

Introduction

Five Points Towards an Architecture In-Formation

Stavros Kousoulas and Dulmini Perera, editors

While there have been significant discussions on the relevance of cybernetics within architectural and urban studies, focus was mainly placed on computing and digital practices. Since its emergence in the post-war period, cybernetics – in both its first- and second-order versions – has introduced to architectural discourse systematic design methods and practices, while tackling issues of reflexivity and complex problems. In the everyday context of architectural practices, as one engages with the questions of organising, making sense of, framing and acting upon the environment, architects implicitly experience the effect of diverse processes of cyberneticisation. As such, unlike its early orders, cybernetics can no longer stand as an isolated field. The aim of this issue of *Footprint* is to reposition cybernetics as neither an outdated way of thinking nor as computational practice alone, but as a discourse that continues to offer possibilities for architectural theories and practices. Consequently, we will examine the relation between cybernetics and architecture by focusing on a problem they both share: information.

To make this clear though, one needs to dissociate information from any approach that confuses it with data; on the contrary, and thanks to the work of philosopher Gilbert Simondon, information is amplified as that which drives any process of individuation.¹ In other words, information becomes synonymous with meaning: what is informative is whatever is significant enough to catalyse a transformation.² To this end, and remaining within the Simondonian plea, we will approach cybernetics as

the study of the production, consumption and flow of information, an account that has little to do with digital logics, unless one wants to pursue that special case. Conversely, we will consider processes of cyberneticisation as a general ecology that has to do with life and the production, exchange and consumption of meaning.³ Therefore, cyberneticisation can set the foundations for a relational account that examines how signs are communicated and how meaning is produced and experienced within systems.

This third-order cybernetics extends beyond the original scope of living organisms and their environments in order to include ecologies of ideas, power, institutions and media, among others. In this sense, cyberneticisation is radically environmental, positing the primacy of relations over fixed terms, binary oppositions and linear logics, making it high time for architectural and urban studies to take into consideration its ground-breaking potentials. Via diverse material and conceptual experimentations, the contributions in this issue of *Footprint* express a shared concern, aiming not to situate a cybernetic history of architecture (or vice versa) but to make sense of how heterogeneous and extended architectural and cybernetic processes individuate. We hope that the following points may be of assistance in this endeavour.

Extended automation

When information becomes the focal point, design questions related to emerging technological processes such as automated service systems,

smart materials, predictive modelling systems and planetary scale infrastructures need to be approached as broader processes of cyberneticisation. While the historical encounters between architecture and cybernetics are vital to understand our current technological conditions, it is important to stress that architecture was never a passive recipient of cybernetic ideas but always an active agent in contributing towards extended cyberneticisation processes.⁴ In so doing it is apparent that architecture's and cybernetics' histories are less about a transfer of human agency to a machinic system but rather the story of an entangled mode of coevolution, since architectural design processes, architectural institutions and architectural objects have operated as a significant relay in the encoding of these complex interactions within the broader cultural system.

The issue emerging out of these entanglements is one of extended automation, albeit not in the strict sense of programming and computer science. The automation of labour-demanding processes needs to be transversally examined, and as such, to be extended horizontally and vertically on a planetary level that expresses its full complexity.⁵ As Rachel Armstrong and Rolf Hughes invite us to wonder, what sort of eco-politics emerge when processes of extended automation intervene at the nanoscale of material engineering? What is the relation between technicities and aesthetics on the mesoscale of lived experience, expressed in examining a humble kitchen ventilation system as Liz Gálvez does? Or, as Christian Girard shows, even at the scale of escaping planetary constraints, how can the fundamental cybernetic figure, the naut/pilot themselves, be considered part of an assemblage of diverse automations? These questions aim to trace how architectural thinking can approach our current challenges with a degree of care, as the late Bernard Stiegler would demand: a renewed sensibility and awareness of the intricate complexities of our planetary co-habitation and the conditions of its governmentality.⁶ Moreover, returning to Simondon,

such a sensibility, especially from an architectural perspective, can indeed potentialise the proliferation of diverse and heterogeneous technicities, capable of both automating differently and outlining a radically extended technological literacy.⁷

General ecology

Consequently, more than a side effect of cyberneticisation, architecture contributes significantly as an informational medium that environmentally distributes agency via technicities which range from the sensorial to the algorithmic, from the nanoscale to the domestic, from the earth to the moon. This radical redistribution of agency is the hallmark of present environmental culture and has its history in transversal experiments conducted among institutional systems, buildings, and cities. A clear example is the work of architect Cedric Price, as Tanja Herdt claims: with Price, architecture becomes a transductive relay for the distribution of information. Such experiments indicate the shift from a first-order cybernetic interest in adaptation within a control circuit to its second-order interest after the 1960s, where the questions of non-adaptation, emergence and far-from-equilibrium dynamics were prioritised. As Iris Giannakopoulou Karamouzi claims, it is also then that we encounter speculative extrapolations from urban environments that indeed extend automation to a point where a new collectivity would emerge, as was the case with Constant's New Babylon. In addition, as Juliana Yat Shun Kei underlines, the second cybernetic order coincides with an ecological – or, in better terms, relational – turn within architecture, paving the way to what we can now call cybernetics of the third order: a general ecology.

The question of first, second and third orders remains highly contested among the wide-ranging field of scholars who deal with the processes of cyberneticisation and those who are more directly involved within what is identified as the remaining discipline of cybernetics. However, the third order opens ways of relating to the non-human in a far more

complex manner than the first- and second-order epistemologies. As such, third-order cybernetics become onto-epistemological, addressing not just how we know a system but, crucially, how a system is ecologically (and therefore, immanently) produced. As philosopher Erich Hörl claims, this proliferation of the ecological denaturalises ecology, putting forward a technoecological condition.⁸ Complementing Simondon and Stiegler, Hörl asks us to no longer speak of the Anthropocene but rather to acknowledge the foundational power of our technicities in a Technocene that coincides with the invention of humanity through its technological means.⁹ Complementing the historical examination of architectural technoecologies that Herdt, Giannakopoulou and Kei attempt, Tim Gough invites us to push relationality to its limits, thinking of cybernetic systems and architectural relations transversally, through all levels of complexity. It is through the primacy of relations that architectural thinking and doing can enunciate the great conceptual challenge of the Technocene: to provide an account of the genesis of the technoecological culture of sense.¹⁰

Out of control

A technoecological account could not be further away from the early cybernetic ambitions of a rigid control culture related to equilibrium and regulated forms of adaptive feedback. The first-order cybernetic machine performed homogeneous, repetitive work and it is for this reason that Simondon criticised it as a quantitative theory that is fundamentally detached from its main technoecological objective: not to examine information per se, but rather the experience of information.¹¹ Simondon claims that when information is approached as its experience, it becomes characteristic of the very becoming of every individual in their affective-perceptive relations with their environment.¹² Contrary to the claims of early cybernetics, a general ecology is one that does not seek the technical schematisation of lived experience so that it can control and command it; no

longer belonging to the lingo of the military-industrial complex inherited by figures such as Norbert Wiener, cyberneticisation as general ecology is a theory of the qualitatively genetic rather than the quantitatively generic. To this end, cybernetics becomes a theory of heterogeneous technicities: how humans relate to and transform their environment through technology, and how these relations transform all of them in turn – humans, technology and environment.

The human, the technological and the environmental, when examined in isolation, fail to cooperate with the complexities of the technoecological condition, since a system supposedly enclosed in itself is de facto a separate reality. This conceptual handicap appears in both traditional Marxist and Heideggerian accounts of technology as a condition that creates alienation. However, Simondon reminds us that alienation is not a consequence of technology per se or a result of exploitation: alienation is the condition of a technological illiteracy where the human is merely a passive operator.¹³ The human – and consequently, the architect – needs to be both an inventor and an operator, and as such, acknowledged as part of the technoecological network by default. It is with an understanding of cybernetics as a general ecology that the centrality of an expanded recursivity can be brought into theories of architecture and urban design. As traditional critical theory attempts to discuss information technology, automation systems and their respective political implications in abstract terms, it fails to appreciate the fundamental materiality of the recursive relations and their affects brought about in contemporary technoecologies. On the contrary, governmentality – and the collectives it implies – emerges within these systems not so much in the form of self-conscious executive choices made by a single agent, but as choices that get in-formed via systems of technically contingent pathways. Therefore, paradoxically, to abolish the illusion of control does not imply relinquishing intentionality and purposiveness; it rather aims, as Contingent

Collective claim, to acknowledge both contingency and indeterminacy as fundamental in any technological – and consequently, architectural – attempt to transform our materiality.

The One is the Many

In a technoecological approach, the technical individuals (what one can plainly call machines) are no longer inorganic systems organised from the outside, but rather assemblages of organic and inorganic systems that continuously unfold. As Simondon would have it, the machine does not extend the body, the corporeal; the machine is never prosthetic.¹⁴ In other words, the machine should not be confused with the tool. The machine, as Gilles Deleuze and Félix Guattari claim, is always machinic: a coupling between the organic and the inorganic, an assemblage that produces the very conditions of its reproduction.¹⁵ This shift towards the machinic as a way of framing emergent processes that traverse the limits between the organic and the inorganic is radically different from architecture's earlier turn towards an organicism that was other to mechanism, propagating itself as an equally reductive mode of framing the relation between nature and culture.¹⁶ Put differently, an organicism that was a remedy for industrialisation (or the industrial machine) does not fit as a theoretical lens suited to interrogate the complexity of the technoecological present.

It is precisely this theoretical framework that Zach Mellas wishes to outline by devising a concept of critical technics that position architecture at the *praesenti* of architectural production itself, distanced from a priori formal presuppositions or a posteriori typological taxonomies. In the lived present of architectural production, the organic is in a constant informational relation with the inorganic, so much so that the limits between them fold in upon each other. However, and this is where a fundamental philosophical concern becomes relevant again, this folding, in its productive excess, should rely on nothing else besides the act of folding itself. In

other words, to fully appreciate the transformative capacity of a technoecological approach, one needs to return to the radical empiricism of William James: neither an absolute One (which abolishes any difference in intensity), nor absolutely Many (which obsesses over extensive differences). Neither does human equal machine, nor do machine and human stand apart: the Technocene is both one and many and it is their inclusive disjunction that can pharmacologically make or break it.

Pragmatics

To understand the liminality between human and machine, we should be reminded that *pharmakon* means both medicine and poison; it is the dosage that nourishes or kills. The *pharmakon* that will save or kill can exhibit a critical threshold that turns it from a gift to poison, but only if its dosage is manipulated and acted upon. However, to perceive a liminal condition and to act on it, one needs to approach information pragmatically. As philosopher Pascal Chabot notes, information can be understood in three different ways: syntactical, semantic and pragmatic.¹⁷ Syntactical information deals with issues of information transmissions, and hence its concerns are mainly technical: how information is coded, through which channels, and how noise can be avoided. From a semantic understanding, information deals with the meaning of symbols and the ways in which they can form a message. One of the most important semantic concerns is to identify the shared conventions between a transmitter and a receiver for a message to be mutually comprehended. Finally, and what is of real concern when it comes to cyberneticisation, is the pragmatic approach to information: how it can affect the behaviour of both transmitter and receiver.¹⁸

Consequently, the identification of an always environmental, affective, and abductive intelligence that is the result of the processes of cyberneticisation marks a shift from the ways in which knowledge models were conceptualised in relation to cybernetic sciences. The ways in which the birth of cybernetics

was initially framed within a broader cultural theory may be familiar to many. Under the influence of various postmodern thinkers – one can here refer to Jean-François Lyotard or Jacques Derrida – cybernetics as the study of information was popularised in a manner that conflated it with semiotics, or with syntactical and semantic information. A turn away from the limitations of these denotative functions was pursued extensively by cyberneticians such as Gordon Pask and Gregory Bateson, who attempted to encompass the complexity inherent in the broader processes of meaning-making within extended socio-technical systems. Their work has brought forth radical ways to expand what the dialogical can mean for human stakeholders working technoeologically. This is precisely what Jon Goodbun and Ben Sweeting – quite literally – discuss in their dialogue: how information can be approached beyond signification and how this affects architectural thinking. Complementing them, Tewfik Hammoudi proposes that we approach architecture as a machinic assemblage that is above all involved in the production of pragmatic information.

Nonetheless, one should not think that a semiotics without signification equates a dismissal of signs. On the contrary, an asignifying semiotics is a meticulous study of the meaning-making capacities of signs that extend well beyond language and its structures.¹⁹ As such, pragmatics – understood as an ethico-aesthetic paradigm – liberates the sign from the hegemony of language and repositions it with all its informational power in the eventuating complexities of a continuous world-making. Perhaps it is only when we fold architecture and cybernetics on the level of their informational capacities that we can evaluate Guattari's radical proposition: to reinvent architecture as the design of heterogeneous lines of transindividuation.²⁰

Notes

1. Gilbert Simondon, *Individuation in Light of Notion of Forms and Information*, trans. Taylor Adkins (Minneapolis: University of Minnesota Press, 2020).
2. Information can be understood as constantly in formation and as such contributes greatly to a discussion on architectural forms (and formalisms). For more see: Stavros Kousoulas and Jorge Mejía Hernández, eds., *Footprint 22*, 'Exploring Architectural Form: A Configurative Triad' (2018).
3. Erich Hörl, ed., *General Ecology: The New Ecological Paradigm* (London: Bloomsbury, 2017).
4. Such concerns, albeit from a broader perspective, are also addressed in previous issues of *Footprint*. See, for example: Negar Sanaan Bensi and Francesco Marullo, eds., *Footprint 23* (2018), 'The Architecture of Logistics; Víctor Muñoz Sanz and Dan Handel, eds., *Footprint 25*, 'The Human, Conditioned' (2019).
5. Benjamin H. Bratton, *Terraforming* (Moscow: Strelka, 2019).
6. Bernard Stiegler, *The Neganthropocene*, ed. and trans. Daniel Ross (London: Open Humanities Press, 2018).
7. Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Cecile Malaspina and John Rogove (Minneapolis: Univocal, 2017).
8. Erich Hörl, 'Introduction to General Ecology: The Ecologization of Thinking', in *General Ecology*, 1.
9. *Ibid.*, 13.
10. *Ibid.*, 14.
11. Jean-Hugues Barthélémy, *Life and Technology: An Inquiry into and Beyond Simondon*, trans. Barnaby Norman (Leuphana University of Lüneburg: Meson Press, 2015), 32.
12. *Ibid.*, 32.
13. Simondon, *On the Mode of Existence of Technical Objects*.
14. Maurizio Lazzarato, *Capital Hates Everyone: Fascism or Revolution*, trans. Robert Hurley (South Pasadena: Semiotexte, 2021), 112.
15. *Ibid.*
16. Martin Savransky, 'The Pluralistic Problematic: William James and the Pragmatics of the Pluriverse',

in *Special Issue: Problematizing the Problematic, Theory, Culture & Society*, ed. M. Savransky (London: Sage, 2019): 1–19.

17. Pascal Chabot, *The Philosophy of Simondon: Between Technology and Individuation*, trans. Aliza Krefetz (London: Bloomsbury, 2013), 79.
18. *Ibid.*, 79–80.
19. For a detailed discussion of asignifying semiotics from an architectural perspective, see Deborah Hauptmann and Andrej Radman, 'Asignifying Semiotics as Proto-Theory of Singularity: Drawing is Not Writing and Architecture does Not Speak', *Footprint* 14 (2014): 1–12.
20. Félix Guattari, *Schizoanalytic Cartographies*, trans. Andrew Goffey (London: Bloomsbury, 1989).

Biography

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