

From life to matter: Simondon's political epistemology

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Abstract

Simondon's philosophy of individuation attacks the opposition between liberty and necessity, a key institution of the supposed ontological 'difference' between the human being and nature in most of modern political thought. Distinguishing between *ontological* and *epistemological* determinism, I will show the political significance of Simondon's refusal to either reduce human beings to natural determinism or save their alleged metaphysical nature. Simondon inherits part of his critical programme and a good deal of the tools he uses to construct it from Georges Canguilhem. My reading starts from an enigma concerning quantum mechanics the former jotted down on paper while involved in the Second World War antifascist struggle. I will suggest that Simondon's philosophy exposes the two equally anthropomorphic understandings of nature shared by fascism and technocracy. This will allow me to explain the ideological function voluntarism and human engineering can jointly perform by reinforcing and exploiting the apparent opposition between liberty and necessity, on the basis of their complementary teleological justification for political action.

Keywords: Simondon, Canguilhem, indeterminism, determinism, fascism

In *Individuation in the Light of the Notions of Form and Information*, Simondon developed a theory of individuation – or 'ontogenesis' – with the intent to reach beyond the early-modern mechanistic representation of the universe, which he still saw predominant in the cybernetic project of Norbert Wiener. Additionally, Simondon aimed at overcoming the phenomenological postulate of a reassuring presence of the (human) subject, as well as the objectivism he saw implicit in structuralism. On this basis, I believe his thought can be grasped and developed along the path of a materialist philosophy, which has already been explored – especially along the lines of the concept of the 'transindividual' – by Combes (1999), Balibar (1997), Toscano (2006), Del Lucchese (2009), Balibar and Morfino (2014), Reed (2016), Bardin and Rodriguez (2018). I believe this exploration can be extended to the whole of Simondon's ontological and epistemological project, mainly developed in his *Individuation in the Light of the Notions of Form and Information* (Simondon 2005; henceforth *Individuation*).

In this sense, I will take Simondon's stance during the debate following his paper at the *Société Française de Philosophie* as a way of approaching his work (Simondon 1960).¹ According to Ricœur, Simondon's theory was filled with "paralogisms" because it attempted to "construct the universe of discourse from the region of nature which is itself something included within discourse". Simondon's reply could not have been more concise and pointed: "How could one admit that

¹ Translated in English for the first time by A. Iliadis in this volume.

nature is part of discourse? This is the postulate underlying your argument, and this is what I shall completely reject” (Simondon 1960: 759; see also p.*** on this volume).

In what follows I suggest that Simondon’s peculiar ‘ontogenetic materialism’ continues and shifts George Canguilhem’s strategic use of vitalism against modern mechanics along the lines of Gaston Bachelard’s search for a “non-Cartesian epistemology” (Simondon 2005: 144).² As I will argue this has a direct relevance for political thought. Indeed, Simondon’s philosophy of individuation plays a demystifying function, dismantling most of the ‘conceptual couples’ (form/matter, active/passive, subject/object) that have for centuries grounded a whole series of false alternatives. Among these alternatives, Simondon also specifically attacks the opposition between liberty and necessity, the key institution of a supposed ontological ‘difference’ between the human being and nature. Evidently, this carries with it certain political import. My analysis will specifically focus on the political stakes of *determinism*. It will distinguish between *ontological* determinism, the belief that reality as a whole is subject to a systemic and *complete* combination of causes and effects, and what I will call *epistemological* determinism, that is a conceptual tool for scientific research that entails a critique of indeterminist *and* determinist ontologies. In so doing I will show the political significance of Simondon’s refusal to either reduce human beings to natural determinism or save their alleged metaphysical nature.

On this basis, I will go on to suggest that fascism and technocracy share a common theoretical structure founded on two equally anthropomorphic understandings of nature, as open to human will and action, or subject to the (still human) logic of mathematical imagination. This will allow me to explain the ideological function voluntarism and human engineering can jointly perform by reinforcing and exploiting the apparent opposition between liberty and necessity, on the basis of their complementary teleological justification for political action. My analysis sets out from Georges Canguilhem and some ideas he jotted down concerning the discrimination between a critical and ideological use of scientific theories, and specifically quantum mechanics. From Canguilhem’s critique, as it were, ‘internal’ to the Cartesian tradition³, Simondon inherits part of his critical programme, a good deal of the tools he uses to construct it, and an enigma to be solved.

Canguilhem’s enigma

In February 1945, near to the end of the Second World War, the militant antifascist Georges Canguilhem in *Determinism and indeterminism* discusses a text by the prince De Broglie, one of the fathers of quantum mechanics (De Broglie 1929). There Canguilhem points to the “crisis of

² Simondon’s two major works, *Individuation* (Simondon 2005) and *Of the Mode of Existence of Technical Objects* (Simondon 2017), were written in 1958 as his two PhD dissertations. Simondon’s PhD supervisors were Jean Hyppolite and George Canguilhem respectively (Simondon 2013). In 1955 Canguilhem inherited Bachelard’s teaching of History of Science at the Sorbonne.

³ Canguilhem’s Descartes is indeed a thinker of the ‘ultimate irreducibility of technics to science’ (Canguilhem 1937: 497).

determinism". "Determinism", as he claims, "ceases to appear as a thing, while it shows itself to be a form or, better yet, a norm of knowledge" (Canguilhem 1945: 9). This *krisis* is at the same time a *kairos*, an opportunity. In Canguilhem's words, the "crisis of determinism" provides the "chance to fill the gap separating the material world from the moral world, to which the idea of a rigorous causal determinism can hardly be applied" (Canguilhem 1945: 3).

Relying on the distinction between the categories of determinism and causality, in his dossier Canguilhem specifically attacks the *ontological* understanding of determinism along with its *dualist* implications since its Cartesian elaboration in the early modern period. Determinism implies an anthropomorphic and ultimately "theological" separation between the observer-subject and the observed-object. The external gaze of the former (the *subject* of science), is supposed to dominate the universe and in fact the entire course of nature (conceived as the *object* of science):

Laplacean determinism entails a conception of the relationship between human being and reality analogous to the Newtonian conception of the relationship between God and the Universe. God is outside space and time, contemplating the universe that fills time and space. Human intelligence is understood as an imitation, and as a limitation of divine intelligence. The observers and measurers of the universe are exterior to it. (Canguilhem 1945: 9)

The critique Canguilhem puts forward here pinpoints a form of domination that is at the same time epistemological and political, entailing a technocratic reduction of nature to a set of means for fulfilling rationally established collective needs and goals. His critique of ontological *determinism* as a possible ground for technocratic power, does not imply, however, any withdrawal from a resistance movement against the ideological adoption of ontological *indeterminism*, which grew out of suggestions derived from scientific research, but precisely *against* the "rigour" required by science. Thus, within the same dossier and framework, Canguilhem estimates the political costs of a retreat from the scientific notion of determinism (and its correlate substantialism):

Indeterminism and fascism

Exploitation by fascism of some possible interpretations of the new discoveries in physics:

– dissolution of the concept of *individuality*. Individuality destroyed at the ultra microscopical level [...]

– liberty in the object itself.

Therefore two arguments:

against individualism → Liberalism

against materialism → Marxism (Canguilhem 1945: 10)⁴

As can be clearly seen in this passage, Canguilhem takes both *determinism* and *indeterminism* as terms for an alternative that looks very much like an aporia. As I shall suggest later in my conclusion, this aporia reflects at the theoretical level the apparent opposition of technocracy and fascism at the political level. Both facets of the dilemma are in fact embedded in the same ontological understanding of nature as the 'object' of knowledge, and they imply a metaphysical dualism whose basis Canguilhem analyses. As I will explain, Canguilhem does this through the lens of the human being's relationship to its milieu. On the other hand, Simondon takes Canguilhem's aporia as an enigma. For the former the latter's philosophy ought to be used as a tool or better yet as a chemical reagent, that, by displacing the terms of the problem, ultimately aims at dissolving it. The (dis)solution of this problem requires a brief detour through the critique of substantialism, which is part and parcel to Canguilhem's vitalism as well as Simondon's philosophy of individuation.

From Canguilhem's strategic 'vitalism' to Simondon's philosophy of individuation

In Canguilhem's thought all metaphysical dualism opposing knowledge and reality should be understood in the light of "a general theory of the milieu of the human being as technician and scientist [*l'homme technicien et savant*]" to be elaborated (Canguilhem 1952: 96). Thus, as he puts it in *The Knowledge of Life*:

If science is the work of a humanity rooted in life before being enlightened by knowledge, if science is a fact in the world at the same time as it is a vision of the world [...] the milieu proper to the human being is not situated within the universal milieu as a content in a container. A centre does not resolve into its environment. A living being is not reducible to an intersection of influences. (Canguilhem 1952: 154)

In other words, the "universal" world of techno-science (the physical environment) ought to be conceived as a product of human (*theoretical and practical*) activity. Hence, it should therefore be seen as mediated by the symbolic system of the social group, as well as by the effects of its own products (theories and technical objects) on the natural *milieu*. In short, the artificial milieu of techno-science works as a kind of *organon* of human societies which is at the same time a representation of reality *and* its product.⁵ From this perspective, universal 'determinism' is to be conceived as a model projected onto reality; it is a tool rooted in the technical relationship of the human species to its *milieu*, which, however, tends to overcome the boundaries of the vital relation and function from which it has emerged – and thus to institute itself as a fundamental ontology.

⁴ On Canguilhem's antifascism, see Cammelli (2006). Canguilhem evokes here Marx as antidote: "Marx and the theory of knowledge. One can only understand by transforming. No valid knowledge if not engaged".

⁵ References to the notions of biological and social milieu elaborated by J. Von Uexküll and A. Leroi-Gourhan are quite diffused in Canguilhem's writings and inherited by Simondon as well. Cf. Carrozzini on this volume, pp***.

Since the early modern period the mechanical understanding of *res extensa* is, in this sense, based on an act of theoretical and practical reduction against which, as Lecourt has noted, Canguilhem's "vitalism" can be specifically qualified as the intellectual demand to resist the "subordination to a philosophy of Being": i.e. the refusal of "a substantialist ontology" (Lecourt 2012: 183). Canguilhem always remained faithful to this original intent even when, due to the developments of molecular biology during the 1950s and 1960s, the life sciences seemed doomed to be absorbed by the deterministic paradigm of the hard sciences. When Canguilhem's project could no longer "be taken up by the notion of individuality" – Lecourt continues – he considered shifting from the notion of organism to the theory of information and the concept of code, a path leading "to the elaboration of a new – non-Aristotelian – notion of form" (Lecourt 2012: 182-83).

In 1958, this is precisely what Simondon was doing in his *Individuation* – and Canguilhem in no way failed to take note of it as can be seen in his 1966 *New Reflections on the Normal and the Pathological*. Explicitly mentioning Simondon and Ruyer, he hints at "a new kind of Aristotelianism, on the condition, of course, that there be no confusion between Aristotelian psychobiology and the modern technology of transmission" (Canguilhem 1943: 277-278).⁶ In effect, Simondon builds his project precisely on Norbert Wiener's concept of information. Information was conceived by the latter as a paradigm that could, at least in principle, be extended to all the fields of scientific research: from communication technology to physics, from biology to psychology, from sociology to political economy. Having this stake in mind, Simondon sets out in *Individuation* with a twofold critique of Aristotelian hylomorphism and materialist reductionism (Simondon 2005: 23) in order to discard the conceptual apparatus of philosophical substantialism. He does this precisely because of its inadequacy of complying with the first axiom of a philosophy of individuation, namely that "to be rigorous, one should not speak of individual, but rather of individuation" (Simondon 2005: 191). From Wiener, Simondon not only derives the far-reaching project of *Individuation* whereby he ascribes the term "individual" to all domains of being, but also the peculiar view of the individual present in it: "The individuality of the body is that of a flame rather than that of a stone, of a form rather than of a bit of substance" (Wiener 1989: 102). This allows Simondon to constantly keep the notion at a distance from classical concepts like "substance" or "essence". Nevertheless, Simondon also strives to preserve the individual from the threat of dissolution into a complex system of relations, and clarifies that the concepts of "form" and "information" used at that time by *Gestalttheorie* and Cybernetics should be opportunely "reformed" in order to avoid the reduction of the individual to the processes it depends on: "the individual is" – in Simondon's words – "*being and relation*" (Simondon 2005: 143).

Simondon's effort to consider the individual within (but not reduced to) the very processes of individuation it emerges from is paralleled by his attack on two visions of physical, biological, psychic and collective processes: determinism and indeterminism. As I will explain later, from his perspective they are only apparently opposed. In a sense, Simondon's theory of individuation can be said to

⁶ Canguilhem is referring here to cybernetics, born from the study of cable transmissions.

attack the philosophical foundation of this very alternative as it emerged from metaphysical dualism. Hence Simondon questions the modern mechanical theory of nature as a deterministic object as well as the Cartesian-metaphysical and Kantian-transcendental subjects that complement it. His critique explicitly poses “the problem of complete reality, preceding the individuation from which the subjects of critical thought and ontology emerge” (Simondon 2005: 269). Nevertheless, Simondon always proceeds cautiously in this respect so that no credit can be given to any sort of anti-scientific imagination. Thus, he is equally committed to criticising implicit forms of anti-substantialism and indeterminism. As I will show, in Simondon’s twofold attack on the false alternatives imagined by modern philosophy he follows Canguilhem and draws from the latter’s teaching implicit epistemological and political consequences.

On the materiality of the philosophy of individuation

Simondon’s concept of individuation can be grasped, in my view, as an original elaboration of Canguilhem’s critique to substantialism and determinism, which allows for an understanding of the ‘reflexive’ nature of philosophical thought that I will qualify as ‘materialist’, although Simondon always rejected that label. As previously stated, Canguilhem analyses the activity from which the “milieu” of science emerges as the expression of an exigency of the human being “as technician and scientist”. For Canguilhem, the specificity of the life sciences is due to the *discontinuity* characterising life in relation to the material mechanisms it relies on, and the *reflexive* act it entails. These considerations change in order of magnitude in Simondon, shifting from the subject-organism to the material processes themselves. Thus Simondon can be said to extend, at least programmatically, the ‘discontinuity’ Canguilhem attributed to the living being, and the epistemological ‘reflexivity’ he only attributed to biology, to all beings and sciences. In Simondon’s philosophy of individuation all sciences can be said to depend on what (speaking of Canguilhem) Macherey defines an “encounter between history and its object” (Macherey 1998: 179), because all processes are ontologically ‘historical’: that is marked by discontinuities. For Simondon, *all* processes are triggered by ‘historical and local’ singularities (Simondon 2005: 81), and the concept of a singular historicity extends beyond the human to organic as well as to physical processes. At the physical level there are ‘historical singularities brought about [*apportées*] by matter’ (Simondon 2005: 57). In crystallisation, for example, ‘there is therefore an historical issue in the occurrence of a structure in a substance: the structural germ has to appear’ (Simondon 2005: 79), and ‘the individuation of an allotropic form starts from a singularity of historical nature’ (Simondon 2005: 90). At the biological level, ‘the individualisation of the living being is its real historicity’ (Simondon 2005: 268). At the psychical level, ‘we believe any thought, precisely as far as it is real, is a relation, i.e. it entails an historical aspect in its genesis’ (Simondon 2005: 84), and this of course includes all forms of knowledge, science and philosophical thought.

But the philosophical imagination of substantialism and determinism haunts epistemology as well as ontology, and it makes the ontogenesis of knowledge invisible by relying on allegedly immutable 'laws of nature', and opposing the subject of knowledge to its passive object. In Simondon's view, the subject and object of knowledge are conceived as opposed because a persisting dualist imagination (the "hylomorphic schema" in his words) hides the "obscure zone" of their 'material' becoming. Subject and object are in fact "limit cases", the "terms" - Simondon tells us - of an actual relation, made of multiple natural and psychosocial processes constellated with discontinuities, crossing and merging with each other, and negotiating case by case their boundaries (Simondon 2005: 312). These "terms" certainly play a productive role in the processes they are involved in, yet they are not at all to be considered their premises. Simondon believed he could only make the "obscure zone" of individuation visible through a 'reflexive' operation of philosophical thought on *all* levels of individuation: physical, biological, psychic and collective. This 'reflexive' operation is a 'material' process of individuation by a subject capable of grasping the very processes from which *object* and *subject*, along with their knowledge, emerge. All knowledge of individuation thus necessitates a sort of *clinical* type of thinking, an act which is "parallel to the known operation": "Beings can be known through the subject's knowledge, but the individuation of beings cannot be grasped out of the individuation of the subject's knowledge" (Simondon 2005: 36). This means that a philosophy of individuation processes is a quite peculiar kind of operation of individuation itself, a sort of second-level ontogenesis taking ontogenesis as its object. The knowledge of individuation is ontologically related to the processes it 'reflects' upon, yet without being their mere effect and, on the contrary, being involved in their production. Such an act of thinking can only be said to be 'reflexive' when its subject takes into account the system it emerges from, being thus involved in the individuation of the object of knowledge itself: "the exceptional treatment of the object that reflection is, is at the same time a moment of the becoming of the object, yet a moment that marks an event of being [*un avènement d'être*]" (Simondon 2016: 20-21). Because there is no universal 'method', such a 'reflexive' act of knowledge cannot be formalised (Simondon explicitly suggests that an axiomatisation of ontogenesis may not be possible, see Simondon 2005: 229), and it has, strictly speaking, no specific content, because its content depends case by case on the processes it relies on.

The form of 'reflexivity' – ontological and epistemological at the same time –, analysed by Canguilhem at the level of the life sciences, is thus generalised by Simondon. In Simondon's philosophy all sciences – the sciences of matter included – share the same potential for a "reflexive" operation. Simondon's continuation of Canguilhem's attack on the mechanical world view had to therefore move beyond the living being, and point to the analysis of the ontological and epistemological stakes of elementary particles evidenced by the ongoing speculation on quantum mechanics.

Simondon with Canguilhem against determinism (and indeterminism)

Simondon explicitly claims he is following Bachelard's line of conduct in *Le nouvel esprit scientifique*, where, in the light of quantum physics, the latter suggested "dissolving the huge block of metaphysical determinism which burdens scientific thought" (Bachelard 1934: 112), thus looking for, according to Simondon, "a non-Cartesian epistemology, borrowing Bachelard's expression, neither conceived in the sense of determinism nor in the sense of indeterminism" (Simondon 2005: 144). Along this line, Simondon's theory entails abandoning *tout court* the ideological couple determinism/indeterminism:

It is possible to suppose that, in the last instance, the theory of singularity can neither be ascribed to the framework of a deterministic physics nor to the framework of an indeterministic physics. The two should rather be considered the particular cases of a new representation of the real that one might call the theory of transductive time or theory of the phases of being. This completely innovative mode of thinking becoming [*penser le devenir*] – which conceives determinism and indeterminism as mere limit-cases – applies to other domains of reality beyond the one of elementary particles. (Simondon 2005: 114)

From Simondon's perspective determinism comes from the same roots as substantialism: the attitude towards technical manipulation characterising the biology of *homo faber*. *Homo faber's* technical attitude represents action as an activity on material reality conceived as passive. Hyломorphism is in this sense an emblematically dualist expression of substantialism rooted in human senso-motorial schemas, which epistemologically translates into the knowledge of object-individuals by subject-individuals, both conceived as substances instead of terms of a relation in the course of individuation (cf. in particular Simondon 2008). The same critique can be addressed to determinism. Just as substantialism absolves techno-biological purpose so too does determinism, thanks to its efficacy in foreseeing and orienting action. This explanation takes on different forms in some of Simondon's most important sources. In a text by De Broglie referenced in the impressively short bibliography of *Individuation*, the physicist explicitly mentions a note in Bergson's *La pensée et le mouvant* (1934), according to which only at the "macroscopic" level of the living beings' perception does an "apparent determinism" reign that "makes their action on things possible" (De Broglie 1947: 199).⁷ In brief, it would be still *homo faber*, or better organisms in general insofar as oriented to action, who, through the determinist perceptive filter, reduce the complexity of reality by limiting it to their spectre of possible actions, and thus define the boundaries of their 'milieu'.⁸

These "bio-technical" explanations, however, assume the configuration of the perceptive field as invariant, and avoid taking its socio-historical dimension into consideration (in particular, the

⁷ The note can be found in Bergson 1934: 61.

⁸ A key source for Simondon's concept of ontogenesis (cf. also Carmichael 1946: 295-331 – listed in the bibliography of *Individuation*, unpublished), Piaget studies the development of this *pattern* in children through the progressive elimination of chance from the understanding of nature (Piaget 1927: 310), and explains that the notions of 'cause' and 'real' are closely related (291, see also Piaget 1926). Cf. also Petit 2010.

emergence of the mechanical world since the early modern period). A bio-technical critique to hylomorphism, for example, cannot fully explain or help eradicate the substantialist bias (Simondon 2005: 69), without being supported by a more genuinely sociological argument. In that sense Simondon remarks on the different relation entertained by master [*maitre*] and worker [*artisan*] with respect to technical action. The relation of property and artisanal work entail two radically different conceptions of the technical process of the transformation of matter, and therefore of matter itself: matter is homogeneous, passive, and abstractly universal for the owner, while it is rich in “implicit forms” for the artisanal worker (Simondon 2005: 78-82). And yet “the psycho-social conditioning of thought” offers, in itself, a still insufficient explanation of “the permanence and universality of the hylomorphic schema” (Simondon 2005: 71). In brief, this theme touches a variety of issues, and involves a theoretical effort that cannot be limited to a single field of research and carried on by a single discipline. However, a coherent conceptual framework can be provided for such a research project by adopting Canguilhem’s critical gaze on the epistemological structure of modern science.

Canguilhem’s “theory of the milieu of the human being as technician and scientist” (Canguilhem 1952: 96), thus allows us to consider Simondon’s texts in terms of historical epistemology and focus on the process of the mathematization of the deterministic world picture begun in the seventeenth century. The impressive progress of the early-modern mechanical science of nature has its metaphysical counterpart in the separation between the abstract subject of knowledge and its passive object, matter in motion. In the success story of science, determinism itself has proved to be a successful ‘tool’, allowing for an understanding and forecasting of large portions of reality. Nevertheless, as Simondon noted, this tool has been progressively transformed by modern mechanical philosophy into the metaphysical assumption of nature as a “uniform, necessary, universal and analytical” order, the neutral and ideally perfect description of which would be the prerogative of the motionless gaze of a disembodied or even transcendental subject. It is in these terms that Simondon speaks about what he calls the “deterministic era” from which we have still yet to escape (Simondon 1966-67: 288-90). The emergence of modern metaphysical dualism from the reflection on mechanics by those who were inventing and practicing it in the seventeenth century, should therefore be interpreted as the attempt to *stabilise* the relation between reality and knowledge that the experimental method of the new science had made so, as it were, ‘metastable’. On the one hand, this makes the primary qualities of reality itself calculable, and, on the other, the coordinates of their general theory into the a priori structure of any possible knowledge. Hence, modern metaphysics provided a twofold hypostasis by universalising the terms through which the scientific method carved its path. This metaphysical structure was ontologically based on a deterministic *Res extensa*, which was metaphysically coupled to a free *Res cogitans* that subtracted science and its subject to the vicissitudes of the natural and human history they belong to. At this conjuncture, Simondon’s approach, once again prolonging Canguilhem’s enterprise, offers to political thought many interesting elements for reflection, and possibly a way out of the aporia of liberty and necessity.

Critical-political plateau: determinism and indeterminism as ideologies

In his dossier *Determinism and Indeterminism*, written in the mid of antifascist struggle in the south of France, Canguilhem was attacking the dualism implicit in ontological determinism, as well as the ideological adoption of indeterminism, and evoking the possible ethical and political costs involved in the latter. One should avoid, he said, “indeterminism as a philosophy of contingency arbitrarily derived from physics in order to valorise the type of spiritualism traditionally and historically linked to politically conservative or reactionary concepts and practices” (Canguilhem 1945: 10). Dealing with the concept of indeterminism – strictly related, in his words above, to the “dissolution of substantial individuality” and hence to the disappearance of liberty itself⁹ – requires therefore all the caution requested by the political use of the ‘truths’ of modern science. With the resolution of those who intend to solve the risky enigmas posed by their masters, and in continuity with the intentions if not the contents of Canguilhem’s research, Simondon’s incursion into quantum mechanics indirectly teaches us that the dualist paradigm still inhabiting our understanding of nature and society carries epistemological as well as political stakes.

As shown above, Simondon’s philosophy of individuation offers a set of tools to maintain the inventive dynamics entailed by the conceptual couple determinism/freedom at the epistemological level, without crossing the thresholds of a metaphysical assumption that concerns the object and subject of science. In particular, Simondon invites us to abandon – along with the mechanical world view – the very ontological alternative between freedom and determinism that such a world view is deeply embedded in. This is a sort of ideological assumption that reproduces the ancient theological disputes on liberty and necessity. Its modern formula takes, however, the form of an *apparently* alternative choice: either we embrace determinism and conceive the whole universe as a machine whose functioning is, at least in principle, to be exhaustively described in terms of cause-effect relations; or we hypothesise the existence of a different kind of subjective agency somewhat free from natural constraints, in order to keep the possibility of free choice, ethical and political action open. This theoretical critique leads us to seriously ponder Canguilhem’s philosophical invitation to be determined yet cautious when it comes to “filling the gap that separates the material world from the moral world” (Canguilhem 1945: 3, see above). Along the line of thought that starts from Bachelard and moves beyond Canguilhem’s critical vitalism, Simondon’s critique of ontological determinism thus exposes the complementarity, beyond their apparent opposition, of fascism and technocracy’s theoretical structures, and can support a common critique of their shared *ahistorical* and *teleological* understanding of social reproduction.

⁹ “Spinoza has clearly demonstrated that human liberty is not granted [*assurée*] but rather lost in physical contingency” (Canguilhem 1945: 5).

There appears to be a sharp theoretical opposition between, on the one hand, the voluntarist imposition of a community's closed normativity prescribing the *goals* for a defined human type, and, on the other, the deterministic calculation of the adequate *means* of invention for the production of the best possible form of human collectivity on the basis of purely descriptive knowledge. These instances may be based on radically opposed ontological beliefs in indeterminism and determinism, especially as far as human nature is concerned. They are, however, perfectly complementary at the theoretical level, and compatible in political practice, due to their common ahistorical and teleological nature. On the one hand, ontological *indeterminism* frees political voluntarism from its ties to reality, thus instituting an unconditioned domain of pure political will pursuing absolute goals. On the other hand, ontological *determinism* grounds a technocratic politics which, apparently depriving teleology of any possible significance, in fact restrains all political decision to the calculable conditions of possibility that underlie it and *therefore* to the definition of a priori determined goals. As a consequence, political voluntarism and technocracy are politically compatible because the teleological structure they build together is by nature devoted to social reproduction, and opposed to normative invention. Any 'communitarian' norms and values, any identity, can help fill in the apparent normative void of technocratic administration, and commit politics to the reproduction of the existing state of things.

What we have been able to clearly see at work in politics since the 20th century, is the abstract universality of technoscience and the concrete action of identitarian ideology fostering, despite their supposed theoretical opposition, a combination of ultra-communitarian identity and technocratic sovereignty. The apparent theoretical alternative between fascism and technocracy has been repeatedly translated into a political praxis characterised by the oscillation between the two complementary aspects of one and the same anthropocentric, ahistorical, and surreptitiously teleological attitude. A political alternative can only be figured out through a critique to the material bases – hence, in Simondon's sense, not only the economic and social, but also the physical and biological, and, last but not least, technical bases – of the persistent ideology entailed by that false alternative. Simondon's philosophy of individuation provides useful tools for such a project. Not only does it help dismantle the opposition of determinism and indeterminism, it also challenges the twofold anthropomorphism underlying it. It refuses to reduce human beings to the natural determinism political science has imagined and theorised since Hobbes, as well as to adhere to much of political theory's complementary imagination of human nature as an exception to the 'inhuman' functioning of nature. No anthropology, conceived as an "ontology of the human being" is indeed possible for Simondon (Simondon 1960: 756), let alone a politics devoted to the reproduction of some fancied human nature. One must learn to deal, instead, with a network of organisms and technical objects that constantly modify their milieu producing technical and symbolic objects, activating processes of biological, psychic and collective individuation he defines by the notion of the "transindividual". Simondon's concept of the 'transindividual' dismantles the very ahistorical image of human nature that the western philosophical political imagination of the

body politic has always been based on; it cancels the expectation for a definitive, 'neutral' solution to the problem posed by politics. Conceiving politics itself as a problem to be solved, rather than the field in which collective problems emerge, has cancelled it as a field of political invention, namely the process of experimentation in which finality would actually emerge *within* the body politic as the result of political struggles.¹⁰ From Simondon's perspective, techno-scientific activity and political decision should instead converge, assuming that such convergence be conceived as a field of experimentation and invention. No natural or artificial finality, blind to the processes it historically emerges from, would then be able to prescribe a given form of human nature or how happiness is to be pursued.

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¹⁰ To this struggle philosophy as a reflexive *technē* should take part as the catalyst of "transindividual" processes of invention. See Bardin (2018).

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