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# For a Neganthropology of Automatic Society

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With the advent of reticular reading and writing (Herrenschmidt 2007) via networks made accessible to everyone through the implementation, beginning in 1993, of the technologies of the World Wide Web, digital technologies have led hyperindustrial societies toward a *new stage of proletarianization*—through which the hyperindustrial age becomes the era of systemic stupidity (Stiegler 2013).

This specific age of stupidity is described by Mats Alvesson and André Spicer (2012, 1194–20) as a function of the current stage of capitalist management. Stupidity, however, as it is produced by a psychological state of stupefaction, as well as by what Adam Smith (1937, 734) called “torpor,” is not just a contemporary accident imposed by the development of consumerist and speculative capitalism. It is what technological changes always produce, as they provoke what I call a doubly epokhal redoubling, where a new stage of technological development interrupts and suspends social rules and behaviors and thereby destroys social systems (in the sense of Niklas Luhmann and Bertrand Gille).

Such is also the case for digital networks. But through the latter, stupefaction and stupidity are being installed in a *new and functional way*: in such a way that disruption can *structurally and systemically*

26 *short-circuit and bypass the knowledge* of psychic and collective individuals. This is what will here be called “systemic stupidity.”

Remote action networks (and networks of *tele-objectivity*; Berns and Rouvroy 2013, 165) make it possible to massively delocalize production units, to form and remotely control huge markets, to structurally separate industrial capitalism and financial capitalism, and to permanently interconnect electronic financial markets, using applied mathematics to automate the “financial industry” and control these markets in real time. *Processes of automated decision-making* become functionally tied to *drive-based automatisms*, controlling consumer markets through the mediation of the mass media and, today, through the industry of traces that is the so-called data economy (that is, the economy of *personal data*).

Digital automatons have succeeded in short-circuiting the deliberative functions of the mind, and systemic stupidity, which has been installed across the board from consumers to speculators, becomes *functionally drive based*, pitting one against the other (hence this goes well beyond that “functional stupidity” described by Alvesson and Spicer 2012).

In the last few years, however, and specifically after 2008, a state of *generalized stupefaction*<sup>1</sup> seems to have arisen that accompanies this systemic *bêtise*, this functional stupidity.

This stupor has been caused by a *series of technological shocks* that emerged from the digital turn of 1993. The revelation of these shocks, and of their major features and consequences, has brought about a state that now verges on stunned paralysis—in particular, in the face of the hegemonic power of Google, Apple, Facebook, and Amazon (Nusca 2010), four companies that are *literally dis-integrating the industrial societies* that emerged from the *Aufklärung*. The result has been what I have referred to as a feeling of “net blues,” which is spreading among those who had believed or do believe in the promises of the digital era.



Today, the artifactual sphere that is constituted by technical individuation tends to operate as a *process of total automatization*, whose figure is the robot. The stage of total automatization is the most recent stage of the ongoing process of grammatization, that is, of the discretization and technical reproduction of human fluxes and flows—of which writing (Plato's *pharmakon*) is one stage and the machine tool is another stage (one founded on Vaucanson's automatons), and where the digital extends this to every sphere of existence, in all human societies that currently subsist—the question being to know if societies in the sense of collective individuation processes can survive such a process of automatization.

Automatism repeats. And if it is true that technical life is no longer governed by instincts but by drives, then to think automatic repetition, we must refer to Freud's discoveries in 1920, discoveries which, passing through Kierkegaard and Nietzsche, constituted the ground of Deleuze's (1994) meditation on the relationship between difference and repetition, where the automatism of repetition (or repetition as the condition of possibility of all automatism) is presented essentially as a pharmacological question (Deleuze would prefer to say "problem"), for

*if we die of repetition we are also saved and healed by it—*healed, above all, by the other repetition. *The whole mystical game of loss and salvation* is therefore contained in repetition, along with the whole *theatrical game of life and death* and the whole *positive game of illness and health*. (6–7)

That what Deleuze sees as repetition is capable of producing a difference (that is, an individuation) but also a baseness (which occurs when we disindividuate), however, means that this repetition *presupposes technical exteriorization*, that is, grammatization as the *possibility of a repetition that is neither biological nor psychic, via the hypomnesic and pharmacological support* of repetition that grants a difference, that is, an individuation (and a *différance*) as well as a baseness, that is, an indifference and a disindividuation (in what

28 Simondon and Deleuze also describe as an “interindividuality,” whereby the transindividual *loses meaning*, being no longer a *preindividual potential for individuation* but merely a formal signification through which the group *regresses* and falls into baseness).

In the nineteenth century, grammatization, which is the *technical history of the repetition of discretized mental and behavioral flows* (flows that are in this sense grammatized), which is the history of the *technical power of repetition*, leads to automation, which Marx described in the *Grundrisse*, and this constitutes a *turning point in the history of repetition*—given that today, *in industrial capitalism, economic development will occur only on the condition of putting “bad repetition” to work*—that is, by implementing the kinds of repetition that result in *baseness and indifference*.



Life has had many epochs: the epoch of bacteria, of archaea, of protists and other singled-celled eukaryotes, right up to the aggregations of cells and organs that we are ourselves—ourselves, that is, these multicellular beings who cannot do without nonliving organs, artifacts, prostheses, and, eventually, today, automata. As I prepared for this conference, for example, I searched among the masses of tertiary retentions, which are mnemotechnical traces, and which we (living technicians) have produced for two million years (and organized in the form of knowledge), in order to find out about archaea, using Google and then Wikipedia, the latter being a collaboratively produced site, although what is usually forgotten is that it is also highly reliant on so-called bots, which is an abbreviation for robots, when, by the latter, we mean logical and algorithmic automatons that are “mainly used to perform repetitive tasks that automation allows to be performed at high speed.”

The *differentiation of the living* unfolds from the parthenogenesis of single-celled organisms right up to the higher vertebrates like ourselves, endowed with both an endoskeleton *and* an exoskeleton and surrounded by the exo-organisms and organizations that are

human societies producing a collective individuation founded on artificial organs, and passing along the way through the sexuation of multicellular bodies lacking a nervous system, such as plants, through invertebrate animals protected by an exoskeleton, such as the snail, the crab, the insect, and so on. *Today*, long after technical organs first appeared, this differentiation of the living has led to the *automatic differentiation of the nonliving*, the production of organs and organizations where the difference between organic and inorganic becomes blurred in becoming industrial—at the cost of an indifferentiation of life (that is, its decline), a loss of biodiversity as much as of “cultural diversity.”

At each step of this history of the *struggle of negentropy against the entropy that results from its becoming technical*—and it is perhaps precisely this that defines the “pharmacological,” in other words, to have, in a Janus-like way, one face that is negentropic and another that is entropic—*each epoch of life implements new conditions of automatic repetition in which differences are produced*, differences that we generally relate to forms of autonomy, of the *psukhē* defined by Aristotle as having three types, and as self-movement in autopoiesis in the theory of enaction, and passing through thinking as dialogue with oneself according to Plato, or the conquest of majority [*Mündigkeit*] in the Kantian sense (Kant 1991, 54–60).

But to understand what we are, and to which we will have been under way for at least two million years, or four million, if we believe Leroi-Gourhan, and to understand it *correctly*, all this must be thought with the concepts of mineral, vital, and psychosocial individuation.

Psychosocial individuation is the *second epoch of automatism* (there is no mineral automatism, and this is why Canguilhem can claim that there are no mineral monsters: when life reproduces itself, it repeats life in an automatic way, but within vital reproduction, there can be deviations that we can call monstrous insofar as they do not automatically repeat the schema of the organic form that is reproducing itself—and this is what cannot happen to a crystal).

30 The advent of psychosocial individuation, however, will in turn eventually lead to a generalized industrial automatization founded on automation such as it began in the nineteenth century with that fact described by Andrew Ure (and cited by Marx 1973, 690–712<sup>2</sup>) as a “vast automaton.”

*A new epoch of psychic and collective individuation* thus emerges, which would take us into a process that would perhaps not be posthuman—because humanism, as the question of knowing what humanity is, is not a true question, if it is true that man is the one who individuates himself with technics such that he constantly *becomes other* and such that the human adopts the inhuman or *becomes inhuman as a result of failing to reach the point of humanness* and from *failing to adapt himself by individuating himself*, that is, from a failure to think and to realize this thought concretely—but rather an *inversion of exteriorization, where it becomes interiorization* such that this technical internalization seems to induce a psychic disinteriorization.

There is no exteriorization without interiorization—except in the case of proletarianization, the precise goal of which is to submit the proletarianized to an exteriorization of its knowledge without the need for reinternalizing what has been exteriorized. Today the evidence of neuroscience opens new vistas in relation to these questions. When we see how neuroeconomics “applies” this evidence, we can better grasp how significant are the stakes of what I believe we should describe as the age of generalized automatization.



The hyperindustrial societies that have grown out of the ruins of the industrial democracies constitute the third stage of completed proletarianization: after the loss of work-knowledge [*savoir-faire*] in the nineteenth century, then of life-knowledge [*savoir-vivre*] in the twentieth, there arises in the twenty-first century the age of the loss of theoretical knowledge—as if the cause of our being stunned was an *absolutely unthinkable* becoming.

With the *total automatization* made possible by digital technology, theories, those most sublime fruits of idealization and identification, are deemed obsolete—and along with them, scientific method itself. So at least we are told by Chris Anderson (2008) in “The End of Theory: The Data Deluge Makes the Scientific Method Obsolete.”<sup>3</sup>

Founded on the *self-production* of digital traces, and dominated by automatisms that exploit these traces, hyperindustrial societies are undergoing the proletarianization of theoretical knowledge, just as broadcasting analog traces via television resulted in the proletarianization of life-knowledge, and just as the submission of the body of the laborer to mechanical traces inscribed in machines resulted in the proletarianization of work-knowledge.

Just like written traces, in which Socrates already saw the risk of proletarianization contained in any exteriorization of knowledge (Stiegler 2010)—the apparent paradox being that *knowledge can be constituted only through its exteriorization*—digital, analog, and mechanical traces are what I call tertiary retentions.

Writing (whether ideographic, alphabetic, or digital) is a kind of tertiary retention. The brain is the site of secondary retentions, which are, in Husserl’s (1991) sense, memories of those perceptions that are woven together from what Husserl called “primary retentions.”

Retention refers to what is retained, through a mnesic function itself constituent of a consciousness, that is, of a psychic apparatus. Within this psychic retention, a secondary retention, which is the constitutive element of a mental state that is always based on memory, was originally a *primary* retention: by “primary” is meant that which is retained in the course of a *perception*, and through the *process* of this perception, but *in the present*, which means that primary retention is *not yet a memory*, even if it is *already* a retention. A primary retention is what, in the course of a present experience, is destined to become a secondary retention of somebody who has lived this experience that has become past—secondary because,

32 no longer being perceived, it is imprinted in the memory of the one who had the experience, and from which it may be reactivated.

But a retention, as the result of a flux and emerging from the temporal course of experience, may also become *tertiary*, through the spatialization in which consists the grammatization (and more generally, in which consists *any technical materialization process*) of the flow of retentions. This mental reality can thus be *projected onto a support that is neither cerebral nor psychic but rather technical*.

When Gilles Deleuze referred to what he called “control societies,” he was already heralding the arrival of the hyperindustrial age. The destructive capture of attention and desire is what occurs in and through those control societies described by Deleuze in terms of the noncoercive modulation exercised by television on consumers at the end of the twentieth century. These societies of control appear at the end of the consumerist epoch, and their effect is to make way for the transition to the hyperindustrial epoch.

In the automatic society that Deleuze was never to know, but which with Félix Guattari he anticipated (in particular, when they referred to *dividuals*; Deleuze 1995, 180), control passes through the mechanical liquidation of discernment, or in Greek, *to krinon*—from *krinein*, a verb that has the same root as *krisis*, “decision.” The discernment that Kant called “understanding” [*Verstand*] has been automatized as the *analytical* power delegated to algorithms and executed through sensors and actuators but outside of any intuition in the Kantian sense, that is, outside any experience (this being the situation that occupies the attention of Anderson 2008).



Almost a decade after the collapse of 2008, it is still not clear how best to characterize this *event*: as *crisis*, *mutation*, *metamorphosis*? All these terms are *metaphors*—they are not yet thinking. *Krisis*, which has a long history—in Hippocrates, it refers to a decisive turning point in the course of an illness—is also the origin of all critique, of all decision exercised by *to krinon* as the power to judge on the basis of criteria. *Mutation* is understood today primarily

in relation to biology—even if, in French, to be *muté* generally refers in everyday life to being transferred to another posting. And *metamorphosis* is a zoological term that comes from the Greek, by way of Ovid.

Approaching ten years since this event occurred, it seems that the *proletarianization of minds* and, more precisely, the *proletarianization of the noetic faculties of theorization*, and, in this sense, of *scientific, moral, aesthetic, and political deliberation*—combined with the proletarianization of sensibility and affect in the twentieth century, and with the proletarianization of the gestures of the worker in the nineteenth century—is both the *trigger for* and the *result of* this continuing “crisis.” As a result, no decisions are taken, and we fail to arrive at any turning point, any “bifurcation” (in Deleuze’s terms). In the meantime, all of the toxic aspects that lie at the origins of this crisis continue to be consolidated.

When a triggering factor is also an outcome, we find ourselves within a spiral. This spiral can be very fruitful and worthwhile, or it can enclose us—*absent new criteria*—in a vicious circle that we can then describe as a “downward spiral” that takes us from bad to worse.

I believe with Francis Jutand (2013, 9) that the *postlarval state* in which the 2008 crisis has been left implies that we should refer to it in terms of metamorphosis rather than mutation: what is going on here is not biological, even if biology comes into play via biotechnology, and, in certain respects, in an almost proletarianized way.<sup>4</sup> Human evolution is the result of an exosomatic organogenesis, as was shown by Alfred J. Lotka (1956) and Nicholas Georgescu-Roegen (1971). In the exosomatic form of life, what drives evolution (that is, organogenesis) is not biology but economics—as a process of artificial selection for which knowledge is the driver and the provider of the criteria of selection.

With the advent of the Industrial Revolution, which is also to say of the Anthropocene, exosomatization entered a stage in which knowledge was replaced by automation—beginning with the skills

34 of manual workers. In today's automated society, all forms of knowledge are being short-circuited by systems of digital tertiary retention operating four million times more quickly than the nervous system of the human noetic body.

Claiming that this is a metamorphosis—which can also be called “disruptive innovation”—does not mean that there is no *krisis* or that we need not take account of the critical labor for which it calls. It means that *this critical labor is precisely what this metamorphosis seems to render impossible*, thanks precisely to the fact that it consists *above all* in the proletarianization of theoretical knowledge, which is critical knowledge, in a world where today the digital reaches speeds of two hundred thousand kilometers per second, or two-thirds the speed of light, which is some four million times faster than the speed of nerve impulses. It is for this reason that I propose understanding the enduring nature of this crisis on the basis of the metaphor of the chrysalis, where it becomes a matter of how to transform the toxicity of the new exosomatic organs into new forms of knowledge.

The *stupefying situation* in which the current experience of automatic society consists establishes a new mental context (stupefaction) within which systemic stupidity undoubtedly proliferates (as functional stupidity, drive-based capitalism, and industrial populism), but where this also reflects the rise of a *new concern*—which, *if it is not turned into panic*, and instead becomes a fertile *skepsis*, could prove to be the *beginning of a new understanding of the situation*—and the genesis of new criteria, or categories: this amounts to the question of what I call *categorial invention*.

Digital technology—which, according to Clarence Herrenschildt, establishes the age of *reticular writing*—is based on the computer, which, more than anything, is an artificial organ of *automated categorization*, that is, it automatically produces digital tertiary retentions on the basis of other digital tertiary retentions. The automation of categorization makes it possible for *operations of analysis and understanding to be delegated to digital systems*.

Interpretation cannot be delegated to an analytical system of tertiary retentions: on the contrary, it always consists in *deciding between possibilities opened up by tertiary retentions*, but *these tertiary retentions are not themselves capable of choosing between*, however automated they may be—for here, *to choose means, precisely, to disautomatize*, that is, to create what Gilles Deleuze called a *bifurcation*.

In Kant, the difference between *analysis and synthesis* grounds the difference between *understanding and reason*. I have argued that analytical understanding is made possible by tertiary retentions insofar as they belong to a process of grammatization (such as the analysis of a written poem, an analysis made possible by writing), grammatization being the discretization, reproduction, and spatialization of temporal flows.

But *synthesis too* is made possible by analytic tertiary retentions: they *affect* the noetic psychic individual because, spatialized, they trace and make public potential conflicts of interpretation—pharmacological conflicts between peers that affect these noetic individuals. And these affects, the critical convergence of which is called *reason*, are *what trigger interpretations*. It is from this perspective that we should read Spinoza.

Through the process of transindividuation, the arbitration of these conflicts is “certified.” *Certification processes may themselves be either analytic or synthetic*—and in this case, they are elaborated on the basis of interpretations that result in *categorical inventions*. *Hermeneia* is in fact that which, through glosses and commentaries of all kinds, invents and generates new categories (whether analytic or synthetic) through which knowledge is transformed. New categories are certified when they are recognized by peers via analytic certifications that may on occasion be automated—whereas synthetic certifications, which result in categorical inventions that provoke bifurcations, can *never* be delegated to systems, precisely because they are processes of interpretation.

36 This new understanding or intelligence would be that which, inverting the toxic logic of the *pharmakon*, would give rise to a *new hyperindustrial age that would constitute an automatic society founded on deproletarianization*<sup>5</sup>—and which would provide an exit from the chrysalis of *noetic hymenoptera*<sup>6</sup>—that is, to a society based on the valorization of positive externalities and capacities (in Sen's sense): on a contributive economy of pollination (Stiegler 2016).



The proletarianization of the gestures of work amounts to the proletarianization of the conditions of the worker's *subsistence*.

The proletarianization of sensibility, of sensory life, and the proletarianization of social relations, all of which are replaced by conditioning, amounts to the proletarianization of the conditions of the citizen's *existence*.

The proletarianization of minds or spirits, that is, of the noetic faculties enabling theorization and deliberation, is the proletarianization of the conditions of scientific *consistence* (including the human and social sciences).

In the hyperindustrial stage, *hypercontrol* is established through a process of generalized automatization. This represents a step beyond the control-through-modulation discovered and analyzed by Deleuze (1995): now, the noetic faculties of theorization and deliberation are short-circuited by the *current operator of proletarianization*, which is *digital tertiary retention*—just as analog tertiary retention was in the twentieth century the operator of the proletarianization of life-knowledge, and just as mechanical tertiary retention was in the nineteenth century the operator of the proletarianization of work-knowledge.

By *artificially retaining something through the material and spatial copying of a mnemonic and temporal element*, tertiary retention modifies the relations between the psychic retentions of *perception* that Husserl (1991) referred to as *primary* retentions and the psychic retentions of *memory* that he called *secondary* retentions.



38 that is, a highly mimetic situation. It therefore amounts to a new form of *artificial crowd* in the sense Freud (1955, 124) gave to this expression.<sup>7</sup>

Ten years ago, I compared TV and radio programs and channels to the constitution of artificial and conventional crowds such as they were analyzed by Freud—for which he gives the examples of army and church.

The constitution of groups or crowds and the conditions under which they can pass into action were subjects analyzed by Gustave Le Bon, cited at length by Freud:

The most striking peculiarity presented by a psychological crowd [*Masse*] is the following. Whoever be the individuals that compose it, however like or unlike be their mode of life, their occupations, their character, or their intelligence, the fact that they have been transformed into a crowd puts them in possession of a sort of collective mind which makes them feel, think, and act in a manner quite different from that in which each individual of them would feel, think, and act were he in a state of isolation. There are certain ideas and feelings which do not come into being, or do not transform themselves into acts except in the case of individuals forming a crowd.

The psychological group is a provisional being formed of heterogeneous elements, which for a moment are combined, exactly as the cells which constitute a living body form by their reunion a new being which displays characteristics very different from those possessed by each of the cells singly. (Freud, quoted in Le Bon 1895, 72–73)<sup>8</sup>

On the basis of Le Bon's analyses, Freud showed that there are also "artificial" and "conventional" crowds, which he analyzes through the examples of the church and the army.

The program industries, too, however, also form, every single day, and specifically through the mass broadcast of programs, such

“artificial crowds.” The latter become, as masses (and Freud refers precisely to *Massenpsychologie*), the permanent, everyday mode of life in the industrial democracies, which are at the same time what I call industrial tele-cracies—wherein the process of identification with the leader becomes identification with movie stars and TV presenters.

Generated by digital tertiary retention, *connected* artificial crowds constitute the economy of “crowdsourcing,” which should be understood in multiple senses—one dimension of which would be the so-called cognitariat (Newfield 2010). To a large degree, Big Data is utilized by technologies that exploit the potential of crowdsourcing in its many forms, engineered by social networking and data science.

Through the network effect, through the artificial crowds that create (more than a billion psychic individuals on Facebook), and through the crowdsourcing that it can exploit through Big Data, it is possible

- *to generate the production and autocapture* by individuals of those tertiary retentions that are “personal data,” spatializing their psychosocial temporalities;
- *to intervene in the processes of transindividuation* that are woven between them by utilizing these “personal data” at the speed of light via circuits that are formed automatically and *performatively*;
- through these circuits, and through the collective secondary retentions that they form automatically, and no longer transindividually, *to intervene in return, almost immediately, on psychic secondary retentions*, which is also to say, on propensities, expectations, and, ultimately, personal behavior: it thus becomes possible to *remotely control, one by one*, the members of a network—this is so-called personalization.

The internet is a *pharmakon* that can thus become a technique for hypercontrol and social dis-integration. Without a new politics

40 of individuation, that is, without a formation of attention geared toward the specific tertiary retentions that make possible the new technical milieu, it will inevitably become an agent of dissociation.



The pharmacological character of the digital age has become more or less clear to those who belong to it, resulting in what I am calling “net blues”: the state of fact constituted by this new age of tertiary retention *has failed to provide a new state of law. On the contrary,* it has liquidated the rule of law as produced by the retentional systems of the bygone epoch. Property law, for example, has been directly challenged by activists through their practices in relation to free software, and through reflecting on the “commons,” including some young artists who are attempting to devise a new economic and political framework for their thinking.

These questions must, however, be seen as elements of an *epistemic* and *epistemological* transition from fact to law, a transition effected by referring canonically to apodictic experience—projecting law beyond fact. The passage from fact to law is first a matter of discovering *in facts* the *necessity of interpreting them*, that is, of projecting *beyond the facts* themselves, but also *on the basis of facts* that are not themselves self-sufficient—projecting them onto another plane toward which they beckon: that of a consistence through which and in which we must “believe.”

This other plane is that of negentropy. If we are now living in the Anthropocene, this state of fact is not sustainable: we must pass to a state of law in which negentropy becomes the criteria of every type of value, the value of value, and this is why we must enter into the Neganthropocene. This requires a neganthropology, that is, an economy of the *pharmakon* that is produced by the process of exosomatization, where the exosomatic organs are always both entropic and negentropic and where no biological law prescribes their arrangements.

In such a neganthropological situation, belief means the ability to project possibilities for bifurcation, in a system that is on the

way to becoming closed and requires a change that by itself the system cannot calculate. Such possibilities are those prescribed and certified by work-knowledge, life-knowledge, and conceptual knowledge, that is, by knowledge of how to live, do, and think.

Automatization is bringing with it a massive macroeconomic problem: the decline in purchasing power that results from rising unemployment. This situation requires new criteria for the redistribution of productivity gains. And we believe—at Ars Industrialis, and at the Institut de recherche et d'innovation, as we together develop a ten-year experiment with a region in the north of Paris, Plaine Commune<sup>9</sup>—that a genuinely contributory economy must be an economy of neganthropy based on a contributory income. This must be a conditional income that allows individuals to be paid to increase their capabilities, on the condition that they contribute to any kind of “neganthropic” enterprise, as has been the case in France for those working in the performing arts and the cinema.

This is so because in France, there is a scheme that indemnifies against unemployment those workers known as *intermittents du spectacle*. This scheme should become a model for a *law of work* in an economy of contribution, just as we believe that free software, *inasmuch as it is a challenge to the industrial division of labor*, should constitute a model for the *organization of work*. The widespread generalization of this organization of work requires a *contributory organology* that remains entirely to be developed<sup>10</sup>—in the first place, with the free software communities that have been around now for thirty years.

The scheme covering these occasional workers is even older: it was established in 1936 and has since been much transformed. It was threatened for the first time in 2003 and became the object of a struggle, in relation to which Antonella Corsani and Maurizio Lazzarato wrote in 2008,

It is in reality a struggle whose stakes are the employment of time. To the injunction to increase the time of employment, that is, the proportion of life occupied by

employment, the experience of intermittence opposes the multiplicity of the times of employment. (121)

In other words, the intermittence scheme completely rearranges employment and time, precisely by considering the *work of the "intermittent" as time outside employment*—as *capacitation* and individuation and hence as much more than just earnings and production. Corsani and Lazzarato therefore conclude that we must "interrogate the very category of 'work'":

If there is activity during periods of unemployment, but also during the time of so-called living, during the time called free, during the time of training, until it flows over into the time for rest, what then does work encompass, given that it contains a multiplicity of activities and heterogeneous temporalities? (121)

Amartya Sen (2000, xii) relates "capacitation" and "capability" to the development of freedom, which is to say, in the first place, *free time*, which he defines as always being both individual and collective:

We have to see individual freedom as a social commitment.

In this way, Sen remains faithful to both Kantian and Socratic perspectives. Capability constitutes the basis of economic dynamism and development, and it does so as freedom:

Expansion of freedom is viewed, in this approach, both as the primary end and as the principal means of development. (36)

Freedom, in Sen's definition, is therefore a form of agency: the power to act.

Sen's comparative example of the incapacitating effects of consumerism (that is, in his terms, of the indicators of affluence) is well known: the black residents of Harlem have a lower life expectancy



44 organology and on a pharmacology: the *pharmakon*, that is, technics in general as both poison and remedy, is the artifact and as such the condition of hominization, that is, an organogenesis of artifactual organs and organizations, but it always produces both entropy and negentropy, and hence it is always also a threat to hominization.

The problem raised by such a perspective on the future is to know how to *evaluate* or *measure* negentropy. Referred to as negative entropy by Erwin Schrödinger and as anti-entropy by Francis Bailly and Giuseppe Longo, negentropy is always defined in relation to an observer (see the work of Atlan 1979; Morin 1992)—that is, it is always described in relation to a *locality in time as well as in space that it, as such, produces*, and that it *differentiates* within a more or less homogeneous space (and this is why a neganthropology is always also a geography). What appears entropic from one angle is negentropic from another angle.

Knowledge, as work-knowledge (that is, knowledge of what to do so that *I do not myself collapse* and am not led into chaos), as life-knowledge (that is, knowledge that *enriches and individuates the social organization in which I live without destroying it*), and as conceptual knowledge (that is, *knowledge the inheritance of which occurs only by passing through its transformation, and which is transformed only by being reactivated* through a process of what Socrates called *anamnesis* [Plato 1961], a process that, in the West, structurally exceeds its locality)—knowledge, in all these forms, is *always a way of collectively defining what is negentropic in this or that field of human existence*.

What we call the *inhuman* is a denial of the negentropic possibilities of the human, that is, a denial of its noetic freedom and, as a result, its *agency*. What Sen describes as freedom and capability must be conceived from this cosmic perspective and related to Alfred Whitehead's "speculative cosmology" as constituting a negentropic potentiality—as the potential for *openness* of a *localized* system that, for that being we refer to as "human," may always once again

become closed. Or, in Whitehead's (1929, 18–19) terms, human beings may always relapse, decay into simpler forms, that is, become inhuman.

Today, in the Anthropocene, which with total automation is reaching a threshold of disruptiveness, the *context* of the task of thinking conceived as therapeutics is one in which automatisms of all kinds are being technologically integrated by digital automatisms. The unique and very specific aspect of this situation is the way that digital tertiary retention succeeds in totally rearranging the assemblages or montages of psychic and collective retentions and protentions. The challenge is to invert this situation by having an *ars* of hypercontrol instead reach toward a new idea of work as disautomatization, which would arise out of today's dis-integrating automatization.

*Translated by Daniel Ross*

## Notes

- 1 Stupefaction, which is not merely stupidity, but which is in general its cause, is the typical modality of our age, insofar as it is the age of disruptive innovation in the epoch of what, already in 1996, I referred to as *disorientation* (Stiegler 2009).
- 2 This is the so-called Fragment on Machines.
- 3 I argued in *What Makes Life Worth Living* (Stiegler 2013) that Alan Greenspan's defense when confronted with the failure of the financial system was already based on the argument that in an automated financial economy, it is no longer possible to theorize, and that from this, it followed that he had no responsibility to act after the series of economic catastrophes that were caused by the dogmas that he applied during the subprime era, from making Madoff chairman of NASDAQ to the decision not to rescue Lehman Brothers.
- 4 On this topic, see Stiegler (2013, chapter 7).
- 5 This refers to the possibility of deproletarianization through the socialization of factors that produce proletarianization and is the hypothesis that governs the new critique of political economy advocated by Ars Industrialis.
- 6 See the French Wikipedia entry on "hymenoptera": "The order hymenoptera includes herbivores, pollinators, and a wide range of entomophagous insects that play a central role in maintaining natural equilibrium. The entomophagous insects comprise the majority of parasitoids (43% of hymenoptera species that have been described) but also predators. The actual number of hymenoptera is estimated at somewhere between one and three million species, divided

- into a hundred families. Many species have not yet been described, or even discovered.”
- 7 Translation modified.
- 8 Translation modified.
- 9 See <http://recherchecontributive.org/>.
- 10 This will be the theme of the final chapter of Bernard Stiegler, *Automatic Society, Volume 2: The Future of Knowledge*. Concerning concepts derived from computer science, see Hui (2016).

## References

- Alvesson, Mats, and André Spicer. 2012. “A Stupidity-Based Theory of Organizations.” *Journal of Management Studies* 49: 1194–220.
- Anderson, Chris. 2008. “The End of Theory: The Data Deluge Makes the Scientific Method Obsolete.” *Wired*, June 23.
- Atlan, Henri. 1979. *Entre le cristal et la fumée*. Paris: Le Seuil.
- Bataille, Georges. 1988. *The Accursed Share: Vol. 1. Consumption*. New York: Zone.
- Berns, Thomas, and Antoinette Rouvroy. 2013. “Gouvernementalité algorithmique et perspectives d’émancipation.” *Réseaux* 1 (177): 163–96.
- Corsani, Antonella, and Maurizio Lazzarato. 2008. *Intermittents et précaires*. Paris: Amsterdam.
- Deleuze, Gilles. 1994. *Difference and Repetition*. London: Athlone.
- Deleuze, Gilles. 1995. “Postscript on Control Societies.” In *Negotiations*, 177–82. New York: Columbia University Press.
- Freud, Sigmund. 1955. “Group Psychology and the Analysis of the Ego.” *Standard Edition* 18: 65–144.
- Georgescu-Roegen, Nicholas. 1971. *The Entropy Law and the Economic Process*. Cambridge, Mass.: Harvard University Press.
- Herrenschmidt, Clarisse. 2007. *Les Trois Écritures: Langue, nombre, code*. Paris: Gallimard.
- Hui, Yuk. 2016. *On the Existence of Digital Objects*. Minneapolis: University of Minnesota Press.
- Husserl, Edmund. 1991. *On the Phenomenology of the Consciousness of Internal Time*. Dordrecht, Netherlands: Kluwer.
- Jutland, Francis. 2013. *La Métamorphose numérique: Vers une société de la connaissance et de la coopération*. Paris: Alternatives.
- Kant, Immanuel. 1991. “An Answer to the Question: ‘What Is Enlightenment?’” In *Political Writings*, 54–60. Cambridge: Cambridge University Press.
- Le Bon, Gustave. 1895. *Psychologie des foules*. Paris: Félix Alcan.
- Lotka, Alfred J. 1956. *Elements of Mathematical Biology*. New York: Dover.
- Marx, Karl. 1973. *Grundrisse: Foundations of the Critique of Political Economy (Rough Draft)*. London: Penguin.
- Morin, Edgar. 1992. *The Nature of Nature*. New York: Peter Lang.
- Newfield, Christopher. 2010. “The Structure and Silence of the Cognitariat.” *Eurozine*, February 5.

- Nusca, Andrew. 2010. "Kleiner Perkins' Doerr: Google, Facebook, Amazon, Apple the 'Four Great Horsemen of the Internet.'" *ZDNet*, May 24.
- Plato. 1961. *Meno*. Edited by R. S. Bluck. Cambridge: Cambridge University Press.
- Sen, Amartya. 2000. *Development as Freedom*. New York: Alfred A. Knopf.
- Smith, Adam. 1937. *An Inquiry into the Nature and Causes of the Wealth of Nations*. New York: Modern Library.
- Stiegler, Bernard. 2009. *Technics and Time 2: Disorientation*. Stanford, Calif.: Stanford University Press.
- Stiegler, Bernard. 2010. *For a New Critique of Political Economy*. Cambridge: Polity.
- Stiegler, Bernard. 2013. *What Makes Life Worth Living: On Pharmacology*. Cambridge: Polity.
- Stiegler, Bernard. 2016. *Automatic Society: Vol. 1. The Future of Work*. Cambridge: Polity.
- Whitehead, Alfred North. 1929. *The Function of Reason*. Princeton, N.J.: Princeton University Press.