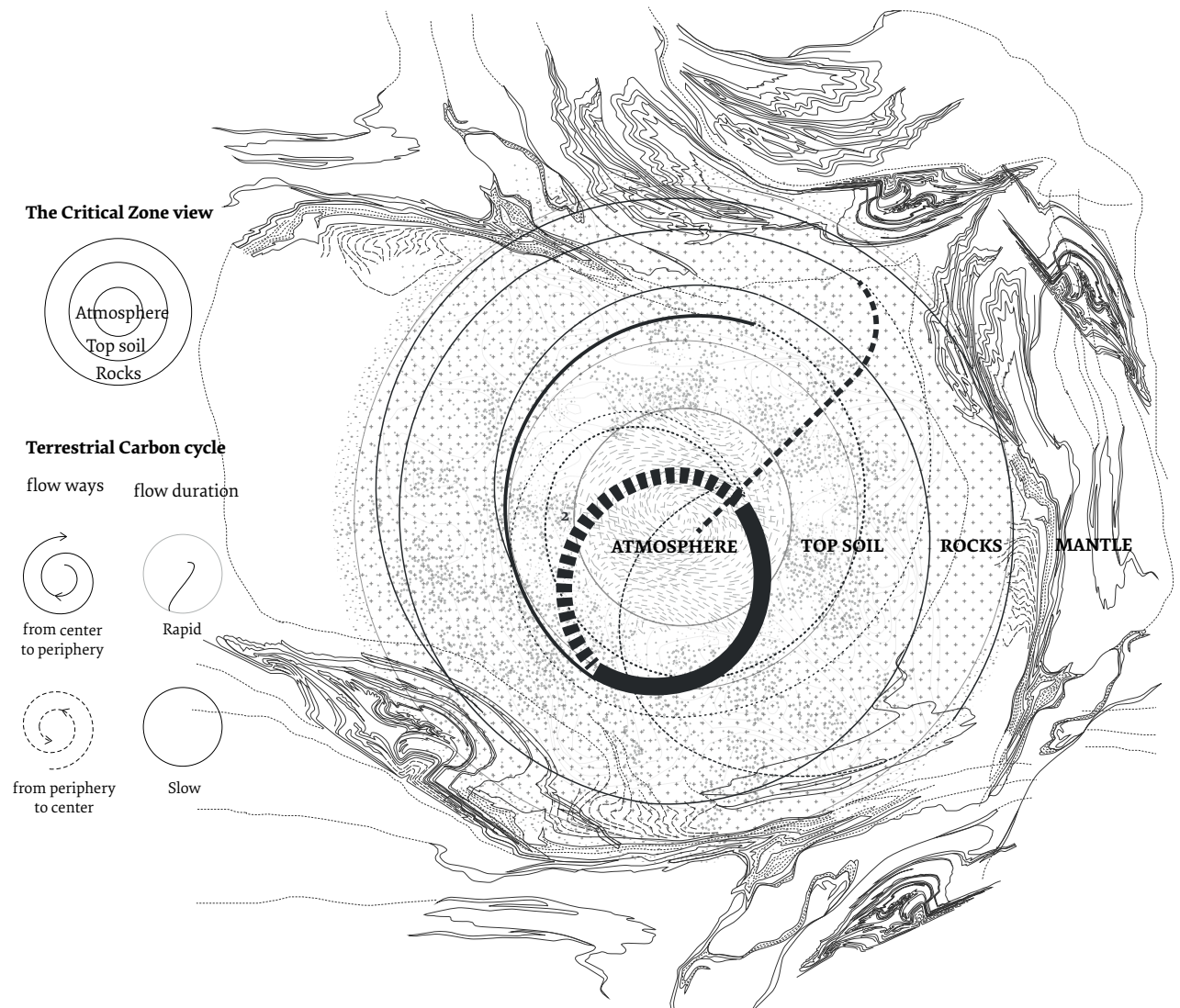
Figure 5

I will begin with the double-faced Janus, God of duality – a metaphor used by Latour to talk about the duality of "science made" versus "science in the making".Latour uses this diagram to illustrate the juxtaposition between the critical and the realist/pragmatist approach. On the left, stands ready-made science: it is serious (like the facial expression of the left Janus!), certain, formal and restrained, and as it is ready-made, static, and mute, it is easily explained through social dimensions. On the right, stands science "in the making": it is alive, uncertain, informal, changing and cannot be explained with a or reduced to social factors. To be understood, it needs to be followed. A similar approach can inform the study of architecture (Figure 6).

Ready Made Science

Science in the Making

Figure 6

Before we explain what this approach entails, we should note that "Critical Sociology" flourished in French academia the 1960s with the writings of Pierre Bourdieu. Drawing on the social theory of Karl Marx, which focused on the struggle between capitalists and the working class, this sociological method is based on critique that consists in explaining the subjective experience of all members of society with their belonging to specific social structures. The main task of critical sociology is to reveal and expose previously hidden social mechanisms and influences that impact human action. In the spirit of this approach, we will strive to explain design with economic and political factors, social and cultural changes. We will refer to the theoretical influences upon the designers, to branding, visions, symbols. These are all frameworks *outside* design and architecture.

Exploding in the world of architectural and design history in the 1990s, critical theory embedded itself in the discipline in a myriad of different shapes and means. Criticizing the studies of single architects or architectural practices as limited and trivial, it offered to use any theoretically informed academic discipline (history, cultural studies, anthropology, geography, sociology) as a mental schema, as "an [outer] explicit framework in which to situate the architectural objects of study" (Borden and Rendell, 2000, p. 5). As a result, post-structuralism, feminism, psychoanalysis, (post)Marxism, post-modern critical theory and a multitude of other formulations have changed not only the interpretative categories but also the very epistemological foundations on which architectural theory was grounded (Leach, 1997). Critical theory postulated that in order to see the logical patterns of an architectural process or product, the latter should be extracted from the rather messy and irregular process of a production method full of insignificant details; one should rather go upwards until embracing higher-level theoretical frameworks outside

architecture – social factors, cultures, politics. Architectural theorists thus pursued a wider conceptual framework for architecture, which, as many thinkers denoted, was missing: a framework that could embrace activities from patronage through to construction and use.

The main assumption of critical theory is that architecture/design is something capable of being inserted and understood in wider comprehensions of cultural production. Therefore, to put across the meaning and the relevance of architecture, critical studies find it necessary to position it as a historical subject within various contexts in order to be able to outline its economic, social and political dimensions, and to show that it is always directly tied to these conditions given both its scale of production and public use (Tafuri, 1979; Ockman, 1985). Be it the architecture of the Berber house of Kabyle (Bourdieu, 1971) or the typical English terraced house of 1910 (Muthesius, 1982), or the particular dwelling form of the bungalow (King, 1984) they are all regarded as a microcosm that reflects the macrocosm of society, mimics the organization of universe, follows legal estate patterns and historical forces or dwelling habits and cultures. The small follows and reflects the big; architecture embraces a shape suggested by society or culture. Thus, in order to be understood, buildings had to be located within the entire spectrum of economics, politics, social practices and architectural theory. The same spectra were also invited to explain the design process, the success or failure of architectural projects, and to elucidate why a particular style emerges or vanishes at a particular moment of time, or to shed light on urban dynamics and city developments.

The "broader and more inclusive" types of readings generally address matters of class, psychoanalysis, social space, sexuality, the way in which meanings are created and transferred by means of experience, political action, gender, race and so on. For the critical authors, "dealing with these kinds of things in both architectural production specifically and cultural production in general maximizes the opportunity to learn all that architecture is and might be capable of" (Borden and Randell, 2000, p. 15). In addition, they consider that "to speak about architectural history without reference to these things, to other disciplines, to theory, is not only to dismiss architecture's relevance to the world in general, but also to *trivialize* current conditions and preoccupations" (Borden and Randell, 2000, p. 16 – italics are mine). To avoid *trivialization*, critical theorists engage in an exploration of architecture's hidden meanings and practices, advocating what they believe to be a "richer and more significant" understanding of architecture. Having the ambitious task of providing a space of imaginative abstraction beyond the immediate remits and dictates of architectural practice, the critical method consists of displacing the conventional

objects of study and challenging them by referring to ideas from outside architecture to explain design process, creative thinking and practices. Borrowing concepts from the critical sociology of Pierre Bourdieu, the de-constructivist approach of Jacques Derrida, or the archaeology of Michel Foucault, architectural critique operates by unveiling hidden mechanisms, constraints or representations, principles and forces behind architectural objects, projects, and urban developments. The critical discourse of denunciation consists in explaining the subjective experience of all members of society with their belonging to specific social structures and exposes previously hidden social mechanisms and influences that impact action. By suggesting a theoretical outside from which conventional interpretations could be challenged, critical theory relied on the main assumption that there is a "social context" in which architectural and urban activities take place, and which can explain their meaning and relevance. Critical research in architecture therefore implies to critique, that is, to debunk and unveil the hidden forces that drive architectural production, to reveal the invisible mechanisms of practice, to resist also the explanation of design practitioners.

This mirror-fashioned relationship between architecture and society (King, 1980) has as its main assumption that "society" is a separate domain of reality that can be used as a specific type of causality to account for the "architectural" aspects, and is supposed to give solidity, durability, and consistency to the domain of architecture which it cannot maintain by itself. Therefore, to explain a particular building or urban concept, a critical thinker would show its entrenchment in "the social context of its time" and would present it as reminiscent of the "political climate of an époque", of intricate power relations and economic interests. In order to elucidate the design moves and inventive impetus of architects, planners and urban developers, scholars would account for the social and political influences on these "creators", or reflect on the instrumental role of architecture.

Condemning the tendency of critical sociology to reduce any human activity to social dimensions, Latour advocates a "Pragmatist Sociology".

Born in the 1980s in the aftermath of the structuralist wave in French thought, this method takes seriously the practices and languages of all members of society rather than searching for what social forces are "really" acting behind them. It is based on what people do, the actions they undertake and assume, their discourse (the way they explain and conceptualise what they do). In the spirit of the pragmatist approach, we will aim at understanding the process of design (the routines, the mistakes, the workaday choices, the material and technical choices), the practices of users: the everyday design and experiences. We will trace and explore all the actors who take part in

design, the technologies, the artefacts, the signage, the materiality. These are all features *inside* the remit of design or architecture.

Indeed, design has its own strength and internal logic, and we cannot continue to believe that its specificity would be better understood if some "social" dimensions and conditions were revealed. Design process unfolds under its own logic, and we cannot continue to insist that there are always some "social" elements and cultural factors to explain its unpredictable turns and difficulties. Architectural projects develop according to their own inner drives and competitive logics, and we cannot continue to explain the puzzling aspects and erratic behaviour of the multitudes of actors enrolled as pertaining simply to "social influences" and "social limitations". For what it's worth it, the critical approach relies on a very limited understanding of empiricism as a blatant attempt to trivialize architectural practice (Colquhoun, 1981; Johnson, 1994; Hays, 1998). Therefore, it is becoming increasingly difficult to imagine that the concepts of critical theory, formulated some time ago, would miraculously conserve their relevance in today's design world. What use can we make of concepts that continue to transcend and authorize our daily design and dwelling choices? How can we still deem them relevant to engage in seeking reason and justification of existing architectural phenomena, events, and processes? Are the denunciation tactics of architectural critique able to provide a holistic picture of the contemporary challenges in practice? And if the critical theory is out of date, what kind of different critique is possible?

6. A Pragmatist Approach to Design

When today we are confronted with the burning questions of theoretical relevance and adequacy, the tired answers of the critical approach fall short. Instead of relying on the habit of linking the notions of "society", "social factor", "power", "structure" and "context" with architecture in order to reveal the dark powers pulling the strings, instead of performing big jumps from "society" to the earthly empirical reality of architecture making, design researchers should rather try to understand what happens on the ground. As Latour has states, "the time has come to have a much closer look at the type of aggregates thus assembled and at the ways they are connected to one another" (Latour, 2005a, p. 22), that is, to engage in tracing the composition of the social as a way of connecting heterogeneous actors and environments. If instead of attempting to explain, debunk and reveal the forces behind architecture, we embrace a pragmatist approach and we base our method on what the participants in architecture-making do, the actions they undertake and assume, their discourse – the way they explain and conceptualise what they do in architecture and urban life –, this will inevitably lead us towards

a more realistic understanding of the current developments and challenges in architecture. This would mean to take seriously the practices and languages of all participants in architecture making and the heterogenous compositions they shape, rather than searching for the social forces acting behind them and reducing the actions of designers, planners, clients, sponsors and politicians to social or economic dimensions. This will generate a critique that comes from within the very field of practice.

Follow the activities in any architectural or designer's office. In the office one can capture the contingency of design process as key for understanding how buildings, cities and environments come into being. To grasp the meaning of these buildings, we need to forget the star architect for a moment and turn away from official interpretations, to circumvent also traditional understandings of star-authorship (in the spirit of subjectivist interpretations) or critical-historicist interpretations. Instead, follow the sketches, the models, the foam materials, the software, the 3D modelling tools mobilized by architects to design, but also the entangled networks of engineers, clients, professional model makers, and interior designers. This would also mean accounting ethnographically for the ordinary forces and conditions of design experience, following (not the start architect) but many young designers in the office and the paths their work have traced. We can track the way their actions spread, and the way architects make sense of their world-building activities, the routines, mistakes, and workaday choices usually considered of lesser importance. In so doing, we can arrive at a better understanding of the projects and buildings of a firm by the means of a detour to design experience. We will avoid all sorts of explanations and the passage through the vague notions of culture, society, and imagination.

While trying to understand and interpret what happens in the office, we will abstain from referring to any "dark forces" (the market, capitalism, neoliberal economy, wars and hurdles), to any "bad guys" indeed, nor will we evoke an explanatory construction of continuity that refers to something beyond our control – cultural forces, social influences, the Zeitgeist. We will simply follow the "adventures" of design, its twists, and unpredictable turns, a world where all continuity is questionable. Design takes place in circumstances that are different every time and with stakes that are always different. To interpret it, we no longer search for an ultimate explanation, but we simply collect stories of design. Stories of model making and recycling tell us what makes OMA specific (Yaneva 2005, 2009a), stories of travels to the site tell us what makes Miller Howard Workshop specific (Yarrow, 2019), stories of rendering making tell us what defines the uniqueness of Kuma Kengo's Japanese way of building with bamboo (Houdart and Minato, 2009), stories of how the tribulations of

wooden materials amplify the various ways in which the object-in-the-making participates in the design decisions of a firm (Lefebvre, 2018). Long is the list of storytelling developed by pragmatist architectural researchers in the past two decades.

While deploying all these stories our critique from within the field of practice will add the "whys" of designers' experience to the "hows" of the objective reality of design-making. Instead of asking: "What caused this? Why is Portuguese culture, for instance, embedded in the design of the Casa da Música in Porto by OMA? How is British cultural politics reflected in the extension of British Museum by Foster + Partners?" The questions to be asked are: "What unique adventures of design made this possible?" "What matters to designers and to all participants in architecture making" "How and where?" "Where and how?" "What does success mean?" "Under what circumstances can it work for the dwellers and how is it going be judged?" No high levels of complexity, no superiority of society or culture will be added into the explanation, no glorifying appraisals. Spending more time to carefully describe and account "how" architecture happens, how design is produced, communicated, negotiated and shared, these lengthy and painstaking stories of design making will finally provide answers to the "why". Thus, a slow and skilful earthly critique from within should be able to demonstrate that the so-called "hows" conceal the "whys" of design undertaking.

In all these situations we can witness how design unfolds. Staying on the ground helps us to enquire into the current conditions of life in the world we inhabit and to recognise all participants, all "unsung heroes"—the young designers, foam, and foam cutters in the practice (not just the star architect). This realistic, *earthly*, approach enables us to account all sorts of practical work contributing to the making of "situated knowledge" in architecture (Haraway, 1991). In all these cases, we join an active ongoing process of exploring, testing, repairing and reappraising the architectural connections of design objects to the world; we join the orbits of designing.

To fully understand the adventure of design we need to follow it slowly. No rush to explain it or replace it with the quick concepts of society and culture. Exploring a design process or a building through repeated visits the construction site or the design practice we can experience the various speeds and intensities of the processes unfolding there, the changing crowds of people and flows of things; we can observe, document, interview and trace different activities, movements, and gestures. Follow all these waves and shifts slowly and through their presence and immediacy you will grasp the specificity of various architectural institutions, you will gradually gain experience about architectural objects and processes in their own qualities and relations.

It is this rich experience that will form the core of our interpretations. This is, I will argue, the only foundation for design theory, and for meaningful critique. Instead of addressing the mode of judgement of architecture or engaging in reflection on how to disqualify the dark forces, our research will rather account the different modes of making. Staying on the ground, following slowly, we can also give speech to that which has no language: to the foam, the cutter, the software, the mould, the sketch. All these nonhumans are part of the stories of design because they pass action. It is through the sliding of action from designer to sketch, to pencil, to model, to foam, to drawings, to potential spaces and objects that design happens. There is neither simply a Subject and an Object, an architect and a model. Following how these nonhumans move back and forth between sites allow us to witness how a design object, a city or an architectural archive become knowable, traceable, and works.

If we abandon the duality between free, creative entrepreneurial design sprits, and regular submissive materials, a duality bequeathed to us since Modernity, we will be able to produce accounts that more realistically depict design adventures from within.

A critique of design from within implies accounting fully the demands of the environment on which the success of design experimentation depends, both human and nonhuman. Yet, this ability does not exclude the human beings (designers, architects, clients, users) to become active, discuss and hesitate, but also solicits them and mobilizes them around the eventuality of the creative achievement – the new idea, the ground-breaking form. This is an achievement that no critical analysis of the design production could justify (with the forces of culture, politics, markets). It belongs to the order of the event, of what can happen in design process but does not correspond to any external reality. Design novelty is an achievement that is rare, extremely selective, and radically situated. What situates it is not the world of design, no matter how objectively it was deciphered in recent studies of design practice (Cuff, 1991; Houdart and Minato, 2009; Yaneva, 2009a, 2018) but the experimental apparatus of designers at work (the foam models in the hands of OMA architects, the renderings in Kuma Kengo's office, the CATIA models in Gehry's practice, etc.), for the questions that matter for designers do not come from outside (Context/Culture/Society) but are established around the experimental apparatus. It is here that designers become active and that an art of testing, trying out, recycling, and evaluating consequences of design is performed. The correlation of testing and consequences is the signature of the design event. Thus, instead of providing a merely subjective explanation of design making or an explanation referring to extraneous objective forces, just witness and describe all these events of making, all these special moments where

"something happens" and it cannot be defined or explained with the "why" of human subjectivity or historical forces. No need to debunk and resist it, to unveil the hidden forces driving it. Rather, accepting it in its selective and rare uniqueness will help us understand that it is not the powerful humans that make design happen. Listen to all protagonists in design making – the engineers and the structural models, the architects and the sketches, the contractors, clients, builders, and their calculations – tell the story of their achievements without having to challenge them for they are situated in, and belong to, the same adventure of architecture.

7. Conclusions

As demonstrated, Latour's sociology helps us to reflect on today's challenges for designers and design scholars. Its greatest advantage is that it is pragmatist (oriented around things) and remains in this world. It applies care, caution, and attention to understand the world by relying on "what comes from our own hands". Such an earthly approach can provide a useful conceptual framework for design scholars and can open new avenues for the study of innovation in design and the social choreography of designers' work whose acts of production are commonly kept out of sight.

"Thinking with Latour" can equip design scholars with conceptual tools to see contemporary societies in a new way. It will inevitably entail a reordering of our attention from discourse to practice, from the objectified realm of design knowledge to its modes of existence lodged in the entire network of design production. It will also redirect attention from the typical heroic figure of the designer or the architect – that is still central for the professional mythologies that sustain the cultural consumption of design – toward the situated material and technological dispositifs of practice that make design possible.

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