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Memory

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BERNARD STIEGLER

Introduction by Mark B. N. Hansen

"The Internet age is one of hypomnesis constituting itself as an associated technical milieu." In his wide-ranging history of the concept of memory, Bernard Stiegler aims toward a moment—one that he suggests we are currently living—in which the "industrial model" of memory undergoes fundamental transformation. From Stiegler's vantage point, what is crucial about today's technical memory aids—iPods, smart phones, GPS navigators, and PDAs, not to mention the Internet—is their intimate articulation with anamnesis, a term Stiegler borrows from Plato and uses to designate the embodied act of remembering. Everything hinges on how hypomnesis, the technical exteriorization of memory, articulates with anamnesis, and Stiegler's history of memory can be understood as a history of the changing ecology of these terms. Today's computational technical memory aids—digital *hypomnemata*—differ from the industrial hypomnemata of technical recording (photography, phonography, cinematography) in that they create an "associated hypomnesic milieu" in which "receivers are placed in the position of senders." Rather than dissociating consumption from production, as did broadcast mass media (from phonography to global real-time television), today's microtechnologies and the social networking practices they facilitate connect them: if you can use these technologies to consume, Stiegler suggests, you can also use them to produce.

This is why Stiegler sees digital memory aids as instigators of an "ecology of associated hypomnesic milieus." And it is also why he thinks they have more in common with writing than they do with broadcast media like film and television. Just as the literate citizen learned to read and to write by embodying the practices of literacy through a more or less arduous process of formation, so too the digital citizen acquires facility in networked communication by embodying a procedural logic that views sending and receiving as symmetrical and coimplicated activities. In both cases, the payoff of the process of formation is a capacity to create, to use a standardized technicity for self-expression; this capacity, Stiegler suggests, stands in direct opposition

to the mode of passive reception endemic to the broadcast media. The new ecology of associated hypomnesic milieus that Stiegler calls for would accordingly inaugurate a new conjugation of technics and memory that would succeed *mnemotechniques* (the artificial storage of individual memories that characterizes hypomnesis from ideogrammatic writing to the print revolution) and *mnemotechnologies* (the embedding of memories within technological systems that systematically order memories according to their own logics). By renewing the possibility for self-expression, and hence for self-exteriorization, today's digital hypomnemata restore a positive dimension to our coevolution with technics. We might even say that they fuse mnemotechniques and mnemotechnologies, furnishing artificial supports for individual (and collective) memories that exist within and are nourished by a larger mnemotechnological milieu—the system of the Internet.

Stiegler's invocation of contemporary digital hypomnemata comes only at the end of a long interrogation of memory, and its constitutive relation to technics, in Western history. From his first book, *Technics and Time*, vol. 1, *The Fault of Epimetheus* (1994), to his latest work on Foucault's conception of "care" (*Prendre le soin*, vol. 1, 2008), Stiegler has concerned himself with the "essential" correlation of the human and technics. Drawing on the work of French paleontologist André Leroi-Gourhan, Stiegler interprets the coincidence of protohuman fossil remains and primitive flint tools to mean that the human is the species that evolves not simply genetically but extragenetically (or, as he puts it, *epiphylogenetically*, "by means other than life"): the human evolves by exteriorizing itself in tools, artifacts, language, and technical memory banks. Technology on this account is not something external and contingent, but rather an essential—indeed, *the* essential—dimension of the human. As Stiegler explains in his essay, this account of technics provides a necessary counterpart to that of Plato, which, despite its insight into the value of artificial memory (in the *Meno*), ultimately dismisses it as false (in the *Phaedrus*). It is this dismissal, Stiegler argues (following his teacher, Jacques Derrida), that informs the antipathy of Western philosophy to the theme of technics.

With respect to memory, this essential, protohistorical correlation of the human with technics appears in the form of "retentional finitude." It is because our memories are finite that we require artificial memory aids, and the ensuing ecology of "natural" and artificial memory, of anamnesis and hypomnesis, has, since its initial theorization by Plato, characterized the differing function and valuation of memory across our history. If we learn from Plato—or rather, from one side of Plato—that artificial memory is a *pharmakon*, a gift that is also a threat (since dependence on artificial memory makes the training of our own memory less imperative), we learn from Derrida that technical exteriorization or supplementation is an intrinsic,

irreducible dimension of the logic and function of memory as such. It is this technical contamination of memory that allows the latter to be historicized, split into distinct epochs of what Stiegler, following Derrida (and the linguist Sylvain Auroux), calls "grammatization": the exteriorization of memory in the form of discrete marks, traces, or *grammé* that forms the hypomnesic milieu for anamnesis. As Stiegler notes, these epochs include those of the stone tool, of ideogrammatic writing, of the alphabet, of analog and digital recording, and now of digitization and the Internet. As different historically specific configurations of anamnesis with technics, these epochs individually and collectively demonstrate that there is no memory that is not hypomnesic. This, again, is why everything hinges on how hypomnesis is articulated with anamnesis.

The dependence of memory on artificial aids makes the question of technology an irreducibly political question. As Stiegler puts it, the hypomnesic milieu can either be "associated" with or "dissociated" from anamnesis (the embodied act of memory). When they are associated with anamnesis, hypomnemata facilitate the deployment of memory in the constitution of meaningful symbolic practices and communal formations; by contrast, when they are dissociated from anamnesis, they advance the interests of the culture industries (Adorno and Horkheimer) and of "control societies" (Deleuze), which work to transform human beings into mere consumers, passive recipients of prepackaged and standardized commodities and media fluxes who have no hope of becoming producers. Put more simply, reliance on artificial memory aids makes us vulnerable to manipulation if the technologies of memory are controlled by industries intent on exploiting our desire for their gain; yet on the other hand (and in accordance with their *pharmacological* logic), these same memory aids hold the promise of expanding our capacity to produce meaning and to form communities open to the future (this is what Stiegler, following the philosopher Gilbert Simondon, means by "transindividuation"). Once again—and this comprises the fundamental message of Stiegler's complex and nuanced history of (technical) memory—everything hinges on how hypomnemata are articulated with anamnesis, and on the political struggles that must and can only be waged through the technologies that at once empower us and threaten our individual and collective agency.

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The Industrial Exteriorization of Memory

We have all had the experience of misplacing a memory-bearing object—a slip of paper, an annotated book, an agenda, a relic or fetish. We discover then that a part of ourselves, a part of our memory, is outside of

us. This material memory, which Hegel named objective, is partial.[1] But it constitutes the most precious part of human memory; in it the totality of the works of spirit (or mind), in all guises and aspects, takes shape. Following Plato—especially the Plato of *Phaedrus*—we call recollection through externalized memory *hypomnesis*.

To write a manuscript is to organize thoughts by externalizing them in the form of traces, that is, symbols whereby thoughts become repeatable, transmissible, *actual* objects of reflection: in short, knowledge. To sculpt, to paint, or to draw is to initiate an encounter with the tangibility of the visible, to see with one's hands while giving-to-be-seen; it is to train the eye of the beholder and, thus, to sculpt, paint, and draw this eye—to *transform* it.

Human memory is originally exteriorized, which means it is technical from the start. It took shape first as a lithic (or stone) tool, two million years ago. A spontaneous memory support, the lithic tool is not, however, made to store memory; not until the late Paleolithic period (before 10,000 BCE) do conscious methods of memory storage, properly called *mnemotechniques*, appear. Ideogrammatic writing, springing up after the Neolithic period, leads to the alphabet—which today still helps the business manager remember a meeting or a relative's birthday. Only now, the personal calendar is an apparatus—the personal digital assistant (PDA). It is no longer simply a method of memory storage, a mnemotechnique, but instead a full-fledged *mnemotechnology*, a technology that systematically orders memories.

Originally objectified and exteriorized, memory constantly expands technically as it extends the knowledge of mankind; its power simultaneously escapes our grasp and surpasses us, calling into question our psychical as well as our social organization. This is particularly apparent in the transition from mnemotechniques to mnemotechnologies—from individual exteriorizations of memory functions to large-scale technological systems or networks that organize memories. Today, memory has become the major element in industrial development; everyday objects increasingly serve as supports of objective memory and, consequently, as forms of knowledge. But the new *technological* forms of knowledge, objectified in equipment and apparatus, conversely engender a loss of knowledge at the very moment one begins speaking of "knowledge societies," "knowledge industries," and what has come to be known as "cognitive" or "cultural" capitalism. To the extent that participation in these new societies, in this new form of capitalism, takes place through machinic interfaces beyond the comprehension of participants, the gain in knowledge is exclusively on the side of producers.

We are in constant relation with mnemotechnological apparatuses of

all kinds, from televisions and telephones to computers and GPS navigation systems. These cognitive technologies, to which we consign a greater and greater part of our memory, cause us to lose ever-greater parts of our knowledge. To lose a cell phone is to lose the trace of the telephone numbers of our correspondents and to realize that they are no longer, or perhaps never were, in psychical memory but only in that of the apparatus. Faced with this situation, we must ask if the massive industrial development of mnemotechnologies does not in fact represent a systematic loss of memory, or, more precisely, a displacement of memory: a displacement that renders our memory the *object* of knowledge-control, that positions memory as the mnemotechnological system on which the control societies theorized by Gilles Deleuze operate.[2]

The Question of Hypomnesis

The backdrop of this hypothesis is an ancient concern in philosophy, which, as we have mentioned, was exposed by Plato as *hypomnesis*, and which Michel Foucault (1997) would reactivate as *hypomnémata*.

We exteriorize ever more cognitive functions in contemporary mnemotechnical equipment. And in so doing, we delegate more and more knowledge to apparatuses and to the service industries that network them, control them, formalize them, model them, and perhaps even destroy them. To the extent that they exceed our grasp, the forms of knowledge particular to these technologies lead toward an "obsolescence of the human"; in the face of their hegemony, we find ourselves more and more at a loss and internally empty.[3] Thus, the more the automobile is improved, the less we know how to drive. Eventually, the GPS driving assistant will replace the driver altogether; we will lose control over our own sensory-motor schema as such guidance becomes automatic, a formal element of the navigation system. The more we delegate the small tasks that make up the warp and woof of our lives to the apparatuses and services of modern industry, the more superfluous *we* will become: we will lose not only our know-how but also our knowing-how-to-live-well. The only thing left for us will be the passivity of blind consumption, devoid of knowledge and its rewards. We will become impotent if not obsolete—so long as knowledge is what empowers humanity.

Service economies supported by technologies formalize and manage our hyperindustrial era, which effectively restages what Plato describes as hypomnesis. If what we call industrialization, broadly conceived, is the generalization of a mnemotechnological reproducibility of the motor behavior of producers, *hyperindustrialization* is the generalization of

a mnemotechnological reproducibility of the motor behavior *of consumers*. Like the producer—who is rendered a "proletarian" as his gesture is reproduced and his know-how passed into the machine—the consumer is divested of knowing-how-to-live-well and, in the same stroke, de-individualized through hyperindustrialization.[4] The consumer, in short, becomes nothing more than an instance of purchasing power, which is to say of heedless consumerism, and thus an "agent" in the heedless destruction of the world.

In "Plato's Pharmacy," Jacques Derrida (1981) based a major part of his "deconstruction of metaphysics" on his reading of Plato's *Phaedrus*. Derrida showed how this dialogue poses a sophistic *hypomnesis* of writing against a philosophical *anamnesis*—a "recollection" or "reminiscence," which, for Plato, denotes an intelligible, necessary, and true form of knowing. Following his description, in *Of Grammatology*, of the trace as a logic of the supplement, he exposes and undermines Plato's attempt to *oppose* interior memory and its exterior traces: it is impossible, he shows, to oppose living memory to externalized, dead memory (*hypomnematon*) since externalized memory, as a supplement, constitutes living memory as knowable.[5] Consequently, Derrida argues, the static oppositions of Western metaphysics must be replaced by dynamic compositions: one must think in terms, not of hierarchies or totalizing systems, but of processes—in particular, the process Derrida theorizes as *différance*.[6]

For all that, it is clear that the exteriorization of memory, and the resulting loss of memory and knowledge that Socrates describes in the *Phaedrus*, is experienced today in our daily lives, in all the aspects of our existence, and, more and more often, in our feeling of powerlessness, if not impotence. And it is experienced, remarkably, at the exact moment when the extraordinary mnesic power of digital networks makes us all the more attuned to the immensity of human memory, which seems to have become infinitely reactivatible and accessible.[7]

This tension between our desire to resist the privileging of interior memory and the present experience of exteriorization as memory loss renders the question of hypomnesis a political one. What is at stake in hypomnesis is a combat: a combat for a politics of memory and, more precisely, for the constitution of *sustainable hypomnesic milieus*. Once it has reached the hyperindustrial stage, the exteriorization of memory and of knowledge at once furthers their limitless impact and strengthens the forces that can implement their control. Consider the cognitive and cultural industries of control societies that formalize neurochemical activity and the sequences of nucleotides: the inscription of the neurobiological substrates of memory and knowledge in the history of what

must be analyzed as a *process of grammatization*—the most recent stage of which is biotechnologies, with nanotechnologies soon to follow—patently raises the question of a biopolitics of memory.

Grammatization as "the History of the Supplement"

By grammatization, I mean the process whereby the currents and continuities shaping our lives become discrete elements. The history of human memory is the history of this process. Writing, as the breaking into discrete elements of the flux of speech (let us invent the word *discretization* for this possibility), is an example of a stage in the process of grammatization (see chapter 21, "Writing").

To rephrase Derrida's analysis of the trace as the logic of the supplement, there is no interiority that precedes exteriorization; rather, the interior as such is distinguished and configured in the very course of what paleontologist André Leroi-Gourhan describes as a process of exteriorization.[8] As Leroi-Gourhan explains, and as Derrida's analysis confirms, this configuring distinction is constantly displacing itself; in so doing, it continually sets up new relations between psychical individuals and collective ones—new processes of the formation of "psychical and social individuation," in the sense Gilbert Simondon (2007) confers to this expression when he stipulates that memory is the "associated milieu" of such individuation.[9]

With the advent of mnemotechnics, the process of exteriorization as technical becoming is concretized in a history of grammatization.[10] The process of grammatization as the *technical history of memory* is the process through which hypomnesic memory repeatedly relaunches the constitution of an anamnesic *tension of memory* exteriorized in the works of the spirit (or mind). In each case, anamnesis is made dependent on a specific regime of hypomnesic memory. In sum, each epoch of psychosocial individuation configures itself by means of its own form of discretization. This process of self-configuration is borne out by the epochs we have already considered: those of the lithic tool, the transition to ideogrammatic writing, the alphabet, and digitization.

With the Industrial Revolution, the process of grammatization suddenly surpassed the sphere of language, of *logos*, and came to invest the sphere of bodies. First of all, the gestures of producers were discretized in view of their automatic reproduction. At the same time, mechanical and apparatus-dependent reproducibilities of the visible and the audible—which so interested Benjamin—made their appearance and ushered in the age of mass media.[11]

This grammatization of gesture, which is the basis of what Marx de-

scribes as the process of proletarianization—of the loss of know-how—will continue with electronic and digital apparatuses to a point at which *all* forms of knowledge will be grammatized in the guise of cognitive mnemotechnologies. From linguistic knowledge—technologies and industries of language processing—to knowing-how-to-live or behavior in general, knowledge becomes discreticized through technologies and industries of language processing, user profiling, and the grammatization of affects; what results is the cognitive capitalism of today's hyperindustrial service economies.

Grammatization is the history of the exteriorization of memory in all its forms: nervous and cerebral memory, first linguistic, then auditory and visual; bodily and muscular memory; biogenetic memory. Thus exteriorized, memory becomes the object of sociopolitical and biopolitical channels of control; as a result of economic investments on the part of social organizations, psychical organizations get reconfigured as elements of and by means of mnemotechnical organs, including machine tools and other automata, including household equipment.[12] (Adam Smith analyzed as early as 1776 the effects of the machine on the mind of the worker.[13])

If we were to restage the question posed by the *Phaedrus* in the hyperindustrial epoch of the mnemotechnological object, we would discover that the question of hypomnesis constitutes the preliminary approach to proletarianization, insofar as the proletariat is an economic actor without memory and, so, without knowledge. Having relinquished that knowledge to the gesture-reproducing machine, but without any knowledge of its workings, the proletariat becomes a slave once again.

To examine the question of technical memory today is to again address hypomnesis, as both the question of the proletariat and that of a process of grammatization in which, now, it is the consumer who is deprived of memory and knowledge: it is to study the stage of a generalized proletarianization brought on by the generalization of hypomnesic technologies. The "truth" of Plato's *Phaedrus* would thus be found in Marx, provided two supplementary conclusions be drawn: First, that Marx himself does not identify the hypomnesic nature of technics and human existence, which means that he cannot think of human life as fundamentally exteriorized—as life by means other than life. And second, that Plato's inaugural struggle against sophistics over the question of memory and its technicization is the very heart of that political struggle which, from time immemorial, goes by the name of philosophy. The reevaluation of the scope of hypomnesis in Plato, as well as its deconstruction in Derrida, might then become the basis of a renewed political project of philosophy where the main stakes are in technics.

Human Memory as Epiphylogenesis

If philosophy begins with Plato, it becomes concretized in his battle with the sophists over the question of memory as mnemotechnics (hypomnesis, but also rhetoric and language technologies based on *logographics*). Philosophy's first question is memory, that is, knowledge conceived as anamnesis, and it is the process of grammatization that provokes the question. Grammatization is here constituted negatively, as Plato affirms anamnesis in reaction against the sophistic practice of hypomnesis in writing, which he defines as a technicization of linguistic memory that creates false knowledge (*Gorgias*).[14] Platonic philosophy apprehends technics in general as pseudoknowledge (which knows only contingent, sensible, and accidental becoming) and posits true knowledge as the knowledge of the necessary, that is, of intelligible essences of being qua immutability.

Grammatization is unthinkable in the context of the oppositions conceived by Plato on the basis of the polarization of anamnesis and hypomnesis: being versus becoming, the soul versus the body, intelligible thought in the immortal soul versus the sensible thought of the mortal body (the seat of the passions and the trap of the fall). All of these oppositions come down to the clash between *logos* and *technē*, rational formulae and technical knowledge. To oppose psychical living memory and technical dead memory is to generate this whole inductive series. Conversely, by rethinking memory as a process of grammatization in which living and dead compose without end, we are able to move beyond these oppositions bequeathed by Plato to Western philosophy.

Human archaeology and paleontology offer a way of responding to the Platonic opposition of anamnesis and hypomnesis with a theory of memory that views technicity as constitutive of life as ex-sistence, that is, as desire and as knowledge. On such a view, the process of becoming human can be characterized by the appearance of simultaneously hypomnesic and anamnesic *epiphylogenetic* memory: memory that is at once the product of individual epigenetic experience and the phylogenetic support for the accumulation of knowledge that constitutes the intergenerational cultural phylum.[15]

Let us review how, according to Leroi-Gourhan (1993), this epiphylogenetic memory emerged. *Zinjanthropus boisei*, a protohuman fossil, was first discovered in the Olduvai Gorge of northern Tanzania in 1959; the earliest specimen was found to be 1.75 million years old (later discoveries in the same region push the history of bipedal primates back to at least 3.6 million years ago). The creature would have weighed about thirty kilos and was a true biped, with an occipital hole perpendicular

to the top of its cranial box and rear limbs freed for mobility. Its limbs were destined to make tools and to express, that is, to *exteriorize*, and indeed, there is evidence of contemporaneous tool use. Based on these facts, Leroi-Gourhan (1993) argued that what constitutes the humanity of the human—the crucial break in the history of life—is the process of the exteriorization of the living. What had up to then been a crucial element of life, namely activities of predation and defense, passed outside the domain of the living: the struggle for life—or rather for existence—was no longer limited to the basic Darwinian scheme. Unique among the animals, the human alone conducts this struggle with nonbiological organs: the artificial organs of techniques. That is why we can now characterize the human struggle for existence as a spiritual one, a struggle that takes place in a domain other than the living.

Human life is no longer simply biological: it is a technical economy of desire sustained by hypomnesic technical milieus, symbolic milieus in which drives find themselves submitted to a principle of reality that requires the postponement of their satisfaction.[16] As a result of this symbolic mediation, an economy arises through which the energy of the drives is transformed into *libidinal* energy, that is, into desire and sublimation. Technical memory sustains this hallucinatory economy through the epiphylogenetic object, as fetish as well as support of narcissistic reflection.[17] Freud, whose theory of the unconscious is a theory of memory and its censorship, constantly circles around this question without being able to formalize it. Because he ignores the constitutive role of technics, his best efforts lead him into a position of neo-Lamarckism, where memory passes from one generation to another by altogether mysterious means.[18]

We owe to Leroi-Gourhan the thesis that technics is a vector of memory. He showed that a crucial biological differentiation of the cerebral cortex, the opening of the cortical fan, took place in the passage from what he called the Australanthropian to the Neanderthal. He also showed that, from the Neanderthal onward, the cortical system was practically at the end of its evolution: the neural equipment of the Neanderthal is remarkably similar to ours. Nevertheless, from the Neanderthal to us, technics evolves to an extraordinary extent. We may conclude from this that technical evolution no longer depends on biological evolution. Technical differentiation since the Neanderthal has occurred outside and independent of the biological dimension, the "interior milieu" in which, according to Claude Bernard, the constitutive elements of the organism thrive.[19] The process of exteriorization is in this respect the process of the constitution of *a third layer of memory*.

In the wake of the neo-Darwinism arising from molecular biology, and

also of the research conducted by Weismann in the late nineteenth century,[20] consensus has been that living sexuated beings are constituted by two memories, that of the species (the genome, which Weismann calls "the germ") and that of the individual—somatic memory, rooted in experience and located in the central nervous system. This latter memory has been observed in organisms as basic as freshwater snails and as proximate to us as the chimpanzee. But humans, and humans alone, have access to a third memory supported and constituted by technics. A piece of flint, for example, takes shape through the organization of inorganic matter: the technician's gesture ingrains an order transmitted via the inorganic, introducing for the first time in the history of life the possibility of transmitting individually acquired knowledge in a nonbiological way. This technical memory is epiphylogenetic; in it, individual epigenetic experience provides phylogenetic support for the intergenerational cultural phylum.

It is because his knowledge is a function of this primordial exteriority of memory that the slave boy Meno in Plato's dialogue of the same name draws the figure of a geometrical object in sand: to think his object, he must exteriorize it by organizing the inorganicity of the sand, which thus becomes the space and the support of the projection of a concept.[21] However mutable it may be, the sand that receives this inscription can conserve the characteristics of the figure more durably than can the mind of the slave boy. Because the boy's mind is essentially fluid, his thoughts are constantly passing away and effacing themselves; in a word, he is retentionally finite. His memory constantly snaps; his attention is drawn toward new ones; and he has a hard time "intentionalizing" the geometrical object—taking it in from the perspective of its organic identity, its necessity, its innermost essence, in sum, its *eidos* or form.

The drawing, as hypomnesic memory, is therefore indispensable to this potential philosopher, the slave boy, and to his passage into action, that is, his anamnesis. It constitutes a crutch for understanding, a space of intuition entirely produced by the gestures of the slave tracing in the sand the figured effects of this reasoning.[22] The sand holds "in view" the results of the slave's intuition and understanding; it thus facilitates the extension and construction of the geometrical proof. But the Platonic opposition between the intelligible and the sensible, between *logos* and *technē*, which became more insistent in the dialogues following the *Meno*, made this technical support literally impossible. As a result, Western metaphysics took shape as the denegation of the originary technicity of memory.

Epiphylogenesis, in becoming the process of grammatization, engenders mnemotechnics which, starting with the Industrial Revolution,

produced analog and digital mnemotechnologies; today, these latter are being reconfigured within microtechnologies, biotechnologies, and nanotechnologies.

From Writing to Digitalization

While technics in general constitute for mankind an originary milieu of epiphylogenetic memory, not all technologies are designed to store memory traces. A flint stone is designed to cut meat, to work up matter. It just happens that in addition, and spontaneously, it is also a vector of memory. It is, however, only in the course of the late Paleolithic era that mnemotechnics in the strict sense of the term appear on the epiphylogenetic horizon, in the form of mythograms—supports of ritual narratives—and tattoos on the bodies of sorcerers—the first instruments of calculation. And it is only in the Neolithic era that the conditions proper to grammatization as hypomnesis lead to the evolution of the letter, by way of the transformation of ideographic systems of numbering and the recording of the social memory of the great empires that emerged from agriculture and sedentarity.[23]

Strictly speaking, alphabetization constitutes the Greek city-state; it creates the conditions for communal living as the rules of life are exteriorized and objectified in the form of a written text accessible to all citizens. The political medium takes the form of collective memory, and historical society is born.

The Greek alphabet is a system of diacritical signs—fewer than thirty characters—which can be used by anyone in the role of reader or writer. Its use introduces the possibility of later generations' gaining literal access to what took place in the history of society and in thought. Even today, to read the *Meno* in the Greek of the Platonic era is to be placed in immediate relation with Plato's thought. Literal hypomnesis (the inscription of Plato's text) constitutes the materiality of Plato's thought, and of Western thought more generally: it is the alphabetical organization of access to memory. This is the conclusion reached by Husserl at the end of his life.[24]

The alphabet is the first mnemotechnique that is orthothetic in nature. *Orthotès* means exactitude, and *thesis* means position: alphabetical statements are "ortho-thetical" because they posit in exact spatial form the past time of the speech they record. Alphabetical writing is the *literal synthesis* of linguistic memory; as such, it configures a properly historical temporality.

At the end of the fifteenth century, the printing press, as the first mechanical technique of reproduction, amplified and transformed the ef-

fects of this synthesis. The sudden proliferation of books made it necessary for readers to look to new systems for navigating accumulated knowledge. These include library catalogs, indexes, and bibliographies, files made possible by the printed book's foliation, its pagination, its summaries, tables of contents, and glossaries. A process of teleguided reading thus began to take shape, through the implementation of techniques that underlie today's electronic editorial supports and random-access search systems. With the development of contemporary techniques of information processing, a veritable automatic activity of memory will, in the near future, accomplish the exteriorization of the functions of the cerebral cortex and, more globally, of the nervous system.

As Elizabeth Eisenstein has shown,the most important political consequence of the printing press was the Reformation.[25] The printing press made it possible for everyone to have personal access to the Bible translated by Luther into German. Max Weber has shown that the circulation of printed material made possible by the print revolution is also what allows, through the practice of calculation and the circulation of accounting registers, the advent of capitalism.[26]

The nineteeth century saw the development of analogic orthothetical mnemotechniques that enabled the synthesis of visual and aural perception. Like the alphabet, photography and phonography conserve and transmit, exactly, an element of the past—in this case, the light- and sound-wave frequencies produced by an object of perception are recorded via a technological hypommnesic apparatus. Just as I cannot doubt my access to the very thought of Plato when I read the *Phaedo* in the original Greek, when I listen to a recording of the voice of Sarah Bernhardt, my emotion stems from the certitude that I am hearing, not an image of what may have been her voice, but her voice itself. And likewise when I gaze at the face of Baudelaire photographed by Nadar.

These new orthotheses take up the mnesic function which up to then was assigned to sculpture, painting, monumental architecture, and the arts of memory studied by Frances Yates.[27] As a result, they can store and reconstitute more varied and more extensive elements of the past than those stored and reconstituted by the book. These orthotheses developed rapidly in the twentieth century in the form of cinematography, radio broadcasting, and television: this comprises the birth of what Adorno and Horkheimer named the "culture industry."[28] Broadcasted audiovisual temporal objects, which, as they flow by, coincide with the flowing consciousnesses to which they are addressed, form and condition the collective flow of masses of consciousnesses: in this way, they constitute audiences. Controlling the temporal flow of mass consciousness allows the culture industries to control behavior, for instance, to guarantee the consumption of

products that the process of permanent innovation (the principle underlying industrial production) constantly releases into the global market.

This power stems from the specificity of analog orthothetic recording, where, in contrast to the literal synthesis of linguistic memory, machines do the coding and decoding. This marks a fundamental shift in the economy linking creator and receiver: in the case of the literal synthesis, one cannot be a reader without being able to write; in the case of analog recording, one can—and typically does—receive audiovisual messages without having the ability to produce them oneself. Thus, industrialization—defined as the separation of producers and consumers—comes into being. Here we have an example that confirms just how fundamentally human memory, which is always both psychical and social, is a technical competency.

Analog orthothetic techniques create the possibility of an industry of audiovisual temporal objects that deploys mass channeling of attention and thereby wields undeniable economic as well as political power—literally a psycho-power. It extends the sway of biopower that Foucault attributed to the disciplinary society and inaugurates a new stage of grammatization—one that, for Adorno and Horkheimer, is tantamount to massive social regression.

In order to amortize the huge productive apparatuses constituted in the development of machinism, industry has since the beginning of the nineteenth century progressively installed a "society of consumption."[29] Such a regime is meant to address the problem posed by permanent innovation: the necessity to absorb new industrial productions for which society is not spontaneously prepared.[30] Industrial society presupposes the permanent modification of the behavior of individuals, who are less and less citizens and more and more consumers; the commodity has become the main operator of the socialization of individuals, and it is in this respect that the media are essential to industrial democracies. Media outlets are vectors conducting society toward the permanent adoption of consumable novelty by means of which capitalism subsists.

Ernest Renan has shown that every society is founded upon the adoption of a fictive past that effaces the differences in the origins of individuals and facilitates the identification of a common future through a politics of memory and forgetfulness.[31] Schooling is the hub of this process, instituting behavioral programs transmitted as knowledge in literal synthesis. For Pierre Nora, who has also studied the politics of education, the process of adoption involves the constitution of places of memory. This is why education has been radically transformed by the psycho-power developed by industrial society through its analog media: by replacing the institutions of programs—grammar schools, high schools, and univer-

sities—with the program industries, it effectively creates a new mechanism of adoption.

In the present era, however, this entire apparatus is redeployed to take advantage of the convergence of analog technologies of communication and digital technologies of the information industries. Digital orthothetic synthesis made its appearance during the second half of the twentieth century in the form of information processing; today, at the beginning of the twenty-first century, it takes form in electronic apparatuses of all kinds: video cameras, mobile telephones, and voice recorders that are no longer analog. Digital technologies arose out of information industries that themselves developed through the strategic commodification of information as stability; as that which allows us to orient ourselves in an ever-changing situation, information thus constitutes a new system of cardinality.

Memory and Information

The industrial economy of information becomes a reality starting in the nineteenth century. Charles Louis Havas prefigured the full-scale industrial apparatus for the exploitation of information when, in 1835, he exploited the then new telegraphic network to create the first press agency. To the extent that it is a commodity, information correlates time and value and thereby upsets historical time. As essential elements in the apparatus through which the mercantile production of memory becomes global and quotidian, networks of current events necessarily function at the speed of light. This is because the value of information as commodity drops precipitously with time (in contrast to that of knowledge, which remains constant or increases over time).

The industries of communication achieve ever greater sway by merging with the information industries. Mass broadcasting implies the concentration of the means of production: the cost of a televised image can be amortized only if it is broadcast to millions of spectators. Thus, relatively few images are needed to supply the global network of television stations that produces the raw material of memory by designating information as "eventful." What results from this selection process and near-instantaneous transmission of information is the industrial fabrication of the present: an event becomes an event—it literally takes place—only in being "covered." Industrial time is always at least coproduced by the media. "Coverage"—what is to be covered—is determined by criteria oriented toward producing surplus value. Mass broadcasting is a machine to produce ready-made ideas, "clichés." Information must be

"fresh" and this explains why the ideal for all news organs is the elimination of delay in transmission time.[32]

Information is transmitted at the speed of light. Analog and digital orthotheses make this possible, in contrast to the literal orthothesis, which implied a delay, an essential belatedness between what can be called the event (or its seizure) and its reception or reading. It is precisely at the level of the seizure of information and in its processing that the analogically or digitally in-formed event is submitted to the logic of light-time. Access to the networks or vectors of industrial memory requires the existence of entry and exit organs, called interfaces or terminals: the technical advances of photography rapidly lead to belinography,[33] then to cinematography, and finally to the live teletransmission of images, while the pairing of telegraphic and phonographic principles issue into the telephone, and then into live radio broadcasting. Just as the network of light-time does away with the belatedness between the seizure of an event and its reception by infinitesimally reducing the time of its transmission, so too does the analog or digital instrument eliminate all belatedness between the event and its seizure.

With an effect of the real (of presence) resulting from the coincidence of the event and its seizure and with the real-time or "live" transmission resulting from the coincidence of the event seized and its reception, a new experience of time, collective as well as individual, emerges. This new time betokens an exit from the properly historical epoch, insofar as the latter is defined by an essentially deferred time—that is, by a constitutive opposition, posited in principle, between the narrative and that which is narrated. This is why Pierre Nora can claim that the speed of transmission of analog and digital transmissions promotes "the immediate to historical status":

> Landing on the moon was the model of the modern event. Its condition remained live retransmission by Telstar. . . . What is proper to the modern event is that it implies an immediately public scene, always accompanied by the reporter-spectator or the spectator-reporter, who sees the event taking place. This "voyeurism" gives to current events both their specificity with regard to history and their already historical feel as immediately out of the past.[34]

In writing, the very medium of history, an event typically precedes its seizure, and the latter precedes its reception or reading. This configures the present-ation of the past as the retroactivity of an originary default, of a belatedness of the narrative and of the reception of the event with respect to the time of the event, which nevertheless constitutes itself

only in this delayed action. The time of relation, of "narrative," is always belated with respect to what is narrated, is always cited in being recited.

The daily and industrial fabrication of time by a press agency is not a mere account of the news: the current events industries are not satisfied with recording what happens, for then everything happening would have to be recorded. Rather, "what happens" happens only in *not* being everything, through its distinction from all the rest. Information has value only as the result of this hierarchization: only that which is "covered" attains the status of event. This is the plight of memory in general (and the theme of "Funes the Memorious" by Jorge Luis Borgès).[35] Memory must be a selection in the present, and its passing, its becoming past, is its diminution. But in the present account, the criteria of selection become industrial—and the selection takes place in real time, not through this work of time that is history, whether as *Historie* (the facticity of "what happened") or *Geschichte* (its meaning).[36]

The conservation of memory, of the memorable that is itself constituted through selection from within the memorizable, is always already its elaboration as well; it is never the mere reporting of what takes place. What takes place only takes place in not quite actually taking place. One memorizes only by forgetting, by effacing, by selecting what deserves to be retained from all that could have been retained; in the same vein, one memorizes only by anticipating, positively or negatively, that which could have happened (which means that retention is always already protention), and this remains the case despite Freud's insistence that such selection is also, at the psychological level, a repression.[37] The question for psychoanalytic theory is how psychological and social memory can be articulated, given that such articulation is the very condition for the constitution of the superego, at least as long as there is one. An essential aspect of the elimination of deferred time, which is to say, of the work of delayed action, is precisely that it sets off a process of desublimation and disindividuation brought on by the loss of knowledge in the era of industrial hypomnesis.

It can be said that the media coproduces that which takes place, here meaning that it produces its effects and so anticipates what will happen. There is nothing intrinsically novel about this situation: it is the very law of memory that it must precede itself. As a result, the past of the present is never situated behind it but has "always already preceded it" (as Heidegger says) without determining it. Nonetheless, something absolutely new happens when the conditions of memorization, that is, the criteria of effacement, selection, forgetting, anticipation, retention-protention—in a word, of temporalization—become concentrated in a technico-industrial machine whose finality is the production of surplus

value. In the wake of this development, what hegemonically rules the activity of memory is the imperative to gain time. Just as abstract, capitalizable money is nothing but the credit accorded the future in advance, so too is memory nothing but the future time of the mass audience. Industrial memory retention is ruled by the law of the audience as a source of credit, in all senses of the term. This law irresistibly predetermines the nature of events themselves: social "actors" anticipate the conditions of the recordability of their acts; their actions become a function of the constraints of this industrial surface of time. In this sense, the media is never satisfied with "coproducing" events. ever more often, they produce them through and through: 9/11 was precisely such a production.

There has today occurred a veritable inversion in the relation between life and media: the media now relates life each day with such force that this "relation" seems not only to anticipate but ineluctably to precede, that is, to determine, life itself. In the rivalry among the media, this relation has become drive-oriented—for such is the law of the sensational—and has promoted both the staging of terrorist acts and the ordinary pornography of television. What this means is that the media today destroys the superego as much as it preserves it, which is to say that it destroys the very condition for the transformation of drives into desire, that is, into social energy.

The Ecology of Hypomnesis: The Time of Associated Milieus

Unlike analog and digital orthotheses, literal synthesis presupposes that the receiver of a textual message is literate. The literal reader is herself an apparatus, "equipped" and independently able to access the content of a literal recording. Assuming that she has spent the number of years needed to instrumentalize, automatize, and machinize the functioning of her memory, the literal reader will have transformed herself, by and for herself, into an instrument of reading.

With analog and digital technologies, however, the functions of coding and decoding are delegated to machines. The video recorder "reads" the videotape and the computer "reads" the file. What is important here is not, however, the instrumentalization of memory, which has ample precedent, but the *displacement* of its initial instrumentality. This displacement fundamentally transforms memory, for with analog and digital technologies, sender and receiver no longer coincide with encoder and decoder. This transformation is obviously not without consequences for reading, which is to say for reading as well as writing memory: when collective memory becomes analog or digital, the relations between statements, the sender's and receiver's, are transformed to a consider-

able extent. These two poles correspond to what is found at the two extremities of a network: on one side, industrial producers; on the other, consumers.

If the continuous flow of information can cultivate an actual consumerism of memory, the reason lies as much in the delegation of reading and writing skills to machines as in the transformation of memory into a commodity; the latter would be impossible without the former. Such is the organization of the loss of knowledge in industrial hypomnesis: it operates by eliminating—or at least by appearing to eliminate—all opportunity for anamnesis. Hypomnesic milieus without anamnesis are dissociated milieus: they are industrially disorganized, desocialized and desymbolized. The exercise of industrial hypomneses imposes the rules and regulations of the industrial division of work on symbolic life as a whole. This industrialization of the symbolic produces a situation in which society is separated into producers and consumers of symbols. The result is the destruction of the symbolic as such.

A symbolic mnesic milieu is in its structure an associated milieu allowing for the constitution and expression of singularities. In interlocution—the very life of language—a receiver (one who listens, hears, and is destined to a language) is a receiver only to the extent that she can also assume the position of sender (that is, speaking what no one else could). In short, you cannot hear a language unless you are able to speak it, and to speak it in an utterly singular fashion. Language is in this respect consubstantially dialogical: speech as symbolic exchange constitutes a circuit wherein those who receive a symbolic address in the form of words render what they have received in the form of other words spoken to other receivers. In speaking they produce a process of individuation and thereby participate in the transformation of language itself.

This process of psychic and collective individuation requires that the linguistic milieu involve permanent interlocution, that is, the participation of everyone in its becoming. The speaker individuates herself—transforms herself and becomes what she is—through her statements, but these statements also contribute to the transformation of the language in which they are pronounced, precisely following the degree of individuation of the speaker. The psychic individuation of the speaker is in the same movement a collective individuation, constituting the shared language of the speakers who constitute themselves in speaking.

The life of language is in interlocution, and it is precisely interlocution that the audiovisual mass media short-circuit and destroy. The social milieus in which psychic existences individuate themselves and the groups through which they exchange and transform themselves exist in general milieus only to the extent that they are participative: the individuation

of the milieu takes place through the individuation of those living within it, and vice versa. Generally speaking, the service economy, of which the media are the main sector, deprives the psychical individual of all opportunity of participation in collective individuation. Because it is rooted in the short-circuiting of its users' knowledge by way of industrial hypomneses, the service economy effectively stunts the development of the individual's life milieu.

But at the end of the twentieth century, the Internet has profoundly modified this situation. Now that it has been integrated into a digital environment, audiovisual memory can be produced through participative technologies *that no longer impose the producer/consumer opposition*. That is why the Internet age is an age of hypomnesis constituting itself as an *associated* technical milieu. It marks the end of the era of dissociated milieus—the escape from milieus that separate the functions of producers and consumers, deprive both of their knowledge, and consequently strip their capacity to participate in the socialization of the world through its transformation.

Gilbert Simondon (1989) speaks of associated technical milieus in his analysis of the tide-propelled electrical power plant: the power plant as technical milieu is called "associated" because the technical object of which it is the milieu structurally and functionally associates the energies and natural elements composing this milieu, such that nature becomes a function of the technical system. This is the case of the Guimbal turbine, which assigns to saltwater (the natural element) a triple technical function: to furnish energy, to cool the structure of the turbine, and to catalyze the water-proofing of the stages.[38]

The era of digital networked hypomnemata inaugurates the industrial hypomnesic milieu, where the human element of geography is associated with the becoming of the technical milieu. The Internet makes possible a typical participative economy of free software and cooperative technologies—an associated hypomnesic milieu where the receivers are placed in the positions of senders. In that respect, it constitutes a new stage of grammatization that allows us to envisage a new economy of memory supporting an industrial model no longer based on dissociated milieus or on disindividuation. Industrial hypomnesic memory now comprises the very heart of contemporary societies, and it is striking to see objects of daily use become ever more closely linked to media by becoming communicative: iPods, smart phones, GPS navigators, and many other devices using micro- and nanotechnologies—all of these are hypomnesic objects.

Analog mass media imposed an industrial calendarity, with schedules and programs that also served as cardinalities, orienting us in the images

of the world through the hierarchization of news and of demographics. The demassification of media brought on by podcasting, personal media, and the suspension of the producer/consumer opposition constitutes a new age of memory in which memory once again becomes transindividual.[39] The catalyst for this new age is the liberation of hypomnesic memory from its industrial function. For if dissociation is what causes the short-circuiting of transindividuation, then the associated hypomnesic milieus of digital networks mark a crucial point of rupture: insofar as they are cooperative and participative, they can reconstitute the circuits necessary for transindividuation. Such a transformation, I want to suggest, requires a change of industrial model, a new economy of hypomnesis and anamnesis that underscores their fundamental complementarity. Cooperative digital technologies can be placed in the service of individuation, but only if the industrial politics of hypomnesis are implemented in the service of a new age of anamnesis. Let us conceive this new age as an ecology of associated hypomnesic milieus.

Notes

1. G. W. F. Hegel, *The Encyclopaedia Logic*, trans. T. F. Geraets, W. A. Suchting, and H. S. Harris (Indianapolis: Hackett, 1991).

2. Gilles Deleuze, "Control and Becoming" and "Postscript on Control Societies," in *Negotiations*, trans. M. Joughin (New York: Columbia University Press, 1995).

3. Gunther Anders, *L'obsolescence de l'homme* (Paris: Encyclopédie des nuisances, 2002).

4. According to Gilbert Simondon's reading of Marx, the passage of our know-how into the machine makes all of us, not simply the working class, proletarians. (Eds.)

5. Jacques Derrida, *Of Grammatology*, trans. Gayatri Chakravorty Spivak (Baltimore: Johns Hopkins University Press, 1998).

6. Jacques Derrida, *Writing and Difference*, trans. Alan Bass (Chicago: University of Chicago Press, 1980).

7. Stiegler's use of the term *reactivatible* is an indirect reference to Husserl's account of hypomnesic memory; the tradition of geometry, according to Husserl (1970), can be "reactivated" by future geometers only because it has been written down. (Eds.)

8. Derrida, *Of Grammatology*, 84.

9. A student of Maurice Merleau-Ponty and Georges Canguilhem, Simondon developed a theory of individuation that spanned processes from the physical through the biological to the psychic and collective. The central insight of his account is the fundamental incompletion of all processes of individuation, which, even as they produce concrete individuals, retain ties to two dimensions of exteriority: the preindividual and the associated milieu. Thus, in Stiegler's reference, we can gloss the associated milieu as an environment in which individuation takes place, a dimension external to the individual undergoing individuation. (Eds.)

10. This concept of grammatization is borrowed from an analysis of the history of language knowledge in Auroux 1992.

11. Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, ed. Hannah Arendt (New York: Schocken, 1969), 217–52.

12. The fundamentals of a general organology—that is, a theory of the articulation of bodily, artificial, and social organs—are set forth in Bernard Stiegler, *De la misère symbolique*, vol. 2, *La Catastrophè du sensible* (Paris: Galilée, 2004).

13. Adam Smith, *An Inquiry in the Nature and Causes of the Wealth of Nations* (Chicago: University of Chicago Press, 1977).

14. Plato, *Gorgias*, trans. Robin Waterfield (Oxford: Oxford University Press, 1994).

15. Stiegler introduces the term *epiphylogenesis* in *Technics and Time*, vol. 1, *The Fault of Epimetheus* (Stanford: Stanford University Press, 1996), to designate the evolution of (human) life by means other than life, that is, through technical exteriorization. This conception resonates with much contemporary work in the evolutionary cognitive sciences that emphasizes the role of culture in evolutionary processes. (Eds.)

16. On this point, see especially Bernard Stiegler, *Mécréance et discrédit*, vol. 3, *L'esprit perdu du capitalisme* (Paris: Galilée, 2006).

17. The "epiphylogenetic object" would be a technical object that supports epiphylogenesis, or extragenetic evolution. (Eds.)

18. This is particularly clear in Sigmund Freud, *Moses and Monotheism* (New York: Vintage, 1955) and *The Ego and the Id*, trans. James Strachey (New York: W. W. Norton, 1962).

19. Claude Bernard, *Leçons sur les propriétés physiologiques et les altérations pathologiques des liquides de l'organisme* (Paris: Ballière's, 1859).

20. August Weismann, *The Germ-Plasm: A Theory of Heredity* (New York: Scribner's, 1893).

21. Plato, *Meno and Other Dialogues*, trans. Robin Waterfield, (Oxford: Oxford University Press, 2005).

22. Bernard Stiegler, *La technique et le temps*, vol. 3, *Le temps du cinéma et la question du mal-être* (Paris: Galilée, 2001).

23. See Harold Innis, *Empire and Communications* (Lanham, MD: Rowman & Littlefield, 2007). (Eds.)

24. Husserl 1970. See Jacques Derrida, *Edmund Husserl's "Origin of Geometry": An Introduction* (Lincoln: University of Nebraska Press, 1989). (Eds.)

25. Elizabeth Eisenstein, *The Printing Press as Agent of Change: Communications and Cultural Transformations in Early Modern Europe* (New York: Cambridge University Press, 1979).

26. Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons (London: Routledge, 2001).

27. Frances Yates, *The Art of Memory* (Chicago: University of Chicago Press, 2001).

28. Theodor Adorno and Max Horkheimer, *The Dialectic of Enlightenment*, ed. Gunzelin Schmid Noerr, trans. Edmund Jephcott (Stanford, CA: Stanford University Press, 2002).

29. See Jean Baudrillard, *The Consumer Society: Myths and Structures* (London: Sage, 1988).

30. The *velocipède*, whose fabrication was entrusted to the Parisian Company of Bicycles, founded in 1867, could not have developed socially without print media. Five specialized journals came out between 1880 and 1900, while *Le Petit Journal*, a daily with a huge readership, ran its own promotional campaign, promoting competitions and finally the Tour de France, which continues to receive extensive media coverage. Before showing performances, the aim of these publications was to show future cyclists that rolling on two wheels without falling down is possible!

31. Ernest Renan, *Qu'est-ce qu'une Nation?* (Toronto: Tapir Press: 1996).

32. "Laurel? —Yeah? —Where did you put the newspaper? —Where it belongs. —You mean? —In the fridge . . . —And why in the fridge? —To have fresh news."

33. Invented by Édouard Belin in 1913, the Belinograph could capture pictures with a photocell and transmit them over regular telephone lines. (Eds.)

34. Jacques Le Goff and Pierre Nora, *Faire de l'histoire 2* (Paris: Gallimard, 1974), 295. Telstar, the first communication satellite to "serve as a relay for the transatlantic exchange of televised programmes," also impressed Heidegger. See his essay "Traditional Language and Technical Language," trans. W. Gregory, *Journal of Philosophical Research* 23 (1998).

35. Jorge Luis Borgès, "Funes the Memorious," *Labyrinths: Selected Stories and Other Writings*, (New York: New Directions, 1964).

36. In *Being and Time* (trans. J. Macquarrie and E. Robinson [New York: HarperOne, 2008]), Heidegger distinguishes *Historie*, which is concerned with the empirical question of occurrence, from *Geschichte*, which, linked to *Geschick* (fate), concerns the deeper significance or directionality of the past toward the future. (Eds.)

37. The terms *retention* and *protention* come from Edmund Husserl's exploration of the structure of time consciousness in *On the Phenomenology of the Consciousness of Internal Time*, trans. J. Brough (Dordrecht: Kluwer Academic Publishers, 1991). Retention names the "just-past" and protention names the "just-to-come," which both belong to the present now, or impression, and constitute it as a thick now. (Eds.)

38. The Guimbal turbine thus exemplifies the complementarity of the process of individuation (here a technical individuation) and the associated milieu of that individuation. Just as its operation renders nature "a function of the technical system," the operation of hypomnesic milieus render anamnesis a part of the larger mnemotechnological system of the Internet. (Eds.)

39. For Simondon, transindividuation comprises a collective individuation that requires first a disindividuation of individual (psychic) individuations and draws directly on the "preindividual," i.e., that which exceeds but nonetheless remains bound to any given process of individuation. Simondon theorizes transindividuation in *L'individuation psychique et collective* and correlates it with the functioning of technical objects in *Du mode d'existence des objets techniques*. Stiegler here suggests that the new digital hypomnesic milieus enable a collective individuation that does not take already individuated individuals as its starting point, but rather directly individuates the collective and sustains the ongoing individuation of this collective. (Eds.)

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