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Vincent Bontems & Pedro Kritski

As early as 1983, Gilbert Simondon argued that “a deepened technology must learn not only to invent the new, but also to reinsert the old and update it into the present under the call of the future.”<sup>[1]</sup> One of the most striking characteristics of his work is the feedback relationship this philosopher, psychologist, and technologist establishes between the abstract and the concrete, the actual and the virtual, the present and the future. We may say that his work is devoted to activating the creative power of human thought when it takes a leap forward and reshapes itself. This relationship between thought and world unfolds through the identification of a problem, its reflection, the cycle of imagination, and the invention of a solution. And when this problematic, recursive relationship is established—already from the very first moment of consciousness—the material world around us also comes to bear meanings shaped by the full set of modes of cognition, emotion, valuation, and “phases” that define what Simondon calls Culture.

Some forty years later, everyone who reflects on the future of our civilization agrees that the technologies capable of addressing material, energy, informational, and environmental challenges do not necessarily match the futuristic promises of recent rapid innovations; rather, they are those that lay the foundation for a more sustainable future for both humans and machines within their intertwined environments. We may say that human beings can fully express themselves in the world—and truly communicate with nature—when they perceive the unified character of the relations between different regions of reality, despite the division already given to us by the community. The coupling of human beings’ internal and external worlds is rooted in the preindividual, which is more than one and the same, and from which emerge not only the individual but also its associated milieu, metastable and structured at different scales. But what about artificial beings? Do they also have a future of their own?

Contemporary thought must envision the common future of natural and artificial beings by drawing on the convergence of multiple disciplines and overcoming

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CONTACT: Vincent Bontems, University Paris-Saclay, [vincent.bontems@cea.fr](mailto:vincent.bontems@cea.fr)  
Pedro Kritski, University of São Paulo, [pedrokritski@usp.br](mailto:pedrokritski@usp.br)



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the current disorientation resulting from the abandonment of linear conceptions of progress. Dominant technologies preempt the vision of the future even though they are “zombie technologies,” incompatible with the persistence of living conditions on Earth, while others—neglected, forgotten, or buried in local traditions—undoubtedly possess greater potential when considered on a long timescale. When we recognize the communicative characteristic of being subjects, we perceive our reality as more than our individuality: the subject is preindividual, individual, and transindividual, therefore relational. We, as individuating beings, can understand that we are part not only of the physical, biological, psychic, collective, and technical realms, but also of constant communication with one another and, of course, beings in becoming. Nobody can watch her or his own individuation, but this process becomes meaningful when considered as the “technical individuation”<sup>[2]</sup> of the world.

*“Where are the future technologies?”* Human civilization, in its process of individuation—or rather of evolution, saturation, and sometimes disaggregation—needs to become culturally conscious of these layers of reality. That is why Vincent Bon-tems (philosopher at CEA), Christian Fauré (scientific director of Octo Technology), and Roland Lehoucq (astrophysicist at CEA and president of the science-fiction festival “Les Utopiales”) decided, in 2023, to hold a one-week symposium at the prestigious center of Cerisy-la-Salle<sup>[3]</sup>.

From philosophy to science fiction, via history, natural science, and design, this gathering explored—in both speculative and concrete terms—the redefinition of obsolescence across different timescales, the interplay between technologies and their associated milieus, the implications of “ecotechnology,” the actions on technological affects, the appropriateness of bifurcation strategies, and the technopolitical directions to prioritize. The full grasp of the present can only be achieved when the power of action is brought into the present moment by an encyclopedic convergence. Only in this way is it possible to project a becoming, a comingintobeing, a future.

These are the elements that the reader will find here, in these sixteen works, which seek not only to interpret the theory developed by Simondon, but also to apply and amplify it—together with other creations of the human imagination—in order to reinvent futures.

JeanHugues Barthélémy and Ludovic Duhem open this selection of texts with a reflection on the notion of ecotechnology. They approach the problem of future technologies as something that cannot be reduced to a purely technical or economic perspective. The authors’ aim is to reconcile, through three distinct approaches, the concepts of technology and ecology. Also addressing technical objects in relation to environmental issues is the text by Giovanni Carrozini, which develops a topic of great importance in the context of contemporary capitalism: planned obsolescence. Carrozini makes us aware of the impossibility of addressing the problems of disposal and waste without taking into account the symbolic, economic, and social domain in which advertising also plays a role in the preservation and reproducibility of the

objects we consume.

As we have already said, imagining a future requires that the present compel us to think about the current system of material and social organization. This is what Jim Schrub does in his article. Starting from a highly compelling reflection on the reality of workers in the Global South, the text addresses—by articulating Simondon’s theory, Morizot’s thought, and concepts such as the Capitalocene—the relations of exploitation affecting these workers within a capitalism increasingly marked by surveillance, as well as its social and psychological consequences. These issues lead us to reflect on the status of two fundamental concepts in contemporary thought: progress and growth. This is what Silvia de Cesare and Bontems do by philosophically engaging with the analogy that can be established between technical evolution and biological evolution, claiming that the simondonian concept of “negative progress”<sup>1</sup> should inspire our time. Still focusing on the highly important concept of progress—this idea that the present is better than the past and that the future can be better than the present—we have the work of Andrea Bardin and Marco Ferrari, developed on a Simondonian theoretical basis. The authors offer a wellgrounded critique of the category of metastability and its relationship to the concept of homeostasis, itself derived from cybernetics. They reflect on how cybernetics operates as a foundation for a neoliberal logic of governance.

Anne Alombert, in turn, develops an important analysis of the use of computational automata starting from Plato, also mobilizing philosophical concepts from Bernard Stiegler and Karl Marx in order to examine the double effect—both positive and negative—that this type of technology produces in the cognitive relations between subject and machine, and between subject and society. Conversely, Pierre-Marie Pouget analyzes the very idea of human progress on the basis of the development of the sciences and technologies. Pouget’s analysis moves toward an axiology grounded in a reflection on technoscientific development, while criticizing reductionist conceptions of nature. This leads us to ask: under what conditions are the technologies of the future produced? What different paths might the sciences take in the future? These questions are implicit in the development of Anne Querrien’s line of reasoning, as she reflects on the contemporary model of industrial research and comments on Bontems’ research about innovation.

Another perspective on the theme guiding this collection of philosophical articles is precisely the one that starts from bodies and the senses of the human individual. In her text, Catarina PomboNabais offers a stimulating analysis of techtattoos, showing how this ancestral tradition has been reconfigured by contemporary technologies, while never neglecting an analysis that takes into account the role of science fiction as well as its consequences within a society increasingly characterized by control and surveillance. Frédéric Pascal also begins from an analysis centered on

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<sup>1</sup> See Vincent Bontems “Simondon’s ‘Right Technology’. Ecotechnology, Scalability and Negative Progress” in Jamil Alioui et al., *The Idea and Practice of Philosophy in Gilbert Simondon*, Basel, Schwabe Verlag, 2024, pp. 249-266.

the senses. By taking human hearing as his object of study, Pascal shows how this sense offers another meaning of information. Inspired by Simondon's philosophy, he demonstrates how information provided by technical objects can only be understood as such through the determinations of the organism. In a broader way, considering the body, space, play, and artistic expression, the only article not translated into English is that of Farah Khelil, which leads us toward an understanding of thought as a category traversed by these elements. As it is a text that deeply engages with aesthetics, we decided to keep it in the original language in which it was written.

It is not possible to think about science and an alternative future without engaging in a deep reflection on biology and technology. While Dominique Lestel's article puts forward an original philosophical proposal that he calls "zoofuturism", inviting us—through ten theses—to rethink the place of animals in culture. Jérôme Laforcade's text offers an analysis grounded in the soviet Theory of Inventive Problem Solving (TRIZ) in order to think about physical, technical and coupling contradictions. The strength of these two texts lies in their invitation for the reader to experiment, within philosophical analysis, with the distinctive concepts of both biology and engineering. Despite the fact that these texts are not referring to the simondonian corpus, both are deeply resonating with his work.

Finally, there are three texts that use science fiction as a central element for philosophical reflection. This is the case with the text by Alex and Veronica Calazans, who offer an analysis of the highly important work that coined the term "*robot*" in 1920, written by Karel Čapek, read in the light of Simondon's texts on the technical and industrial object. In a more exploratory vein, we have a novella by Émilie Querbalec, which can be regarded as a genuinely exploratory work in the way they use literary expression—in the form of a future expedition journal—as a means of thinking about ecology, politics, and philosophy. Querbalec reminds us that the first technological choice is to *not use* technology. Finally, the "science fiction prototype" by Roland Lehoucq and Vincent Bontems chooses to focus on energy as an object of philosophical reflection through fiction. Drawing on Frank Herbert's *Dune*, the authors lead the reader to immerse themselves in the environment of the planet Arrakis as a way of simulating extreme conditions that must be anticipated when we think about the development of new energy sources.

In an era marked by massive flows of information, energy crises, climate change, and a new phase in capitalism's self-destructive process—through a shift toward dual-use innovation (that is, technologies whose civilian and military applications have become inextricably linked)—technological thinking must develop new criteria for rethinking progress in all its dimensions, moving beyond our obsession with power, and inventing images, technologies, and forms of organization (utopias?) that will restore a less fleeting future for both technological and living individuations.

The editors