

“TECHNICAL MENTALITY” REVISITED:  
BRIAN MASSUMI ON GILBERT SIMONDON  
With Arne De Boever, Alex Murray and Jon Roffe

**Parrhesia** Several years ago, you already tried to get Simondon translated--and to no avail. We thought we could start with the question: why Simondon today? One can see why it would be important, historically, that Simondon is finally translated into English. But is there any reason why his thought strikes you as particularly relevant--philosophically, politically, culturally-- today?

**Brian Massumi** I did make strenuous efforts over a number of years, starting almost twenty years ago, to have Simondon translated for a book series I was co-editing. The director of the press flatly refused to consider it, saying there was no interest in Simondon and no audience for the work. At the time, he was probably right. Now the translations are under way, and are impatiently awaited in many quarters, with a sense that they are long overdue. So what changed? Why today?

It might help to start by talking about, why not then? The early 1990s was a very particular moment in English-speaking academics and cultural thought. The intellectual movements of the preceding three decades had succeeded in chipping significant cracks into the walls separating the academic disciplines, which had undergone a process of increasing specialization in the post-War period that many experienced as a Balkanization of knowledge. It wasn't just a question of the much-discussed "two cultures" divide between science on the one hand and the humanities and social sciences on other. It was just as strong between the humanities and the social sciences, and even internal to each. An interdisciplinary field of thought had emerged that asserted the right to draw syncretically on wide arrays of disciplines. Although the diversity of this interdisciplinary field was great, it had come to be known in the singular: "Theory". That infamous term (used mainly by its detractors) was unfortunate for many reasons, not the least of them being that a major stake for "Theory" had always been not only renegotiating the divide between branches of knowledge, but placing the resulting interdisciplinary field of thought back into immediate connection with cultural practice (Cultural Studies' interest in contestatory reappropriations of popular culture being the most obvious example). All of this coincided with an increasing preoccupation with what was already perceived to be an epochal shift toward a world integrally reshaped--

culturally, socially, and economically--by digital technologies. The issue of technological change brought a reflux of interest in scientific modes of knowledge and the associated practices constituting them as a cultural force (as seen in the rise of Science and Culture Studies, and more generally in the concern with “power-knowledge” formations). This wasn’t a return of the “two cultures” question, although rear-guard attempts were made to rewrap it in that old packaging, most symptomatically in the Sokal affair. In fact, what was happening was that the intellectual terrain had shifted to the extent that the imbrication of the “two cultures” was taken as a given.

The question was where this latest phase of their imbrication was leading. For many, it was toward the dawn of a posthuman age. Others scoffed at the millenarian tone. But where the opposing camps met was in the assumption that what was playing out potentially concerned the very nature of the human, and the conditions under which it changes--basically, how we *become*. Technology had come to be seen to be a constitutive factor in human life--and with biotechnology, in life itself. The question of technology was now directly a question of the constitution of being--in a word, ontology. Or more precisely: because given the juncture, the question of being had to be approached from the angle of becoming; it was a question of *ontogenesis*. The ontogenesis at issue was constitutively entangled with modes of knowledge and their associated practices, so the problem was as directly epistemological as it was ontological.

What makes all this relevant to the question of Simondon is that his work was already there. His key concept of “individuation” asserts the primacy of ontogenesis, a primacy of processes of becoming over the states of being through which they pass. Further, Simondon approached the question of epistemology as a function of ontogenesis. There is an individuation of thought, he said, by the same token by which there is an individuation of matter, on the physical plane and from there on to the plane of life, and following--or prolonging--the same constitutive principles. He recognized technological innovation as a key theater of thought materializing in matter becoming, in ways imbricated with life transformations. Technology was a fundamental concern for him throughout. So Simondon was already there. The problem was that the terrain of “Theory”, or whatever less loaded appellation the interdisciplinary landscape of that period might be called by, was not really as there as where it was. It was in fact unequal to the question of ontogenesis that it was called upon to take up by virtue of the juncture at which it found itself.

The problem was that the dominant currents of thought were hobbled by the very moves that had enabled them to reach that juncture, and in ways that excluded Simondon’s approach gaining any purchase. Speaking very generally, the overall orientation was constructivist. Constructivism does connote becoming. Its posture is that things can’t be taken as givens, rather they come to be. Up to that point at least, the constructivism of this period was not incompatible with Simondon. But the constructivism of the period played out in ways that radically diverge from the direction he indicates. What was considered to come into being was less things than new social or cultural takes on them. What is constructed are fundamentally perspectives or paradigms, and the corresponding subject positions. Within the 1990s constructivist model these were understood in terms of signifying structures or coding, typically applying models derived from linguistics and rhetoric. This telescoped becoming onto the human plane. At the same time, it reduced the constitution of the human plane to the question of the human subject (if not its effective construction, then the impossibility of it, or if not exactly that, its subversion). A vicious circle results. The only conceptual tools available are pre-humanized by virtue of the models they derive from. But becoming-human only makes sense in relation to a nonhuman phase-shifting into it. And becoming-posthuman only makes sense in terms of the human phase-shifting out of itself, back into a nonhuman. If the nonhuman phases in and phases out, it is conceivable that it phases *through*--which raises the issue of the immanence of the nonhuman to all of the vicissitudes of the human. Constructivism does not have the resources even to effectively articulate the issue of the nonhuman necessarily raised by ontogenesis, let alone begin to resolve it. All the less so in that the figure of the nonhuman is ultimately that of matter, and the question of matter that of nature--which is radically bracketed by constructivism for fear of falling into a “naive realism”. In other words, for fear of attributing an ontological status to what lies “outside” of social and cultural constructs. Ontology, several generations of theorists were taught, was the enemy. Epistemology, which always carries ontological presuppositions of one kind or another, was at best a false friend. Finding a path to

ontogenesis by unabashedly bringing the two together again, albeit in a new way, was simply inconceivable.

Had it been conceivable, bringing them together on a level with matter, as part of what, as a result, could only be considered a nature philosophy, would be scandalous. To do that while purporting to make the resulting nature philosophy coextensive with a theory of information, would be downright absurd. Information, on a level with matter, would be a-signifying, making signification... what? “An invention”, Simondon would not hesitate to answer. And not just in the technical sense. Already in relation to the nonhuman, with the individuations of the physical and biological planes. For Simondon’s thought to resonate, constructivism has to make room for an integral inventivism (if such a word exists). An inventivism that is not afraid of nature, and *its* creativity.

This is all to say that I think the conditions are right today for Simondon to have a major impact, for it to make sense to consider an inventivist conversion of the kind of constructivism whose portrait I just painted, in far too brutal strokes. Much has changed in the intervening years. Modes of thought more comprehensibly and suggestively in dialogue with Simondon’s have left their mark. Deleuze and Guattari, Bergson, Spinoza, and now Whitehead have garnered significant interest. Linguistics-based models have been reconsidered in light of models privileging affect (or affectivity, as Simondon would say). New forms of constructivism privileging the notion of invention are being developed, for example by Isabelle Stengers. The conditions are right. The one thing that worries me is that there seems to be a tendency to concentrate on Simondon’s theory of the technical object to the exclusion of the other aspects of this thought--physical individuation, vital individuation, and psychic individuation (synonymous for him with collective individuation). The force of *Du mode d’existence des objets techniques* [On the Mode of Existence of Technical Objects] cannot be fully understood in isolation from the overall theory of qualitative change--what he calls “allagmatics”--which is dedicated to understanding these modes of individuation in their relation to each other. Even within the book on technology, a major stake is the distinction between the technical object and the aesthetic object. In the context of Simondon’s overall philosophy, the study of the one necessarily invokes the other. The appearance of his works in translation will hopefully do much to encourage an understanding of his thinking about technology in their “natural” Simondonian habitat.

**P** You say that Simondon’s thought on technical objects cannot be understood outside of the context of his theory of individuation. Could you explain this a little bit further, perhaps by drawing from the essay “Technical Mentality” that is published in this issue?

**BM** The essay on “Technical Mentality” is a fascinating case in point and might very well occupy us for the rest of the conversation. On the one hand, it is startlingly contemporary in its concerns, linking as it does the question of the nature of technical object to the evolution of the network, long before the developments we have all experienced since his time--most notably, the rise of the internet--had created a general awareness of the necessity of that move. His evocation of the technical object evolving through the network into a postindustrial “open object” frames the discussion in a way that is of the utmost relevance to today’s situation. On the other hand, the essay employs a good deal of vocabulary which, read in isolation from the rest of his work, can come across as terribly anachronistic, if not downright off-putting. He speaks of a technical mentality “harnessing nature” through increasingly norm-based functioning structurally embodying the proper “cognitive schema” so as to eliminate the “proliferation of the inessential” that comes when consumer choice interferes with design. This comes after a discussion of the difference between the Cartesian mechanism, with its structured hierarchy ordered by an ideal of stability, and the cybernetic model of the continuously self-adapting system regulating itself through feedback mechanisms horizontally linking recurrent operations as a condition of possibility for any functional hierarchy. Simondon falls, of course, more to the cybernetic side, which he praises for its kinship with a “true realist idealism”. A rapid reading might well be forgiven for mistaking Simondon’s “technical mentality” for a scarily normative vision of ultra-rationalized technocratic cyber-control. It would be just that, though--a mistake. While Simondon is unarguably closer to cybernetics than to Descartes, his theories diverge from cybernetics in fundamental ways, and his ethics also turn out to be anything but normative and technocratic.

It's complicated to untangle what he's getting at from a single essay addressing a specific question concerning the technical object, particularly one as thorny as its "mentality", in isolation from the larger theoretical context he develops in his books. For example, in this essay Simondon mentions a water turbine invented by Jean Guimbal, which managed to miniaturize key components while ingeniously solving the associated problem of overheating. He refers in this connection to the "schema of concretization which brings the invention into existence". It would be natural to identify the schema of concretization with the cognitive schema he mentions far more frequently in the essay, and to understand the cognitive schema as an abstract model in the mind of the engineer that comes before the object and guides its construction. By that understanding, the origin of the technical object is purely cognitive, and entirely internal to the human thinking subject. Human thought pre-cognizes a solution, then externalizes it by finding a way to mould matter to the form of its pre-thought solution. The practical finding of that way would be the technical process: the set of mediating actions shepherding the abstractly thought object into concrete embodiment. Invention would move from the past of a thought, cognitively fully formed, toward the future of an embodiment materially repeating the original thought's abstract form. The relation of the technical object to its cognitive origin would be one of resemblance: conformity to a formal model.

This is clearly *not* what Simondon means by concretization. If this were all there were to the story, Simondon would be trafficking in "hylomorphism". Hylomorphism, or the idea that the generation of form is reducible to the imposition upon inert matter of a pre-given abstract form, is the philosophical enemy which Simondon endeavors to undo throughout his work—not least in the opening section from *L'individuation psychique et collective* [Psychic and Collective Individuation] published in this issue. There may indeed be an abstract model in the mind of human engineer that, as Simondon says, "presupposes that the problem is resolved". But that is not what interests Simondon. He sees something else that takes him in very different direction.

**P** Could you explain this a bit more, perhaps again by means of an example?

**BM** Just how far away his own thinking moves from any conventional cognitive model that might be applied to invention is signaled by the fact that he scrambles the causal order it assumes. In the section of *Du mode d'existence des objets techniques* following his discussion in that book of the Guimbal turbine, he links invention to an *action of the future on the present*. What can this mean? The veritable moment of invention, he says, is when a circular causality kicks in. In the case of the Guimbal turbine, it has to do with the potential for the oil in the turbine and the water around it to each play multiple roles. The water brings energy to the turbine, but it can also carry heat away from it. The oil carries the heat of the generator to the housing where it can be dissipated by the water, but it also insulates and lubricates the generator, and thanks to the pressure differential between it and the water, prevents infiltration. There are two sets of multi-functional potentials, one in the water and the other in the oil. The moment of invention is when the two sets of potentials click together, coupling into a single continuous system. A synergy clicks in. A new "regime of functioning" has suddenly leapt into existence. A "threshold" has been crossed, like a quantum leap to a qualitatively new plane of operation. The operation of the turbine is now "self-maintaining". It has achieved a certain operational autonomy, because the potentials in the water and in the oil have interlinked in such a way as to automatically regulate the transfer of energy into the turbine and of heat out of it, allowing the turbine to continue functioning independently without the intervention of an outside operator to run or repair it.

Before the passing of the threshold, there were two discontinuous energetic fields. The oil and the water were separated by differentials of temperature, pressure, viscosity, and pattern of movement. The respective energetic fields of the oil and the water were in a state of what Simondon calls "disparity". When the synergy kicked in, the disparity rolled over into an emergent continuity. The differentials between the two fields are still there. But there is also something else, which has leapt into existence. There is a circularity between them, a recurrent feedback that has crossed a threshold to bring another plane of operation into existence. That plane of operation—of self-maintenance—is continuous. But its continuity moves *across* the difference. It comes into itself across the difference, from which it simultaneously separates itself to claim an operative autonomy as a

qualitatively new regime of functioning. The new quality of operation arises as an “effect” of the disparity. This is not the same as saying that the disparity is the cause. What brings the new quality of operation into existence is the circling into each other of the multifunctionalities of the energetic fields of the oil and the water: their entering into a dynamic relation.

What matters for Simondon is the paradox that before the oil and the water entered into relation, the respective multifunctionalities were not in effect. They were nowhere. They are not to be found in the past. It is when the relation kicked in that they were determined, by that very event, to *have been* the potential for what has come. If the potential was not effectively there in the past, there is only one place it could have come from: the future. The respective multifunctional potentials of the oil and the water came into existence at the very instant their disparate fields clicked together into automatic relation. The potentials in the oil and the water for the turbine have been *invented* by the relation’s energetic kicking in. Invention is the bringing into present operation of *future* functions that potentialize the present for an energetic leap into the new. The effect is a product of a recursive causality: an action of the future on the present. This is why Simondon insists that the technical object is not the product of a hylomorphic causality moving from past to future. A technical invention, he says, does not have a historical cause. It has an “absolute origin”: an autonomous taking-effect of a futurity; an effective coming into existence that conditions its own potential to be as it comes. Invention is less about cause than it is about self-conditioning emergence.

This completely changes how we must think about the “mentality” of the technical object. The fact that there was an abstract model of the turbine in the mind of the designer is in a way secondary. The idea for the technical object is finally dependent for its effectiveness on the autonomous taking-effect of the relation. Either it clicks in, or it doesn’t. The designer can bring the two disparate fields of the water and the oil to the brink of relation, but the passing of the threshold belongs absolutely to *their* potential. The designer is a helpmate to emergence. He can put the pieces in place, moving through a linear series of steps progressing from the past of abstract conception to a present on the brink. But the passing of that threshold to invention depends on the potentialization of the elements presently in place as a function of their future. The new-found potential expresses itself as “operative solidarity” between the elements, across the disparity of their fields. That solidarity is not the result of a simple step-by-step accumulation, or of piecemeal adding together of elements. It is nondecomposable. It is holistic. It’s not a structure, he says. It does not add elements together to form a structural unity. Rather, it is a holism-effect that adds a whole new dimension of existence to the elements’ diversity.

**P** You seem to be going directly against Simondon’s first postulate of the technical mentality here. It appears that for him, “Technical Mentality” is precisely about leaving the holistic mentality behind; it’s about the decomposability of the technical object.

**BM** I should pause here for a moment to say something about why I am using the words “holistic” and “nondecomposable” here in spite of Simondon’s bitter criticism of holism in the essay, and his listing of the decomposability of the elements as the first postulate for a thinking of technical mentality. Simondon insists at the same time that the elements remain decomposable *and* that they give rise to an “effect” that consists in a “mode of functioning” characterized by an “operational solidarity”—and thus an effective continuity. These two propositions must not be seen to be in contradiction. As Deleuze liked to say, the whole is not of the parts, but alongside them and in addition to them. Whitehead also has a formula for this: the many become one, and are augmented by one. What I am calling a holism-effect is just that: an effect. The word “effect” is taken in a sense akin to the optical “effect.” Deleuze, under Simondon’s influence, also speaks of scientific effects attached to the proper names of the scientists who invented them. He takes the optical effect as a model. An optical effect is an excess effect of a visual whole that detaches itself from the diversity of the elements conditioning its appearance, without in any way annulling that diversity. An example is an optical illusion that suddenly “snaps-to,” carrying the perceiver in one nondecomposable go across a threshold to a new unitary appearance. Simondon’s bitter critique of “holism” in the “Technical Mentality” essay applies to philosophies which

replace the diversity of conditions from which an effect arises with the nondecomposability of the arising whole, annulling their diversity and attributing a foundational ontological priority to the whole rather than rightly placing it on the level of emergent effect. This is one example of one of the most original aspects of Simondon's thought: his endeavoring to always think discontinuity and continuity *together* (an orientation he shares with William James's radical empiricism). This endeavor is encapsulated in his emphasis on the *quantum*, borrowing from physics. A quantum leap in physics is non-decomposable as a movement across a threshold. But its nondecomposability takes off from one set of diverse and decomposable conditions (a collection of particles in a particular configuration) and leads to another (a collection of particles in a changed configuration). The dynamic wholeness of the quantum event (the all-or-nothingness of its occurrence) interposes itself between two diversities, whose discontinuity it marks by a change in level accompanied by a qualitative change in the defining properties of the system (a passage, for example, from one element of the periodic table to another). For Simondon, all transition, all change, all becoming, is quantum.

Now to return to the role of the cognitive schema as preexisting abstract form, in relation to the absolute origin as quantum event of emergence. Following intermediary steps suggested by the cognitive schema, the designer organizes diverse elements, moving through a process of past conditioning, to the brink of the present. At that "critical point", the future effect takes over. It takes care of itself, making the automatic leap to being a self-maintaining system. That moment at which the system makes the leap into operative self-solidarity is the true moment of invention. The past-conditioning by the designer is boosted into a new dimension of existence by the sudden taking-effect of a future-conditioning. Potentialities snap into place, enabling a new regime of functioning, anticipatorily useful for the future, from whose own back-action they effectively came into being.

It is crucial to understand that the "schema of concretization" is the snapping-to of the emergent operative solidarity. That is why Simondon says in "Technical Mentality" that the schema of concretization *is* the multifunctionality of the oil. He means it literally. The oil, in its potential coupling with the water, in operative solidarity with it toward future uses, *is* the schema of concretization. The schema of concretization is the effective entering-into-relation of the oil with the water. It does not conform to the cognitive schema that was in the mind of the designer, according to a principle of resemblance, as copy to model. It effectively takes off from it into a new dimension of existence--which is that of the technical object's relation to its own autonomy. The snapping into operative solidarity of the coupled multifunctionalities of the formerly disparate energetic fields of the oil and the water *is* the schema of concretization. The instant of the schema of concretization's entering holistically into effect *is* the absolute origin of the technical object. It is not a cognitive form imposed from outside. It is flush with matter. It's the taking-effect of a new order of relation *of* matter. The taking-effect reenergizes matter, across the diversity of present elements and the disparity of their fields, propelling it onto a new emergent plane of operational solidarity, a new level of material existence. The schema of concretization *is immanent to matter's becoming*.

**P** So how does Simondon's thought on technology depend on his theory of individuation? It seems that we still haven't quite addressed this point, which you insisted on at the beginning of our conversation.

**BM** Although Simondon never defines the term technical mentality in *Du mode d'existence des objets techniques*, and in fact doesn't use it in any of his published books, it is not hard to give it a meaning in keeping with his overall philosophical system--which is to say a definition that is fundamentally *non-cognitive*, flush with matter, for which human cognition would be a special case. Given the lack of explicit development of the concept in Simondon's own work, it is perhaps not out of order to turn to another thinker to lend a hand. For Whitehead, each taking-form involves "the swing over from reenaction to anticipation" due to an "intervening touch of mentality". He speaks of the reenaction in terms very similar Simondon, as an "energizing" of a given set of conditions inherited from the past. The swing-over to anticipation introduces novelty into the world. A taking-form "arises as an effect facing its past", no sooner to turn away from its past to become "a cause facing its future": a future cause.† The snapping-to exemplified in the taking-effect of the operational solidarity (the "subjective form" in Whitehead's vocabulary) of this new existence *is* the "touch of mentality". Whitehead also talks about this

in terms of the passing of a quantum threshold consisting in the becoming of a qualitatively new existence. Saying that the becoming ends as a future cause does not mean that the invention, once it arises, takes its place in a linear chain of causality, as the historical origin of a reproductive series. The causation is always indirect, passing through an interval of immanence: a moment of concretization whose schema is immanent to active matter. Each subsequent exemplification of the mode of existence must return to the “absolute origin”, to come back to Simondon’s vocabulary.

Technically speaking, it is this return event of formation--and not the form--that repeats itself. It is less that a form is reproduced, than that an invention repeats itself. If the repeat inventions fall into a strict pattern of conformity with each other, it is necessary to explain the serial production of this resemblance-effect. The collective conformity of a population of serially produced technical objects to the cognitive schema in the mind of the designer does not explain anything. It skips over all the “intermediaries”--the chain of past actions bringing the elements to the threshold where they holistically take effect facing their future. It skips over the diversity of the elements. It skips over the disparity of their resident fields. It skips over the quantum leap of becoming that crosses the disparity, in the coming to effective existence of a new level. It skips over the touch of mentality. It forgets the action of the future. It forgets just about everything that is effectively ingredient of the event of invention. Far from explaining anything, the reproduction of resembling forms exemplifying an invention is precisely what is in need of explanation. The inheritance of the past conditions must have built-in constraints similarly limiting the degree of novelty of each retaking effect of the invention. Simondon accounts for these limiting conditions that serially restrict exemplifications of an invention to a formal resemblance to each other in terms of *standardization*. The technical object is an individuation--an event of taking-form--whose past conditioning pre-contains the coming potential of its functional autonomy within certain parameters. The parameters are homeostatic, or equilibrium-tending. The technical object has only the margin of functional autonomy allowing it to maintain itself homeostatically. The key point is that the moment of technical mentality--the *technicity* of the technical object--is always immanent to a material event of taking-form. This event occurs at a critical point where the past effectively swings over into a futurity of functioning. The event of self-futurizing serially repeats itself. The potentialization in which it consists repeats, with a past-conditioned latitude of becoming. The difference between the technical object and the living thing is a question of how great a latitude of becoming their past conditioning will permit. There is life when taking-form maintains itself at the brink. Life lives on a moving threshold of metastability, of fragile, provisional equilibrium that is subject to constant perturbation, from whose jaws it must repeatedly snatch its homeostasis. The living thing is an individuation that has no choice but to *continue* its invention, or face dissolution. Its homeostatic equilibrium is not a simple self-maintenance, but an ever-renewed achievement.

**P** Do you see a connection here with Simondon’s theory of physical, vital, and psychic (and collective) individuation?

**BM** Psychic individuation is a further continuation of the achievement of vital individuation that widens its latitude of becoming. Psychic individuation is when vital individuation continues across a quantum leap that brings into existence a new level of operation on which homeostasis does not necessarily have to be maintained, or even renewed. Of course, a homeostatic equilibrium must continue to be renewed on the vital level, to which psychic individuation remains coupled as a necessary condition of its taking effect. Its quantum leaping to its own level moves with life’s moving equilibrium. But it takes effect with a qualitative difference. It has the latitude to continue its invention across changes in operational parameters. It can continue inventing itself in such a way as to continue becoming *different*. Maturation is the lowest degree of the psychic individuation of life. The invention of cognitive schema exemplifies a higher degree. The invention of axiomatics--schema for the translation of cognitive schema into each and out of each other--is a still higher degree. Allagmatics, the meta-schematizing of axiomatics, is the highest degree, corresponding to what Deleuze and Guattari call conceptual invention, and Guattari in his solo work “meta-modelization”.

The crucial point is that all of these are *individuations* in their own right. There is an individuation of modes of thought, by the same token by which there is an individuation of modes of physical, technical, and vital individuation. There is no linear causality between any of them. Each is an effective invention bringing into existence an autonomous level of operational solidarity. None can be adequately explainable without reference to an absolute origin. Each must return in its own way, at every iteration, to the absolute origin: an interval of immanence where taking-effect is flush with a self-formative activity of matter as immanent cause. Their coming to existence cannot be explained without eventfully factoring in this immanent cause.

All of the key terms of Simondon's philosophy revolve around the moment of inventive, eventive, taking new effect. In *L'individu et sa genèse physico-biologique*, Simondon calls the holism-effect that clicks in at this point a *resonance*. Then he defines *matter* as this very resonance. Matter is thus defined in terms of a *form-taking activity* immanent to the event of taking-form. Nothing could be further from the form-receiving passivity of matter according to the hylomorphic model. *Nature* is then the universality of this immanent form-taking activity that is matter: that is, its immanence to each event of form-taking, as the principle of individuation animating every coming into existence. The disparity between energetic fields, from the point of view of the potential that their synergistic taking-effect brings into the present from the future, Simondon names the *preindividual*. The disparity itself is *information*. Then there is a specific term for the clinching into synergistic relation of a diversity of elements, across the disparity of information and toward the emergence of a new level of functioning realizing the potential of the preindividual. That term is *mediation*.

The definitions could go on indefinitely to cover the entire Simondonian repertory, all revolving around the same critical point of absolute origination. All of the familiar words that come back around that point take on startlingly new meanings which it is crucial to hang onto if one is to follow Simondon's thinking. Simondon's "mediation", for example, has nothing to do with the meaning of that term in communication studies, media studies, or cultural studies. In Simondon, the term carries ontogenetic force, referring to a snapping into relation effecting a self-inventive passing to a new level of existence. Information, for its part, pertains to the "preindividual" preparatory to that passage. Information--Simondon is unambiguous about this--has no content, no structure, and no meaning. In itself, it is but disparity. Its *meaning* is the coming into existence of the new level that effectively takes off from the disparity and resolves the discontinuity it exhibits into a continuity of operation. Information is redefined in terms of this *event*. As for Gregory Bateson, information is a "difference that makes a difference": a disparity that actively yields a new quantum of effect, and whose meaning is the novelty-value of that effect. What differentiates Simondon in general from the cybernetic and information-theory traditions out of which Bateson was working (in particular, what differentiates him from Wiener and Shannon/Weaver) is that for Simondon this differencing process can in no way be understood in quantitative terms, and is not susceptible to any kind of stable formalization. The differencing process is not describable in quantitative terms because although a quantum leap does coincide with the discharge of a measurable amount of energy, it also coincides with a passing of a threshold to a qualitatively new level of existence. That qualitative crossing is the crucial point for Simondon. It requires for its understanding the mobilization of a whole stable of concepts beyond the pale of quantitative method. The process is not susceptible to any stable formalization because it is continually giving rise to new operational solidarities that did not exist before, and therefore exceed all prior formalization. The "mentality" of the process always avails itself of a *potential energy* of invention, in relation which quantification and formalization are constantly playing a perpetual game of catch-up. Neither ever catches up. Quantification is always laboring under a deficit of potential, and formalization under an energy deficit. Even working together, they can only get so far as the possible--according to Bergson nothing more than an anemic, back-cast shadow of potential.

**P** Could you talk a bit more about the significance of "potential energy" in Simondon's thought?

**BM** It is Simondon's insistence on the centrality of the concept of potential energy that makes his philosophy a "realist idealism". It is what he himself points to as differentiating his thought from information theory and cybernetics. The potential of the energetic taking-form that is Simondon's individuation is *real* in the sense that

it always comes to pass in the material clinching of an effective event. It is *ideal* in the sense that it comes into the effective present of that energetic event as the action of its future. The real and ideal are two facets of the same event. Together they make the event of individuation more resonantly material than any mere formalization, and give it more of a mental “touch” than any set of quantities could ever have. What differentiates Simondon from Bateson himself is that Simondon never lets the touch of mentality hypostasize into a “Mind” that is one with Nature. There is no “Mind” immanent to Simondon’s Nature--only form-taking informational *activity* (with as yet--that is to say until its own future occurs to it--no content, no structure, no meaning). There is no “one” but always a one *moreness*: a “more-than-one”, everywhere energetically in potential.

Returning to the question of technical mentality in Simondon’s article, the relation between the cognitive schema and the schema of concretization can now be better understood. The cognitive schema resembles the schema of concretization that is the effective invention of the technical object not because it effectively moulds it, but in the sense that it underwent an individuation that is *operatively analogous* to it. It also took emergent effect, from a preindividual field of thought (consisting in an unresolved disparity between perceptions, some present, some appearing only possible). It also passed a quantum threshold across which its operational solidarity came newly into existence (inventing the emergent meaning--the cognitive schema itself--capable of resolving the preindividual perceptual disparity into a well-formed anticipation energetically facing its own effective future). Thus effectively formed, the cognitive schema was able to follow the recursive traces of its anticipatory emergence back to the future from which it came, strategically guiding the setting in place of elements piece by piece, progressing step by step to the very brink of invention. But not beyond. At that point, it can do no more. It has prepared the preindividual field. But it can not take the ultimate step. Because that step involves the arising from the preindividual of a new autonomy: the coming into self-maintaining existence of a brand new mode of functioning. Only the technical object can clinch that for itself. The cognitive schema must pass on the baton of invention to the schema of concretization, and step back. For the next step is the point of absolute origination at which the technical object, formatively touched by its own mentality, emerges onto its own level of reality. It is the point at which the technicity of the object takes effect. It taking-effect takes a whole new form, through which it effectively declares its ontogenetic independence from the cognitive schema. It snaps-to its own effect, immanent cause of its technical future.

The cognitive schema and the schema of concretization are in operative analogy with one another in the sense that it is this form-taking *process* that is repeated between them. It is not, strictly speaking, a form, or even a structure, that is reproduced by one for the other. A thought does not resemble a turbine. A disparity between perceptions present and possible is not structured like a disparity between water and oil. But the taking-effect of the operational solidarity of the cognitive schema in thought, and the taking-effect of the operational solidarity of a schema of concretization in turbine-technicity, do “resemble” each other in the sense that they exemplify the same ontogenetic process. Their comings-to-be follow the same principle of individuation. In addition, one coming-to-be ends up passing the processual baton to the next, ending as future-facing as it began at the point of its own absolute origin. The two individuations are not only in operative analogy. They form between themselves a *transductive* series (a forwarding of futurity down the processual line of absolute originations relaying each other, in operatively analogous takings-form).

When this transductive process is taken into account, what Simondon means by the cognitive schema “harnessing nature” takes on a completely new meaning. It carries an inventive connotation that distances “technical mentality” from any technocratic vision of rationality. The “recognized, measured, normalized” thresholds of functioning he invokes at the end refer specifically to the standardization that past-conditions the serial emergence of the technical object. His point is that when the technical object under consideration takes the form of the postindustrial *network*, the standardization is actually the past-condition for an *opening* of the technical process to an unheard-of future latitude of becoming. Through network standardization the technical object in fact accedes to some of the same natural potentials “harnessed” by psychic individuation. It “maintains itself” not in a homeostatic equilibrium, but in a “perpetual actuality”, wherein its inventive individuation is “eminently apt to be continued”. More and more, it comes to “carry its own line of prolongation on its own

plane” of operational solidarity, in operative analogy with psychic individuation. The “touch of mentality” that constitutes its technicity intensifies and expands. Technical mentality ideally-realizes itself more fully. It is “augmented, continued, amplified”.

As this happens, technical individuation and psychic individuation come to the very brink of each other. They enter into a relation of transduction. In concert, they rejoin Nature, without “disfiguring” it the way that Simondon considers that the opposition between the “affective modalities” of the artisanal and the industrial has done. These technicities were in affective disparity. They were antipathic. Which made their disparity ineffective. Instead of clinching forward over a threshold to a qualitatively new level of existence, they stubbornly clung to their antipathy for one another, prolonging their disparity. They remained in “inessential”, that is to say ontogenetically ineffectual, naturally uninventive, preindividual tension. This locked out any resolution of their disparity through a quantum leap of future-facing potential snapping-to, to newly individuating effect. The lock-in was to a relative level of collective ontogenetic stupidity.

If the stubborn disparity between artisanal and industrial technicity can be said to have defined post-Enlightenment humanity, it was as its own perpetual crisis. The period was locked in an ineffectual dialectic between nostalgia for the simpler, more bucolic “humanness” of artisanal production and the “progress” of the human bought at the price of its own fragmentation at the mercy of the manic Taylorist drive for industrial efficiency. Does the “amplified” technical mentality of the “postindustrial” network presage a more intelligent taking-form *beyond* the human? Do technical individuation and psychic individuation not only brink upon each other, but transductively merge into a single lineage? In postindustrial technicity, will the cognitive schema and the schema of concretization finally converge? Simondon doesn’t explicitly pose this question, much less answer it. But it is a measure of the effective potential of his own conceptual inventiveness that he came to *its* brink, so far ahead in anticipation, and in a way that furnishes us today with future-facing resources apt to assist us in coming to our own response, as an expression of an ethics of becoming.

Personally, I shy away from posthumanist discourse. For me, a Simondonian ethics of becoming is best to be found not in a next “posthuman” phase, but in the *nonhuman* at the “dephased” heart of every individuation, human and otherwise. What I mean by the nonhuman is the ontogenetic clinching of the preindividual that catapults it over the threshold of becoming. I mean the individual—that nondecomposable solidarity of occurrent existence—at the brink. Just coming eventfully to be what it will always have been, at a level where it has, as yet, no content, no meaning, no structure, only past-conditioning future-facing. The really-ideal “absolute origin”, as a function of which every quantum of individuation effectively ends where it causally begins, so as to emergently interlink all individuations in that vast network of transductive more-than-oneness that is the process of Nature.

**P** Thank you very much for this interview ■

BRIAN MASSUMI is the author of a number of works, including *Parables for the Virtual* and *A Users’ Guide to Capitalism and Schizophrenia*, and is the translator of Deleuze and Guattari’s *A Thousand Plateaus*. Professor Massumi teaches at the Institute for Communication at the University of Montreal where he is in charge of the Radical Empiricism Laboratory.

ARNE DE BOEVER, ALEX MURRAY and JON ROFFE are members of the editorial board of *Parrhesia*.

† Whitehead, A.N. *Adventure of Ideas*. New York: Free Press, 1933. 192-94.